

# Handbook of Paper and Pulp Chemicals

Compiled by  
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Synapse Information Resources

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Published by  
Synapse Information Resources, Inc.  
1247 Taft Ave.  
Endicott, NY 13760

**Library of Congress Catalog**  
Card Number 00-193511  
ISBN Number 1-890595-28-4, 978-1-934764-51-0

**Printed in the U.S.A.**

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# Preface

Paper and pulp processing and additive chemicals represent a \$10 billion a year global industry. These chemicals are an integral part of the total papermaking process from pulp slurry, through sheet formation, to effluent disposal. Environmental concerns, increased use of recycled waste paper as a replacement for virgin pulp, changes in bleaching and pulping processes, increased efficiency requirements for the papermaking process, limits on effluent discharge as well as international competitiveness have greatly impacted the paper and pulp chemical additive market.

The *Handbook of Paper and Pulp Chemicals* is designed to function as a selection tool for papermaking additives at all points of the process. It centralizes information on currently available chemicals from the major manufacturers of these products by profiling both trade name and generic chemicals, detailing their properties, uses, use levels, regulatory status, toxicology, sources for purchase, etc.

This Handbook includes information on process additives that improve the operation of the paper machine (retention and drainage aids, biocides, dispersants, and defoamers); functional additives that improve the properties of the paper product (fillers, sizing agents, colorants and dyes, optical brighteners, and wet-strength and dry-strength additives), and effluent mitigating chemicals (sludge conditioners and wastewater antifoamers/defoamers).

This reference is organized so that the reader can access the information on paper chemicals based on the trade name, chemical composition, function and application area, manufacturer, CAS number, and EINECS/ELINCS number. It is divided into four parts and includes four important Appendixes:

## Part I

**Trade Name Reference** provides an alphabetical listing of almost 6000 trade name chemicals and materials that are used as part of the papermaking process. Each entry includes the manufacturer's name; chemical/material description; its detailed functions and applications in all aspects of industry; physical properties, such as form, molecular weight, density, solubility, boiling point, cloud point, flash point, pH, freezing point, activity; toxicology, storage, precautions, etc.

## Part II

**Chemical Component Cross-Reference** covers more than 2000 chemicals and materials that are contained in the trade name products profiled in Part I or generic chemicals that are not linked to trade names but are used in papermaking. Each entry contains information including the following: CAS (Chemical Abstract Service), EINECS/ELINCS (European Inventory of Existing Commercial Chemical Substances/Euro-

pean List of Notified Chemical Substances), and UN/DOT reference numbers, classification, definition, chemical synonyms, empirical and molecular formulas, properties, toxicology, precautions, storage, uses, use level, regulatory details, manufacturers and distributors. All chemical/material synonyms are cross-referenced back to the main entry. These entries are followed by a listing of the trade name products that are either equivalent to the monograph entry or contain it as one or more of its ingredients.

## Part III

**Functional/Application Index** is a powerful tool for locating the trade names and chemicals based on their function and/or industrial application area. By searching for key functional words such as dye, optical brightener, sizing agent, deposit control agent, water repellent, combined with a specific application area, such as coatings, furnishes, paper mill effluents, etc., the user is directed to the trade names and/or chemicals that have that specific functional/application attribute. The generic component names are distinguished from the trade names by italic type.

## Part IV

**Manufacturers Directory** contains detailed contact information for the more than 2400 worldwide manufacturers and their branches of trade name products and chemical components that are referenced in this handbook. Wherever possible, telephone, fax, toll-free numbers, e-mail and Internet addresses, and complete mailing addresses are included for each manufacturer.

## Appendixes

**CAS Number Index** contains CAS number entries followed by a listing of their trade name product and chemical equivalents in alphabetical order. The chemical name is in boldfaced type.

**EINECS/ELINCS Number Index** contains EINECS/ELINCS number entries followed by a listing of its trade name product and generic chemical equivalents in alphabetical order. The chemical name is in boldfaced type.

**FDA Regulatory Number Index** contains specific CFR section numbers followed by the list of trade names and chemicals/materials that have been approved as indirect food additives for paper and paper-board components.

**Glossary** contains definitions of terminology associated with paper and pulp additives and processing.

We are confident that those involved in any aspect of the paper and pulp industries will find this compendium an important addition to their refer-

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ence library. We are also pleased to provide this reference as an electronic product.

This reference is the culmination of many years of research, investigation of product sources acquired through personal contacts and correspondences with major chemical manufacturers worldwide, as well as

toxicological databases, chemical reference books, trade magazines and journals. We would especially like to express our gratitude to Roberta Dakan for her contribution to standardizing the entry format and managing the trade name and chemical database that represents the basis of this and future chemical references. Her untiring efforts have been instrumental in the production of this source book.

M. & I. Ash

**NOTE:**

The information contained in this reference is accurate to the best of our knowledge; however, no liability will be assumed by the publisher or the authors for the correctness or comprehensiveness of such information. The determination of the suitability of these products for prospective use is the responsibility of the user. It is herewith recommended that those who plan to use any of the products referenced seek the manufacturers instructions for the handling of that chemical.



# Contents

Preface	.....	vii
Abbreviations	.....	ix
Part I	Trade Name Reference .....	1
Part II	Chemical Component Cross-Reference .....	413
Part III	Functional/Application Index .....	747
Part IV	Manufacturers Directory .....	857
Appendixes	.....	929
Appendix I	CAS Number Index .....	931
Appendix II	EINECS/ELINCS Number Index .....	963
Appendix III	FDA Regulatory Number Index .....	979
	Glossary .....	997

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# Abbreviations

ABS	acrylonitrile-butadiene-styrene	brnsh.	brownish
abs.	absolute	BS	British Standards
absorp.	absorption	B/S	butadiene/styrene
ACGIH	American Conference of Governmental Industrial Hygienists	BSI	British Standards Institute
ACN	acrylonitrile	BSS	British Standard Sieve
act.	active	BSW	brown stock washer
ADI	acceptable daily intake (FAO/WHO)	Btu	British thermal unit
ADR	adverse drug reactions	B. U.	Brabender units (viscosity)
adsorp.	adsorption	byprod.	byproduct(s)
agric.	agricultural	C	degrees Centigrade
agrichem.	agrochemical(s)	CAA	Clean Air Act
agrochem.	agrochemical	CAB	cellulose acetate butyrate
a.i.	active ingredient	calcd.	calculated
AKD	alkyl ketene dimer	cap.	capillary
alc.	alcohol	CAS	Chemical Abstracts Service
Am., Amer.	American	CC	closed cup
amts.	amounts	cc	cubic centimeter(s)
anhyd.	anhydrous	CCl <sub>4</sub>	carbon tetrachloride
ANSI	American National Standards Institute	CD	completely denatured
AOX	adsorbable organic halogen	CDA	completely denatured alcohol
AP	alkyl phenol	CEL	corporate exposure limit
APE	alkyl phenol ethoxylate	CEPI	Confederation of European Paper Industries
APHA	American Public Health Association	CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act (U.S.)
applic(s).	application(s)	CFC	chlorofluorocarbon
aq.	aqueous	cfm	cubic feet per minute
ASA	acrylic-styrene-acrylonitrile; alkenyl succinic anhydride	CFR	Code of Federal Regulations (U.S.)
ASTM	American Society for Testing and Materials	CGW	chemi ground wood
ATH	alumina trihydrate	ch.	Chapter
atm	atmosphere	char.	characteristic, characterized
at.wt.	atomic weight	chel.	chelation
autoignit.	autoignition	chem(s).	chemical(s)
aux.	auxiliary	CI	Color Index
avail.	available	CIIR	chlorobutyl rubber
avg.	average	CIR	Cosmetic Ingredient Review
a.w.	atomic weight	cks	centistoke(s)
BATF	Bureau of Alcohol, Tobacco, and Firearms (U.S.)	cl	clear
BDG	butyl diglycol	CL	ceiling concentration
BGA	Federal Republic of Germany Health Dept. certification	cm	centimeter(s)
BHA	butylated hydroxyanisole	cm <sup>3</sup>	cubic centimeter(s)
BHT	butylated hydroxytoluene	CMC	carboxymethylcellulose
biochem.	biochemical	CMC	critical Micelle concentration
biodeg.	biodegradable	c.m.p.	capillary melting point
BKP	bleached kraft pulp	CNS	central nervous system
bldg.	building	CO	carbon monoxide
blk.	black	COC	Cleveland Open Cup
BMC	bulk molding compound	COD	chemical oxygen demand
BOD	biochemical oxygen demand	coeff.	coefficient
BP	British Pharmacopeia	COF	coefficient of friction
b.p.	boiling point	compat.	compatible
BR	butadiene rubbers, polybutadienes	compd(s).	compound(s)
B&R	Ball & Ring	compr.	compression
br., brn.	brown	conc(s).	concentrated, concentration
		conduct.	Conductive, conductivity
		const.	constant

contg.	containing	elec.	electrical
cosolv.	cosolvent	ELINCS	European List of Notified Chemical Substances
CP	Canadian Pharmacopeia	elong.	elongation
cp	centipoise(s)	EMI	electromagnetic interference
CPE	chlorinated polyethylene	EMS	electromagnetic shielding
CPPA	Canadian Pulp & Paper Association	ENB	5-ethylidene-2-norbornene
cps	centipoise(s)	EO	ethylene oxide
CPVC	chlorinated polyvinyl chloride	EP	European Pharmacopoeia
CR	chloroprene rubber, polychloroprene	EP	extreme pressure
cryst.	crystalline, crystallization	EPA	Environmental Protection Agency (U.S.)
cs	centistoke(s)	EPDM	ethylene-propylene-diene rubber, ethylene-propylene terpolymer
cSt	centistoke(s)	EPR	ethylene-propylene rubber
CTFA	Cosmetic, Toiletry and Fragrance Association	EPS	expandable polystyrene
ctks	centistoke(s)	equip.	equipment
CWA	Clean Water Act	equiv.	equivalent
cwt	hundred weight	ESCR	environmental stress crack resistance
DAB	Deutsche. Arzneibuch	ESD	electrostatic discharge
DAC	Deutscher Arzneimittel Codex (German Pharmacopoeia Codex)	ESO	epoxidized soybean oil
DAF	dissolved air flotation	ESP	electrostatic protection
dc	direct current	esp.	especially
D&C	Drugs & Cosmetics	EU	European Union
DCM	dissolved and colloidal materials	Eur.Ph.	European Pharmacopeia
DE	dextrose equivalent	EVA	ethylene vinyl acetate
DEA	diethanolamide, diethanolamine	exc.	excellent
dec.	decomposes	F	degrees Fahrenheit
decomp.	decomposition	FA	fatty acid
DEG	diethylene glycol	FAO	Food and Agriculture Organization (United Nations)
deliq.	deliquescent	FCC	Food Chemicals Codex
dens.	density	FDA	Food and Drug Administration (U.S.)
deriv(s).	derivative(s)	FD&C	Foods, Drugs, and Cosmetics
descrip.	description	FEMA	Flavor and Extract Manufacturers' Association (U.S.)
dg	decigram(s)	FEP	fluorinated ethylene propylene
DI	deionized	FFA	free fatty acid
diam.	diameter	FG	food grade
dielec.	dielectric	FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act (U.S. EPA)
dil.	dilute	FKM	fluoroelastomer
DIN	Deutsches Institut fuer Normung (German Standards Organization)	fl	fluid
DIP	deinked pulp	flamm.	flammable, flammability
disp.	dispersible, dispersion	flex.	flexural
dissip.	dissipation	f.p.	freezing point
dist.	distilled	FR	flame retardant
distort.	distortion	FR-ABS	flame retardant ABS
distrib.	distributor	FRP	fiberglass-reinforced plastics
dk.	dark	F-T	Fischer-Tropsch
DMF	dimethyl formamide	ft	foot, feet
DMF	Drug Master Files	f.w.	formula weight
D.O.	dissolved oxygen	G	giga
DOC	dissolved organic carbon	g	gram(s)
DOM	dissolved organic matter	gal	gallon(s)
DOP	dioctyl phthalate	g/d	gram/dyne
DOT	Department of Transportation (U.S.)	GFRP	glass fiber-reinforced plastic
DPG	diphenyl guanidine, dipropylene glycol	G-H	Gardner-Holdt
DSB	dry solids basis	GI	gastro-intestinal
DSI	Canadian Provisional Domestic Substance list	glac.	glacial
DTUL	deflection temperature under load	GLY	glycine
DVB	divinylbenzene	GMP	good manufacturing practice
DW	distilled water, deionized water	gpd	gallons per day
DWV	drainage, waste and vent	gpm	gallons per minute
eb, EB	electron beam	gpt	gallons per ton
EC	European Community	gr.	gravity
EC50	environmental concentration, 50%	gran.	granules, granular
ECF	elemental chlorine-free	GRAS	generally regarded as safe
EDTA	ethylenediamine tetraacetic acid	grn.	green
EE	epoxy equivalent	GRP	glass-reinforced plastics, glass-reinforced polyester
EEC	European Economic Community	GVS	Gardner varnish scale (color)
EED	environmental endocrine disrupter	GWP	ground wood pulp
EEW	epoxide equivalent weight	h	hour(s)
e.g.	for example	HAF	high abrasion furnace carbon black
EINECS	European Inventory of Existing Commercial Chemical Substances	HALS	hindered amine light stabilizer
		HAP's	hazardous air pollutants

HB	horizontal burning	lt.	light
HC	hydrocarbon	Ltd.	Limited
HCFC	hydrochlorofluorocarbon	LVP	low vapor pressure
HCl	hydrochloride, hydrochloric acid	LWC	light weight coated
HDPE	high-density polyethylene	M	mega
HDT	heat distortion (deflection) temp.	M	mole
HFC	hydrofluorocarbon	m	milli
Hg	mercury	m	meter(s)
HIPS	high-impact polystyrene	m-	meta
HLB	hydrophilic lipophilic balance	manuf.	manufacturer
HMIS	Hazardous Material Identification System	max.	maximum
hr	hour(s)	mbar	millibar
HVAC	Heating Ventilation and Air Conditioning	MCF	methyl chloroform
HVP	hydrolyzed vegetable protein	MCT	medium chain triglycerides
hyd.	hydroxyl	MD	machine direction, mold direction
hydrog.	hydrogenated	MEA	monoethanolamine, monoethanolamide
Hz	hertz	mech.	mechanical
IARC	International Agency for Research on Cancer (United Nations)	med.	medium
i.b.p.	initial boiling point	MEK	methyl ethyl ketone
IDLH	immediately dangerous to life and health	mfg.	manufacture
I&I	industrial and institutional	mg	milligram(s)
IR	isobutylene-isoprene rubber	MIBK	methyl isobutyl ketone
IM	intramuscular	microcryst.	microcrystalline
immisc.	immiscible	microgran.	microgranules, microgranular
in.	inch(es)	MID	Meat Inspection Division (USDA)
Inc.	Incorporated	MIL	Military Specifications
inc.	increases, increased	mil	$\frac{1}{1000}$ th inch
INCI	International Nomenclature Cosmetic Ingredient	min	minute(s)
incl.	including	min.	mineral
incompat.	incompatible	min.	minimum
incorp.	Incorporated, incorporation	MIPA	monoisopropanolamine, monoisopropanolamide
indent.	indentation	misc.	miscible, miscellaneous
ing.	ingestion	MITI	Japanese Inventory of Chemical Substances (list)
ingred(s).	ingredient(s)	mixt(s).	mixture(s)
inh.	inhalation	ml	milliliter(s)
inj.	injection	MLD	minimum lethal dose
inorg.	inorganic	mm	millimeter(s)
insol.	insoluble	MMW-HDPE	medium molecular weight high density polyethylene
Int'l.	International	mN	millinewton(s)
IP	intrapertoneal	mo, mos	month(s)
IPA	isopropyl alcohol	mod.	moderately
IPM	isopropyl myristate	mod.	modulus
IPP	isopropyl palmitate	monocl.	monoclinic
IR	isoprene rubber (synthetic), polyisoprene	MOW	mixed office waste
irreg.	irregular	m.p.	melting point
IU	International Unit	mPa-s	millipascal-second(s)
IV	intravenous	mppcf	million particles per cubic foot
J	joule	MRL	maximum residual limits
JCID	Japanese Cosmetic Ingredients Dictionary	MSDS	Material Safety Data Sheet
JP	Japanese Pharmacopoeia	MT	medium thermal
JSCI	Japanese Standard of Cosmetic Ingredients	mus	mouse
JSFA	Japan Standards for Food Additives	m.w.	molecular weight
k	kilo	MWC	medium weight coated
KB	Kauri-Butanol	N	normal
kg	kilogram(s)	nat.	natural
KTPP	potassium triphosphate	NB	nonbreaking
KU	Krebs units	N/B	nitrile-butadiene
l	liter(s)	NBR	nitrile rubber, nitrile-butadiene rubber
lb	pound(s)	NC	nitrocellulose
LC50	lethal concentration 50%	NCI	National Cancer Institute
LCLo	lethal concentration low	need.	needles
LD0	lethal dose 0%	neg.	negative
LD50	lethal dose 50%	neut.	neutral, neutralized
LDLo	lowest published lethal dose	NF	National Formulary
LDPE	low-density polyethylene	NFPA	National Fire Protection Association
LED	light-emitting diode	ng	nanogram
lel	lower explosive level	NIOSH	National Institute for Occupational Safety and Health (U.S.)
lg.	large	nm	nanometer
liq.	liquid	no.	number
LLDPE	linear low-density polyethylene	N <sub>2</sub> O	nitrous oxide
LOEL	lowest observed effect level	NOEL	no observed effect level

NOI	not otherwise indexed (U.S. DOT)	POM	polyoxymethylene
nonalc.	nonalcoholic	POP	polyoxypropylene, polyoxypropylated
nonaq.	nonaqueous	POP's	persistant organic pollutants
nonbiodeg.	nonbiodegradable	powd.	powder
nonflamm.	nonflammable	PP	polypropylene
nonyel.	nonyellowing	ppb	parts per billion
N.O.S.	not otherwise specified (transport regulations)	PPE	polyphenylene ether
NO <sub>x</sub>	nitrogen oxides	PPG	polypropylene glycol
NR	natural rubber, isoprene rubber (natural)	pph	parts per hundred (percent)
NSF	National Sanitation Foundation, National Standards Foundation	ppm	parts per million
NTP	National Toxicology Program (U.S.)	PPMAA	Pulp & Paper Manufactureing Association of Australia
NV	nonvolatiles	PPO	polyphenylene oxide
o-	ortho	PPS	polyphenylene sulfide
OBPA	oxybisphenoxarsine	ppt	parts per trillion
OC	open cup	pract.	practically
OCC	old corrugated container	prep(s).	preparation(s)
ODC	ozone-depleting compound	prod.	product(s), production
ODP	ozone-depletion potential	props.	properties
OEL	occupational exposure limit	PS	polystyrene
OEM	original equipment manufacturer	ps	poise
OMG	old magazine	psi	pounds per square inch
OMS	odorless mineral spirits	psia	pounds per square inch absolute
ONP	old newsprint	psig	pounds per square inch gauge
org.	organic	pt.	point
OSHA	Occupational Safety and Health Administration (U.S.)	Pt-Co	platinum-cobalt
OTC	over-the-counter	PTFE	polytetrafluoroethylene
o/w	oil-in-water	PTMEG	polytetramethylene ether glycol
oz	ounce	PU	polyurethane
p-	para	PUF	polyurethane foam
Pa	Pascal	PUR	polyurethane
PAPRICAN	Pulp & Paper Research Institute of Canada	PVA	polyvinyl alcohol
PAPRO	Pulp & Paper Research Organization	PVAc	polyvinyl acetate
PAPTAC	Pulp & Paper Technical Association of Canada	PVAL	polyvinyl alcohol
PBT	polybutylene terephthalate	PVB	polyvinyl butyral
pbw	parts by weight	PVC	polyvinyl chloride
P.C	polycarbonate	PVC-P	plasticized polyvinyl chloride
PCB	polychlorinated biphenyl	PVC-U	unplasticized polyvinyl chloride
pcf	pounds per cubic foot	PVDC, PVdC	polyvinylidene chloride
PCP	Pest Control Product Act, 1972 (Canada)	PVDF	polyvinylidene fluoride
PCTFE	polychlorotrifluoroethylene	PVM	polyvinyl methyl ether
PE	polyethylene	PVM/MA	polyvinyl methyl ether/maleic anhydride
PEEK	polyetheretherketone	PVP	polyvinylpyrrolidone
PEG	polyethylene glycol	qt	quart
PEK	polyetherketone	quat.	quaternary
PEL	permissible exposure level	R&B	Ring & Ball
perc	perchloroethylene	rbt	rabbit
percut.	percutaneous	RCF	recycled cellulose fiber
PES	polyether sulfone	RCRA	Resource Conservation and Recovery Act (U.S. EPA 40CFR §261)
PET	polyethylene terephthalate	R&D	research and development
petrol.	petroleum	rdsh.	reddish
PG	propylene glycol	rec.	recommended
pH	hydrogen-ion concentration	redsh.	reddish
Ph.	Pharmacopoeia	ref.	refractive
pharm.	pharmaceutical	reg.	registry
Ph.Eur.	European Pharmacopoeia	regs.	regulations
phr	parts per hundred of rubber or resin	REL	recommended exposure limit
PIB	polyisobutylene	rep.	represents
PIMA	Paper Industry Management Association	resist.	resistance, resistant, resistivity
PIN	product identification number	resp.	respectively
PITA	Paper Industry Technical Association	RFI	radio frequency interference
Pk	peak concentration	r.h.	relative humidity
pkg.	packaging	rhomb.	rhombic
pli	pounds per linear inch	RIM	reaction injection molded/molding
PM, P-M	Pensky-Martens	RO	reverse osmosis
PMCC	Pensky-Martens closed cup	rpm	revolutions per minute
PMMA	polymethyl methacrylate	RQ	reportable quantity
PMOC	Pensky-Martens open cup	R.T.	room temperature
PO	propylene oxide	RTECS	Registry of Toxic Effects of Chemical Substances (U.S.)
POC	particulate organic carbon	RTM	resin transfer molding
POE	polyoxyethylene, polyoxyethylated	RTV	room temperature vulcanizing
polyunsat.	polyunsaturated		

s	second(s)	TLV-TWA	Threshold Limit Value/time weighted average
s-	secondary	TMC	thick molding compound
SADT	self accelerating decomposition temp.	TOC	Tag open cup, total organic carbon
SAN	styrene-acrylonitrile	TPE	thermoplastic elastomer
SAP	super absorbent polymer	TPU	thermoplastic polyurethane
sapon.	saponification	TRI	Toxic Release Inventory
SARA	Superfund Amendments & Reauthorization Act (U.S.)	TSCA	Toxic Substances Control Act
sat.	saturated	tsp	teaspoon
S/B	styrene/butadiene	TSS	total suspended solids
SBK	semi bleached kraft	TWA	time weighted average
SBR	styrene/butadiene rubber	TWC	time weighted concentration
SBS	styrene-butadiene-styrene	typ.	typical
SCMP	semi chemical mechanical pulping	UBSK	unbleached softwood kraft
SD	specialty denatured	uel	upper explosive limits
SDA	specialty denatured alcohol	UF	urea formaldehyde
SE	self-emulsifying	UHF	ultra high frequency
SEBS	styrene-ethylene/butylene-styrene	UHMW	ultra high molecular weight
sec.	secondary	UHMWPE	ultra high molecular weight polyethylene
semicryst.	semicrystalline	UHT	ultra high temperature
semiliq.	semiliquid	UL	Underwriter's Laboratory
semisyn.	semisynthetic	UN No.	United Nations Substance Identification Number (for transport purposes)
sl.	slight, slightly	unsat.	unsaturated
sm.	small	UPVC	unplasticized polyvinyl chloride
SMA	styrene maleic anhydride	USDA	U.S. Department of Agriculture
SMC	sheet molding compound	USP	United States Pharmacopeia
SNAP	Significant New Alternative Policy (U.S. EPA)	uv, UV	ultraviolet
soften.	softening	V	volt
sol.	soluble, solubility	VA	vinyl acetate
solid.	solidification	VAE	vinyl acetate ethylene
sol'n.	solution	VC	vinyl chloride
solv(s).	solvent(s)	VdC, VDC	vinylidene chloride
sp.	specific	veg.	vegetable
spec.	specification, specialty	visc.	viscous, viscosity
SPF	sun protection factor	VM&P	Varnish Makers and Painters
spp.	non-specified species	VOC	volatile organic compounds
SS	stainless steel	vol.	volume
SSU	Saybolt Universal Seconds	v/v	volume by volume
std.	standard	wh.	white
STEL	short term exposure limit	WHMIS	Workplace Hazardous Materials Information System (Canada)
Stod.	Stoddard solvent	WHO	World Health Organization (United Nations)
STP	standard temperature and pressure	wks	weeks
str.	strength	w/o	water-in-oil
subcut.	subcutaneous	wt.	weight
subl.	sublimes	w/v	weight by volume
surf.	surface	w/w	weight by weight
SUS	Saybolt Universal Seconds	XLPE	crosslinked polyethylene
susp.	suspension	X-PE	crosslinked polyethylene
syn.	synthetic	yel.	yellow
t	tertiary	ylsh.	yellowish
TAPPI	Technical Association of the Pulp & Paper Industry	yr	year
TBHQ	tert-butyl hydroquinone	#	number
TCC	Tag closed cup	%	percent
TCF	totally chlorine-free	±	plus or minus
TCLo	toxic concentration low	<	less than
TDI	toluene diisocyanate	>	greater than
TDLo	toxic dose low	≤	less than or equal to
TDS	total dissolved solids	≥	greater than or equal to
TEA	triethanolamine, triethanolamide	@	at
tech.	technical	α	alpha
temp.	temperature	β	beta
tens.	tensile, tension	δ, Δ	delta
tert	tertiary	ε	epsilon
THF	tetrahydrofuran	γ	gamma
thru	through	ω	omega
TIPA	triisopropanolamine	μ	micron, micrometer
TKPP	tetrapotassium pyrophosphate	μg	microgram
TLV	Threshold Limit Value	≈	approximately equal to
TLV-CL	Threshold Limit Value/ceiling limit		
TLV-STEL	Threshold Limit Value/short term exposure limit		

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**Part I**  
**Trade Name Reference**

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# A

## Abalyn® [Hercules/Resins]

*Chem. Descrip.:* Methylrosinate

CAS 68186-14-1; EINECS/ELINCS 269-035-9

*Uses:* Softener, tackifier for NR, SBR, reclaimed rubber, chlorinated rubber, IIR, EVA, CR, polyisobutylene, PS; improves processing and pigment disp.; tackifier for cements; surf.-wetting properties; used in lacquers, inks, paper coatings, varnishes, adhesives, sealing compds., plastics, rubber, wood preservatives, and perfumes

*Properties:* Amber visc. liq.; sol. in esters, ketones, alcohols, ethers, petrol. hydrocarbons, and veg. and min. oils; water-insol.; sp.gr. 1.03; dens. 1.03 kg/l; visc. (G-H) Z1; b.p. 352-356 C; acid no. 6; sapon. no. 160; ref. index 1.5300; flash pt. (COC) 180 C

## Abex® 12S [Rhodia HPCII]

*Chem. Descrip.:* Sodium alkyl ether sulfate

*Uses:* Emulsifier for vinyl acetate, acrylates, methacrylates, styrene, butadiene polymerization for paper coatings, textile coatings, paints, adhesives, industrial coatings

*Properties:* Liq.; 30% act.; anionic

## Abex® 18S [Rhodia HPCII]

*Chem. Descrip.:* Proprietary/sodium

*Uses:* Detergent, emulsifier for polymerization of vinyl acetate, acrylates, styrene, butadiene; mineral oil emulsifier; rewetting agent; surfactant for paper coatings, textile coatings, paints, adhesives, industrial coatings, floor polishes; in food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; low foaming

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Gardner 2 clear liq.; dens. 8.5 lb/gal; visc. 1000 cps; cloud pt. 10 C (lower), > 100 C (upper); pH 7.5-8.5 (10%); surf. tens. 48 dynes/cm (1%); Draves wetting 45-50 s (0.1%); 35% act.; anionic

## Abex® 22S [Rhodia HPCII]

*Chem. Descrip.:* Proprietary/sodium

*Uses:* Detergent, emulsifier for use in polymerization of vinyl acetate and acrylates; mineral oil emulsifier; rewetting agent; surfactant for paper coatings, textile coatings, paints, adhesives, industrial coatings, floor polish, pigment binders; in food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; low foaming

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Pale yel. liq.; dens. 8.7 lb/gal; visc. 1000 cps; cloud pt. 23 C (lower), > 100 C (upper); pH 8 (10%); surf. tens. 55 dynes/cm (@ CMC); 25% solids; anionic

## Abex® 23S [Rhodia HPCII]

*Chem. Descrip.:* Sodium laureth sulfate

CAS 9004-82-4; EINECS/ELINCS 221-416-0

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene for paper coatings, textile coatings, paints, adhesives, industrial coatings

*Properties:* Liq.; surf. tens. 40 dynes/cm (@ CMC); 60% conc.; anionic

## Abex® 26S [Rhodia HPCII]

*Chem. Descrip.:* Sodium alkylaryl ethoxy sulfate

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene for paper coatings, textile coatings, paints, adhesives, industrial coatings; food pkg. adhesives; component in paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; BGA XIV compliance

*Properties:* Pale yel. liq.; dens. 8.8 lb/gal; visc. 100 cps; cloud pt. 10 C (lower), > 100 C (upper); pH 8 (10%); surf. tens. 55 dynes/cm (@ CMC); 33% solids; anionic

## Abex® 33S [Rhodia HPCII]

*Chem. Descrip.:* Sodium alkylaryl ethoxy sulfate

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene for paper coatings, textile coatings, paints, adhesives, industrial coatings; base for scrub soaps, rug shampoos, general detergent applics.; lime soap dispersant

*Properties:* Gardner 5 clear liq.; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 1500 cps max.; cloud pt. 20 C max.; pH 7.5-9.0 (10%); surf. tens. 37 dynes/cm (@ CMC); 26-28% act.; anionic

## Abex® 2005 [Rhodia HPCII]

*Chem. Descrip.:* Proprietary

*Uses:* Surfactant; emulsifier for latexes; steric and electrostatic stabilizer for emulsion polymerization; food pkg. adhesives; defoamer in food-contact paper coatings; APE-free; rec. for environmentally sensitive applics.

*Regulatory:* FDA 21CFR §175.105, 176.200; BGA XIV compliance

*Properties:* Liq.; surf. tens. 34.5 dynes/cm; 30% solids in water; anionic

## Abex® 2020 [Rhodia HPCII]

*Uses:* Emulsifier in vinyl acrylic, acrylic, and styrene acrylic latexes; food pkg. adhesives; in paper/paperboard in contact with dry food; low VOC; surfactant alternative for environmentally sensitive requirements

*Regulatory:* FDA 21CFR §175.105, 176.180; BGA XIV compliance

*Properties:* Liq.; surf. tens. 41.0 dynes/cm; 30% act.; anionic

*Environmental:* Biodeg.

## Abex® 2515 [Rhodia HPCII]

*Uses:* Emulsifier in vinyl acrylic, ethylene vinyl acetate, acrylic, and styrene acrylic copolymers; food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; low VOC; surfactant alternative for environmentally sensitive requirements

*Use Level:* 3-5% (sole emulsifier); 3% total emulsifier

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; BGA XIV compliance

*Properties:* Liq.; HLB 16.3; surf. tens. 38.0 dynes/cm; 50% act.; nonionic

*Environmental:* Biodeg.

## Abex® 2525 [Rhodia HPCII]

*Uses:* Emulsifier in vinyl acrylic, ethylene vinyl acetate, acrylic, and styrene acrylic copolymers; food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; low VOC; surfactant alternative for environmentally sensitive requirements

*Use Level:* 3-5% (sole emulsifier); 3% total emulsifier

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; BGA XIV compliance

*Properties:* Liq.; HLB 17.4; surf. tens. 43.5 dynes/cm; 50% act.; nonionic

*Environmental:* Biodeg.

## Abex® 2535 [Rhodia HPCII]

*Uses:* Emulsifier in vinyl acrylic, ethylene vinyl acetate, acrylic, and styrene acrylic copolymers; food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; low VOC; surfactant alternative for environmentally sensitive requirements

*Use Level:* 3-5% (sole emulsifier); 3% total emulsifier

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; BGA XIV compliance

*Properties:* Liq.; HLB 18; surf. tens. 45.1 dynes/cm; 50% act.; nonionic

*Environmental:* Biodeg.

## Abex® 2545 [Rhodia HPCII]

*Uses:* Emulsifier in vinyl acrylic, ethylene vinyl acetate, acrylic, and styrene acrylic copolymers; food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; low VOC; surfactant alternative for environmentally sensitive requirements

*Use Level:* 3-5% (sole emulsifier); 3% total emulsifier

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; BGA XIV compliance

*Properties:* Liq.; HLB 18.3; surf. tens. 45.5 dynes/cm; 50% act.; nonionic

*Environmental:* Biodeg.

**Abex® 3594** [Rhodia HPCII]

*Chem. Descrip.:* Aq. surfactant blend

*Uses:* Surfactant, emulsifier for latex or paper coatings, carpet backings, textiles, pressure-sensitive adhesives, esp. S/B, styrene/acrylic, and acrylic emulsion polymer systems; low color, mech. stability, low coagulum in latex systems; water resist.

*Properties:* Gardner 10 max. clear liq.; water-sol.; dens. 1.06 g/ml; visc. 30-100 cps; f.p. -1 C; flash pt. > 100 C; pH 7.8-8.8 (10%); surf. tens. 32 dynes/cm (@ CMC); 397.5-39.5% NV solids; anionic

**Abex® AAE-301** [Rhodia HPCII]

*Chem. Descrip.:* Sodium octylphenol ethoxy sulfate

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene for paper coatings, textile coatings, paints, adhesives, industrial coatings

*Properties:* Liq.; 20% conc.; anionic

**Abex® EP-100** [Rhodia HPCII]

*Chem. Descrip.:* Ammonium nonoxynol-4 sulfate

CAS 9051-57-4

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene, latex for adhesives, paints, paper coatings, textile, and industrial and architectural coatings; surfactant for mild light-duty liqs.; no VOC or alcohol

*Properties:* Gardner 3 max. clear to sl. cloudy liq.; sol. in water; sp.gr. 1.04; f.p. -2 C; flash pt. > 100 C; pH 6.5-7.5; surf. tens. 33 dynes/cm (@ CMC); 26-28% act.; anionic

**Abex® EP-110** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Ammonium nonoxynol-9 sulfate

CAS 9051-57-4

*Uses:* Primary emulsifier and stabilizer for vinyl acetate, vinyl acetate/acrylic, all acrylic, styrene/acrylic, and S/B emulsion copolymers; wetting agent, dispersant for agric. formulations; surfactant for adhesives, paints, paper, textiles, and industrial coatings; food pkg. adhesives; component of paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §175.105, 176.180; EPA compliance; BGA XIV compliance

*Properties:* Pale yel. liq.; sp.gr. 1.04; visc. 91.0 cks; pour pt. 0 C; surf. tens. 38.3 dynes/cm (1%); 30% act.; anionic

**Abex® EP-120** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Ammonium nonoxynol-30 sulfate

CAS 9051-57-4

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene for paints, adhesives, paper, textile, and industrial coatings; stabilizer; wetting agent, dispersant for agric. formulations; food pkg. adhesives, paper; provides mech. and freeze/thaw stability

*Regulatory:* FDA 21CFR §175.105, 176.180; BGA XIV compliance

*Properties:* Pale yel. liq.; sp.gr. 1.06; visc. 111 cks; pour pt. 8 C; surf. tens. 40 dynes/cm (1%); 30% solids; anionic

**Abex® EP-277** [Rhodia HPCII]

*Chem. Descrip.:* Sodium octylphenol ethoxy sulfate

CAS 69011-84-3

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylates, methacrylates, styrene, butadiene for adhesives, paints, paper, textile, and industrial coatings

*Properties:* Liq.; 30% conc.; anionic

**Abex® JKB** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Proprietary ammonium surfactant

*Uses:* Emulsifier for high-acid polymerization systems, highly carboxylated acrylic monomers, latexes for thickening, alkali-sol. resins, metalized floor finishes, textile sizing agents and hand modifiers; food pkg. adhesives, paper

*Regulatory:* FDA 21CFR §175.105, 176.170; BGA XIV compliance

*Properties:* Clear liq.; pH 6.5; surf. tens. 40 dynes/cm (@ CMC); 30% solids; anionic

**Abex® VA 50** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Octoxynol-33, sodium laureth sulfate

*Uses:* Surfactant, emulsifier for high solids vinyl acetate emulsions; food pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Pale yel. liq.; visc. 400 cps; f.p. 3 ± 2 C; cloud pt. none; pH 8 (10%); surf. tens. 44 dynes/cm (@ CMC); 46% solids; anionic

*Storage:* Protect from settling or freezing

**Abitol®-E** [Hercules]

*Chem. Descrip.:* Hydroabietyl alcohol

CAS 1333-89-7; EINECS/ELINCS 247-574-0

*Uses:* Plasticizer, tackifier for nat. and syn. rubber, nitrocellulose, plastics, lacquers, inks, and pressure-sensitive, emulsion, solv., and hot-melt adhesives; fixative for essential oils and aromatics in perfumes; chem. intermediate in prod. of oil-modified and oil-free alkyd resins, lubricating oil additives, nonionic surfactants; food-contact adhesives, paper/paperboard, rubber articles; defoamer in mfg. of food-contact paper/paperboard; good tack and adhesion; high m.w.; compat. with resins, film-formers, and oils; resist. to oxidation; reactive hydroxyl group; low volatility

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 177.2600

*Properties:* Colorless, tacky resin; mild pleasant odor; sol. in common org. solvs. incl. alcohols, esters, ketones, chlorinated solvs., aliphatic, aromatic or terpene hydrocarbons; insol. in water; sp.gr. 1.008; visc. 6500 mPa·s (50 C); acid no. 0.1; sapon. no. 26; ref. index 1.5236 (20 C); 83% act.

*Storage:* Maintain strict inventory control

**Abluhide LB660** [Taiwan Surf.]

*Chem. Descrip.:* Aromatic compd.

*Uses:* Surfactant used for mold prevention at various stages of leather and paper industry

**Ablunol NP9** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-9

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier for textile scouring, warp sizing, carbonizing and bleaching, household/industrial cleaners, paper, and leather industries; wetting agent in metal processing

*Properties:* Liq.; water-sol.; sp.gr. 1.05; HLB 12.9; cloud pt. 50-56 C; 100% act.; nonionic

**Ablunol NP30** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* Emulsifier for vinyl acetate and acrylate emulsion polymerizations, latex paints, floor finishes, paper coatings, textiles; stabilizer

*Properties:* Solid; sp.gr. 1.08 (50 C); HLB 17.1; cloud pt. 74 C (1% in 10% NaCl); 100% act.; nonionic

**Ablunol NP30 70%** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* Emulsifier for vinyl acetate and acrylate emulsion polymerizations, latex paints, floor finishes, paper coatings, textiles; stabilizer

*Properties:* Liq.; HLB 17.1; cloud pt. 74 C (1% in 10% NaCl); 70% act.; nonionic

**Ablunol NP40** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-40

CAS 9016-45-9

*Uses:* Emulsifier for vinyl acetate and acrylate emulsion polymerizations, latex paints, floor finishes, paper coatings, textiles; stabilizer

*Properties:* Solid; sp.gr. 1.08 (50 C); HLB 17.8; cloud pt. 76 C (1% in 10% NaCl); 100% act.; nonionic

**Ablunol NP40 70%** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-40

CAS 9016-45-9

*Uses:* Emulsifier for vinyl acetate and acrylate emulsion polymerizations, latex paints, floor finishes, paper coatings, textiles; stabilizer

*Properties:* Liq.; HLB 17.8; cloud pt. 76 C (1% in 10% NaCl); 70% act.; nonionic

**Ablunol NP50** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-50

CAS 9016-45-9

*Uses:* Emulsifier for vinyl acetate and acrylate emulsion polymerizations, latex paints, floor finishes, paper coatings, textiles; stabilizer

*Properties:* Solid; sp.gr. 1.08 (60 C); HLB 18.2; cloud pt. 76 C (1% in 10% NaCl); 100% act.; nonionic

**Ablunol NP50 70%** [Taiwan Surf.]

*Chem. Descrip.:* Nonoxynol-50

CAS 9016-45-9

*Uses:* Emulsifier for vinyl acetate and acrylate emulsion polymerizations, latex paints, floor finishes, paper coatings, textiles; stabilizer

*Properties:* Liq.; HLB 18.2; cloud pt. 76 C (1% in 10% NaCl); 70% act.; nonionic

**Ablupol AF** [Taiwan Surf.]

*Chem. Descrip.:* Mixt.

*Uses:* Antifoamer for coating color formulation of paper

**Ablupol D1101** [Taiwan Surf.]

*Chem. Descrip.:* Synergistic blend of surfactants

*Uses:* Surfactant; deinking agent for waste paper reproduction (flotation method)

**Ablupol FD101** [Taiwan Surf.]

*Chem. Descrip.:* Synergistic blend of surfactants

*Uses:* Surfactant; felt detergent for paper machines

**Ablupol PD100** [Taiwan Surf.]

*Chem. Descrip.:* Cationic and nonionic surfactant

*Uses:* Surfactant, debonder, and softener for tissue paper

**Ablusol PD100** [Taiwan Surf.]

*Uses:* Surfactant; debonder and softener for tissue paper

*Properties:* Cationic/nonionic

**Ablusol SEP40** [Taiwan Surf.]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Surfactant; dispersant for paper coating

*Properties:* Anionic

**Abscents® 1000** [UOP]

*Chem. Descrip.:* Organophilic molecular sieve (sodium aluminosilicate)

CAS 1318-02-1; EINECS/ELINCS 215-283-8

*Uses:* Odor adsorbent for odor control for feminine protection prods., baby diapers, body or foot powds., deodorants, nonwoven wipes, ostomy prods., adult incontinence prods.; removes ammonia or amine odors in presence of variety of other odor compds.

*Regulatory:* FDA 21CFR §174.5 (d)(1); DOT nonregulated SARA; §313 nonreportable

*Properties:* Wh. dry powd.; odorless; 3.5-5.5  $\mu$  avg. particle size; insol. in water or org. solvs.; bulk dens. 25 lb/ft<sup>3</sup> (poured); surf. area > 500 m<sup>2</sup>/g; pH 4-5 (10%)

*Toxicology:* TSCA listed

*Environmental:* Nonbiodeg.

HMS: Health 0; Flammability 0; Reactivity 0

*Storage:* Store tightly closed

**Abscents® 2000** [UOP]

*Chem. Descrip.:* Organophilic molecular sieve (sodium aluminosilicate)

CAS 1318-02-1; EINECS/ELINCS 215-283-8

*Uses:* Hypo-allergenic deodorizing powd. for odor control in unscented personal care prods. (feminine protection, diapers, body/foot powds., deodorants, nonwoven wipes, ostomy prods.); attracts odors and traps them tightly within its porous structure

*Regulatory:* FDA 21CFR §174.5 (d)(1); DOT nonregulated; SARA §313 nonreportable

*Properties:* Wh. dry powd.; odorless; sl. sol. in water; sp.gr. 2.0; pH 4-10 (aq. slurry)

*Toxicology:* TSCA listed

*Environmental:* Nonbiodeg.

HMS: Health 0; Flammability 0; Reactivity 0

*Storage:* Store tightly closed

**Abscents® 3000** [UOP]

*Chem. Descrip.:* Organophilic molecular sieve (sodium aluminosilicate)

CAS 1318-02-1; EINECS/ELINCS 215-283-8

*Uses:* Polymer additive for adsorbing low m.w. organics such as aliphatics, alcohols, aldehydes, ketones, chlorinated hydrocarbons, org. acids, and aromatics for use in adhesives, coatings, and polymers; component of food pkg. materials; food-grade; rec. for use with reactive compds. like aldehydes and ketones

*Regulatory:* FDA GRAS; DOT nonregulated; SARA §313 nonreportable

*Properties:* Wh. dry powd.; odorless; 3  $\mu$  avg. particle size; insol. in water or org. solvs.; surf. area > 400 m<sup>2</sup>/g; pH 9-10 (10%)

*Toxicology:* TSCA listed

*Environmental:* Nonbiodeg.

HMS: Health 0; Flammability 0; Reactivity 0

*Storage:* Store tightly closed

**A-C® 6** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in adhesives, ink, floor finishes, paper coatings, personal care, plastics, rubber, textiles, wax blends, solv.-based polishes, inks, paints, and lacquers; defoamer in food-contact coatings, paper; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Wh. waxy prills, powd., char. waxy odor; negligible sol. in water; dens. 0.92 g/cc; visc. 375 cps (140 C); drop pt. 106 C; acid no. nil; flash pt. (COC) 307 C; hardness 4.0 dmm

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m<sup>3</sup> (respirable dust), 15 mg/m<sup>3</sup> (total dust) recommended

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**A-C® 6A** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in adhesives, inks, floor finishes, paper coatings, personal care, plastics, rubber, textiles, and wax blends; matting, anticaking flow additive providing surf. props. for powd. coatings; defoamer; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Wh. waxy prills, powd., char. waxy odor; negligible sol. in water; dens. 0.92 g/cc; visc. 375 cps (140 C); drop pt. 106 C; acid no. nil; flash pt. > 231 C; hardness 4.0 dmm

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m<sup>3</sup> (respirable dust), 15 mg/m<sup>3</sup> (total dust) recommended

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**A-C® 7** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Processing lubricant; melt index modifier; pigment dispersant; mold release aid; external lubricant for PVC, color concs., polyolefin flow modifiers; thickener for cosmetic and pharmaceutical gels; solv.-based polishes, inks, paints, and lacquers; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Prills, powd.; sol. in hot min. oil and fatty esters; dens. 0.92 g/cc; visc. 450 cps (140 C); drop pt. 109 C; acid no. nil; flash pt. (COC) 304 C; hardness 2.5 dmm

**A-C® 7A** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Processing lubricant; melt index modifier; pigment dispersant; mold release aid; external lubricant for PVC, color concs., polyolefin flow modifiers; thickener for cosmetic and pharmaceutical gels; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Prills, powd.; sol. in hot min. oil and fatty esters; dens. 0.92 g/cc; visc. 450 cps (140 C); drop pt. 109 C; acid no. nil; hardness 2.5 dmm

**A-C® 8** [Honeywell Spec. Chems.]



*Chem. Descrip.:* Polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; processing lubricant; melt index modifier; pigment dispersant; mold release aid; emollient; heat stabilizer; external lubricant for PVC, color concs., polyolefin flow modifiers; in polishes, inks, paints, lacquers; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Prills, powd.; dens. 0.93 g/cc; visc. 400 cps (140 C); drop. pt. 116 C; acid no. nil; flash pt. (COC) 307 C; hardness 1.0 dmm

#### A-C® 8A [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Matting, anticaking flow additive which enhances powd. coating performance; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; processing lubricant; melt index modifier; pigment dispersant; mold release aid; external lubricant for PVC, color concs., polyolefin flow modifiers; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Powd., dens. 0.93 g/cc; visc. 450 cps (140 C); drop pt. 113 C (Mettler); acid no. nil; hardness 1.0 dmm

#### A-C® 9, 9A, 9F [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; processing lubricant; melt index modifier; pigment dispersant; mold release aid; external lubricant for PVC, color concs., polyolefin flow modifiers; additive in paints; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Prills, powd., fine powd.; avg. particle size 220 µ (9A), 110 µ (9F); dens. 0.94 g/cc; visc. 450 cps (140 C); drop. pt. 117 C; acid no. nil; flash pt. (COC) 318 C (A-C 9); hardness 0.5 dmm

#### A-C® 15 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in inks, personal care prods., adhesives, coatings, plastics, paper, rubber, textiles; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Prills; dens. 0.93 g/cc; visc. 125 cps (140 C); drop pt. 109 C; acid no. nil; hardness 2.5 dmm

#### A-C® 16 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; additive for plastics, rubber, adhesives, coatings, inks, paper, polishes, textiles; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Prills; dens. 0.91 g/cc; visc. 525 cps (140 C); drop. pt. 102 C; acid no. nil; hardness 5.5 dmm

#### A-C® 316 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized HDPE homopolymer  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for ink, floor finishes, personal care, plastics, rubber, textiles, wax blends; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1620, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Gran., powd.; dens. 0.98 g/cc; visc. 8500 cps (150 C); drop pt. 140 C; acid no. 16; hardness < 0.5 dmm

#### A-C® 316A [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized HDPE homopolymer  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for ink, floor finishes, personal care, plastics, rubber, textiles, wax blends; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1620, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Gran., powd.; dens. 0.98 g/cc; visc. 8500 cps (150 C); drop pt. 140 C; acid no. 16; hardness < 0.5 dmm

#### A-C® 325 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized HDPE  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for polishes, finishes, emulsions, adhesives, coatings, inks, plastics, rubber, textiles; food pkg. adhesives, paper/paperboard, textiles; defoamer in food-contact coatings/paper; heel-mark resistance and compatibility

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Gran.; sp.gr. 0.99; visc. 4400 cps (150 C); drop pt. 136 C; acid no. 25; hardness < 0.5 dmm

#### A-C® 330 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized HDPE  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for polishes, finishes, emulsions, adhesives, coatings, plastics, rubber, textiles; food pkg. adhesives, paper/paperboard, textiles; defoamer in food-contact coatings/paper; heel-mark resistance and compatibility

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Gran.; sp.gr. 0.99; visc. 3600 cps (150 C); drop pt. 137 C; acid no. 30; hardness < 0.5 dmm

#### A-C® 392 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized HDPE  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for polishes, finishes, emulsions, adhesives, coatings, plastics, rubber, textiles; food pkg. adhesives, paper/paperboard, textiles; defoamer in food-contact coatings/paper; heel-mark resistance and compatibility

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Gran.; sp.gr. 0.99; visc. 4500 cps (150 C); drop pt. 138 C; acid no. 30; flash pt. (COC) 293 C; hardness < 0.5 dmm

#### A-C® 395, 395A [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized HDPE homopolymer  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in inks, personal care prods., adhesives, coatings, plastics, rubber, textiles; food pkg. adhesives, paper/paperboard, textiles; defoamer in food-contact coatings/paper

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Gran.; dens. 1.00 g/cc; visc. 2500 cps (150 C); drop pt. 137 C; acid no. 41; hardness < 0.5 dmm

#### A-C® 400 [Honeywell Spec. Chems.]

*Chem. Descrip.:* Ethylene/VA copolymer  
CAS 24937-78-8

*Uses:* Additive wax for use in adhesives, inks, coatings, personal care, wax blends, plastics, rubber, textiles; gellant for oils in personal care prods.; film-

former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

**Properties:** Prills, powd.; dens. 0.92 g/cc; visc. 575 cps (140 C); drop pt. 92 C; flash pt. (COC) 296 C; hardness 9.5 dmm; 13% VA

**A-C® 400A** [Honeywell Spec. Chems.]

**Chem. Descrip.:** Low m.w. EVA copolymer  
CAS 24937-78-8

**Uses:** Wax additive for use in adhesives, inks, personal care prods., wax blends; pigment dispersant; PS color concs.; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

**Properties:** Prills, powd.; dens. 0.92 g/cc; visc. 575 cps (140 C); drop pt. 92 C; hardness 9.5 dmm; 13% VA

**A-C® 405(M)** [Honeywell Spec. Chems.]

**Chem. Descrip.:** EVA copolymer  
CAS 24937-78-8

**Uses:** Controlled rheology wax additive for adhesives, inks, coatings, personal care, wax blends, plastics, rubber, textiles; esp. suitable for applics. where it must be dispersed in org. solvs. (automotive topcoats, cosmetics, etc.); food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

**Properties:** Prills; dens. 0.92 g/cc; visc. 600 cps (140 C); drop pt. 101 C; cloud pt. 50-54.4 C (10% in xylene); hardness 5.0 dmm; 8% VA

**A-C® 405(S)** [Honeywell Spec. Chems.]

**Chem. Descrip.:** EVA copolymer  
CAS 24937-78-8

**Uses:** Controlled rheology wax additive for adhesives, inks, coatings, personal care, wax blends, plastics, rubber, textiles; esp. suitable for applics. where it must be dispersed in org. solvs. (automotive topcoats, cosmetics, etc.); food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper; low disp. visc.; lower sol. than 405M or 405T

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

**Properties:** Prills; dens. 0.92 g/cc; visc. 600 cps (140 C); drop pt. 95 C; cloud pt. 45-49.9 C (10% in xylene); hardness 7.0 dmm; 11% VA

**A-C® 405(T)** [Honeywell Spec. Chems.]

**Chem. Descrip.:** EVA copolymer  
CAS 24937-78-8

**Uses:** Controlled rheology wax additive for adhesives, inks, coatings, personal care, wax blends, plastics, rubber, textiles; esp. suitable for applics. where it must be dispersed in org. solvs. (automotive topcoats, cosmetics, etc.); defoamer; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; increases permanency, moisture retention, water resist.; higher sol. than 405M, 405S

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

**Properties:** Prills; dens. 0.92 g/cc; visc. 600 cps (140 C); drop pt. 103 C; cloud pt. 54.5-59 C (10% in xylene); hardness 4.0 dmm; 6% VA

**A-C® 430** [Honeywell Spec. Chems.]

**Chem. Descrip.:** EVA copolymer  
CAS 24937-78-8

**Uses:** Wax additive for adhesives, coatings, personal care, wax blends, plastics, rubber, textiles; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer;

suspending agent for active ingreds. in cosmetics; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.2600, 178.3570, 178.3850, 179.45

**Properties:** Grease-like; dens. 0.93 g/cc; visc. 600 cps (140 C); drop pt. 80 C; flash pt. (COC) 274 C;

**A-C® 540** [Honeywell Spec. Chems.]

**Chem. Descrip.:** Ethylene-acrylic acid copolymer  
CAS 9010-77-9

**Uses:** Plastics lubricant and processing aid; pigment dispersant; internal lubricant for PVC, nylon 6, nylon color concs.; for adhesives, floor finishes, personal care, plastics, wax blends; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, lubricants, textiles; food-contact defoamer; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850

**Properties:** Prills; dens. 0.93 g/cc; visc. 575 cps (140 C); drop pt. 105 C; acid no. 40; flash pt. (COC) 296 C; hardness 2.0 dmm

**A-C® 540A** [Honeywell Spec. Chems.]

**Chem. Descrip.:** Ethylene-acrylic acid copolymer  
CAS 9010-77-9

**Uses:** Plastics lubricant and processing aid; pigment dispersant; internal lubricant for PVC, nylon 6, nylon color concs.; for adhesives, floor finishes, personal care, plastics, wax blends; modifier for carboxyl functional powd. coatings; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, lubricants, textiles; defoamer; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850

**Properties:** Powd.; dens. 0.93 g/cc; visc. 575 cps (140 C); drop pt. 105 C; acid no. 40; hardness 2.0 dmm

**A-C® 580** [Honeywell Spec. Chems.]

**Chem. Descrip.:** Ethylene/acrylic acid copolymer  
CAS 9010-77-9

**Uses:** Additive for recyclable hot-melt and aq. adhesives and coatings; plastics and rubber processing; modifier of carboxyl-functional powd. coatings; defoamer in food-contact coatings/paper; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, lubricants, textiles; alkali-dispersible; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850

**Properties:** Prills; dens. 0.94 g/cc; visc. 650 cps (140 C); drop pt. 102 C; acid no. 75; flash pt. (COC) 313 C; hardness 4.0 dmm

**A-C® 617** [Honeywell Spec. Chems.]

**Chem. Descrip.:** Polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

**Uses:** Additive wax for use in inks, plastics, rubber, and personal care prods.; thickener for cosmetic and pharmaceutical gels; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3570, 178.3850

**Properties:** Wh. waxy prills, powd., char. waxy odor; sol. in hot min. oil and fatty esters; negligible sol. in water; dens. 0.91 g/cc; visc. 200 cps (140 C); drop pt. 101 C; acid no. nil; flash pt. (COC) 317 C; hardness 7.0 dmm

**Toxicology:** LD50 (oral, rat) > 2000 mg/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m<sup>3</sup> (respirable dust), 15 mg/m<sup>3</sup> (total dust) recommended

**Precaution:** Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**A-C® 617A** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in inks, plastics, rubber, and personal care prods.; nonirritating, mild abrasive for personal care prods.; thickener for cosmetic and pharmaceutical gels; film-former; oil or fragrance encapsulator; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3570, 178.3850

*Properties:* Wh. waxy prills, powd., char. waxy odor; sol. in hot min. oil and fatty esters; negligible sol. in water; dens. 0.91 g/cc; visc. 200 cps (140 C); drop pt. 101 C; acid no. nil; flash pt. (COC) 317 C; hardness 7.0 dmm

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; mild skin irritant; dust may cause mech. eye and respiratory tract irritation; OSHA TWA 5 mg/m<sup>3</sup> (respirable dust), 15 mg/m<sup>3</sup> (total dust) recommended

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**A-C® 629** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized polyethylene homopolymer

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for adhesives, ink, floor finishes, paper coatings, trade sales and industrial coatings, personal care, plastics, textiles, wax blends; processing lubricant; mold release aid; PVC lubricant; film-former; oil or fragrance encapsulator; gellant for oils in personal care prods.; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1620, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Wh. waxy prills, powd., char. waxy odor; negligible sol. in water; dens. 0.93 g/cc; visc. 200 cps (140 C); drop pt. 101 C; acid no. 15; flash pt. (COC) 274 C; hardness 5.5 dmm

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg; nonirritating to skin and eyes; dust may cause mech. irritation; OSHA TWA 5 mg/m<sup>3</sup> (respirable dust), 15 mg/m<sup>3</sup> (total dust) recommended

*Precaution:* Avoid strong oxidizing agents and amines; very slippery on floors

*Hazardous Decomp. Prods.:* Oxides of carbon, various oxidized and nonoxidized hydrocarbons

*Storage:* Store away from heat sources

**A-C® 629A** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized polyethylene homopolymer

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for adhesives, ink, floor finishes, paper coatings, personal care, plastics, textiles, wax blends; processing lubricant; mold release aid; PVC lubricant; film-former; oil or fragrance encapsulator; gellant for oils in personal care prods.; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1620, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Prills, powd.; dens. 0.93 g/cc; visc. 200 cps (140 C); drop pt. 101 C; acid no. 15; hardness 5.5 dmm

**A-C® 655** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized polyethylene homopolymer

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in adhesives, inks, floor finishes, paper coatings, personal care, plastics, rubber, textiles, and wax blends; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings/paper

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1620, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Prills; dens. 0.93 g/cc; visc. 210 cps (140 C); drop pt. 107 C; acid no. 16; flash pt. (COC) 274 C; hardness 2.5 dmm

**A-C® 656** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized polyethylene homopolymer

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive wax for use in adhesives, inks, floor finishes, paper coatings, personal care, plastics, and rubber; food pkg. adhesives, textiles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Prills; dens. 0.92 g/cc; visc. 185 cps (140 C); drop pt. 98 C; acid no. 15; flash pt. (COC) 260 C; hardness 9.0 dmm

**A-C® 680** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized polyethylene

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax for polishes, finishes, and emulsions; food pkg. adhesives, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings, paper/paperboard; slip resistance; emulsifiable

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1620, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Prills; dens. 0.93 g/cc; visc. 250 cps (140 C); drop pt. 108 C; acid no. 16; flash pt. (COC) 277 C; hardness 1.5 dmm

**A-C® 712** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive for plastics, rubber, adhesives, coatings, inks, paper, polishes, textiles; food pkg. adhesives, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Diced form; sp.gr. 0.92; visc. 1600 cps (140 C); drop pt. 108 C; acid no. nil; flash pt. (COC) 296 C; hardness 3.5 dmm

**A-C® 715** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Gellant for plastics, rubber, adhesives, coatings, inks, paper, polishes, textiles; food pkg. adhesives, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Diced form; sp.gr. 0.92; visc. 4000 cps (140 C); drop pt. 109 C; acid no. nil; flash pt. (COC) 302 C; hardness 2.5 dmm

**A-C® 725** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive for plastics, rubber, adhesives, coatings, inks, paper, polishes, textiles; food pkg. adhesives, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Diced form; sp.gr. 0.92; visc. 1400 cps (140 C); drop pt. 108 C; acid no. nil; hardness 3.5 dmm

**A-C® 735** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive for plastics, rubber, adhesives, coatings, inks, paper, polishes, textiles; food pkg. adhesives, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Diced form; sp.gr. 0.92; visc. 6000 cps (140 C); drop pt. 110 C; acid no. nil; hardness 2.5 dmm

**A-C® 1702** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Polyethylene homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Gellant for oils, emollient, moisture retention aid, heat stabilizer in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; additive for plastics, rubber, adhesives, coatings, inks, paper,



polishes, textiles; processing aid; increases permanency  
*Properties:* Grease-like; negligible sol. in water; dens. 0.88 g/cc; visc. 40 cps (140 C); drop. pt. 92 C; acid no. nil; flash pt. (COC) 232 C; hardness 90.0 dmm (D1321)

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; mild skin irritant

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Oxides of carbon, various oxidized and nonoxidized hydrocarbons

**A-C® 5120** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Low m.w. ethylene-acrylic acid copolymer  
 CAS 9010-77-9

*Uses:* Additive for recyclable hot-melt and aq. adhesives and coatings; modifier of carboxyl-functional powd. coatings; plastics and rubber processing; defoamer in food-contact coatings, paper/paperboard; gellant for personal care and household prods. (cosmetics, protective moisturizers, medications, dental adhesives, deodorizers); food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Prills; alkali-dispersible; dens. 0.94 g/cc; visc. 650 cps (140 C); drop pt. 92 C; acid no. 120; flash pt. (COC) 307 C; hardness 11.5 dmm

**A-C® 5180** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Low m.w. ethylene-acrylic acid copolymer  
 CAS 9010-77-9

*Uses:* Additive for recyclable hot-melt and aq. adhesives and coatings; plastics and rubber processing; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1310, 177.2600, 177.2800, 178.3570, 178.3850

*Properties:* Grease-like; alkali-dispersible; dens. 0.96 g/cc; visc. 650 cps (140 C); drop pt. 76 C; acid no. 180; hardness 50 dmm

**A-C® 6702** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Oxidized polyethylene  
 CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Additive for plastics, rubber, adhesives, coatings, inks, paper, polishes, textiles; gellant for oils in personal care prods.; film-former; oil or fragrance encapsulator; nonirritating abrasive; emollient; heat stabilizer; food pkg. adhesives; increases permanency, moisture retention, water resist.

*Regulatory:* FDA 21CFR §175.105

*Properties:* Grease-like; dens. 0.85 g/cc; visc. 35 cps (140 C); drop pt. 85 C; acid no. 15; hardness 90.0 dmm (D1321)

**Acclaim® 2200** [Lyondell]

*Chem. Descrip.:* Polypropylene glycol  
 CAS 25322-69-4; EINECS/ELINCS 200-338-0

*Uses:* Polyol for use in coatings, adhesives, sealants, elastomers, epoxy flexibilizers, and defoamers; food pkg. adhesives, paper/paperboard; improves tens. str., elong. at break, tear str., resilience, dynamic props.; reduces compression set and hysteresis

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1680

*Properties:* Pt-Co 20 color (50 C); water wh. to sl. haze; m.w. 2000; sp.gr. 1.004 (20 C); dens. 8.38 lb/gal (20 C); visc. 475 mP·s (20 C); acid no. 0.025; hyd. no. 56; pour pt. -36 C; flash pt. (PMCC) 420 F; 0.03% water

**Acclaim® 3201** [Lyondell]

*Chem. Descrip.:* Polyoxyethylene-polyoxypropylene polymer  
 CAS 53637-25-5

*Uses:* Polyol for use in coatings, adhesives, sealants, elastomers, epoxy flexibilizers, and defoamers; food pkg. adhesives, paper/paperboard; improves tens. str., elong. at break, tear str., resilience, dynamic props.; reduces compression set and hysteresis

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1680

*Properties:* Pt-Co 20 color (50 C); water wh. to sl. haze; m.w. 3000; sp.gr. 1.014 (20 C); dens. 8.46 lb/gal (20 C); visc. 780 mP·s (20 C); acid no. 0.025; hyd. no. 37.4; pour pt. -36 C; flash pt. (PMCC) 420 F; 0.03% water

**Acclaim® 4200** [Lyondell]

*Chem. Descrip.:* Polypropylene glycol  
 CAS 25322-69-4; EINECS/ELINCS 200-338-0

*Uses:* Polyol for use in coatings, adhesives, sealants, elastomers, epoxy flexibilizers, and defoamers; food pkg. adhesives, paper/paperboard; improves tens. str., elong. at break, tear str., resilience, dynamic props.;

reduces compression set and hysteresis

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1680

*Properties:* Pt-Co 20 color (50 C); water wh. to sl. haze; m.w. 4000; sp.gr. 1.003 (20 C); dens. 8.37 lb/gal (20 C); visc. 1100 mP·s (20 C); acid no. 0.025; hyd. no. 28; pour pt. -33 C; flash pt. (PMCC) 415 F; 0.03% water

**Acclaim® 6300** [Lyondell]

*Chem. Descrip.:* Glycerol-propylene oxide polyether triol  
 CAS 25791-96-2

*Uses:* Polyol for use in coatings, adhesives, sealants, elastomers, epoxy flexibilizers, and defoamers; food pkg. adhesives, paper/paperboard; improves tens. str., elong. at break, tear str., resilience, dynamic props.; reduces compression set and hysteresis

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1680

*Properties:* Pt-Co 20 color (50 C); water wh. to sl. haze; m.w. 6000; sp.gr. 1.007 (20 C); dens. 8.40 lb/gal (20 C); visc. 1900 mP·s (20 C); acid no. 0.025; hyd. no. 28; pour pt. -30 C; flash pt. (PMCC) 425 F; 0.03% water

**Acclaim® 8200** [Lyondell]

*Chem. Descrip.:* Polypropylene glycol  
 CAS 25322-69-4; EINECS/ELINCS 200-338-0

*Uses:* Polyol for use in coatings, adhesives, sealants, elastomers, epoxy flexibilizers, and defoamers; food pkg. adhesives, paper/paperboard; improves tens. str., elong. at break, tear str., resilience, dynamic props.; reduces compression set and hysteresis

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1680

*Properties:* Pt-Co 20 color (50 C); water wh. to sl. haze; m.w. 8000; sp.gr. 1.003 (20 C); dens. 8.37 lb/gal (20 C); visc. 4300 mP·s (20 C); acid no. 0.025; hyd. no. 14; pour pt. -27 C; flash pt. (PMCC) 375 F; 0.03% water

**Accosize® 60R Cationic Starch** [Cytec Ind.]

*Chem. Descrip.:* Potato starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Sizing agent for papermaking; improved filler retention and sheet str. props.

*Regulatory:* DOT nonregulated

*Properties:* Wh. powd.; odorless; completely sol. in water; sp.gr. 0.1 g/cc; 17-21% volatile; cationic

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 20 mg/l; may cause minimal eye and skin irritation on direct contact; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents; dust may be explosive if mixed with air in critical proportions in presence of ignition source

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrogen chloride, NO<sub>x</sub>

NFPA: Health 0; Flammability 1; Reactivity 0

**Accosize® 100 Synthetic Size** [Cytec Ind.]

*Chem. Descrip.:* Hexadecenylsuccinic anhydride (55-65%), octadecenylsuccinic anhydride (35-45%), eicosenylsuccinic anhydride (0-10%), docosenylsuccinic anhydride (0-2%)

*Uses:* Sizing agent for fine paper and board

*Regulatory:* DOT nonregulated

*Properties:* Lt. orange-brn. clear liq.; sl. oily odor; insol. in water; sp.gr. 0.94; vapor pressure < 1 mm Hg (20 C); m.p. 4 C; b.p. 250 C; flash pt. (PMCC) 204 C; VOC 0.15 lb/gal

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; causes mod. skin irritation; may cause mild eye irritation, allergic skin reaction; inh. may cause irritation of respiratory tract and eyes; TSCA listed

*Environmental:* Readily biodeg.; LC50 (mysid shrimp, 96 h) 169 mg/l, (trout, 96 h) 510 mg/l; BOD (28 day) 2.4 mg O<sub>2</sub>/mg prod.

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, SO<sub>x</sub>

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* Store in cool, dry area below 29 C; keep container tightly closed when not in use; protect from water contact or high moisture conditions

**Accostrength® 1000 Dry Strength Resin** [Cytec Ind.]

*Chem. Descrip.:* Acrylamide/acrylic acid copolymer

*Uses:* Dry str. agent for papermaking; inc. sheet str. or maintains specs with weaker or recycled fibers

*Regulatory:* DOT nonregulated; no OSHA regulated components

*Properties:* Clear to pale yel. visc. liq.; odorless; completely sol. in water; sp.gr. 1.072 (23 C); pH 4.2-5.5; VOC 0.72 lb/gal; 79-82% volatiles

*Toxicology:* LD50 (oral, rat) > 16 ml/kg, (dermal, rabbit) > 8 ml/kg; may cause minimal eye and skin irritation; not expected to be harmful by ing.; TSCA listed

*Environmental:* BOD (5 day) 630 mg/l oxygen; COD 250,000 ppm

**Precaution:** Spills are very slippery; incompat. with strong oxidizing agents, caustics, alkanolamines, aldehydes, ammonia  
**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, ammonia, NO<sub>x</sub>  
**NFPA:** Health 0; Flammability 1; Reactivity 0  
**Storage:** Avoid iron, copper, or aluminum containers/equip. for handling/storage

**Accurac® 105 Retention Aid** [Cytec Ind.]

**Chem. Descrip.:** Polyacrylamide w/o emulsion with petroleum distillate hydrotreated light (CAS 64742-47-8, ≈ 22%) and IPA (0-1%)  
**Uses:** Retention aid, production aid for papermaking; improves sheet qualities and runnability  
**Regulatory:** DOT nonregulated  
**Properties:** Wh. opaque visc. liq.; sl. hydrocarbon odor; sp.gr. ≈ 1.0; m.p. -18 C; flash pt. (CC) > 93 C; pH 4-6 (aq. dil.); ≈ 60% volatiles; cationic  
**Toxicology:** LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 20 mg/l; causes mod. skin irritation; may cause mild eye irritation  
**Precaution:** Incompat. with strong oxidizing agents  
**Hazardous Decomp. Prods.:** Ammonia, CO, CO<sub>2</sub>, hydrogen chloride  
**NFPA:** Health 2; Flammability 1; Reactivity 0  
**Storage:** Avoid iron, copper, or aluminum containers/equip. in handling/storage

**Accurac® T-100 Retention/Drainage Aid** [Cytec Ind.]

**Chem. Descrip.:** Liq. polymer mixt. with petrol. distillate hydrotreated light (CAS 64742-47-8, 30-35%)  
**Uses:** Retention aid, drainage aid, production aid for papermaking; improves sheet qualities and runnability  
**Regulatory:** DOT nonregulated  
**Properties:** Clear to cloudy visc. liq.; hydrocarbon odor; sp.gr. ≈ 1.0; vapor pressure 45 mm Hg (40 C); m.p. -20 C; flash pt. (PMCC) > 100 C; pH 7-9 (emulsion); VOC 3.25 lb/gal; 45-75% volatiles  
**Toxicology:** LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 20 mg/l; causes mod. skin irritation; may cause mild eye irritation; TSCA listed  
**Precaution:** Incompat. with strong oxidizing agents  
**Hazardous Decomp. Prods.:** CO<sub>2</sub>, CO, ammonia, NO<sub>x</sub>  
**NFPA:** Health 2; Flammability 1; Reactivity 0  
**Storage:** Avoid iron, copper, or aluminum containers/equip. for handling/storage

**Acematt™ TS100** [Degussa-Hüls]

**Chem. Descrip.:** Fumed silica  
 CAS 112945-52-5; EINECS/ELINCS 231-545-4  
**Uses:** Flattening agent for vinyl coatings, air-dried polyurethane or leather coating applics., lacquers for film and polyurethane textile coatings, paper coating applics., long-oil alkyd systems, water-based coatings; exc. in baked finishes and films which require high transparency  
**Properties:** Wh. powd., odorless; 4 μm avg. particle size of agglomerates; insol. in water; dens. 2.2 g/cc; tapped dens. 50 g/l; oil absorp. 360 g/100 g; m.p. 1700 C; ref. index 1.45; pH 7 (4% aq.); > 99.8% SiO<sub>2</sub>  
**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; nonirritating to skin and mucous membranes

**Acilan™ W Liq.** [Bayer/Industrial Chems.]

**Uses:** Colorant for paper

**Acintol® R Type S** [Arizona]

**Chem. Descrip.:** Tall oil rosin  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
**Uses:** Printing ink binder as resin or salt; paper sizing agent; emulsifier for SBR polymerization as soap; tackifier resin in adhesives; imidazoline modifier in corrosion inhibitors; elastomer modifier in emulsion polymerization; dust control additive; film former/plasticizer in lacquers and varnishes; tackifier and softener for IIR, SBR, CR, acetyl polypropylene; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, wood preservatives  
**Regulatory:** FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.2600, 178.3120, 178.3800, 178.3850, 178.3870  
**Properties:** Gardner 7 color; sp.gr. 1.01; soften. pt. (R&B) 76 C; acid no. 175-178; flash pt. (OC) 226 C; anionic

**Acrawax® C** [Lonza]

**Chem. Descrip.:** N,N'-Ethylene bisstearamide  
 CAS 110-30-5; EINECS/ELINCS 203-755-6  
**Uses:** Internal and surf. lubricant in PVC, PP, PE, ABS, nylon, acetal,

thermoplastic polyester, PS, phenolic, PU; plasticizer, compatibilizer, slip/antiblock, flow improver, pigment dispersant in hot-melt adhesives and coatings; lubricant, processing aid, detackifier, mold release agent, antiblocking agent in SR; food-contact applics.; powd. and atomized grades as lubricant and binder for cold compaction of powd. metal parts; papermaking

**Regulatory:** FDA clearance for food-contact applics.

**Properties:** Avail. as beads, prills, powd., atomized or aq. disp. (33% solids); 10% max. on 10 mesh (beads); 2% max. on 40 mesh (prilled); 1% max. on 100 mesh (powd.); 0.1% max. on 325 mesh (atomized); insol. in water; sp.gr. 0.97; m.p. 140-145 C; acid no. 8 max.; flash pt. 285 C

**Acriflow 041-S** [Witton]

**Chem. Descrip.:** Sodium polyacrylate aq. sol'n.

CAS 9003-04-7

**Uses:** Dispersant and scale inhibitor in process industries, e.g. mining and min. handling (china clay, metal ores), inorg. pigment disp., papermaking, textile processing, sugar processing, paint mfg., boiler water treatment; treatment of swimming pool water, prod. of potable water from sea water; food-contact paper/paperboard  
**Regulatory:** FDA 21CFR §176.170, 176.180; BGA Ch. 36; UK Drinking Water Inspectorate approved

**Properties:** Aq. sol'n.; sp.gr. 1.1-1.3; visc. 150-350 cps; pH 7.0-8.5; 40-42% solids

**Toxicology:** Nonhazardous

**Acriflow 050-S** [Witton]

**Chem. Descrip.:** Polyacrylic acid aq. sol'n.

CAS 9003-01-4

**Uses:** Dispersant and scale inhibitor in process industries, e.g. mining and min. handling (china clay, metal ores), inorg. pigment disp., papermaking, textile processing, sugar processing, paint mfg., boiler water treatment; treatment of swimming pool water, prod. of potable water from sea water; food-contact paper/paperboard; may be neutralized with sodium, ammonium, or potassium alkalis for applic. in neutral pH range

**Regulatory:** FDA 21CFR §176.170, 176.180; BGA Ch. 36; UK Drinking Water Inspectorate approved

**Properties:** Clear pale yel. liq.; visc. 400-600 cps; pH 2.8-4.2; 50-52% solids

**Toxicology:** Nonhazardous

**Acriflow 141 S** [Witton]

**Chem. Descrip.:** Sodium polyacrylate

CAS 9003-04-7

**Uses:** Dispersant and scale inhibitor in process industries, e.g. mining and min. handling (china clay, metal ores), inorg. pigment disp., papermaking, textile processing, sugar processing, paint mfg., boiler water treatment; treatment of swimming pool water, prod. of potable water from sea water; food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.170, 176.180; BGA Ch. 36; UK Drinking Water Inspectorate approved

**Properties:** Aq. sol'n.; sp.gr. 1.1-1.3; visc. 350-700 cps; pH 7.5-9.0; 40-42% solids

**Toxicology:** Nonhazardous

**Acriflow 241-M** [Witton]

**Chem. Descrip.:** Sodium polyacrylate aq. sol'n.

CAS 9003-04-7

**Uses:** Dispersant and scale inhibitor in process industries, e.g. mining and min. handling (china clay, metal ores), inorg. pigment disp., papermaking, textile processing, sugar processing, paint mfg., boiler water treatment; treatment of swimming pool water, prod. of potable water from sea water; food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.170, 176.180; BGA Ch. 36; UK Drinking Water Inspectorate approved

**Properties:** Aq. sol'n.; sp.gr. 1.1-1.3; visc. 850-1300 cps; pH 7.5-9.0; 40-42% solids

**Toxicology:** Nonhazardous

**Acriflow 241-SA** [Witton]

**Chem. Descrip.:** Sodium polyacrylate aq. sol'n.

CAS 9003-04-7

**Uses:** Dispersant and scale inhibitor in process industries, e.g. mining and min. handling (china clay, metal ores), inorg. pigment disp., papermaking, textile processing, sugar processing, paint mfg., boiler water treatment; treatment of swimming pool water, prod. of potable water from sea water; food-contact paper/paperboard; rec. where ammonium ions are acceptable and sodium ions are not



- Regulatory:* FDA 21CFR §176.170, 176.180; BGA Ch. 36; UK Drinking Water Inspectorate approved  
*Properties:* Aq. sol'n.; sp.gr. 1.1-1.3; visc. 500-1000 cps; pH 6.5-8.0; 40-42% solids  
*Toxicology:* Nonhazardous
- Acritamer® 501E** [R.I.T.A.]  
*Chem. Descrip.:* Carbomer  
 CAS 9003-01-4  
*Uses:* Thickener, dispersant, suspending agent for emulsion stabilization of various cosmetics applics., industrial use (paper mfg. and treatment, fiber-glass prod., low visc. lubricants, nat. and syn. fiber processing), mod. ionic systems, textured paints  
*Properties:* Wh. powd.; sol. in water, alcohol; visc. 2500-6400 cps (0.2wt%); bulk dens. 0.2 g/ml  
*Toxicology:* Acute eye, oral, skin irritation  
*Storage:* Hygroscopic; ensure bags are sealed completely during storage; use as soon as possible after opening
- Acritamer® 504E** [R.I.T.A.]  
*Chem. Descrip.:* Carbomer  
 CAS 9003-01-4  
*Uses:* Thickener, dispersant, suspending agent for stabilization of water or solvent-based lubricants, emulsions, and graphite, polyethylene, fiber, and paper suspensions  
*Properties:* Wh. powd.; sol. in water, alcohol; visc. 2000-5450 cps (0.2wt%); bulk dens. 0.2 g/ml  
*Toxicology:* Acute eye, oral, skin irritation  
*Storage:* Hygroscopic; ensure bags are sealed completely during storage; use as soon as possible after opening
- Acronal®** [BASF AG]  
*Chem. Descrip.:* Acrylate homo- and copolymers  
 CAS 25133-97-5  
*Uses:* Binder for paper and board coating; binder and coating agent for prod. of materials based on leather fibers
- Acronal® NX 4786** [BASF]  
*Chem. Descrip.:* Butyl acrylate/styrene aq. copolymer dispersion  
*Uses:* Binder for label paper coatings and as clear coats on paper where abrasion resist. is required; exc. alkali, abrasion, and water resist.
- Acronal® S 504** [BASF]  
*Chem. Descrip.:* n-Butyl acrylate/acrylonitrile/styrene copolymer aq. disp.  
*Uses:* Binder for paper/paperboard coatings, incl. those used for food pkg.; contains no plasticizers or solvs.; exc. lightfastness; outstanding print mottle resist.; yields coatings with exc. print gloss and smoothness
- Acronal® S 728** [BASF]  
*Chem. Descrip.:* n-Butyl acrylate/styrene copolymer aq. disp.  
*Uses:* Binder for paper/paperboard coatings; provides paper coatings with exc. sheet and print gloss; exc. runnability; contains no plasticizers or solvs.
- Acrosol®** [BASF AG]  
*Chem. Descrip.:* Acrylic acid ester copolymers  
 CAS 25133-97-5  
*Uses:* Cobinder for paper coatings
- Acrosol™ B 37 D** [BASF]  
*Chem. Descrip.:* Acrylic acid/acrylic ester/acrylonitrile copolymer aq. disp.  
*Uses:* Binder for coating colors in papermaking; contains no plasticizers or solvs.  
*Properties:* Anionic
- Acrosol™ C 50 L** [BASF]  
*Chem. Descrip.:* Acrylic acid/acrylic ester/acrylonitrile copolymer  
*Uses:* Cobinder for coating paper on board; modifies visc., water retention, and rheology of coating colors; activates fluorescent brighteners in coatings; enhances runnability of metered size presses; contains no plasticizers or solvs.
- Acrosol™ PR 8720 X** [BASF]  
*Chem. Descrip.:* Acrylic ester/acrylonitrile copolymer aq. sol'n.  
*Uses:* Cobinder for coating of paperboard; improves gluability of coated paperboards by incorporating porosity and structure to the coating; protein substitute in paperboard coating without the requirement of cooking; provides better water retention than protein prods. and improves final sheet brightness; contains no plasticizers or solvs.
- Acrylidone® Resins** [ISP]  
*Chem. Descrip.:* Linear, random copolymer of vinylpyrrolidone and acrylic acid
- Uses:* For water-resist. coatings for ink jet recording media; dispersant in preparation of carbonless paper microcapsules and ceramic glazes  
*Properties:* Wh. free-flowing powd.; disp. in water; sol. in strong aq. bases or acids; m.w. 80,000-250,000; 50% hexadecene; also avail. as 55% solids in isopropanol
- AcryPrint™ 2115** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Acrylate latex  
*Uses:* Latex for paperboard; component of paper/paperboard in contact with aq./fatty/dry foods; exc. gloss, print mottle; inc. ink holdout and str.; contributes to folding chars. and offset water/ink absorp. balance  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Sm. particle size; visc. 300 cps; pH 7; 47% total solids
- AcryPrint™ 2129** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Acrylate latex  
*Uses:* Latex for paperboard; component of paper/paperboard in contact with aq./fatty/dry foods; exc. gloss, print ink uniformity; inc. ink holdout and str.; contributes to glueability, print mottle, folding chars. and offset water/ink absorp. balance  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Med. particle size; visc. 140 cps; pH 6.5; 48% total solids
- AcryPrint™ 2163** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Terpolymer latex  
*Uses:* Stiffener for paperboard; component of paper/paperboard in contact with aq./fatty/dry foods; aids printability, str., and mylar adhesion; inc. ink holdout; contributes to glueability, print mottle, folding chars. and offset water/ink absorp. balance  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Sm. particle size; visc. 300 cps; pH 7; 47% total solids
- Acter® 1450** [Honeywell Spec. Chems.]  
*Chem. Descrip.:* Ethylene/acrylic acid/vinyl acetate copolymer  
 CAS 26713-18-8  
*Uses:* Used for floor polishes, emulsion formulas; food pkg. adhesives; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §175.105, 176.180  
*Properties:* Acid no. 33-36; ester no. 21-25; hardness 4-6 dmm
- Acticide® DW** [Thor UK]  
*Chem. Descrip.:* 2-N-Octyl-4-isothiazolin-3-one  
*Uses:* Biocide, algicide, fungicide for protection of aq. and solv.-based coatings, films, and other prods.; preservative, biocide, bactericide, fungicide, slimicide for paper/pulp  
*Properties:* Liq.; 15% act.
- Acticide® HF** [Thor UK]  
*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, with formaldehyde donor  
*Uses:* Biocide for complete wet-state preservation of wide range of aq. prods.; preservative, biocide, bactericide, fungicide, slimicide for paper/pulp; broad spectrum activity  
*Properties:* Liq.
- Acticide® SPX** [Thor UK]  
*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one  
*Uses:* Biocide for wet-state preservation of wide range of aq., formaldehyde-sensitive prods.; preservative, biocide, bactericide, fungicide, slimicide for paper/pulp; solv.-free; formaldehyde-free  
*Properties:* Liq.; 1.4-1.6% act.
- Acticide® WT** [Thor UK]  
*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one  
*Uses:* Biocide, bactericide, fungicide for water treatment and paper mill applics.; formaldehyde-free  
*Properties:* Liq.; 1.5% act.
- Acticide® WTC** [Thor UK]  
*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one  
*Uses:* Microbicide for wet-state protection of aq. formulations, for industrial water treatment, and prod. of preservatives; biocide, bactericide, fungicide, slimicide in paper/pulp; formaldehyde-free; protects against bacteria, yeasts, and fungi  
*Properties:* Liq.; 13.5-14.5% act.
- Actiron® DTF 021** [Synthron SA]  
*Uses:* Hydrosulfite stabilizer for mech. pulp mfg.
- Actiron® DTP 298** [Synthron SA]

- Uses:* Peroxide stabilizer for pulp deinking; very effective; enables sodium silicate to be reduced or omitted
- Actiron® NS** [Synthron SA]  
*Uses:* Peroxide stabilizer improving level of whiteness in mech. pulp mfg. and deinking; total or partial replacement of sodium silicate
- Actiron® PME** [Synthron SA]  
*Uses:* Peroxide stabilizer in mech. pulp mfg.
- Actitex®** [Pica USA]  
*Chem. Descrip.:* Activated carbon fabric  
CAS 7440-44-0; EINECS/ELINCS 231-153-3  
*Uses:* Fabric for adsorption of volatile compds. (paint solvs., polymers, paper industry, surf. cleaning and treatments), gas separation, adsorption of odors (air conditioning, air filtration), retention of toxic gases, gas storage, catalyst support; aids recycling or protection of the environment
- Actrafoam C** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Blend of glycols, fatty acids, and nonionic surfactants in a hydrocarbon base  
*Uses:* Defoamer for water sewage applics., pulp/paper mfg.  
*Properties:* Lt. yel. oily liq., bland odor; dens. 7.30 lb/gal; acid no. 7.5; flash pt. (COC) 305 F  
*Storage:* May become solid at lower temps.; store at 70 F for at least 24 h if prod. should freeze
- Actrasol 6092** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated rapeseed oil  
CAS 617788-68-9  
*Uses:* Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing
- Actrasol C-50** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated castor oil, sodium neutralized  
*Uses:* Pigment wetting agent/dispersant for pigment flushing, cleaners, textiles, and paper processing; lubricant and emulsifier for metalworking fluids  
*Properties:* Liq.; 50% act. in water; anionic
- Actrasol C-75** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated castor oil, sodium neutralized  
*Uses:* Pigment wetting agent/dispersant for pigment flushing, cleaners, textiles, and paper processing; lubricant and emulsifier for metalworking fluids  
*Properties:* Liq.; water-sol.; 70% act. in water; anionic
- Actrasol C-85** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated castor oil, sodium neutralized  
*Uses:* Pigment wetting agent/dispersant for pigment flushing, cleaners, textiles, and paper processing; lubricant and emulsifier for metalworking fluids  
*Properties:* Liq.; 75% act. in water; anionic
- Actrasol OY-75** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated soybean oil, sodium neutralized  
*Uses:* Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing  
*Properties:* Liq.; water-disp.; 75% conc.  
*Environmental:* Biodeg.
- Actrasol PSR** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated ricinoleic acid, potassium neutralized  
*Uses:* Pigment wetting agent/dispersant; aluminum lubricant; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing  
*Properties:* Dk. amber liq.; 75% conc.; anionic
- Actrasol SBO** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated butyl oleate, sodium neutralized  
*Uses:* Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing  
*Properties:* Anionic
- Actrasol SP** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfonated tall oil fatty acid, sodium neutralized  
EINECS/ELINCS 268-372-9  
*Uses:* Wet process phosphoric acid defoamer; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing  
*Properties:* Liq.; water-sol.; 50% conc.; anionic
- Actrasol SP 175K** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated tall oil, potassium neutralized  
EINECS/ELINCS 272-349-9  
*Uses:* Lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing  
*Properties:* Liq.; water-disp.; 75% conc.; anionic  
*Environmental:* Biodeg.
- Actrasol SR 75** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated oleic acid, ammonium neutralized  
*Uses:* Mold release agent; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing  
*Properties:* Liq.; water-disp.; 75% conc.; anionic  
*Environmental:* Biodeg.
- Actrasol SRK 75** [Georgia-Pacific/Actrachem]  
*Chem. Descrip.:* Sulfated oleic acid, potassium neutralized  
*Uses:* Mold release agent; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing  
*Properties:* Liq.; water-disp.; 75% conc.; anionic  
*Environmental:* Biodeg.
- Acumer® 1000** [Rohm & Haas]  
*Chem. Descrip.:* Partial sodium salt of polyacrylic acid, 20% neutralized  
CAS 9003-04-7  
*Uses:* Scale inhibitor for industrial water treatment and oil prod. applics.; reduces precipitation of low sol. inorg. salts; crystal modifier; dispersant preventing precipitated crystals from agglomerating and depositing on surfaces; food pkg. adhesives, paper/paperboard; inhibits deposition of calcium carbonate, calcium sulfate, barium sulfate, etc.; effective over wide range of pH, water hardness, and temps.; exc. freeze-thaw stability  
*Regulatory:* FDA 21CFR §173.310, 175.105, 176.170, 176.180  
*Properties:* Colorless to straw-colored clear to sl. hazy homogeneous sol'n.; sol. in brine sol'ns.; m.w. 2000 (avg.); dens. 10.3 lb/gal; visc. 100-400 cps; pH 3.2-4.0; 47-49% total solids  
*Toxicology:* Sl. eye and skin irritant  
*Storage:* Can develop sl. hazy appearance after long-term cold storage, and cause separation; does not impair performance, but recommend that prod. not freeze in order to avoid remixing
- Acumer® 1020** [Rohm & Haas]  
*Chem. Descrip.:* Polyacrylic acid  
CAS 9003-01-4  
*Uses:* Scale inhibitor for industrial water treatment and oil prod. applics.; reduces precipitation of low sol. inorg. salts; crystal modifier; dispersant preventing precipitated crystals from agglomerating and depositing on surfaces; food pkg. adhesives, paper/paperboard; inhibits deposition of calcium carbonate, calcium sulfate, barium sulfate, etc.; effective over wide range of pH, water hardness, and temps.; exc. freeze-thaw stability  
*Regulatory:* FDA 21CFR §175.105, 176.180; as sodium salt: 173.310, 176.170  
*Properties:* Colorless to straw colored, clear to sl. hazy homogeneous sol'n.; sol. in brine sol'ns.; m.w. 2000 (avg.); dens. 10.1 lb/gal; visc. < 1000 cps; pH 2.1-2.5; 39% act.  
*Toxicology:* Mod. eye irritant  
*Storage:* Can develop sl. hazy appearance after long-term cold storage, and cause separation; does not impair performance, but recommend that prod. not freeze in order to avoid remixing
- Acumer® 1100** [Rohm & Haas]  
*Chem. Descrip.:* Partial sodium salt of polyacrylic acid, 20% neutralized  
CAS 9003-04-7  
*Uses:* Scale inhibitor for industrial water treatment and oil prod. applics.; reduces precipitation of low sol. inorg. salts; crystal modifier; dispersant preventing precipitated crystals from agglomerating and depositing on surfaces; food pkg. adhesives, paper/paperboard; inhibits deposition of calcium carbonate, calcium sulfate, barium sulfate, etc.; effective over wide range of pH, water hardness, and temps.; exc. freeze-thaw stability  
*Regulatory:* FDA 21CFR §173.310, 175.105, 176.170, 176.180  
*Properties:* Colorless to straw colored, clear to sl. hazy homogeneous sol'n.; sol. in brine sol'ns.; m.w. 4500 (avg.); dens. 10.2 lb/gal; visc. 500-1200 cps; pH 3.2-4.0; 44% act.  
*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. eye and skin irritant  
*Environmental:* LC50 (daphnia, 48 h) > 1000 ppm, (trout, 96 h) 700 ppm  
*Storage:* Can develop sl. hazy appearance after long-term cold storage, and cause separation; does not impair performance, but recommend that prod. not freeze in order to avoid remixing
- Acumer® 1110** [Rohm & Haas]  
*Chem. Descrip.:* Sodium polyacrylate  
CAS 9003-04-7  
*Uses:* Water treatment polymer for scale inhibition in stressed cooling water, boiler water sludge control; food-contact paper/paperboard; does not contain phosphorus; exc. freeze/thaw stability  
*Regulatory:* FDA 21CFR §173.310, 176.170, 176.180  
*Properties:* Colorless to straw colored, clear to sl. hazy homogeneous sol'n.;

m.w. 4500 (avg.); dens. 11.1 lb/gal; visc. 500-1200 cps; pH 6.7; 33.5% act.

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. eye irritant, nonirritating to skin

*Environmental:* LC50 (daphnia, 48 h) > 1000 ppm, (trout, 96 h) 700 ppm

*Storage:* Can develop sl. hazy appearance after long-term cold storage, and cause separation; does not impair performance, but recommend that prod. not freeze in order to avoid remixing

**Acumer® 1510** [Rohm & Haas]

*Chem. Descrip.:* Polyacrylic acid homopolymer colloidal sol'n.

CAS 9003-01-4

*Uses:* Dispersant for water treatment; modifier for aq. formulations, cleaners, binders, adhesives, emulsion paints; in reproduction processes; ceramic applics.; its salts as thickeners and dispersants for latex systems; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.170

*Properties:* Colorless clear visc. liq.; infinite dilutability with water; m.w. ≈ 60,000; visc. 160 cps; pH ≈ 2 (5% aq.); 25% solids

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 3 g/kg; causes eye damage and sl. skin irritation; vapors may be irritating to eyes and respiratory tract, and cause headache and nausea in poorly ventilated areas

**Acumer® 1850** [Rohm & Haas]

*Chem. Descrip.:* Sodium salt of polycarboxylate

CAS 37199-81-8

*Uses:* Acrylic water treatment polymer for applics. such as scale inhibition in stressed cooling water and boiler water sludge control; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 176.170

*Properties:* M.w. 30,000; pH 9-10.8; 23% act.

**Acumer® 2100** [Rohm & Haas]

*Chem. Descrip.:* Carboxylate/sulfonate copolymer

*Uses:* Boiler water additive, cooling water additive, pulp/paper processing additive; dispersant for calcium carbonate, preventing scale buildup; food-contact paper/paperboard; thermally stable; offers exc. iron tolerance

*Use Level:* 15-20%

*Regulatory:* FDA 21CFR §173.310, 176.170, 176.180

*Properties:* Clear liq.; m.w. 11,000; visc. 80-180 cps; pH 4.3-5.3; 37% solids

**Acumer® 4161** [Rohm & Haas]

*Chem. Descrip.:* Phosphinopolycarboxylic acid aq. sol'n., partially neutralized

*Uses:* Scale inhibitor and dispersant used in the water treatment industry, in boiler and cooling water, pulp/papermaking systems; food-contact paper/paperboard; resist. to chlorine and compat. with most microbiological control agents

*Regulatory:* FDA 21CFR §173.310, 176.170, 176.180

*Properties:* Clear to sl. hazy liq.; m.w. 3300-3900; sp.gr. 1.20-1.25; dens. 10.0-10.4 lb/gal; visc. 500-2000 cps; pH 3.0-3.5; 50-52% total solids

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 5 g/kg; may cause eye irritation and sl. skin irritation

*Storage:* Can develop sl. hazy appearance after long-term cold storage; does not impair performance; recommended that prod. not be frozen in order to avoid remix

**Acumer® 9000** [Rohm & Haas]

*Chem. Descrip.:* Acrylic copolymer, sodium salt

CAS 9003-04-7

*Uses:* Dispersant and stabilizer for high solids min. slurries; adjuvant in coatings; food-contact paper/paperboard; works well with all kaolin clays and calcium carbonate

*Use Level:* < 2% (coatings)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* M.w. 2500; pH 7.5; 44% solids; anionic

**Acumer® 9141** [Rohm & Haas]

*Chem. Descrip.:* Polyacrylic acid, sodium salt

CAS 9003-04-7

*Uses:* Dispersant and stabilizer for high solids min. slurries; adjuvant in coatings; food-contact paper/paperboard; works well with all kaolin clays and calcium carbonate

*Regulatory:* FDA 21CFR §176.170, 176.180 approved

*Properties:* M.w. 2000; pH 7.0; 48% solids; anionic

**Acumer® 9300** [Rohm & Haas]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Scale inhibitor for industrial water treatment and oil prod. applics.; reduces precipitation of low sol. inorg. salts; crystal modifier; dispersant preventing precipitated crystals from agglomerating and depositing on surfaces; food-contact paper/paperboard; inhibits deposition of calcium carbonate, calcium sulfate, barium sulfate, etc.; effective over wide range of pH, water hardness, and temps.; exc. freeze-thaw stability

*Regulatory:* FDA 21CFR §173.310, 176.170, 176.180

*Properties:* Colorless to straw-colored clear to sl. hazy homogeneous sol'n.; sol. in brine sol'ns.; m.w. 4500; dens. 11.1 lb/gal; visc. 500-1200 cps; pH 6.5-8.0; 44-46% total solids

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. eye irritant; nonirritating to skin

*Environmental:* LC50 (daphnia, 48 h) > 1000 ppm, (trout, 96 h) 700 ppm, (sunfish, 96 h) > 1000 ppm

**Acumer® 9400** [Rohm & Haas]

*Chem. Descrip.:* Polyacrylic acid, sodium salt

CAS 9003-04-7

*Uses:* Dispersant and stabilizer for high solids min. slurries; thickener for nat. rubber latex coatings; pigment dispersant in coatings; food-contact paper/paperboard; works well with all kaolin clays and calcium carbonate

*Use Level:* < 2% (rubber latex coatings); < 0.25% (pigment dispersant)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* M.w. 3600; pH 7.0; 42.5% solids; anionic

**Acumer® 9460** [Rohm & Haas]

*Chem. Descrip.:* Polyacrylic acid, partly neutralized sodium salt

CAS 9003-04-7

*Uses:* Dispersant and stabilizer for high solids min. slurries; thickener for nat. rubber latex coatings; pigment dispersant in coatings; food-contact paper/paperboard; works well with all kaolin clays and calcium carbonate

*Use Level:* < 2% (rubber latex coatings); < 0.25% (pigment dispersant)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* M.w. 3600; pH 5.5; 43% solids; anionic

**ACumist® A-12** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized oxidized polyethylene homopolymer

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, rubber applics.; provides matting and surf. props. to powd. coatings; suspension aid, flattening and texturizing agent, and binder for personal care prods.; food pkg. adhesives, paper/paperboard, textiles; exc. mar and abrasion resist., COF reduction, recoatability; esp. for high temp. resist. systems

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Micronized powd.; 12 μ avg. particle size; dens. 0.99 g/cc; drop pt. 136 C; acid no. 26-40; hardness < 0.5 dmm

**ACumist® A-18** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized oxidized polyethylene homopolymer

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, coatings, personal care, and rubber applics.; suspension aid, flattening and texturizing agent, and binder for personal care prods.; food pkg. adhesives, paper/paperboard, textiles; exc. mar and abrasion resist., COF reduction, recoatability; esp. for high temp. resist. systems

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Micronized powd.; 18 μ avg. particle size; dens. 0.99 g/cc; drop pt. 136 C; acid no. 26-40; hardness < 0.5 dmm

**ACumist® B-6** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized HDPE homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, rubber applics.; provides matting, surf. props. to powd. coatings; good performance in solv.-based coatings; suspension aid, flattening and texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; exc. mar and abrasion resist.; exc. recoatability

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 6 μ avg. particle size; dens. 0.96 g/cc; drop pt. 126 C; acid no. nil; hardness < 0.5 dmm

**ACumist® B-9** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized HDPE homopolymer

CAS 9002-88-4; EINECS/ELINCS 200-815-3



*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; good performance in solv.-based coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; exc. mar and abrasion resist.; exc. recoatability

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 9 μ avg. particle size; dens. 0.96 g/cc; drop pt. 126 C; acid no. nil; hardness < 0.5 dmm

**ACumist® B-12** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized HDPE homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; provides matting, surf. props. to powd. coatings; good performance in solv.-based coatings; suspension aid, flattening and texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; exc. mar and abrasion resist., exc. recoatability

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 12 μ avg. particle size; dens. 0.96 g/cc; drop pt. 126 C; acid no. nil; hardness < 0.5 dmm

**ACumist® B-18** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized HDPE homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; good performance in solv.-based coatings; suspension aid, flattening and texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants; exc. mar and abrasion resist., exc. recoatability

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 18 μ avg. particle size; dens. 0.96 g/cc; drop pt. 126 C; acid no. nil; hardness < 0.5 dmm

**ACumist® C-5** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; abrasion resist. aid and slip resist. aid for coatings; suspension aid, flattening agent, texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 5 μ avg. particle size; dens. 0.95 g/cc; drop pt. 121 C; acid no. nil; hardness 1.0 dmm

**ACumist® C-9** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; abrasion resist. aid and slip resist. aid for coatings; suspension aid, flattening agent, texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 9 μ avg. particle size; dens. 0.95 g/cc; drop pt. 121 C; acid no. nil; hardness 1.0 dmm

**ACumist® C-12** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; abrasion resist. aid and slip resist. aid for coatings; suspension aid, flattening agent, texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800,

178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 12 μ avg. particle size; dens. 0.95 g/cc; drop pt. 121 C; acid no. nil; hardness 1.0 dmm

**ACumist® C-18** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for adhesives, inks, personal care, and rubber applics.; abrasion resist. aid and slip resist. aid for coatings; suspension aid, flattening agent, texturizing agent, and binder for personal care prods.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 18 μ avg. particle size; dens. 0.95 g/cc; drop pt. 121 C; acid no. nil; hardness 1.0 dmm

**ACumist® C-30** [Honeywell Spec. Chems.]

*Chem. Descrip.:* Micronized polyethylene homopolymer  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax additive for inks, coatings, rubber applics.; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, lubricants  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520, 177.2600, 177.2800, 178.3570, 178.3850, 179.45

*Properties:* Micronized powd.; 30 μ avg. particle size; dens. 0.95 g/cc; drop pt. 121 C; acid no. nil; hardness 1.0 dmm

**Acusol® 810** [Rohm & Haas]

*Chem. Descrip.:* Acrylic crosslinked copolymer  
CAS 25133-97-5

*Uses:* Detergent polymer, processing aid, stabilizer, thickener for detergents and cleaners, oven cleaners, dishwash liqs., highly loaded surfactant formulations, food industry cleaners, water treatment, min. processing, other industrial markets; food pkg. adhesives, paper/paperboard; best for extremely high pH

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Alkali-sol.; sp.gr. 1.046; visc. 1700-2700 cps (1% neutralized); pH 2.4-3.4; 18% solids; anionic

**Acusol® 820** [Rohm & Haas]

*Chem. Descrip.:* Acrylic copolymer emulsion  
CAS 25133-97-5

*Uses:* Detergent polymer, processing aid, thickener, and stabilizer for cosmetics, detergents and cleaners, abrasive creams, floor cleaners, rinse aids, dishwash liqs., alkaline toilet cleaners, water treatment, min. processing, other industrial markets; foam stabilizer; food-contact paper/paperboard; very thixotropic

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Off-wh. milky liq.; alkali-sol.; m.w. 500,000; sp.gr. 1.06; dens. 8.75 lb/gal; visc. 20 cps; pH 2.7; 30% solids; anionic

*Toxicology:* LD50 (oral, rats) > 5 g/kg; mod. irritating to eyes, sl. irritating to skin

*Storage:* Protect from freezing

**Acusol® 823** [Rohm & Haas]

*Chem. Descrip.:* Hydrophobically modified acrylic polymer emulsion

*Uses:* Detergent polymer, thickener, and stabilizer for household and institutional detergents (liq. abrasive cleaners, oven cleaners, all purpose cleaners, dishwashing liq.); food-contact paper/paperboard; high electrolyte tolerance; high alkaline tolerance; low shear thinning

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Clear sol'n.; alkali-sol.; sp.gr. 1.04; visc. 30 cps; pH 3.2; 30% polymer; anionic

**Acusol® 830** [Rohm & Haas]

*Chem. Descrip.:* Acrylic crosslinked copolymer  
CAS 25133-97-5

*Uses:* Detergent polymer, thickener, stabilizer for detergents, floor polishes, window cleaners, solv.-based cleaners, paint strippers, lubricant emulsions, car polishes, antifreeze, water treatment, min. processing, other industrial markets; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Alkali-sol.; sp.gr. 1.054; visc. 10 cps; pH 3; 28% solids; anionic

**Acusol® 842** [Rohm & Haas]

*Chem. Descrip.:* Acrylic copolymer  
CAS 25133-97-5

- Uses:* Detergent polymer, thickener for detergents and cleaners (abrasive cleaners, scourers, machine dishwashing liqs., floor cleaners); foam stabilizer; good particulate suspension; film forming; food-contact paper/paperboard; good surfactant tolerance; good divalent ion tolerance; rheology close to cellulotics
- Regulatory:* FDA 21CFR §176.170, 176.180
- Properties:* Alkali-sol.; sp.gr. 1.050; visc. 200 cps; pH 2.5-3.5; 17.5-18.5% solids; anionic
- Adeka PEG-200** [Asahi Denka Kogyo]  
*Chem. Descrip.:* PEG-4  
 CAS 25322-68-3; EINECS/ELINCS 203-989-9  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Transparent liq.; m.w. 200; nonionic  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-300** [Asahi Denka Kogyo]  
*Chem. Descrip.:* PEG-6  
 CAS 25322-68-3; EINECS/ELINCS 220-045-1  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Transparent liq.; m.w. 300; nonionic  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-400** [Asahi Denka Kogyo]  
*Chem. Descrip.:* PEG-8  
 CAS 25322-68-3; EINECS/ELINCS 225-856-4  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Transparent liq.; m.w. 400; nonionic  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-600** [Asahi Denka Kogyo]  
*Chem. Descrip.:* PEG-12  
 CAS 25322-68-3; EINECS/ELINCS 229-859-1  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Transparent liq.; m.w. 600; nonionic  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-1000** [Asahi Denka Kogyo]  
*Chem. Descrip.:* PEG-20  
 CAS 25322-68-3; EINECS/ELINCS 203-989-9  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Wh. paste; m.w. 1000; nonionic  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-1500** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Polyethylene glycol  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Wh. paste; m.w. 1500  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-4000** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Polyethylene glycol  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Wh. flake; m.w. 4000  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-6000** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Polyethylene glycol  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Wh. flake; m.w. 6000  
*Toxicology:* Low toxicity; mild irritation
- Adeka PEG-20,000** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Polyethylene glycol  
*Uses:* Surfactant, wetting agent, lubricant for textiles, paper, syn. resins, cosmetics, and pharmaceutical industries; good sol. and compat.  
*Properties:* Wh. flake; m.w. 20,000  
*Toxicology:* Low toxicity; mild irritation
- Adeka Catioace DM-30A** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Tetraammonium salt type polymer  
*Uses:* Surfactant, pigment dispersant for water-based systems; paper/pulp conductive agents  
*Properties:* Cationic
- Adekahope DES-3025** [Asahi Denka Kogyo]  
*Chem. Descrip.:* High alcohol ether sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Liq.; 25% solids; anionic
- Adekahope DS-25** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Higher alcohol sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Liq.; 25% solids; anionic
- Adekahope HAN-40** [Asahi Denka Kogyo]  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries  
*Properties:* Powd.; 40% solids; anionic
- Adekahope LS-35** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Nat. alcohol sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Liq.; 35% solids; anionic
- Adekahope LS-90** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Nat. alcohol sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Liq.; 90% solids; anionic
- Adekahope LST** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Nat. alcohol sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Liq.; 35% solids; anionic
- Adekahope MS-30C** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Nat. alcohol sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries  
*Properties:* Paste; 30% solids; anionic
- Adekahope MS-90P** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Nat. alcohol sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries  
*Properties:* Powd.; 90% solids; anionic
- Adekahope NES-60N** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Aromatic ether sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Yel. liq.; pH 7.0 (3% aq.); 60% solids; anionic
- Adekahope SAN-40PD** [Asahi Denka Kogyo]  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries  
*Properties:* Powd.; 40% solids; anionic
- Adekahope TR-45** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Sulfated oil  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries  
*Properties:* Liq.; 45% solids; anionic
- Adekahope YES-25** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Nat. alcohol ether sulfate  
*Uses:* Emulsifier, detergent for cosmetics, textiles, paper/pulp, petrol., paints, inks, dyes, pharmaceuticals, agric., metal cleaning, rubber, and plastics industries; polymerization emulsifier  
*Properties:* Liq.; 25% solids; anionic
- Adeka Hypote** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Sodium hypochlorite

- CAS 7681-52-9; EINECS/ELINCS 231-668-3  
*Uses:* Bleaching agent for fiber, pulp/paper, chemicals, food, water treatment
- Adekamine 4DAC-80** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Dialkyl type tetraammonium salt  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent and dispersant for pigments and paints  
*Properties:* Sl. brn. liq.; 80% solid; cationic  
*Toxicology:* Mild irritation
- Adekamine 4DAC-85** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Dialkyl type tetraammonium salt  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Sl. brn. liq.; 85% solid; cationic  
*Toxicology:* Mild irritation
- Adekamine 4MAC-30** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Monoalkyl type tetraammonium salt  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Transparent liq.; 30% solid; cationic  
*Toxicology:* Mild irritation
- Adekamine ADG-30** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Alkyl glycine type  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Liq.; 30% solid; cationic  
*Toxicology:* Mild irritation
- Adekamine E Series** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Mono- or di-alkyl tetraammonium salts  
*Uses:* Surfactant, softener, antistat, emulsifier in textiles, paper depitching, cosmetic, pharmaceutical, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Cationic  
*Toxicology:* Mildly irritating
- Adekamine LDM** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Alkylamine oxide  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Transparent liq.; 35% solid; cationic  
*Toxicology:* Mild irritation
- Adekamine MD-30** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Alkylamine oxide  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Liq.; 30% solid; cationic
- Adekamine MT-50** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Monoalkyl type tetraammonium salt  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Sl. brn. liq.; 50% solid; cationic
- Adekamine PMS-100** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Polyamine derivative  
*Uses:* Surfactant, antistat, softener, emulsifier, dispersant in textiles, paper depitching, cosmetics, pharmaceuticals, rubber, plastics applics.; emulsion breaker in petrol.; wetting agent, dispersant for pigments and paints  
*Properties:* Sl. yellowish flake; 100% solid; cationic
- Adekanate B-107F** [Asahi Denka Kogyo]  
*Uses:* Defoamer for polymer cement, papermaking, wastewater, paints, inks, dyes, rubber, plastics applics.  
*Properties:* Wh. powd.; pH 7.0 (3% aq.); 100% solids
- Adekanate B-187** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Blended mineral oils  
*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper/pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect  
*Use Level:* 50-100 ppm (resin emulsion)

*Properties:* Lt. yel. liq.; sp.gr. 0.91; pH 7.5 (3% aq.); 100% act.

**Adekanate B-190** [Asahi Denka Kogyo]

*Chem. Descrip.:* Silicone blend

*Uses:* Defoamer for syn. resin emulsion, emulsion-type adhesives, emulsion-type paints, latex prod., paper/pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Properties:* Lt. yel. liq.; sp.gr. 1.02; pH 7.0 (3% aq.); 100% act.; nonionic

**Adekanate B-192** [Asahi Denka Kogyo]

*Chem. Descrip.:* Silicone blend

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper/pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Properties:* Lt. yel. liq.; sp.gr. 1.02; pH 7.0 (3% aq.); 100% act.; nonionic

**Adekanate B-505** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper/pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Properties:* Lt. yel. liq.; sp.gr. 0.90; pH 9.0 (3% aq.); 100% solids

**Adekanate B-556** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Surfactant, defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., textiles, wastewater, paints, inks, dyes, rubber, plastics, paper industry, recovery of pulping liquor; good foam breaking; long lasting defoaming

*Use Level:* 1-100 ppm (paper industry); 0.05-0.5% (textile dyeing)

*Properties:* Lt. yel. liq.; sp.gr. 0.90; pH 9.0 (3% aq.); 100% solids

**Adekanate B-590** [Asahi Denka Kogyo]

*Chem. Descrip.:* Special nonionics

*Uses:* Antifoam for paper/pulp, wastewater, paints, inks, dyes, rubber, and plastics

*Properties:* Amber liq.; sp.gr. 0.95; pH 4.0 (3% aq.); 100% act.

**Adekanate B-748A** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Use Level:* 50-100 ppm (resin emulsion)

*Properties:* Wh. milky liq.; sp.gr. 0.90; pH 9.5 (3% aq.); 100% solids

**Adekanate B-925** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Use Level:* 0.05-2% (adhesives); 0.01-0.1% owf (textile finishing)

*Properties:* Lt. yel. liq.; sp.gr. 1.02; pH 7.0 (3% aq.); 100% solids; nonionic

**Adekanate B-940** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Use Level:* 50-100 ppm (resin emulsion); 0.05-0.5% (textile dyeing)

*Properties:* Lt. yel. liq.; sp.gr. 0.90; pH 5.0 (3% aq.); 100% solids

**Adekanate B-970** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Properties:* Lt. yel. liq.; sp.gr. 1.02; pH 8.0; 100% solids; nonionic

**Adekanate B-988** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Properties:* Lt. yel. liq.; sp.gr. 1.01; pH 7.0 (3% aq.); 100% solids

**Adekanate B-1011** [Asahi Denka Kogyo]

*Chem. Descrip.:* Blended mineral oils

*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect

*Properties:* Lt. yel. liq.

**Adekanate B-1012** [Asahi Denka Kogyo]



- Chem. Descrip.:* Silicone blend  
*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect  
*Properties:* Lt. yel. liq.; sp.gr. 1.01; pH 7.0 (3% aq.); 100% solids; nonionic
- Adekanate B-1015** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Silicone blend  
*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect  
*Use Level:* 50-100 ppm (resin emulsion); 0.05-0.5% (textile dyeing)  
*Properties:* Lt. yel. transparent liq.; sp.gr. 1.01; pH 7.0 (3% aq.); 100% solids; nonionic
- Adekanate B-1016** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Silicone blend  
*Uses:* Defoamer for syn. resin emulsions, emulsion-type adhesives, emulsion-type paints, latex prod., paper pulp industry, wastewater, paints, inks, dyes, rubber, and plastics; good foam breaking; long lasting defoaming effect  
*Use Level:* 50-100 ppm (resin emulsion); 0.05-2% (adhesives); 0.05-0.5% (textile dyeing)  
*Properties:* Wh. suspension; sp.gr. 1.02; pH 6.0 (3% aq.); 100% solids; nonionic
- Adekanate B-1019** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Silicone-based emulsion  
*Uses:* Antifoam for paper/pulp, wastewater, paints, inks, dyes, rubber, and plastics  
*Properties:* Milky wh. liq.; sp.gr. 1.02; pH 7.0 (3% aq.); 45% act.
- Adekanate B-3056A** [Asahi Denka Kogyo]  
*Chem. Descrip.:* Mineral oil-based  
*Uses:* Defoamer for glossy paints, resin emulsions, syn. rubber and latexes, food-contact coatings/paper  
*Use Level:* 100-500 ppm  
*Regulatory:* FDA 21CFR §176.200, 176.210, 176.250  
*Properties:* Amber suspension; sp.gr. 0.90; pH 5.0 (3% aq.); 100% solids
- Adekanol 25R-1** [Asahi Denka Kogyo]  
*Chem. Descrip.:* POE-POP block copolymer  
CAS 9003-11-6  
*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; detergent in auto dishwasher, bottle washing, etc.; low foaming; highly stable to acid, alkali, peroxide metallic ion  
*Properties:* Transparent liq.; nonionic  
*Toxicology:* Low toxicity
- Adekanol 25R-2** [Asahi Denka Kogyo]  
*Chem. Descrip.:* POE-POP block copolymer  
CAS 9003-11-6  
*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; detergent in auto dishwasher, bottle washing, etc.; low foaming; highly stable to acid, alkali, peroxide metallic ion  
*Properties:* Transparent liq.; nonionic  
*Toxicology:* Low toxicity
- Adekanol B-608** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-713** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 36 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-714** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 43 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-722** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming
- Properties:* Transparent or semi-transparent liq.; cloud pt. 16 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-733** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; pigment wetting agent; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; sp.gr. 1.00; cloud pt. 31 C; pH 7.0 (3% aq.); 100% solids; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-750** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 4 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-762** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; pigment wetting agent; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; sp.gr. 1.00; cloud pt. 40 C; pH 7.0 (3% aq.); 100% solids; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-786** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 0 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-795** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; pigment wetting agent; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; sp.gr. 1.00; cloud pt. 37 C; pH 7.0 (3% aq.); 100% solids; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-797** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; pigment wetting agent; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; sp.gr. 1.00; cloud pt. 32 C; pH 7.0 (3% aq.); 100% solids; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-2020** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 24 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-2030** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 17 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-4001** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 66 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol B-4009** [Asahi Denka Kogyo]  
*Uses:* Surfactant, detergent for metal, paper/pulp, paints, agric., and textiles; high detergency, low foaming  
*Properties:* Transparent or semi-transparent liq.; cloud pt. 66 C; nonionic  
*Toxicology:* Mild irritation; low toxicity
- Adekanol F-68** [Asahi Denka Kogyo]  
*Chem. Descrip.:* POE-POP block copolymer  
CAS 9003-11-6  
*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion  
*Properties:* Wh. flake; nonionic  
*Toxicology:* Low toxicity
- Adekanol F-88** [Asahi Denka Kogyo]  
*Chem. Descrip.:* POE-POP block copolymer  
CAS 9003-11-6  
*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymeriza-

tion emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Wh. flake; nonionic

*Toxicology:* Low toxicity

**Adekanol F-108** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Wh. flake; nonionic

*Toxicology:* Low toxicity

**Adekanol F-127** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Wh. flake; nonionic

*Toxicology:* Low toxicity

**Adekanol G-135, G-145** [Asahi Denka Kogyo]

*Uses:* Foam breaking and foam preventive additive for papermaking

**Adekanol G-683** [Asahi Denka Kogyo]

*Chem. Descrip.:* Silicone defoamer

*Uses:* Defoamer for papermaking

**Adekanol KS-220** [Asahi Denka Kogyo]

*Chem. Descrip.:* Nonsilicone

*Uses:* Antifoam for papermaking, wastewater treatment; does not affect performance of sizing agents; long-lasting effects

*Properties:* Emulsion

**Adekanol L-31** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-34** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-44** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-61** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, defoamer, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, fermentation, syn. resin emulsions, adhesives, paint pigments, oil, leather, photography, agric. forest industries; polymerization emulsifier; detergent in auto dishwasher, bottle washing, etc.; highly stable to acid, alkali, peroxide metallic ion

*Use Level:* 0.005-0.1% (fermentation); 0.05-2% (adhesives)

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-62** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-64** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-71** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Use Level:* 0.05-0.5% (paint)

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-72** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Use Level:* 0.05-0.5% (paint)

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-101** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-121** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol L-122** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Transparent or translucent liq.; nonionic

*Toxicology:* Low toxicity

**Adekanol LG-109** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; detergent



in auto dishwasher, bottle washing, etc.; good foam breaking/prevention

*Use Level:* 0.005-0.1%

*Properties:* Transparent liq.

**Adekanol LG-121** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; detergent in auto dishwasher, bottle washing, etc.; good foam breaking/prevention

*Properties:* Transparent liq.

**Adekanol LG-126** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; detergent in auto dishwasher, bottle washing, etc.; suitable for org. acids, amino acids, and antibiotics; good foam breaking/prevention

*Use Level:* 0.005-0.1% (fermentation); 0.001-0.1% (wastewater treatment)

*Properties:* Transparent liq.

**Adekanol LG-131N** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, slate prod., and wastewater treatment; good foam breaking/prevention

*Properties:* Transparent liq.

**Adekanol LG-135** [Asahi Denka Kogyo]

*Chem. Descrip.:* Ester

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, slate prod., and wastewater treatment; good foam breaking/prevention

*Properties:* Lt. yel. liq.; nonionic

**Adekanol LG-139** [Asahi Denka Kogyo]

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, elec., cosmetics, syn. resin paint pigments, textiles, electronics, and wastewater treatment; good foam breaking/prevention

*Properties:* Lt. yel. liq.; nonionic

**Adekanol LG-141** [Asahi Denka Kogyo]

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, slate prod., and wastewater treatment; good foam breaking/prevention

*Properties:* Lt. yel. liq.; nonionic

**Adekanol LG-142** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactant

*Uses:* Antifoam for fermentation, recycled beet liquor, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Properties:* Lt. yel. liq.; nonionic

**Adekanol LG-145** [Asahi Denka Kogyo]

*Chem. Descrip.:* Ester

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Use Level:* 10-100 ppm (textile dyeing)

*Properties:* Lt. yel. liq.; nonionic

**Adekanol LG-150** [Asahi Denka Kogyo]

*Chem. Descrip.:* Mineral oil type

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Properties:* Lt. yel. liq.

**Adekanol LG-163** [Asahi Denka Kogyo]

*Chem. Descrip.:* Mineral oil type

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Properties:* Lt. yel. liq.

**Adekanol LG-200B** [Asahi Denka Kogyo]

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; antifoam in monomer stripping in production of rubber latexes with soap-based emulsifiers, esp. in SBR type latexes; good foam breaking/prevention

*Use Level:* 100-500 ppm (rubbers/latexes)

*Properties:* Wh. emulsion; nonionic

**Adekanol LG-294** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Use Level:* 0.005-0.1%

*Properties:* Transparent liq.; highly disp. in water

**Adekanol LG-295S** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Use Level:* 0.005-0.1%

*Properties:* Transparent liq.

**Adekanol LG-297** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Use Level:* 0.005-0.1%

*Properties:* Transparent liq.

**Adekanol LG-674** [Asahi Denka Kogyo]

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Properties:* Wh. emulsion; nonionic

**Adekanol LG-805** [Asahi Denka Kogyo]

*Chem. Descrip.:* Polyether type surfactants

*Uses:* Antifoam for fermentation, paper/pulp, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, textiles, and wastewater treatment; good foam breaking/prevention

*Use Level:* 0.005-0.1%

*Properties:* Transparent liq.

**Adekanol P-84** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Wh. paste; nonionic

*Toxicology:* Low toxicity

**Adekanol P-85** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Wh. paste; nonionic

*Toxicology:* Low toxicity

**Adekanol P-103** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer

CAS 9003-11-6

*Uses:* Surfactant, emulsifier, solubilizer, detergent, dispersant, lubricant for textiles, pulp/paper, metal, pharmaceuticals, cosmetics, syn. resin paint pigments, oil, leather, photography, and agric. forest industries; polymerization emulsifier; low foaming; highly stable to acid, alkali, peroxide metallic ion

*Properties:* Wh. paste; nonionic

*Toxicology:* Low toxicity

**Adekanol RP-605D** [Asahi Denka Kogyo]

*Uses:* Surfactant, deinking agent for waste paper; detergent; flotation system; offers good wetting, penetration, readhesion prevention of carbon; carbon cohesive type

*Properties:* Lt. yel. transparent liq.; nonionic

**Adekanol RP-807** [Asahi Denka Kogyo]

*Uses:* Surfactant; deinking agent for waste paper; detergent; flotation system; offers good wetting, penetration, readhesion prevention of carbon; carbon cohesive type

*Properties:* Transparent liq.; nonionic

**Adekanol RP-870** [Asahi Denka Kogyo]

*Uses:* Surfactant; deinking agent for waste paper; detergent; flotation system; offers good wetting, penetration, readhesion prevention of carbon; carbon cohesive type

*Properties:* Transparent liq.; nonionic

**Adekanol RP-882** [Asahi Denka Kogyo]

*Uses:* Surfactant; deinking agent for waste paper; detergent; flotation system; offers good wetting, penetration, readhesion prevention of carbon; carbon cohesive type

*Properties:* Transparent liq.; nonionic

**Adekanol TR-701** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer (ethylene diamine based)  
CAS 9003-11-6

*Uses:* Surfactant, defoamer for textiles, paper/pulp, petrol., paints, pharmaceuticals, cosmetics, agric., syn. resin emulsions, rubber, plastics, adhesives, and metal industries

*Use Level:* 0.05-2% (adhesives)

*Properties:* Sl. yellowish transparent liq.; nonionic

*Toxicology:* Low toxicity; mild irritation

**Adekanol TR-702** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer (ethylene diamine based)  
CAS 9003-11-6

*Uses:* Surfactant for textiles, paper/pulp, petrol., paints, pharmaceuticals, cosmetics, agric., rubber, plastics, and metal industries; low foaming

*Properties:* Sl. yellowish transparent liq.; nonionic

*Toxicology:* Low toxicity; mild irritation

**Adekanol TR-704** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer (ethylene diamine based)  
CAS 9003-11-6

*Uses:* Surfactant for textiles, paper/pulp, petrol., paints, pharmaceuticals, cosmetics, agric., rubber, plastics, and metal industries; low foaming

*Properties:* Sl. yellowish transparent liq.; nonionic

*Toxicology:* Low toxicity; mild irritation

**Adekanol TR-913** [Asahi Denka Kogyo]

*Chem. Descrip.:* POE-POP block copolymer (ethylene diamine based)  
CAS 9003-11-6

*Uses:* Surfactant for textiles, paper/pulp, petrol., paints, pharmaceuticals, cosmetics, agric., rubber, plastics, and metal industries; low foaming

*Properties:* Sl. yellowish transparent liq.; nonionic

*Toxicology:* Low toxicity; mild irritation

**Adekanol TS-401** [Asahi Denka Kogyo]

*Uses:* Surfactant, wetting agent, scouring detergent, and bleaching penetrant for textiles; surfactant for paper/pulp, metal cleaning

*Properties:* Transparent liq.; nonionic

*Environmental:* Biodeg.

**Adekanol TS-403A** [Asahi Denka Kogyo]

*Uses:* Surfactant, wetting agent, scouring detergent, and bleaching penetrant for textiles; surfactant for paper/pulp, metal cleaning

*Properties:* Lt. yel. transparent liq.; nonionic/anionic

*Environmental:* Biodeg.

**Adekanol TS-406** [Asahi Denka Kogyo]

*Uses:* Surfactant, wetting agent, scouring detergent, and bleaching penetrant for textiles; surfactant for paper/pulp, metal cleaning

*Properties:* Lt. yel. transparent liq.; nonionic/anionic

*Environmental:* Biodeg.

**Adekanol TS-415A** [Asahi Denka Kogyo]

*Uses:* Surfactant, wetting agent, scouring detergent, and bleaching penetrant for textiles; surfactant for paper/pulp, metal cleaning

*Properties:* Lt. yel. transparent liq.; nonionic/anionic

*Environmental:* Biodeg.

**Adekanol TS-661** [Asahi Denka Kogyo]

*Uses:* Surfactant, scouring detergent for textiles; surfactant for paper/pulp, metal cleaning; low foaming; high acid resist.

*Properties:* Transparent liq.; nonionic

**Adekanol TS-751** [Asahi Denka Kogyo]

*Uses:* Surfactant, scouring detergent for textiles; surfactant for paper/pulp, metal cleaning; good dispersion

*Properties:* Transparent liq.; nonionic

**Adekanol TS-780** [Asahi Denka Kogyo]

*Uses:* Surfactant, scouring detergent for textiles; surfactant for paper/pulp, metal cleaning; good dispersion

*Properties:* Transparent liq.; nonionic

**Adekanol TS-800** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adekanol TS-800C** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adekanol TS-801C** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adekanol TS-830** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adekanol TS-840** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adekanol TS-843** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adekanol TS-845** [Asahi Denka Kogyo]

*Uses:* Surfactant, soaping agent for textiles; surfactant for paper/pulp, metal cleaning; low foaming

*Properties:* Lt. yel. transparent liq.; anionic

**Adeka Optomer KR Series** [Asahi Denka Kogyo]

*Chem. Descrip.:* One-component epoxy resin, UV curing

CAS 25928-94-3

*Uses:* Primers for materials such as metal/plastic/paper, finishing varnishes, protective varnishes, inks, adhesives, insulating coatings, conductive coatings

**Adekatol LO-3** [Asahi Denka Kogyo]

*Chem. Descrip.:* Primary alcohol ethoxylate

*Uses:* Surfactant for textiles, paper/pulp, metal, syn. resin paint pigments, and agric. forest industries

*Properties:* Transparent liq.; cloud pt. < 10 C; HLB 8.5; nonionic

**Adekatol LO-7** [Asahi Denka Kogyo]

*Chem. Descrip.:* Primary alcohol ethoxylate

*Uses:* Surfactant for textiles, paper/pulp, metal, syn. resin paint pigments, and agric. forest industries

*Properties:* Transparent liq.; cloud pt. 45 C; HLB 11.9; nonionic

**Adekatol LO-9** [Asahi Denka Kogyo]

*Chem. Descrip.:* Primary alcohol ethoxylate

*Uses:* Surfactant for textiles, paper/pulp, metal, syn. resin paint pigments, and agric. forest industries

*Properties:* Transparent liq.; cloud pt. 65 C; HLB 13.0; nonionic

**Adekatol SO-105** [Asahi Denka Kogyo]

*Chem. Descrip.:* Secondary alcohol ethoxylate

*Uses:* Surfactant, detergent for textiles, paper/pulp, metals, syn. resin paint pigments, and agric. forest industries

*Properties:* Transparent liq.; HLB 10.5; nonionic

**Adekatol SO-120** [Asahi Denka Kogyo]

*Chem. Descrip.:* Secondary alcohol ethoxylate

*Uses:* Surfactant, detergent for textiles, paper/pulp, metals, syn. resin paint pigments, and agric. forest industries

*Properties:* Transparent liq.; cloud pt. 33 C; HLB 12.0; nonionic

**Adekatol SO-135** [Asahi Denka Kogyo]

*Chem. Descrip.:* Secondary alcohol ethoxylate

*Uses:* Surfactant, detergent for textiles, paper/pulp, metals, syn. resin paint pigments, and agric. forest industries

*Properties:* Transparent liq.; cloud pt. 57 C; HLB 13.5; nonionic

**Adekatol SO-145** [Asahi Denka Kogyo]

*Chem. Descrip.:* Secondary alcohol ethoxylate

*Uses:* Surfactant, detergent for textiles, paper/pulp, metals, syn. resin paint pigments, and agric. forest industries

*Properties:* Wh. powd.; cloud pt. 82 C; HLB 14.5; nonionic

**Adekatol SO-160** [Asahi Denka Kogyo]

*Chem. Descrip.:* Secondary alcohol ethoxylate

*Uses:* Surfactant, detergent for textiles, paper/pulp, metals, syn. resin paint

pigments, and agric. forest industries

*Properties:* Wh. solid; cloud pt. 95 C; HLB 16.0; nonionic

**Adelite** [Asahi Denka Kogyo]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Antislip agent for paper; fiber binder for metal casting and refractory materials; catalyst carrier; reinforcing agent for adhesives and paints

**Adi-pure®** [DuPont Nylon]

*Chem. Descrip.:* High purity adipic acid

CAS 124-04-9; EINECS/ELINCS 204-673-3

*Uses:* Chem. intermediate; used in adhesives, coatings (alkyd, PU, gel coat, polyester), nylon 66, PU foams/elastomers/fibers, unsat. polyester resins, plasticizers, lubricants, textile treatments, cosmetic emollients; pH buffer; wet str. paper resins; food acidulant

*Regulatory:* FDA 21CFR §184.1009

*Properties:* Wh. free-flowing cryst. powd.; sol. 2.5% in water; m.w. 146.14; dens. 1.34 (18 C); bulk dens. 40-45 lb/ft<sup>3</sup> (loose); melt visc. 4.54 cP (160 C); vapor pressure 0.106 mm Hg; m.p. 152-153 C; b.p. 337 C with decomp.; flash pt. (TCC) 196 C; pH 3.2 (1 g/l in water); > 99.9% assay

*Toxicology:* LD50 (oral, mice) 1900 mg/kg; sl. acute toxicity; eye and upper respiratory tract irritant; mild skin irritant

*Environmental:* Aquatic toxicity LC50 (fathead minnows, 96 h) 88 mg/l

*Precaution:* Combustible; under severe dusting conditions may form explosive mixts. in air; incompat. with strong oxidants; slowly decomp. above b.p.

*Storage:* Store in well ventilated area in tightly closed container; keep away from heat, sparks, flames; avoid dust generation

**Admex® 515** [Velsicol]

*Chem. Descrip.:* Med.-low m.w. polymeric adipate polyester

*Uses:* Plasticizer for plastisols, oil filter plastisols, paper coatings; exc. rheological chars., low visc.; nonmigratory in paper coatings

*Properties:* Lt. colored clear bright fluid to visc. liq., mild ester odor; m.w. 2300; sp.gr. 1.060; visc. 600 cps; pour pt. 35 F; acid no. 2; hyd. no. 17; flash pt. 475 F; ref. index 1.463

**Admex® 6996** [Velsicol]

*Chem. Descrip.:* Low m.w. polymeric adipate polyester

*Uses:* Plasticizer for pressure-sensitive adhesives, elec. tape, coated fabrics, high temp. elec. applics., paper coatings; imparts low temp. flexibility; nonvolatile; flexible; nonmigratory; permanent; low visc.

*Properties:* Lt. colored clear bright fluid to visc. liq., mild ester odor; m.w. 1800; sp.gr. 1.070; visc. 550 cps; pour pt. -15 F; acid no. 1; hyd. no. 7; flash pt. 480 F; ref. index 1.463

**Admiral® Water Soluble Polymer** [Hercules]

*Chem. Descrip.:* Polymer

*Uses:* Rheology modifier, thickener, retention aid for paper coatings

**Adogen® 412** [Goldschmidt]

*Chem. Descrip.:* Lauryl trimethyl ammonium chloride

CAS 112-00-5; EINECS/ELINCS 203-927-0

*Uses:* Softener for textiles, laundry, paper, etc.

**Adox 3125** [Int'l. Dioxide]

*Chem. Descrip.:* Sodium chlorite

CAS 7758-19-2; EINECS/ELINCS 231-836-6

UN No. 1908

*Uses:* Antimicrobial for water and waste treatment, starch and cherry bleaching; slimicide in papermaking; in mech. generation of chlorine dioxide for biological control in paper mills, food processing, flumes, water treatment equip., cooling towers; ClO<sub>2</sub>; used as disinfectant and oxidant in bleaching flour, potable water purification, sanitizing of food processing equip., poultry chiller water and meat processing plants; taste and odor control in potable water

*Regulatory:* EPA reg. no. 9150-7; GRAS; ANSI/NSF 60 certified

*Properties:* Pale yel. clear liq.; faint bleach-like odor; misc. in water; m.w. 90.45; sp.gr. 1.23 (20 C); dens. 10.2 lb/gal; f.p. -4.5 C; b.p. 103.6 C; pH 12.5-13; 25% conc. in water

*Toxicology:* LD50 (oral, rat) 165 mg/kg; skin irritant; severe eye irritant; possible permanent eye damage; inh. irritates nose and throat; ing. irritates GI tract; may cause vomiting, nausea, diarrhea, pain, liver/kidney/blood cell damage

*Precaution:* Corrosive; does not burn but combustibles wetted with prod. and subsequently dried are easily ignited and burn vigorously; incompat. with reducing agents, sulfur-contg. materials, powd. metals, ammonium compds., acids

*Hazardous Decomp. Prods.:* Reacts on mixing with acids to give toxic chlorine dioxide and chlorine gas; residues will give off oxygen on being heated strongly

HMIS: Health 3; Flammability 1; Reactivity 1

*Storage:* Store in cool, dry, fireproof building; keep away from combustibles and acids

**Adox 8125** [Int'l. Dioxide]

*Chem. Descrip.:* Sodium chlorite

CAS 7758-19-2; EINECS/ELINCS 231-836-6

UN No. 1908

*Uses:* Antimicrobial for bleaching (pulp/paper, textile dyestuffs, fats, oils, leather, cherry), industrial (recycled flume water, slimicide, cooling tower algicide, oil well bacterial control, food processing microbicide, beverage plant sanitization); wastewater/oxidant (sulfide, phenol, cyanide, manganese, and iron destruction), potable water disinfection (trihalomethane control, taste, odor, and bacterial control)

*Regulatory:* EPA reg. no. 9150-7; GRAS; ANSI/NSF 60 certified

*Properties:* Pale grn. clear liq.; faint bleach-like odor; misc. in water; m.w. 90.45; sp.gr. 1.24 (20 C); f.p. -9 C; b.p. 106 C; pH 12.5-13; 25% conc. in water

*Toxicology:* LD50 (oral, rat) 165 mg/kg; skin irritant; severe eye irritant; possible permanent eye damage; inh. irritates nose and throat; ing. irritates GI tract; may cause vomiting, nausea, diarrhea, pain, liver/kidney/blood cell damage

*Precaution:* Corrosive; does not burn but combustibles wetted with prod. and subsequently dried are easily ignited and burn vigorously; incompat. with reducing agents, sulfur-contg. materials, powd. metals, ammonium compds., acids

*Hazardous Decomp. Prods.:* Reacts on mixing with acids to give toxic chlorine dioxide and chlorine gas; residues will give off oxygen on being heated strongly

HMIS: Health 3; Flammability 1; Reactivity 1

*Storage:* Store in cool, dry, fireproof building; keep away from combustibles and acids

**Advantage® 5 Defoamer** [Hercules]

*Uses:* Defoamer for acid and alkaline papermaking systems, deinking systems

*Regulatory:* FDA compliance

*Properties:* Brick, soapy odor; disp. in water; sp.gr. 0.96; m.p. 54 C; 100% conc.

**Advantage® 6 Defoamer** [Hercules]

*Uses:* Defoamer for acid and alkaline papermaking systems, deinking systems

*Regulatory:* FDA compliance

*Properties:* Brick, soapy odor; disp. in water; sp.gr. 0.96; m.p. 54 C; 100% conc.

**Advantage® 7EH Defoamer** [Hercules]

*Uses:* Defoamer for acid and alkaline papermaking systems, deinking systems, kraft pulp mill screening operations

*Regulatory:* FDA compliance

*Properties:* Brick, soapy odor; disp. in water; sp.gr. 0.96; m.p. 54 C; 100% conc.

**Advantage® 10 Defoamer** [Hercules]

*Chem. Descrip.:* Fatty acid/fatty alcohol-based

*Uses:* Defoamer for acid and alkaline papermaking systems, wastepaper deinking systems, coatings, food-contact coatings/paper; improves drainage and prod. rates of washing operations; stable to freezing

*Regulatory:* FDA 21CFR §176.200, 176.210

*Properties:* Solid brick, soapy odor; emulsifiable in water; sp.gr. 0.96; m.p. 54 C; 100% conc.

**Advantage® 52-B** [Hercules]

*Chem. Descrip.:* Oil-based

*Uses:* Defoamer, drainage aid for pulp mill brownstock washing operations or other high-temp. surfactant-stabilized foam systems

*Regulatory:* FDA compliance

*Properties:* Tannish-gray liq.; dens. 7.5 lb/gal; visc. 3500 ± 1000 cps

**Advantage® 52EH Defoamer** [Hercules]

*Chem. Descrip.:* Oil-based

*Uses:* Defoamer, drainage aid for pulp mill brownstock washing operations or other high-temp. surfactant-stabilized foam systems

*Regulatory:* FDA compliance

*Properties:* Liq.; dens. 7.59 lb/gal; visc. 1500-3000 cps



**Advantage® 52-JS** [Hercules]

*Chem. Descrip.:* Oil-based

*Uses:* Defoamer, drainage aid for pulp mill brownstock washing operations or other high-temp. surfactant-stabilized foam systems

*Regulatory:* FDA compliance

*Properties:* Tannish-gray liq.; dens. 7.5 lb/gal; visc. 3500 ± 1000 cps

**Advantage® 91WW** [Hercules]

*Chem. Descrip.:* Silica/silicone-based

*Uses:* Defoamer, drainage aid for kraft pulp mill brownstock washing operations, cold-stock systems, pulp mill bleaching and screening; grind and letdown defoamer for gloss and deep tint paints; removes entrained air and surface foam

*Regulatory:* FDA compliance

*Properties:* Off-wh. liq.; sp.gr. 1.00; dens. 8.32 lb/gal; visc. 1500-4000 cps

*Storage:* Infinite shelf life; efficiency is not affected by aging; prod. may settle during prolonged storage; redispense before using

**Advantage® 136Z Defoamer** [Hercules]

*Chem. Descrip.:* Silica/amide/silicone/hydrocarbon oil-based

*Uses:* Defoamer, drainage aid for kraft pulp mill brownstock washing operations, coatings; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §176.200, 176.210

*Properties:* Lt. tan liq.; dens. 7.3 lb/gal; visc. 1500-2500 cps (22 C)

*Storage:* Infinite shelf life; efficiency is not affected by aging; prod. may settle during prolonged storage; redispense before using

**Advantage® 187Z Defoamer** [Hercules]

*Chem. Descrip.:* Hydrocarbon oil-based

*Uses:* Defoamer, drainage aid for kraft pulp mill brownstock washing operations; defoamer in metalworking fluids, latex paints, and printing inks, in paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Lt. brn. liq.; dens. 7.7 lb/gal; visc. 1500-3000 cps (22 C)

*Storage:* Infinite shelf life; efficiency is not affected by aging; prod. may settle during prolonged storage; redispense before using

**Advantage® 340F** [Hercules]

*Chem. Descrip.:* Hydrocarbon oil-based defoamer

*Uses:* Defoamer for use in controlling foam that occurs during the stripping operation in the mfg. of polymer latexes; provides good foam control during mfg. and applic. of latex-based coatings and aq. adhesives; food pkg. adhesives, paper/paperboard, animal glue; good knockdown ability and persistence

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200, 178.3120

*Properties:* Lt. brn. liq.; dens. 0.91 kg/l; visc. 3000 cps

*Storage:* Infinite shelf life; during prolonged storage product may settle, redispense before using

**Advantage® 344 Defoamer** [Hercules]

*Uses:* All-purpose defoamer for wet-end use in acid or alkaline papermaking systems or pulp mill effluents, wastewater and effluent treatment; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

*Properties:* Straw liq.; dens. 7.3 lb/gal

**Advantage® 357 Defoamer** [Hercules]

*Chem. Descrip.:* Silica/hydrocarbon oil-based defoamer

*Uses:* Antifoam for wet-end acid and alkaline papermaking operations, water-based paint systems incl. S/B, PVAc, and acrylic latexes, semigloss and gloss paints, aq. adhesives, cutting oils, water-based printing inks, liq. floor polishes, drilling muds; textile dyeing, finishing and scouring operations; improves drainage rate in dewatering and filtering operations; food pkg. adhesives, paper/paperboard, cellophane, animal glue; controls entrained air and surface foam;

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120

*Properties:* Greenish-brn. oily liq.; sp.gr. 0.91; dens. 7.62 lb/gal

*Storage:* Infinite shelf life; prod. may settle during prolonged storage; redispense before using

**Advantage® 388 Defoamer** [Hercules]

*Chem. Descrip.:* Amide/glycol/hydrocarbon oil-based

*Uses:* All-purpose defoamer for aq. foaming systems, flat and semigloss paints, mill effluent and waste treatment systems, kraft pulp mill screening and bleaching operations, acid and alkaline papermaking systems; defoamer in food-contact paper/paperboard; quick-dispersing; effective at high temps. and in many different surfactant-stabilized foam systems

*Regulatory:* FDA 21CFR §176.210

*Properties:* Tan oily liq.; sp.gr. 0.86; dens. 7.2 lb/gal; 100% conc.

*Storage:* 1 yr shelf life; efficiency is not affected by aging; prod. may settle during prolonged storage; redispense before using

**Advantage® 491A Defoamer** [Hercules]

*Chem. Descrip.:* Water-based defoamer formulated with high alcohol/fatty acid partial esters

*Uses:* Defoamer for acid and alkaline papermaking systems, calender and size press sol'ns., process water and plant effluent systems, coatings, other aq. foaming systems, food-contact coatings/paper

*Regulatory:* FDA 21CFR §176.200, 176.210

*Properties:* Wh. liq., hydrocarbon odor; dens. 7.85 lb/gal; visc. 300 cps; pH 7.4

*Storage:* Protect from freezing

**Advantage® 494** [Hercules]

*Chem. Descrip.:* Water-based defoamer

*Uses:* Defoamer for use in acid and alkaline papermaking operations, calender and size press sol'ns., various process water and plant effluent systems, other aq. foaming systems, food-contact coatings/paper; high-efficiency water-based; formulated with high alcohol/fatty-acid partial esters

*Regulatory:* FDA 21CFR §176.200, 176.210

*Properties:* Wh. liq.; dens. 0.94 kg/l; visc. 300 cps; pH 7.5±1.0

*Storage:* 180 day shelf life; protect from freezing

**Advantage® 831 Defoamer** [Hercules]

*Chem. Descrip.:* Hydrophobic silica/hydrocarbon oil-based defoamer

*Uses:* Defoamer for latex mfg., paper coatings, adhesives, detergents, starch cooking, textiles, metalworking fluids; rapid bubble-break time and persistence

*Regulatory:* FDA compliance

*Properties:* Lt. gray liq.; water-disp.; sp.gr. 0.91; dens. 7.62 lb/gal; visc. 500-1500 cps

**Advantage® 833 Defoamer** [Hercules]

*Chem. Descrip.:* Hydrocarbon oil-based

*Uses:* Defoamer for size press applics., latex paints, detergents, printing inks, adhesives, and paper coatings

*Regulatory:* FDA compliance

*Properties:* Tan oily liq.; dens. 7.2 lb/gal; visc. 2000 cps

**Advantage® 951 Defoamer** [Hercules]

*Chem. Descrip.:* Hydrocarbon oil-based

*Uses:* Defoamer, drainage aid for kraft pulp mill brownstock washing operations

*Regulatory:* FDA compliance

*Properties:* Lt. tan liq.; dens. 7.3 lb/gal; visc. 1500-2500 cps

**Advantage® 1280PD** [Hercules]

*Uses:* Production aid for elimination of entrained air and surface foam for pulp/paper industry, wet-end processes, size press sol'ns., calender stack, waste treatment and effluent systems, paints, food-contact paper/paperboard; water-based high-efficiency

*Regulatory:* FDA 21CFR §176.210

*Properties:* Wh. opaque emulsion; sp.gr. 0.98; dens. 8.21 lb/gal; visc. 500-2500 cps

*Storage:* 5 mos shelf life; protect from freezing

**Advantage® 1512 Defoamer** [Hercules]

*Chem. Descrip.:* Hydrocarbon oil-based

*Uses:* Defoamer, drainage aid for kraft pulp mill brownstock washing operations

*Regulatory:* FDA compliance

*Properties:* Gray liq.; dens. 7.7 lb/gal; visc. 600 cps

**Advantage® DF 110** [Hercules]

*Chem. Descrip.:* Glycol- and hydrocarbon oil-based

*Uses:* Defoamer for papermaking systems, food-contact paper/paperboard; stable to freezing

*Regulatory:* FDA 21CFR §176.210

*Properties:* Straw liq., hydrocarbon odor; disp. in water; dens. 7.42 lb/gal; visc. 30 cps

**Advantage® DF 285** [Hercules]

*Chem. Descrip.:* Polypropylene glycol-based

*Uses:* Defoamer for papermaking systems, semigloss and gloss paints, food-contact paper/paperboard; stable to freezing

*Regulatory:* FDA 21CFR §176.210

*Properties:* Clear liq., hydrocarbon odor; nondisp. in water; sp.gr. 1.01; dens. 8.40 lb/gal; visc. 400 cps

**Advantage® Eff-101 Defoamer** [Hercules]

*Chem. Descrip.:* Silica/hydrocarbon oil-based

*Uses:* Multipurpose defoamer for paper machines, pulp mills, other industrial operations, esp. in effluent and wastewater treatment

*Regulatory:* FDA compliance

*Properties:* Grayish-brn. oily liq.; disp. in water; dens. 7.62 lb/gal; visc. 500-1000 cps

**Advantage® M104Z Defoamer** [Hercules]

*Uses:* Defoamer, drainage aid for kraft pulp mill brownstock washing operations

*Regulatory:* FDA compliance

*Properties:* Lt. tan liq.; dens. 7.3 lb/gal; visc. 1500-4000 cps

**Advantage® M201 Defoamer** [Hercules]

*Chem. Descrip.:* Water-extended defoamer

*Uses:* Defoamer, drainage aid for kraft paper machine systems, effluent treatment

*Regulatory:* FDA compliance

*Properties:* Wh. liq.; dens. 7.7 lb/gal; visc. 2000-4000 cps

**Advantage® M1251 Production Aid** [Hercules]

*Uses:* Defoamer, production aid for papermaking applics. and waste/effluent treatment; defoamer in food-contact paper/paperboard; removes entrained air and surface foam

*Regulatory:* FDA 21CFR §176.210

*Properties:* Colorless liq.; water-disp.; dens. 8.2 lb/gal; visc. < 1000 cps; pH 6-9

*Storage:* 12 mos shelf life

**Advawax® 240** [Morton Int'l./Spec. Chem.]

*Chem. Descrip.:* N,N'-Ethylene bisoleamide

CAS 110-31-6; EINECS/ELINCS 203-756-1

*Uses:* Processing lubricant and release agent for plastics; antistat, m.p. modifier for waxes, industrial asphalts and tar; pigment dispersant for resin systems; polyamide-paraffin coupling agent; in adhesive tapes, coatings; food pkg. paper, cellophane; release agent for food contact

*Regulatory:* FDA 21CFR §176.170, 176.180, 177.1200, 178.3860

*Properties:* Gardner 13 max. sm. bead; 20 mesh; insol. in water and most org. solvs. @ R.T.; sol. hot in CCl<sub>4</sub>, DMF, ethanol, heptane, kerosene, MEK, MIBK, naphtha, toluene, xylene; dens. 5 lb/gal; bulk dens. 38 lb/ft<sup>3</sup>; m.p. 115-118 C; acid no. 12 max.; flash pt. (COC) 270 C; fire pt. (COC) 310 C

*Precaution:* May form combustible or explosive mixts. of dust and air during handling

**Advawax® 280** [Morton Int'l./Spec. Chem.]

*Chem. Descrip.:* N,N'-Ethylene bisstearamide

CAS 110-30-5; EINECS/ELINCS 203-755-6

*Uses:* Processing lubricant and release agent for plastics; antistat, m.p. modifier for waxes, industrial asphalts and tar; pigment dispersant for resin systems; polyamide-paraffin coupling agent; in adhesive tapes, coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane

*Use Level:* 2.0 phr max. (NSF for PVC potable water formulations)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1200; NSF approved

*Properties:* Gardner 5 max. sm. bead; 40 mesh; insol. in water and most org. solvs. @ R.T.; sol. hot in DMF, heptane, kerosene, MIBK, naphtha, toluene, xylene; dens. 4.7 lb/gal; bulk dens. 36.8 lb/ft<sup>3</sup>; m.p. 144-146 C; acid no. 10 max.; flash pt. (COC) 280 C; fire pt. (COC) 315 C

*Precaution:* May form combustible or explosive mixts. of dust and air during handling

**Advawax® 290** [Morton Int'l./Spec. Chem.]

*Chem. Descrip.:* N,N'-Ethylene bisstearamide

CAS 110-30-5; EINECS/ELINCS 203-755-6

*Uses:* Processing lubricant and release agent for plastics; m.p. modifier for waxes and resin blends and industrial asphalt and tar; pigment dispersant for resin systems; defoamer in paper/paperboard in contact with aq./fatty/dry foods; in adhesive tapes, coatings, PP; food pkg. adhesives, cellophane

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1200

*Properties:* Gardner 9 max. sm. beads; insol. in water and most org. solvs. @ R.T.; sol. hot in Cellosolve, MIBK, benzene, xylene, kerosene, heptane, naphtha; dens. 4.75 lb/gal; bulk dens. 35.6 lb/ft<sup>3</sup>; m.p. 143-146 C; acid no. 10 max.; flash pt. (COC) 290 C; fire pt. (COC) 310 C

*Precaution:* May form combustible or explosive mixts. of dust and air during handling

**Aerosil® 200** [Degussa-Hüls; Degussa-Hüls AG]

*Chem. Descrip.:* Fumed silica USP/NF

*Chem. Analysis:* SiO<sub>2</sub> (> 99.8%), Al<sub>2</sub>O<sub>3</sub> (< 0.05%), TiO<sub>2</sub> (< 0.03%), HCl (<

0.025%)

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Thickener, reinforcing agent, anticaking agent, free-flow agent for adhesive, food, cosmetics, paint, paper, film, pesticides, pharmaceuticals, plastics, silicone rubber, inks, sealants industries; thixotrope for greases and min. oils; thixotrope/suspending agent for acrylic enamels, epoxy coatings, anticorrosion primers, air-drying coatings, baking enamels, water-reducible coatings; high absorp. capacity

*Regulatory:* FDA 21CFR §133.146(b), 160.105(a)(d), 172.230(a), 172.480, 173.340(a), 175, 176, 177, 573.940; ≤ 3% for cosmetics, internal pharmaceuticals

*Properties:* Wh. fluffy powd.; 12 nm avg. particle size; sp.gr. 2.2; dens. ≈ 120 g/l (densed); surf. area 200 ± 25 m<sup>2</sup>/g; pH 3.6-4.3 (4% aq. susp.)

*Toxicology:* TLV 10 mg/m<sup>3</sup> total dust; LD50 > 20,000 mg/kg; may cause eye, skin, or respiratory tract irritation on overexposure

*Precaution:* Incompat. with strong bases and hydrofluoric acid

**Aerosil® K315** [Degussa-Hüls; Degussa-Hüls AG]

*Chem. Descrip.:* Fumed silica aq. disp. based on Aerosil® MOX 170

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Reinforcing agent, adhesion promoter, antislip agent, stabilizer, and surf. tackiness reducer in nat. and syn. latex, paints/coatings, adhesives, paper and cardboard, aq. emulsions, etc.

*Properties:* Wh. milky liq.; sp.gr. ≈ 1.08; visc. < 100 mPa·s; pH 5-6

**Aerosil® K328** [Degussa-Hüls; Degussa-Hüls AG]

*Chem. Descrip.:* Fumed silica aq. disp. based on Aerosil® MOX 80

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Reinforcing agent, adhesion promoter, antislip agent, stabilizer, and surf. tackiness reducer in nat. and syn. latex, paints/coatings, adhesives, paper and cardboard, aq. emulsions, etc.

*Properties:* Wh. milky liq.; sp.gr. ≈ 1.15; visc. < 150 mPa·s; pH 5-6

**Aerosil® K330** [Degussa-Hüls; Degussa-Hüls AG]

*Chem. Descrip.:* Fumed silica aq. disp. based on Aerosil® OX 50

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Reinforcing agent, adhesion promoter, antislip agent, stabilizer, and surf. tackiness reducer in nat. and syn. latex, paints/coatings, adhesives, paper and cardboard, aq. emulsions, etc.

*Properties:* Wh. milky liq.; sp.gr. ≈ 1.15; visc. < 100 mPa·s; pH 9-10

**Aerosil® K342** [Degussa-Hüls; Degussa-Hüls AG]

*Chem. Descrip.:* Fumed silica aq. disp. based on Aerosil® OX 50

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Reinforcing agent, adhesion promoter, antislip agent, stabilizer, and surf. tackiness reducer in nat. and syn. latex, paints/coatings, adhesives, paper and cardboard, aq. emulsions, etc.

*Properties:* Wh. milky liq.; sp.gr. ≈ 1.18; visc. < 200 mPa·s; pH 9-10

**Aerosol® 18** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Disodium stearyl sulfosuccinamate

CAS 14481-60-8; EINECS/ELINCS 238-479-5

*Uses:* Emulsifier, dispersant, foaming agent, detergent, solubilizer for soaps and surfactants, alkaline cleaner formulations, brick and tile cleaners, emulsion polymerization of vinyl chloride and SBRs; emulsifier for oils and waxes, household detergents, cleaning paper mill felts; foaming agent for foamed latexes and plastics; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Gardner 10 max. creamy paste; m.w. 493; water-disp.; sp.gr. 1.07; dens. 8.9 lb/gal; acid no. 4.0 max.; flash pt. (Seta CC) > 200 F; surf. tens. 39 dynes/cm; 35 ± 1.5% solids; anionic

*Toxicology:* LD50 (oral, rat) 2.68 mg/kg; mild skin, mild to moderate eye irritation

*Environmental:* Biodeg.

*Storage:* Store in tightly closed containers

**Aerosol® 22** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

CAS 38916-42-6; EINECS/ELINCS 222-273-7

*Uses:* Emulsifier; dispersant; solubilizer; surfactant; emulsion polymerization of vinyl monomers; polishing waxes; surf. tension depressant for writing and drawing inks; demulsifier for w/o emulsions; cleaning of paper mill felts; industrial, household, and metal cleaners; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; EPA exempt 40CFR §180.1001(d)

*Properties:* Lt. tan clear to cloudy liq.; water-sol.; m.w. 653; sp.gr. 1.12; dens. 9.4 lb/gal; visc. 53 cps; m.p. > 200 C; flash pt. (Seta CC) 143 F; acid no.

2.0; pH 7-8; surf. tens. 41 dynes/cm; 35% act. in water/alcohol; anionic  
*Toxicology:* LD50 (acute oral, rat) 18.7 ml/kg (sol'n.); mild skin and eye irritant  
*Environmental:* Biodeg.

**Aerosol® C-61** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Ethoxylated alkyl guanidine-amine complex  
*Uses:* Antistat; pigment dispersant; flushing agent; wetting agent; settling agent; alkaline, cement, brick, and tile cleaner formulations for crystal growth control, emulsion breaking; alkaline metal and paint brush cleaners; paint removers; textile softener; demulsifying agent; foaming agent; for plastics, paper, textiles, adhesive industries

*Properties:* Lt. tan creamy paste; strong ammoniacal odor; sol. in org. solvs. in presence of alcohol; disp. in water; sp.gr. 1.00; dens. 8 lb/gal; flash pt. (Seta CC) 94 F; surf. tens. 34 dynes/cm; 70.4% act.; cationic

*Environmental:* Partially biodeg.

**Aerosol® MA-80** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Dihexyl sodium sulfosuccinate  
 CAS 3006-15-3; EINECS/ELINCS 221-109-1

*Uses:* Dispersant; textile wetting agent; emulsifier; solubilizer; penetrant; used for emulsion polymerization, battery separators, electroplating, ore leaching; germicidal act.; solubilizer for shampoos; food pkg. adhesives, paper/paperboard, polymers; emulsifier in mfg. of food-contact articles; not as rapidly biodeg. as Aerosol 18 and 22

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.1210, 178.3400

*Properties:* APHA 50 max. clear slightly visc. liq.; sol. in water, alcohol, and org. solvs.; sp.gr. 1.13; dens. 9.4 lb/gal; f.p. -28 C; m.p. 199-292 C; flash pt. (Seta CC) 115 F; surf. tens. 28 dynes/cm; 80% act. in IPA; anionic

**Aerosol® NPES 930** [Cytec Ind.]

*Chem. Descrip.:* Ammonium salt of sulfated nonylphenoxy POE ethanol  
 CAS 9051-57-4

*Uses:* Emulsifier for emulsion polymerization of vinyl acetate, acrylic copolymers, styrene acrylic copolymers; imparts superior water resistance in films; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180; EPA exempt 40CFR §180.1001(d)

*Properties:* Yel. clear liq.; water-sol.; insol. in org. solvs.; m.w. 713; sp.gr. 1.04; dens. 8.7 lb/gal; visc. 90 cps; gel pt. < 55 F; flash pt. (Seta CC) > 200 F; pH 7.0-7.5 (10%); surf. tens. 33 dynes/cm; 30% act. in water; anionic  
*Toxicology:* LD50 (oral, rat) > 10 g/kg; severe skin and eye irritation

**Aerosol® NPES 3030** [Cytec Ind.]

*Chem. Descrip.:* Ammonium salt of sulfated nonylphenoxy POE ethanol  
 CAS 9051-57-4

*Uses:* Emulsifier for emulsion polymerization of acrylic, vinyl acetate and styrene-acrylic systems; forms films with superior water resist.; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180; EPA exempt 40CFR §180.1001(d)

*Properties:* Yel. clear liq.; water-sol.; insol. in org. solvs.; m.w. 1637; sp.gr. 1.05-1.07; dens. 8.8 lb/gal; visc. 110 cps; gel pt. < 55 F; flash pt. (Seta CC) > 200 F; pH 7.0-7.5 (10%); surf. tens. 43 dynes/cm; 30% act. in water; anionic

*Toxicology:* LD50 (oral, rat) > 10 g/kg; minimal skin and eye irritation

**Aerosol® OT-70 PG** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Sodium dioctyl sulfosuccinate, propylene glycol/water

*Uses:* Wetting agent; surf. tens. depressant; emulsifier; surfactant; face and hand creams; food pkg. adhesives, coatings, paper/paperboard, cellophane, textiles; emulsifier in mfg. of food-contact articles; for use where high flash required

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2800, 178.3400

*Properties:* Clear to slightly yel. liq.; limited water sol.; sol. in org. solvs.; sp.gr. 1.09; visc. 200-400 cps; flash pt. (Seta CC) > 200 F; surf. tens. 26 dynes/cm; 70% act.; anionic

*Environmental:* Biodeg.

**Aerosol® OT-75%** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4

*Uses:* Wetting agent/surf. tens. depressant in textiles, rubber, petrol., paper, metal, paints, plastics, agric.; antistat for cosmetics, dry cleaning detergents, emulsions, plastics, pipelines, suspension polymerization; soldering flux; wallpaper removal; emulsifier wax for polishes, firefighting, germicides, metal cleaners, mold release agents; dispersant in paints, inks, paper, photography; process aid; rust preventative; food pkg. adhesives, coatings,

paper/paperboard, cellophane, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2800, 178.3400

*Properties:* APHA 100 max. clear visc. liq.; m.w. 444; sol. org. solv.; limited water sol.; sp.gr. 1.09; visc. 200 cps; flash pt. 85 C (OC); acid no. 2.5 max.; surf. tens. 28.7 dynes/cm (0.1% aq.); 75 ± 2% solids in water/alcohol; anionic

*Environmental:* Biodeg.

**Aerosol® OT-75-PG** [Cytec Ind.]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate in propylene glycol and water  
*Uses:* Wetting agent and surf. tens. depressant used in textiles, rubber, petrol., paper, metals, paints, plastics, and agric. industries; antistat for cosmetics, dry cleaning detergents, emulsions, plastics, pipelines, and suspension polymerization; emulsifier wax for polishes, firefighting, germicides, metal cleaners, mold release agents; dispersant in paints and inks, paper, photography; process aid; rust preventative; soldering flux; wallpaper removal; food-contact emulsifier; very high flash pt.

*Regulatory:* FDA 21CFR §178.3400

*Properties:* Liq.; sol. in org. solvs.; sol. 2 g/100 ml in water; flash pt. (Seta CC) > 200 F; surf. tens. 26 dynes/cm min.; 75% act.; anionic

*Environmental:* Completely biodeg.

**Aerosol® OT-100%** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate

CAS 577-11-7; EINECS/ELINCS 209-406-4

*Uses:* Emulsifier, dispersant, lubricant, wetting agent, mold release agent for emulsion and suspension polymerization, dry cleaning, industrial cleaners, paints; surfactant for water-free systems; emulsifier for waxes; food pkg. adhesives, coatings, paper/paperboard, cellophane, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2800, 178.3400

*Properties:* APHA 100 max. waxy solid; m.w. 444; sol. in polar and nonpolar solv.; sol. in oil, fat, and wax @ 75 C; disp. in water; sp.gr. 1.1; m.p. 153-157 C; acid no. 2.5 max.; surf. tens. 28.7 dynes/cm (0.1% aq.); 100% conc.; anionic

*Environmental:* Biodeg.

**Aerosol® OT-B** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, sodium benzoate

*Uses:* Wetting agent, dispersant, solubilizer, adjuvant for agric. chem. wettable powds.; pigment dispersant in plastics; in face powds. and powd. shampoos; food pkg. adhesives, coatings, paper/paperboard, cellophane, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2800, 178.3400

*Properties:* Wh. powd.; bulk particle size 15-150 µ; m.w. 444; water-disp.; sp.gr. 1.1; m.p. < 300 C; acid no. 2.5 max.; surf. tens. 28.7 dynes/cm (0.1% aq.); 85% act., 15% sodium benzoate; anionic

**Aerosol® OT-S** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate

CAS 577-11-7; EINECS/ELINCS 209-406-4

*Uses:* Wetting agent, surf. tens. depressant, emulsifier for plastics, organosols, lacquers, varnishes, all org. media, dry cleaning, corrosion-resistant lubricants, agric. emulsions; food pkg. adhesives, coatings, paper/paperboard, cellophane, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2800, 178.3400

*Properties:* Lt. amber, transparent liq.; limited water sol., good org. solv.; sp.gr. 1.0; visc. 200-300 cps; flash pt. (Seta CC) 134 F; surf. tens. 26 dynes/cm; 70% act. in lt. petrol. distillate; anionic

*Environmental:* Biodeg.

**Aerosol® TR-70** [Cytec Ind.; Cytec Ind. BV]

*Chem. Descrip.:* Ditridecyl sodium sulfosuccinate

CAS 2673-22-5; EINECS/ELINCS 220-219-7

*Uses:* Emulsifier, surfactant in emulsion polymerization of vinyl chloride and vinyl acetate, suspension polymerization of vinyl chloride; dispersant for resins, pigments, polymers, and dyes in org. systems; pigment dispersant in printing inks; rust preventative; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400

*Properties:* Clear liq.; sol. in org. media; limited water sol.; sp.gr. 0.995; dens. 8.3 lb/gal; visc. 110 cps; f.p. -40 C; surf. tens. 26 dynes/cm; 70% act. in water/alcohol; anionic

*Environmental:* Biodeg.



**Aerotech®** [Vinings Ind.]

*Uses:* Defoamer for pulp/paper

**AF 10 IND** [Harcros]

*Chem. Descrip.:* Polydimethylsiloxane

CAS 9016-00-6

*Uses:* Emulsifier, antifoam for aq. systems, agric., cutting oils, drilling muds, effluents, chemicals, detergents, textiles, abrasive slurries, adhesive and ink mfg., latex and starch processing, pulp slurries

*Regulatory:* FDA 21CFR §180.1001c,d

*Properties:* Wh. liq.; water-disp.; sp.gr. 1.00; dens. 8.3 lb/gal; flash pt. > 212 F (PMCC); pH 4-5 (1% aq.); 10% act.; nonionic

**AF 60** [GE Silicones]

*Chem. Descrip.:* Dimethyl polysiloxane aq. emulsion

CAS 9016-00-6

*Uses:* Defoamer in adhesives, inks, latexes, soaps, starches, paints, and other aq. industrial systems; antifoam for NR and SR latexes, adhesives, paper, textiles, leather

*Regulatory:* DOT nonregulated; SARA §302/311/312/313 nonreportable

*Properties:* Milky wh. liq.; sorbic acid odor; sol. in water, alcohol; sp.gr. 1.01; dens. 8.4 lb/gal; visc. 500 cps; f.p. 0 C; b.p. 100 C; pH 5-7; 30% silicone, 44.5% solids, 60% volatile; nonionic

*Toxicology:* May irritate eyes

*Hazardous Decomp. Prods.:* (thermal): CO, CO<sub>2</sub>, SiO<sub>2</sub>, formaldehyde

HMS: Health 0; Flammability 0; Reactivity 0

*Storage:* 12 mos storage life when stored in original unopened containers @ 4-27 C

**AF 112** [Harcros]

*Chem. Descrip.:* Nonsilicone

*Uses:* Antifoam used in solvs., adhesives, latex paints, inks; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, cellophane

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200

*Properties:* Creamy yel. liq.; water-insol.; sp.gr. 0.92; dens. 7.7 lb/gal; pour pt. 40 F; flash pt. > 200 F (PMCC); 100% act.

**AF 585M** [Harcros]

*Chem. Descrip.:* Nonsilicone

*Uses:* Antifoam for adhesives, latex paints, inks, polyvinyl alcohol emulsions, food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Wh. milky liq.; water-insol.; sp.gr. 0.80; dens. 6.7 lb/gal; pour pt. 5 F; flash pt. (PMCC) 150 F; 100% act.

**AF 645:35** [Harcros]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for food-contact coatings, paper coatings, and resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.200

*Properties:* Translucent liq.; water-insol.; sp.gr. 0.83; dens. 7.1 lb/gal; pour pt. < 35 F; flash pt. (PMCC) > 300 F; 100% act.

**AF GN-11-P** [Harcros]

*Chem. Descrip.:* Nonsilicone antifoam

*Uses:* Antifoam for fermentation, drilling muds, effluent, adhesives, gas treating, food pkg. adhesives/cellophane; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200

*Properties:* Clear liq.; water-disp; sp.gr. 1.01; dens. 8.4 lb/gal; pour pt. -50 F; flash pt. > 200 F (PMCC); pH 5-7 (1% aq.); 100% act.; nonionic

**AF GN-23** [Harcros]

*Chem. Descrip.:* Nonsilicone antifoam

*Uses:* Antifoam for pulp/paper, effluent, wastewater treatment

*Properties:* Sp.gr. 0.94.

**AF HL-27** [Harcros]

*Chem. Descrip.:* Nonsilicone antifoam

*Uses:* Antifoam for urea and phenolic resins, latex paints, inks, food pkg. adhesives/cellophane; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200

*Properties:* Creamy yel. liq.; water-insol.; sp.gr. 0.95; dens. 7.9 lb/gal; pour pt. 32 F; flash pt. (PMCC) > 300 F; 100% act.

**AF HL-40** [Harcros]

*Chem. Descrip.:* Nonsilicone antifoam

*Uses:* Antifoam for latex paints, food pkg. adhesives/cellophane, inks, solvs., chemical processing, textiles, paper, paper coatings, electroplating; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Creamy yel. liq.; oil-sol.; sp.gr. 0.91; dens. 7.5 lb/gal; flash pt. (PMCC) > 200 F; 100% act.; nonionic

**AF HL-52** [Harcros]

*Chem. Descrip.:* Nonsilicone antifoam

*Uses:* Antifoam for solvs., latex paints, inks, chemical processing, food pkg. adhesives, paper coatings; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Creamy yel. liq.; oil-sol.; sp.gr. 0.87; dens. 7.25 lb/gal; flash pt. (PMCC) > 200 F; 100% act.; nonionic

**Afranil® F** [BASF]

*Uses:* Defoamer, liq. stock deaerator for wet-end applic. for all fibrous materials, paper and board, and esp. for slow stocks; defoamer for prod. of groundwood and sulfite pulp

**Afranil® MG** [BASF]

*Uses:* Defoamer, deaerator for paper stock; prevents hydrophobic substances from collecting on surf. of stock due to flotation

*Use Level:* 0.02-0.1%

**Afranil® SLO** [BASF]

*Uses:* Defoamer, deaerator for paper stock and chemical pulp; high-temp. defoamer; most effective at 50-70 C

*Use Level:* 0.02-0.1% (deaerator)

*Properties:* Milky emulsion; readily dilutable with water

**Ageflex EGDMA** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Ethylene glycol dimethacrylate with 200 ppm MEHQ inhibitor

*Uses:* Crosslinker and modifier of ABS, acrylic and PVC, ion exchange resins, encapsulation of smokeless powd., glaze coatings, dental polymers, paper processing aids, rubber modifier, adhesives, optical polymers, leather finishing, moisture barrier films; fiberglass-reinforced polyesters, emulsion polymerization

*Properties:* APHA 50 color; m.w. 198.22; sp.gr. 1.055 (20/20 C); f.p. -40 C; flash pt. 68 C; 98% act.

**Ageflex FA-1** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Dimethylaminoethyl acrylate

CAS 2439-35-2; EINECS/ELINCS 219-460-0

*Uses:* Adhesion promoter in UV and EB cured coatings for metal, plastic, paper, and wood surfs.; catalyst for epoxy molding and extrusion resins; intermediate for water treatment chems., quat. monomers, silane coupling agents, conductive paper coatings; crosslinking agent for polyester-diisocyanate prepolymers in leather finishing; flotation agent for ester purification

*Properties:* APHA 100 clear liq.; m.w. 143.19; sp.gr. 0.940 (20/20 C); f.p. < -60 C; b.p. 94 C (50 mm); flash pt. 66 C; 99% act.

*Toxicology:* Cause severe irritation and possible damage on contact with eyes and skin; vapor irritating to eyes, skin, nasal membranes; harmful if

swallowed or inhaled

*Precaution:* Corrosive

**Ageflex FA-1Q80DMS** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Dimethylaminoethyl acrylate dimethyl sulfate quat. with 500 ppm MEHQ inhibitor

CAS 13106-44-0

*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant for industrial process water treatment; flocculant for min. recovery, ion exchange resins, adhesives, acid dye receptivity, electrostatic coatings on wood; retention aid for paper; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170

*Properties:* APHA 100 color; water-sol.; m.w. 269.32; sp.gr. 1.180 (20/20 C); 80% act.; cationic

**Ageflex FA-1Q80MC** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Dimethylaminoethyl acrylate methyl chloride quat. with 600 ppm MEHQ inhibitor

CAS 44992-01-0

*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant for industrial process water treatment; flocculant for min. recovery, ion exchange resins, adhesives, acid dye receptivity, electrostatic coatings on wood; retention aid for paper; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170

*Properties:* APHA 200 color; water-sol.; m.w. 193.68; sp.gr. 1.160 (20/20 C); 80% act.; cationic

**Ageflex FA-2** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Diethylaminoethyl acrylate

- CAS 2426-54-2  
*Uses:* Industrial and automotive coatings; electronic photo resists; dye additives; lube oil additives; intermediate for water treatment chems., silane coupling agents, conductive paper coatings; retention aid for paper mfg.; flocculant; coagulant; crosslinking agent for polyester-diisocyanate prepolymer in leather finishing; catalyst for epoxy molding, extrusion resins; in mfg. of copolymers for lipsticks; detergent for jet fuels  
*Properties:* Clear liq.; m.w. 171.24; sp.gr. 0.939 (20/20 C); f.p. < -60 C; b.p. 81 C (10 mm); flash pt. 90 C  
*Toxicology:* Cause severe irritation and possible damage on contact with eyes and skin; vapor irritating to eyes, skin, nasal membranes; harmful if swallowed or inhaled  
*Precaution:* Corrosive
- Ageflex FA-2Q50DMS** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Diethylaminoethyl acrylate dimethyl sulfate quat. with 35 ppm MEHQ inhibitor  
 CAS 21810-39-9  
*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant for industrial process water treatment; flocculant for min. recovery, ion exchange resins, adhesives, acid dye receptivity, electrostatic coatings on wood; retention aid for paper; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* APHA 100 color; water-sol.; m.w. 297.37; sp.gr. 1.101 (20/20 C); 50% act.; cationic
- Ageflex FM-1** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Dimethylaminoethyl methacrylate  
 CAS 2867-47-2; EINECS/ELINCS 220-688-8  
*Uses:* Detergent and sludge dispersant in lubricants; visc. index improver; flocculant for wastewater treatment; retention aid for paper mfg.; acid scavenger in PU foams; corrosion inhibitor; resin and rubber modifier; used in acrylic polishes and paints, hair prep. copolymers, sugar clarification, adhesives, water clarification, acrylic plastics for food pkg.  
*Regulatory:* FDA 21CFR §177.1010  
*Properties:* APHA 50 clear liq.; very sol. in water; sol. in org. solvs.; m.w. 157.21; visc. 1.38 cst; vapor pressure 12 mm Hg (70 C); b.p. 68.5 C (10 mm); f.p. < -60 C; 99% assay  
*Toxicology:* Poison; harmful if swallowed; severe eye burns and skin irritation; irritating vapor  
*Storage:* Store in cool area, preferably 75 F or lower away from direct sunlight; exclude moisture
- Ageflex FM-1Q75MC** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Dimethylaminoethyl methacrylate methyl chloride quat. with 600 ppm MEHQ inhibitor  
 CAS 5039-78-1  
*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant for industrial process water treatment; flocculant for min. recovery, ion exchange resins, adhesives, acid dye receptivity, electrostatic coatings on wood; retention aid for paper; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* APHA 100 color; water-sol.; m.w. 207.70; sp.gr. 1.105 (20/20 C); f.p. -6.7 C; 75% act.; cationic
- Ageflex FM-1Q80DMS** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Dimethylaminoethyl methacrylate dimethyl sulfate quat. with 900 ppm MEHQ inhibitor  
 CAS 6891-44-7  
*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant for industrial process water treatment; flocculant for min. recovery, ion exchange resins, adhesives, acid dye receptivity, electrostatic coatings on wood; retention aid for paper; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* APHA 100 color; water-sol.; m.w. 283.35; sp.gr. 1.183 (20/20 C); 80% act.; cationic
- Ageflex FM-2** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Diethylaminoethyl methacrylate  
 CAS 105-16-8  
*Uses:* Monomer for industrial and automotive clear coatings, dye additives; intermediate for water treatment and oil field chems.; stabilizer for fuel oils; sweetening agent for various hydrocarbon oils; acrylic resin modifier for automotive industry; rubber modifier and stabilizer; retention aid for paper mfg.; water clarifier for o/w emulsions  
*Properties:* Clear liq.; m.w. 185.27; sp.gr. 0.922 (20/20 C); f.p. < -60 C; b.p. 114 C (30 mm); flash pt. 77 C

- Toxicology:* Severe irritant and possibly damaging to eyes and skin; vapor irritating to eyes, skin, and nasal membranes; harmful if swallowed  
*Precaution:* Combustible  
*Storage:* Store in cool, preferably below 75 F away from direct sunlight; exclude moisture
- Ageflex FM-10** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Isodecyl methacrylate with 150 ppm MEHQ inhibitor  
 CAS 29964-84-9; EINECS/ELINCS 249-978-2  
*Uses:* Pressure-sensitive adhesives; coatings for leather, textiles, paper, nonwovens; polymer modifier/stabilizer; visc. index improver; dispersion for plastics and rubber, floor waxes, potting compds., sealants, adhesives  
*Properties:* APHA 100 clear liq.; m.w. 226.36; sp.gr. 0.878 (20/20 C); b.p. 126 C (10 mm); flash pt. 121 C; 97.5% act.
- Ageflex FM-68** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Stearyl methacrylate (natural, C16-18 methacrylates) with 100 ppm HQ inhibitor  
 CAS 32360-05-7  
*Uses:* Monomer for lube oil additives, pour pt. depressants, paper coatings, textile finishes, paints, varnishes, pressure-sensitive adhesives  
*Properties:* APHA 200 color; m.w. 338.58; sp.gr. 0.864 (20/20 C); f.p. 18 C; flash pt. 93 C; 57% C18, 25% C16
- Agefloc A50HV-P** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Poly (2, hydroxypropyl-N,N-dimethyl ammonium chloride)  
 CAS 42751-79-1  
*Uses:* Flocculant, coagulant, dewatering aid in centrifugation, filtration, and flotation of industrial and municipal waste sludges, potable water treatment; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180; ANSI/NSF Std. 60 approved  
*Properties:* M.w. high; sp.gr. 1.14; visc. 5000 cps; pH 4.5; 50% solids; cationic
- Agefloc A50LV-P** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Poly (2, hydroxypropyl-N,N-dimethyl ammonium chloride)  
 CAS 42751-79-1  
*Uses:* Flocculant, coagulant, dewatering aid in centrifugation, filtration, and flotation of industrial and municipal waste sludges, potable water treatment; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180; ANSI/NSF Std. 60 approved  
*Properties:* M.w. low; sp.gr. 1.14; visc. 300 cps; pH 5.0; 50% solids; cationic
- Agefloc A50-P** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Poly (2, hydroxypropyl-N,N-dimethyl ammonium chloride)  
 CAS 42751-79-1  
*Uses:* Flocculant, coagulant, dewatering aid in centrifugation, filtration, and flotation of industrial and municipal waste sludges, potable water treatment; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180; ANSI/NSF Std. 60 approved  
*Properties:* M.w. med.; sp.gr. 1.14; visc. 700 cps; pH 5.0; 50% solids; cationic
- Agefloc A4506** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Dimethylamine/epichlorohydrin copolymer  
 CAS 25988-97-0  
*Uses:* Drainage aid, retention aid, raw and in-process water decolorizer, low turbidity water clarifier, emulsion breaker, liq./solids separator and sludge dewatering agent for water treatment in paper industry; wire and felt cleaning compds.; for dye retention on cellulosic fibers; decolorizer for dye house effluent in textile industry; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR§ 173.60, 176.170, 176.180  
*Properties:* Sp.gr. 1.14; med. m.w.; visc. 700 cps; pH 5.0; 50% solids
- Agefloc A4510** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Dimethylamine/epichlorohydrin copolymer  
 CAS 25988-97-0  
*Uses:* Drainage aid, retention aid, raw and in-process water decolorizer, low turbidity water clarifier, emulsion breaker, liq./solids separator and sludge dewatering agent for water treatment in paper industry; wire and felt cleaning compds.; for dye retention on cellulosic fibers; decolorizer for dye house effluent in textile industry; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR§ 173.60, 176.170, 176.180  
*Properties:* Sp.gr. 1.14; high m.w.; visc. 5000 cps; pH 4.5; 50% solids
- Agefloc B50LV** [Ciba Spec. Chems./Water Treatment]  
*Chem. Descrip.:* Dimethylamine/epichlorohydrin copolymer  
 CAS 25988-97-0  
*Uses:* Decolorizer, low turbidity water clarifier for sugar cane/sugar beet



processing, latex coagulation, latex waste clarification, liq./solid separation, sludge dewatering, wire and felt cleaning compds. for paper mfg.; stabilizer; retention aid

*Properties:* M.w. very low; sp.gr. 1.14; visc. 25 cps; pH 8.0; 50% solids

**Agefloc B50-P** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly (2, hydroxypropyl-N,N-dimethyl ammonium chloride)  
CAS 42751-79-1

*Uses:* Flocculant, coagulant, dewatering aid in centrifugation, filtration, and flotation of industrial and municipal waste sludges, potable water treatment; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180; ANSI/NSF Std. 60 approved

*Properties:* M.w. very low; sp.gr. 1.14; visc. 120 cps; pH 7.5; 50% solids; cationic

**Agefloc B4508P** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Dimethylamine/epichlorohydrin copolymer  
CAS 25988-97-0

*Uses:* Coagulant, flocculant, drainage aid, retention aid, raw and in-process water decolorizer, low turbidity water clarifier, emulsion breaker, liq./solids separator and sludge dewatering agent for water treatment in paper industry; wire and felt cleaning compds.; for dye retention on cellulosic fibers; decolorizer for dye house effluent in textile industry

*Regulatory:* NSF approved for potable water

*Properties:* Sp.gr. 1.14; very low m.w.; visc. 60 cps; pH 7.5; 50% solids

**Agefloc PC20HV** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly(dimethyl diallyl ammonium chloride)  
CAS 26062-79-3

*Uses:* Retention aid, pigment dispersant, drainage aid, fiber dewatering agent, size stabilizer for paper industry; electroconductive polymers; recycling operations; raw and wastewater clarification; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* APHA 200 color; m.w. low; sp.gr. 1.04; visc. 350 cps; 20% solids

**Agefloc PC20VHV** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly(dimethyl diallyl ammonium chloride)  
CAS 26062-79-3

*Uses:* Pigment dispersant, pitch and wh. trash dispersant, fines retention aid, drainage aid, fiber dewatering agent, deinking agent in paper industry; wire and felt cleaners; stabilizer and retention aid for neutral and alkaline sizes, electroconductive polymer, recycling operations, raw and wastewater clarification; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* APHA 250; high m.w.; sp.gr. 1.04; visc. 700 cps; 20% solids

**Agefloc PC40** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly(dimethyl diallyl ammonium chloride)  
CAS 26062-79-3

*Uses:* Pigment dispersant, pitch and wh. trash dispersant, fines retention aid, drainage aid, fiber dewatering agent, deinking agent in paper industry; wire and felt cleaners; stabilizer and retention aid for neutral and alkaline sizes, electroconductive polymer, recycling operations, raw and wastewater clarification; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* APHA 200; low m.w.; sp.gr. 1.08; visc. 2000 cps; 40% solids

**Agefloc PC40HV** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly(dimethyl diallyl ammonium chloride)  
CAS 26062-79-3

*Uses:* Pigment dispersant, pitch and wh. trash dispersant, fines retention aid, drainage aid, fiber dewatering agent, deinking agent in paper industry; wire and felt cleaners; stabilizer and retention aid for neutral and alkaline sizes, electroconductive polymer, recycling operations, raw and wastewater clarification; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* APHA 200; med. m.w.; sp.gr. 1.08; visc. 10,000 cps; 40% solids

**Agefloc PC2206** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly(dimethyl diallyl ammonium chloride)  
CAS 26062-79-3

*Uses:* Pigment dispersant, pitch and wh. trash dispersant, fines retention aid, drainage aid, fiber dewatering agent, deinking agent in paper industry; wire and felt cleaners; stabilizer and retention aid for neutral and alkaline sizes, electroconductive polymer, recycling operations, raw and wastewater clarification; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* APHA 250; high m.w.; sp.gr. 1.04; visc. 1800 cps; 20% solids

**Agequat C505** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Polyquaternium-7

CAS 26590-05-6

*Uses:* Drainage aid, retention aid, sludge dewatering agent in papermaking; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

**Agequat C1405** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly dimethyldiallylammonium chloride

CAS 26062-79-3

*Uses:* Drainage aid, pitch and wh. trash dispersant, and fines retention aid for water treatment in paper industry, for specialized waste treatment, e.g. laundry, paint booth, emulsion breaking, sludge dewatering; decolorizer for process effluent

*Properties:* APHA 100 color; sp.gr. 1.08; low m.w.; visc. 2000 cps; 40% solids

**Agequat C3204** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly dimethyldiallylammonium chloride

CAS 26062-79-3

*Uses:* Drainage aid, pitch and wh. trash dispersant, and fines retention aid for water treatment in paper industry, for specialized waste treatment, e.g. laundry, paint booth, emulsion breaking, sludge dewatering; decolorizer for process effluent

*Properties:* APHA 50 color; sp.gr. 1.04; med. m.w.; visc. 3000 cps; 19% solids

**Agestat 41T** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Poly dimethyldiallyl ammonium chloride

CAS 26062-79-3

*Uses:* Drainage aid, pitch and wh. trash dispersant, and fines retention aid for water treatment in paper industry; food-contact paper/paperboard; high conductivity electroconductive polymers

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* APHA 100 color; low m.w.; sp.gr. 1.08; visc. 700 cps; 40% solids

**Agitan® 92-N** [Münzing Chemie GmbH]

*Chem. Descrip.:* Fatty derivs. disp.

*Uses:* Defoamer/deaerator for pulp, paper, and board prod., wastewater treatment, effluent treating plants; effective in wide pH range

*Use Level:* 0.05-0.2%

*Regulatory:* BGA, FDA compliance

*Properties:* Wh. free-flowing disp.; dens. 0.96 g/cc (20 C); visc. med.; pH 8; 31% act.; nonionic

*Storage:* 6 mos min. shelf life stored @ 15-25 C in closed pkgs.; sensitive to freezing; stir well before use

**Agitan® 94-N** [Münzing Chemie GmbH]

*Chem. Descrip.:* Fatty derivs. disp.

*Uses:* Defoamer/deaerator for pulp, paper, and board prod., and wastewater/effluent treatment

*Use Level:* 0.05-0.2%

*Regulatory:* BGA, FDA compliance

*Properties:* Wh. yls. disp.; dens. 0.96 g/cc (20 C); visc. med.; pH 7 (20 C); 30% act.; nonionic

*Storage:* 6 mos min. shelf life stored @ 15-25 C in closed pkgs.; sensitive to freezing; stir well before use

**Agitan® 217** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of liq. hydrocarbons, nonionic emulsifiers, and silicone (< 5%)

*Uses:* Defoamer for emulsion paints, emulsion polymers, adhesives, coating colors in paper prod.

*Use Level:* 0.1-0.3%

*Regulatory:* FDA compliance

*Properties:* Lt. yel. dull oil; emulsifiable in water; dens. 0.91 g/ml (20 C); visc. med.; flash pt. > 140 C; pH 6 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir before use

**Agitan® 218** [Münzing Chemie GmbH]

*Chem. Descrip.:* Oil defoamer contg. silicone (< 5%)

*Uses:* Defoamer for emulsion paints, aq. coatings, syn. renderings, adhesives, coating colors for paper prod., leather finishing

*Use Level:* 0.1-0.3%

*Regulatory:* FDA compliance

*Properties:* Pale yel. cloudy oil; emulsifiable in water @ 20-30 C; visc. med.;

pH 6.5 (2% DW); 100% act.; nonionic

*Storage:* Store @ R.T.; stir before use; becomes more visc. under cold conditions, but does not affect performance—warm to 40 C and stir to reverse

**Agitan® 232** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of liq. hydrocarbons and nonionic emulsifiers

*Uses:* Defoamer for emulsion paints, syn. renderings, coating colors for paper prod., wastewater treatment; silicone-free

*Use Level:* 0.1-0.3%

*Properties:* Ylsh. dull oil; emulsifiable in water, ethylene glycol, IPA, xylol; dens. 0.90 g/cc (20 C); visc. med.; flash pt. > 120 C; pH 8 (2% in DW, 20 C); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing

**Agitan® 260** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Medical wh. oils, modified nonionic solids, and hydrophobic silica

*Uses:* Defoamer for emulsion paints, gloss emulsion paints, syn. renderings, adhesives, silicate paints, aq. epoxy resin systems, highly visc. coating colors for paper prod., wastewater treatment; silicone-free

*Use Level:* 0.05-0.3%

*Regulatory:* BGA compliance

*Properties:* Wh. opaque visc. liq.; dens. 0.84 g/ml (20 C); flash pt. > 150 C; pH ≈ 6.5 (2% in DI water); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir before use

**Agitan® 280** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of liq. hydrocarbons, hydrophobic silica acid, syn. copolymers, and nonionic emulsifiers

*Uses:* Defoamer for emulsion paints, emulsion polymers, syn. renderings, adhesives, coating colors in paper prod.; silicone-free

*Use Level:* 0.1-0.5%

*Properties:* Brnsh. dull oil; emulsifiable in water; dens. 0.93 g/cc (20 C); visc. med.; flash pt. > 120 C; pH 6 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir well before use

**Agitan® 281** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Blend of liq. hydrocarbons, hydrophobic silica, syn. copolymers, and nonionic emulsifiers

*Uses:* Defoamer for emulsion paints, emulsion polymers, food pkg. adhesives, aq. systems, silicate paints, coating colors; starch defoamer in food-contact paper prod.; silicone-free

*Use Level:* 0.05-0.50%

*Regulatory:* FDA 21CFR §175.105, 176.210

*Properties:* Lt. brn. turbid sl. visc. liq.; emulsifiable in water; dens. 0.96 g/ml (20 C); flash pt. > 140 C; pH ≈ 5.0 (2% in dist. water); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed containers; not sensitive to freezing; stir before use

**Agitan® 285** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Ester

*Uses:* Water-soluble defoamer for prod. of phosphoric acid and for special foam problems, i.e., defoaming of quaternary ammonium compds.; wetting/dispersing agent for emulsion paints; defoamer for coating colors for acid systems (paper prod.); defoamer in food-contact paper/paperboard; food pkg. adhesives, coatings; free of mineral oil

*Use Level:* 0.1-0.5% (on coating pigment)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

*Properties:* Water-wh. sl. dull liq.; emulsifiable in water; dens. 1.06 g/cc (20 C); visc. med.; 50% act.; anionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing

**Agitan® 290** [Münzing Chemie GmbH]

*Chem. Descrip.:* Alkoxyated blend

*Uses:* Defoamer for sol'ns. of polyvinyl alcohol, delimiting and cleaning agents, acid media, printing inks, coating colors and sizing preps. in paper prod.; silicone-free; ashless

*Use Level:* 0.1-1.0%

*Properties:* Water-wh. clear liq.; sol. in acetone, ethanol, IPA, xylol; emulsifiable in water, ethylene glycol, propylene glycol; dens. 1.02 g/cc (20 C); visc. med.; flash pt. > 180 C; pH 6 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing

**Agitan® 295** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Blend of liq. hydrocarbons, hydrophobic silica, fatty and alkoxyated compds., and nonionic emulsifiers

*Uses:* Defoamer for emulsion paints, gloss emulsion paints, printing inks, emulsion polymers, food pkg. adhesives, aq. systems, polymerization processes, wood preservative stains; defoamer in food-contact paper/paperboard; silicone-free

*Use Level:* 0.05-0.50% on finished prod.

*Regulatory:* FDA 21CFR §175.105, 176.210

*Properties:* Lt. brn. turbid sl. visc. liq.; emulsifiable in water; dens. 0.95 g/ml (20 C); flash pt. > 140 C; pH ≈ 6.0 (2% in DI water); 100% act.

*Storage:* 12 mos shelf life stored @ 15-25 C in closed containers; stir before use

**Agitan® 301** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Blend of vegetable oils, modified solids, nonionic emulsifiers, and silicone

*Uses:* Defoamer for emulsion paints, emulsion polymers, syn. renderings, food pkg. adhesives/coatings/paper, coating colors (graphic papers), wastewater treatment; prevents and combats surf. foam

*Use Level:* 0.02-0.1%

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210; BGA compliance

*Properties:* Ylsh. dull oil; emulsifiable in water; dens. 0.93 g/cc (20 C); visc. med.; flash pt. > 200 C; pH 6.5 (2% in DW, 20 C); 100% act.; nonionic

*Environmental:* Biodeg.

*Storage:* 12 mos shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir before use

**Agitan® 305** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Blend of modified nonionic fatty compds. and environmentally safe hydrocarbons

*Uses:* Defoamer for latex and emulsion architectural paints, general industrial, can coatings, emulsion polymers, syn. renderings, food pkg. adhesives/paper, dispersions, coating colors in paper prod. (self-copying paper, folding boxboard); silicone-free

*Use Level:* 0.05-0.50% on finished prod.

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; BGA compliance

*Properties:* Wh. opaque sl. visc. liq.; emulsifiable in water; dens. 0.87 g/ml (20 C); flash pt. > 140 C; pH ≈ 8.0 (2% in DI water); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed containers; not sensitive to freezing; stir well before use

**Agitan® 315** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Blend of modified nonionic fatty compds., hydrophobic silica, and aromatic-free medical wh. oils

*Uses:* Silicone-free defoamer for odorless inner emulsion paints, maintenance coatings, primers, high-gloss emulsion paints, inks, syn. renderings, adhesives, aq. systems, coating colors in paper prod.; very low odor

*Use Level:* 0.05-0.50%

*Regulatory:* BGA compliance

*Properties:* Lt. yel. sl. opaque visc. liq., low odor; dens. 0.86 g/ml (20 C); flash pt. > 100 C; pH ≈ 8.0 (2% in DI water); 100% act.; nonionic

*Storage:* 12 mos shelf life stored @ 15-25 C in closed pkg.; stir before use; not sensitive to freezing

**Agitan® 380** [Münzing Chemie GmbH]

*Chem. Descrip.:* Medical wh. oils with hydrophobic silica, syn. copolymers, and nonionic emulsifiers

*Uses:* Defoamer for emulsion paints, esp. in low visc. and unpigmented systems; defoamer for coating colors in paper prod., wastewater treatment; silicone-free; high efficiency, good emulsifiability; combats and prevents foam

*Use Level:* 0.02-0.1% (water treatment)

*Regulatory:* BGA, FDA compliance

*Properties:* Ylsh. dull oil; emulsifiable in water, ethylene glycol, propylene glycol; dens. 0.95 g/cc; visc. med.; flash pt. > 100 C; pH 5.5 (2% in DW, 20 C); 100% act.; nonionic

*Storage:* 12 mos shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir before use

**Agitan® 620** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of mainly aliphatic hydrocarbons with components having nonionic chars.

*Uses:* Defoamer for coating colors in paper prod. (folding boxboard), and nat. and syn. binders; silicone-free

*Use Level:* 0.02-0.08% (on coating pigment)

*Properties:* Ylsh. oil; emulsifiable in water; dens. 0.92 g/cc (20 C); visc. med.; flash pt. > 110 C; pH 6 (2% in DW); 100% act.; nonionic  
*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir well before use

**Agitan® 633** [Münzing Chemie GmbH]

*Chem. Descrip.:* Fatty acid derivs. and hydrocarbons

*Uses:* Defoamer, leveling agent for water paints, water-dilutable resin systems, impregnations, adhesives, printing inks, pulp, paper and board prod., effluent treating plants; silicone-free; easily emulsifiable

*Use Level:* 0.1-2.0%

*Properties:* Ylsh.-brn. clear oil; emulsifiable in water; dens. 0.92 g/ml (20 C); visc. low; flash pt. > 120 C; pH 6.5 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ R.T. in closed containers; not sensitive to freezing

**Agitan® 634** [Münzing Chemie GmbH]

*Chem. Descrip.:* Fatty acid derivs. and hydrocarbons

*Uses:* Defoamer/deaerator for pulp, paper, and board prod., and for effluent treating plants

*Use Level:* 0.02-0.04%

*Properties:* Ylsh.-brn. clear oil; emulsifiable in water; dens. 0.92 g/cc (20 C); visc. low; flash pt. > 120 C; pH 5 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing

**Agitan® 650** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of hydrocarbons, waxes, and nonionic emulsifiers

*Uses:* Defoamer for emulsion polymers, water-dilutable systems, pigmented and unpigmented systems, coating colors for paper prod.; in resinous/polymeric food-contact coatings; food-contact paper/paperboard; silicone-free

*Use Level:* 0.1-0.5%

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; BGA compliance

*Properties:* Ylsh. dull oil; emulsifiable in water, ethylene glycol, IPA, propylene glycol, xylol; dens. 0.86 g/cc (20 C); visc. med.; flash pt. > 140 C; pH 6.5 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir well before use

**Agitan® 655** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of hydrocarbons, waxes, and nonionic emulsifiers

*Uses:* Defoamer for emulsion polymers, water-dilutable systems, pigmented and unpigmented systems, coating colors (self-copying paper); silicone-free; easily emulsifiable

*Use Level:* 0.3-0.5%

*Regulatory:* BGA, FDA compliance

*Properties:* Ylsh. dull oil; emulsifiable in water, ethylene glycol, IPA, propylene glycol, xylol; dens. 0.84 g/ml (20 C); flash pt. > 140 C; pH 6.5 (2% in DW); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ R.T. in closed containers; not sensitive to freezing; stir before use after long storage

**Agitan® 731** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Blend of modified organo polysiloxanes with nonionic alkoxyated compds.

*Uses:* Defoamer for water-reducible emulsion and latex systems, high gloss architectural paints, wood preservative stains, aq. flexographic inks, primers, acid catalyzed systems, automotive basecoats, coating colors (folding boxboard), wastewater treatment

*Use Level:* 0.05-0.20%

*Properties:* Lt. yel. sl. visc. translucent liq.; sol. in butanol, glycol ethers, ethoxypropanol, hexanol, isobutanol, IPA, methoxypropanol, MEK, min. spirits, xylene; partly sol. in acetone, ethanol; dens. 1.01 g/ml (20 C); flash pt. > 200 C; pH ≈ 7.0 (2% in DI water); 100% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed containers; not sensitive to freezing; stir before use

**Agitan® 760** [Münzing Chemie GmbH]

*Chem. Descrip.:* Blend of modified organo polysiloxanes and alkoxyated compds.

*Uses:* Defoamer for coating colors in paper prod. (folding boxboard), gloss emulsion paints, wood preservative stains, aq. flexographic inks; highly effective; very good long-term effect

*Use Level:* 0.05-0.2%

*Regulatory:* BGA compliance

*Properties:* Lt. yls. sl. dull oil; sol. in acetone, ethanol, IPA, xylol; emulsifiable in propylene glycol; hardly emulsifiable in water; dens. 1.01 g/cc (20

C); visc. med.; flash pt. > 100 C; pH 6 (2% in DW); 100% act.; nonionic  
*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; not sensitive to freezing; stir well before use

**Agitan® 960-R** [Münzing Chemie GmbH]

*Chem. Descrip.:* Fatty derivs. and modified fatty acid esters disp.

*Uses:* Defoamer/deaerator for paper and board prod. incl. food-contact paper, wastewater treatment, and for very strongly alkaline systems (up to pH 14); food pkg. adhesives

*Use Level:* 0.05-0.2%

*Regulatory:* FDA 21CFR §175.105, 176.210; BGA compliance

*Properties:* Wh. dull free-flowing disp.; dens. 0.97 g/cc (20 C); visc. med.; pH 7 (20 C); 39% act.; nonionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkgs.; sensitive to freezing; stir well before use

**Agitan® B 13** [Münzing Chemie GmbH]

*Chem. Descrip.:* Fatty derivs. in water

*Uses:* Defoamer for pulp/paper prod., food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Use Level:* 0.1-0.3%

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; BGA compliance

*Properties:* Sl. creamy paste; pH 9 (2% in DW); 48% act.

*Storage:* 12 mos shelf life stored @ 15-25 C in closed pkg.; sensitive to freezing

**Agitan® VP 4/180** [Münzing Chemie GmbH]

*Chem. Descrip.:* Oils, special waxes, and emulsifiers

*Uses:* Defoamer/deaerator for pulp prod.

*Properties:* Nonionic

**Airflex® 100 HS** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene copolymer latex

CAS 24937-78-8

*Uses:* Coating binder and saturant for paper and paperboard applics., size press, and wallpaper; very high dry pick str.; produces higher sheet and ink gloss than conventional VA-based latexes; develops high degree of smoothness and compressibility; high scrub resist. in wallpaper grouts

*Properties:* 0.17 nm particle size; dens. 8.8 lb/gal; visc. 550 cps; pH 5.5; 55% solids; sl. anionic

**Airflex® 105** [Air Prods./Polymers]

*Chem. Descrip.:* Self-crosslinking vinyl acetate-ethylene polymer

CAS 24937-78-8

*Uses:* Nonwoven binder for wipes, towels, lightweight cover stock

*Properties:* Visc. 400-1000 cps; pH 5-6; 52% solids; anionic/nonionic

**Airflex® 108** [Air Prods./Polymers]

*Chem. Descrip.:* Crosslinkable vinyl acetate ethylene copolymer

CAS 24937-78-8

*Uses:* Saturant for paper applics.; high performance, ultra-low formaldehyde; meets demanding applic. needs where high str., durability, and absorbency are required

*Properties:* 0.25 µm particle size; visc. 200 cps; pH 5.5; 55% solids; anionic

**Airflex® 110** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene copolymer latex

CAS 24937-78-8

*Uses:* Saturant for paper and paperboard applics., reprographic applics.; compat. with conductive polymers, most cationic additives; optimum solvent runnability

*Properties:* 0.30 nm particle size; dens. 8.9 lb/gal; visc. 575 cps; pH 5.2; 55% solids; nonionic

**Airflex® 124** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate ethylene copolymer

CAS 24937-78-8

*Uses:* Saturant for wallpaper and specialty paper applics.; soft polymer with high wet str., soft hand, low formaldehyde

*Properties:* 0.25 µm particle size; visc. 175 cps; pH 5.5; 52% solids; anionic

**Airflex® 144** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene copolymer latex

CAS 24937-78-8

*Uses:* Saturant in paper and specialty paper applics.; heat-sealable; adhesion to wide variety of surfaces; compat. with silicone emulsions; polyvinyl alcohol protected; < 0.1% total volatile organics

*Properties:* 0.80 µm particle size; visc. 2250 cps; pH 4.5; 55% solids; nonionic

**Airflex® 300** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion



CAS 24937-78-8

*Uses:* Adhesive base offering rapid set speed, good adhesion to coated paper surfs., clarity, and flexibility, high thickening response, good wet tack and water resist.; suited for paper, cellulose acetate film substrates; PVAL protection

*Properties:* Visc. 1800-2700 cps; pH 4-5; 55% solids

**Airflex® 320** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion

CAS 24937-78-8

*Uses:* Base for compounding water resist. pkg. adhesives with exc. adhesion to difficult-to-adhere coated paper surfs.; suited for paper and cellulose acetate film substrates; offers flexibility, good wet tack, rapid set speed; good water resist.; PVAL protection

*Properties:* Visc. 1800-2700 cps; pH 4-5; 55% solids

**Airflex® 323** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion polymer

CAS 24937-78-8

*Uses:* Base for high-speed paper pkg. adhesives; nonwoven binder for wipes, towels, cover stock; self-crosslinking; formaldehyde-free

*Regulatory:* SARA §313 reportable

*Properties:* Wh. mobile liq.; sweet odor; completely sol. in water; sp.gr. 1.07; visc. 50-500 cps; vapor pressure 18.52 mm Hg (21 C); b.p. > 100 C; pH 5.5; 40-60% solids; anionic

*Toxicology:* Mild respiratory tract irritant; repeated/prolonged exposure to low concs. of vapor may cause transient sore throat; nonirritating to eyes and skin of rabbit; TSCA listed

*Precaution:* When dried polymer burns, water, CO<sub>2</sub>, CO, and smoke are produced; keep away from oxidizers

*Hazardous Decomp. Prods.:* Level of acetaldehyde may inc. as a result of hydrolysis of residual vinyl acetate monomer; CO, CO<sub>2</sub> in fire; acetic acid; aldehydes

*Storage:* Avoid freezing temps.; minimize contact with atmospheric air to prevent inoculation with microorganisms; do not store in reactive metal containers

**Airflex® 400** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion

CAS 24937-78-8

*Uses:* Adhesive for many substrates incl. PVC film, coated paper, cloth; high wet tack, good water resist.; PVAL protection

*Properties:* Visc. 1800-2700 cps; pH 4-5; 55% solids

**Airflex® 426** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion, carboxylated

CAS 24937-78-8

*Uses:* Base for adhesives; rec. for foil laminating, PVC laminating, film laminating, bottle labeling, bookbinding, metal-to-paper, metal-to-wood, envelope window adhesives, high-speed pkg.; food pkg. adhesives, paper/paperboard; PVAL/cellulosic protection; exc. adhesion to metal, polyester, other plastic films; sprayable, exc. water resist., high wet tack, heat sealable

*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Emulsion; visc. 100-1800 cps; pH 4.5-5.5; 60-64% solids

**Airflex® 430** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate/ethylene/vinyl chloride terpolymer

*Uses:* Fire retardant adhesive base for kraft and coated paper substrates; forms clear, tough films with outstanding water and alkali resist.; strong adhesion to metals, plastic films and foams; surfactant protection

*Properties:* Visc. 100-500 cps; pH 5.0-6.5; 52% min. solids

**Airflex® 440** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion

CAS 24937-78-8

*Uses:* Adhesive base suitable on kraft/coated paper, cotton and polyester fabrics, mylar, cellulose acetate, and PVC film substrates; low VOC version of Airflex 400; high wet tack, good water resist.

*Regulatory:* SARA §312/313 nonreportable

*Properties:* Wh. mobile liq.; sweet odor; completely sol. in water; sp.gr. 1.07; visc. 1800-2700 cps; vapor pressure 18.62 mm Hg (21 C); b.p. > 100 C; pH 4.5; 40-60% solids; < 0.1% total volatiles

*Toxicology:* No known health hazards; TSCA listed

*Precaution:* When dried polymer burns, water, CO<sub>2</sub>, CO, and smoke are produced; keep away from oxidizers

*Hazardous Decomp. Prods.:* Level of acetaldehyde may inc. as a result of hydrolysis of residual vinyl acetate monomer; CO, CO<sub>2</sub> in fire; acetic acid;

aldehydes

*Storage:* Avoid freezing temps.; minimize contact with atmospheric air to prevent inoculation with microorganisms; do not store in reactive metal containers

**Airflex® 440H** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion

CAS 24937-78-8

*Uses:* Adhesive base suitable on kraft/coated paper, cotton and polyester fabrics, mylar, cellulose acetate, and PVC film substrates; low VOC version of Airflex 400H; high wet tack, good water resist.

*Properties:* Visc. 3100-4400 cps; pH 4-5; 55% min. solids; < 0.1% total volatiles

**Airflex® 456** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene-vinyl chloride terpolymer latex

*Uses:* Nonwoven binder for flame retardant fabrics where clay fillers are incorporated; coating binder and saturant for paper and paperboard applics.; good water resist., abrasion resist., and flame retardancy

*Properties:* 0.17 nm particle size; dens. 8.8 lb/gal; visc. 100-500 cps; pH 5-6.5; 52% solids; sl. anionic

**Airflex® 465** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion

CAS 24937-78-8

*Uses:* Adhesive base for high-speed pkg., bookbinding, and film overlay laminating, suitable for wood, paper, mylar, cellulose acetate, and PVC film substrates; exc. water resist.; PVAL protection

*Properties:* Visc. 800-1300 cps; pH 4.5-5.5; 66% solids

**Airflex® 4500** [Air Prods./Polymers]

*Chem. Descrip.:* Ethylene-vinyl chloride copolymer latex

*Uses:* Coating binder for size press and saturant for paper and wallpaper applics.; useful in heat seal adhesive applics. or where a moisture barrier is required; nonwoven binder for fiberfill and high loft stock requiring flame retardancy; imparts flexibility and water resist. to caulks, mastics, barrier coats in building applics., high build flexible coatings, low MVTR coatings; crosslinkable; flexible; exc. water, alcohol, and grease resist.; inherently flame retardant

*Properties:* Emulsion; 0.12 nm particle size; dens. 9.17 lb/gal; visc. 25-150 cps; pH 8.0; 50% solids; anionic

**Airflex® 4514** [Air Prods./Polymers]

*Chem. Descrip.:* Ethylene-vinyl chloride copolymer latex

*Uses:* Coating binder and saturant for paper and paperboard applics.; binder for flame retardant fabrics, heat sealable nonwovens; useful in heat seal adhesive applics. or where a moisture barrier is required; imparts flexibility and water resist. to caulks, mastics, barrier coats in building applics., low MTVR coatings; inherently flame retardant

*Properties:* Emulsion; 0.12 nm particle size; dens. 9.22 lb/gal; visc. 25-150 cps; pH 8.0; 50% solids; anionic

**Airflex® 4530** [Air Prods./Polymers]

*Chem. Descrip.:* Ethylene-vinyl chloride copolymer latex

*Uses:* Coating binder and saturant for paper and paperboard applics.; useful in heat seal adhesive applics. or where a moisture barrier is required; binder for filters, stiff flame retardant nonwovens; imparts flexibility and water resist. to caulks, mastics, barrier coats in building applics., baked industrial coatings, high PVC ceiling tile coatings; exc. water, alcohol, and grease resist.; highest stiffness, tens. str., and flame retardancy in series; crosslinkable with UF and MF

*Properties:* Emulsion; 0.11 nm particle size; dens. 9.37 lb/gal; visc. 25-150 cps; pH 8.0; 50% solids; anionic

**Airflex® 7200** [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate-ethylene emulsion

CAS 24937-78-8

*Uses:* Adhesive base suitable on kraft and coated paper, cotton, polyester, mylar, cellulose acetate, and PVC film substrates; ideal for solv.-based adhesive replacement; ultra high-solids; PVAL protection; superior wet tack and very rapid speed of set

*Properties:* Visc. 1500-3000 cps; pH 4-5.5; 72% min. solids

**Airflex® CE35** [Air Prods. Polymers Europe]

*Chem. Descrip.:* Vinyl chloride/vinyl acetate/ethylene terpolymer disp.

*Uses:* Binder for fabrics, glass fiber; textile auxiliary and coating; paper coatings

*Properties:* Disp.; 0.15 µm particle size; visc. 50 ± 30 mPa·s; pH 6; 50 ± 1% solids

**Airflex® CF50** [Air Prods. Polymers Europe]

- Chem. Descrip.:* Vinyl chloride/vinyl acetate copolymer disp.  
CAS 9003-22-9  
*Uses:* Binder for fabrics, glass fiber; textile auxiliary and coating; paper coatings  
*Properties:* Disp.; 0.15 µm particle size; visc. 80 ± 60 mPa·s; pH 5; 50 ± 1% solids
- Airvol® 103** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, fully hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.  
*Properties:* Visc. 3.2-4.2 cps; pH 5.0-7.0; 98.0-98.8% hydrolysis
- Airvol® 107** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, fully hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.  
*Properties:* Visc. 5.5-6.6 cps; pH 5.0-7.0; 98.0-98.8% hydrolysis
- Airvol® 125** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, super hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* For adhesives, paper, molded prods.; imparts highest degree of water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; forms thermally reversible gels @ high concs.; suitable for tube winding, bag seams, solid fiber laminations  
*Properties:* Visc. 28-32 cps; pH 5.5-7.5; 99.3+% hydrolysis
- Airvol® 165** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, super hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts highest degree of water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; forms thermally reversible gels @ high concs.; rec. for tube winding, bag seams, and solid fiber lamination  
*Properties:* Visc. 62-72 cps; pH 5.5-7.5; 99.3+% hydrolysis
- Airvol® 165SF** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, partially hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Noncook additive in paper coating color formulations; super fine particle size  
*Properties:* > 99% thru 100 mesh
- Airvol® 203** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, partially hydrolyzed  
CAS 25213-24-5  
*Uses:* Useful for remoistenable adhesives and adhesives requiring easy cleanup, rec. for wood adhesives, envelope, label, bookbinding, padding, carton sealing applics.; paper applics.; imparts highest water sensitivity  
*Properties:* Visc. 3.5-4.5 cps; pH 4.5-6.5; 87-89% hydrolysis
- Airvol® 203S** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Protein replacement and optical brightener carrier in paper industry, joint cements, plaster additives, stucco finishes; finer particle size  
*Properties:* > 99% thru 80 mesh
- Airvol® 205** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, partially hydrolyzed  
CAS 25213-24-5  
*Uses:* Binder, carrier, compounding agent, dispersant, stabilizer, protective colloid in polymerizations for textiles, paper, cement/plaster, peelable caulks, ceramics, strippable coatings, mold release, nonwovens; useful for remoistenable adhesives, wood adhesives, envelope, label, bookbinding, padding, carton sealing applics.  
*Properties:* Wh. to cream gran. powd.; sp.gr. 1.27-1.31; bulk dens. 40 lb/ft<sup>3</sup>; visc. 5.2-6.2 cps (4% aq., 20 C); pH 4.5-6.5 (4% aq.); ref. index 1.55 (20 C); 87-89% hydrolysis
- Airvol® 205S** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, partially hydrolyzed  
CAS 25213-24-5  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.; finer particle size  
*Properties:* Fine particle grade; fineness 99+% thru 80 mesh; visc. 5.2-6.2 cps; pH 4.5-6.5; 87-90% hydrolysis
- Airvol® 305** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, fully hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.  
*Properties:* Visc. 4.5-5.5 cps; pH 5.0-7.0; 98.0-98.8% hydrolysis
- Airvol® 321** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, fully hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.  
*Properties:* Visc. 16.5-20.5 cps; pH 5.0-7.0; 98.0-98.8% hydrolysis
- Airvol® 325** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, fully hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.  
*Properties:* Visc. 28.5-32.5 cps; pH 5.0-7.0; 98.0-98.8% hydrolysis
- Airvol® 350** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, fully hydrolyzed  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Imparts high water resist.; good adhesion to hydrophilic surfs. such as paper, cotton cloth; offers high tens. str. and ease of film formation, exc. adhesive chars; sol'ns. are nongelling providing long shelf life at low temps.  
*Properties:* Visc. 62-72 cps; pH 5.0-7.0; 98.0-98.8% hydrolysis
- Airvol® 425** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, intermediate hydrolyzed  
CAS 25213-24-5  
*Uses:* Polymer for adhesive prods., esp. for envelope, tube winding, book-binding, padding, bag seam, cup, cigarette filter, case/carton sealing applics.; paper applics.; exc. machining props  
*Properties:* Visc. 27-31 cps; pH 4.5-6.5; 95.5-96.5% hydrolysis
- Airvol® 502** [Celanese GmbH]  
*Chem. Descrip.:* Partially hydrolyzed polyvinyl alcohol  
CAS 25213-24-5  
*Uses:* For remoistenable adhesives and wood adhesive formulations; paper applics.; imparts high degree of water sensitivity  
*Properties:* Visc. 3.0-3.7 cps (4% aq., 20 C); pH 4.5-6.5; 5% max. volatiles
- Airvol® 523** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, partially hydrolyzed  
CAS 25213-24-5  
*Uses:* Binder, carrier, compounding agent, dispersant, stabilizer, protective colloid in polymerizations for textiles, paper, cement/plaster additive, films, ceramics, molded prods., mold release; useful for remoistenable adhesives, wood adhesives, envelope, label, bookbinding, padding, carton sealing applics.  
*Properties:* Visc. 23-27 cps (4% aq., 20 C); pH 4-6 (4% aq.); 87-89% hydrolysis
- Airvol® 540** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, partially hydrolyzed  
CAS 25213-24-5  
*Uses:* Binder, carrier, compounding agent, dispersant, stabilizer, protective colloid in polymerizations for textiles, paper, cement/plaster additive, films, molded prods., nonwovens; useful for remoistenable adhesives, wood adhesives, envelope, label, bookbinding, padding, carton sealing applics.  
*Properties:* Visc. 45-55 cps (4% aq., 20 C); pH 4-6 (4% aq.); 87-89% hydrolysis
- Airvol® 805** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol  
CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Emulsion polymerization applics.; food pkg. adhesives, coatings, paper/paperboard; improved grade providing processing advantages, superior water sol., lower foaming, and reduced gel content  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180; BGA compliances  
*Properties:* Wh. to cream gran. powd.; sp.gr. 1.27-1.31; bulk dens. 40 lb/ft<sup>3</sup>; visc. 5.2-6.2 cps (4% aq., 20 C); pH 4.5-6.5 (4% aq.); ref. index 1.55 (20

- C); 87-89% hydrolysis
- Airvol® 823** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Emulsion polymerization applics.; food pkg. adhesives, coatings, paper/paperboard; improved grade providing processing advantages, superior water sol., lower foaming, and reduced gel content  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180; BGA compliances  
*Properties:* Wh. to cream gran. powd.; sp.gr. 1.27-1.31; bulk dens. 40 lb/ft<sup>3</sup>; visc. 23-27 cps (4% aq., 20 C); pH 4-6 (4% aq.); ref. index 1.55 (20 C); 87-89% hydrolysis
- Airvol® 840** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Emulsion polymerization applics.; food pkg. adhesives, coatings, paper/paperboard; improved grade providing processing advantages, superior water sol., lower foaming, and reduced gel content  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180; BGA compliances  
*Properties:* Wh. to cream gran. powd.; sp.gr. 1.27-1.31; bulk dens. 40 lb/ft<sup>3</sup>; visc. 45-55 cps (4% aq., 20 C); pH 4-6 (4% aq.); ref. index 1.55 (20 C); 87-89% hydrolysis
- Airvol® MH-82** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, tackified  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Tackified grades yield visc. aq. sol'ns. which possess tack when applied onto surfaces such as paper, reducing penetration; derived from fully hydrolyzed grades  
*Properties:* Visc. 4200-5900 cps; pH 4.4-4.9
- Airvol® MM-14** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, tackified  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Tackified grades yield visc. aq. sol'ns. which possess tack when applied onto surfaces such as paper, reducing penetration; derived from fully hydrolyzed grades  
*Properties:* Visc. 245-485 cps; pH 4.4-4.9
- Airvol® MM-51** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, tackified  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Tackified grades yield visc. aq. sol'ns. which possess tack when applied onto surfaces such as paper, reducing penetration; derived from fully hydrolyzed grades  
*Properties:* Visc. 1100-1500 cps; pH 4.4-4.9
- Airvol® MM-81** [Celanese GmbH]  
*Chem. Descrip.:* Polyvinyl alcohol, tackified  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Tackified grades yield visc. aq. sol'ns. which possess tack when applied onto surfaces such as paper, reducing penetration; derived from fully hydrolyzed grades  
*Properties:* Visc. 1300-1700 cps; pH 4.4-4.9
- Ajidew A-100** [Ajinomoto]  
*Chem. Descrip.:* PCA  
 CAS 98-79-3; EINECS/ELINCS 202-700-3  
*Uses:* Nat. humectant used in cosmetics, soaps, dentifrices, medicinal supplies, tobacco, cellulose film, paper prods., fiber prods., paints; dyeing agent; softener; finishing agent; intermediate for synthesis; antistat for hair care prods.  
*Properties:* Wh. cryst. powd., odorless, sl. acidic taste, nonhygroscopic; m.w. 129.11; m.p. 181 C; pH 1.8-2.2
- Ajidew N-50** [Ajinomoto]  
*Chem. Descrip.:* Sodium PCA aq. sol'n.  
 CAS 28874-51-3; EINECS/ELINCS 249-277-1  
*Uses:* Nat. humectant used in cosmetics, soaps, dentifrices, medicinal supplies, tobacco, cellulose film, paper prods., fiber prods., paints; dyeing agent; softener; finishing agent; antistat; intermediate for synthesis; thickener for shampoos  
*Properties:* Liq.; pH 6.8-7.4; 50% act.
- Ajidew SP-100** [Ajinomoto]  
*Chem. Descrip.:* Sodium PCA and PCA  
*Uses:* Nat. humectant used in cosmetics, soaps, dentifrices, medicinal supplies, tobacco, cellulose film, paper prods., fiber prods., paints; dyeing

agent; softener; finishing agent; antistat; intermediate for synthesis

*Properties:* Wh. cryst.

**AL 1701** [Mace Adhesives & Coatings]

*Chem. Descrip.:* Aliphatic polyether PU laminating adhesive

*Uses:* Laminating adhesive for paper, foam, cotton, polyester, stainless steel, mylar, nylon, aluminum, and PE film; waterborne; good grn. str. and adhesion to most substrates

*Properties:* Visc. 2000 ± 1000 cps; low m.p.; pH 7.5-8.5; VOC 137 g/l; 60 ± 1% solids

**AL 4190** [Mace Adhesives & Coatings]

*Chem. Descrip.:* Aliphatic polyether PU laminating adhesive

*Uses:* Laminating adhesive for wet or dry laminations of paper, film, vinyl, foil, or fabric constructions; high performance; waterborne; low VOC; rapid bond str.; designed to exhibit high degree of specific adhesion to various substrates, incl. low energy surfaces

*Use Level:* 0.3-1.5 oz/yd<sup>2</sup> (dry coat wt.)

*Properties:* Milky liq.; mild alcoholic odor; dens. 8.1 lb/gal; visc. 1500 ± 500 cps (70 F); pH 7.5-8.5; VOC 250 g/l; 36 ± 1% solids; anionic

*Storage:* Store @ 40-100 F; keep away from all sources of ignition

**AL 4781** [Mace Adhesives & Coatings]

*Chem. Descrip.:* Hybrid PU laminating adhesive

*Uses:* Laminating adhesive for paper, foam, cotton, mylar, PVC film, nylon, polyester, stainless steel, and aluminum; waterborne; exc. for bonding foam/vinyl constructions @ R.T.

*Properties:* Visc. 1000 ± 500 cps; pH 7.5-8.5; VOC 343 g/l; 52 ± 1% solids

**AL 6919** [Mace Adhesives & Coatings]

*Chem. Descrip.:* Hybrid PU laminating adhesive

*Uses:* Laminating adhesive for wet or dry laminations of paper, film, vinyl, foil, or fabric constructions, foam/vinyl laminations at R.T.; hybrid; low VOC; rapid bond str.; designed to exhibit high degree of specific adhesion to various substrates, incl. low energy surfaces

*Use Level:* 0.3-1.5 oz/yd<sup>2</sup> (dry coat wt.)

*Properties:* Milky liq.; mild alcoholic odor; dens. 8.37 lb/gal; visc. 1000 ± 500 cps (70 F); pH 7.5-8.5; VOC 225 g/l; 52 ± 1% solids; anionic

*Storage:* Store @ 40-100 F; keep away from all sources of ignition

**Alathon® L 5845** [Equistar]

*Chem. Descrip.:* HDPE blown film resin

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Blown film resin for paper replacement, coextrusions, laminations, food pkg.

*Regulatory:* FDA 21CFR §177.1520

*Properties:* Sp.gr. 0.958; melt index 0.45 g/10 min; tens. str. 3800 psi (yield); elong. 750% (break, MD); tear str. (Elmendorf) 15-30 g (MD)

**Alathon® L 5845-1** [Equistar]

*Chem. Descrip.:* HDPE

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Blown film resin for paper replacement, coextrusions, laminations, food pkg.

*Regulatory:* FDA 21CFR §177.1520 compliant

*Properties:* Sp.gr. 0.958; melt index 0.45 g/10 min; tens. str. 3800 psi (yield, MD); elong. 750% (break, MD); Elmendorf tear str. 15-30 g (MD)

**Albacar® 5970** [Specialty Mins.]

*Chem. Descrip.:* Precipitated calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (98%), MgCO<sub>3</sub> (1%), moisture (0.2%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Functional pigment, reinforcing filler for NR, SR, resins, plastics, plastisols, paints, adhesives, sealants, caulks, paper, footwear, hose, belting, extruded and molded goods, sundries; nonabrasive; unique rosette particle shape makes it useful in applics. where high oil absorp. and high visc. are desired; improves tens., tear, abrasion resist.

*Properties:* Powd.; 1.9 μ median particle size; 0.03% on 325 mesh; sp.gr. 2.7; dens. 31 lb/ft<sup>3</sup> (tapped); bulk dens. 14 lb/ft<sup>3</sup>; oil absorp. 50 g/100 g; brightness 98

*Toxicology:* Nontoxic

**Albacar® PCC** [Specialty Mins.]

*Chem. Descrip.:* Precipitated calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler, opacifier, brightener for uncoated fine papers and coating base stocks

**Albafil® PCC** [Specialty Mins.]

*Chem. Descrip.:* Precipitated calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9



*Uses:* Filler for alkaline papers; high brightness and whiteness; low surf. area; minimal interference with fiber-to-fiber bonding

*Properties:* Prismatic shaped

**Albaglos® PCC** [Specialty Mins.]

*Chem. Descrip.:* Precipitated calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Pigment, opacifier, brightener for paper coatings; controlled particle size distribution; exc. shear rheology; good ink holdout; maintains sheet gloss

**Albone® 35** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide, stabilized

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent, bleaching agent for org. synthesis, paper/pulp, textiles, chem. mfg., minerals industry, etc.

*Properties:* Colorless clear liq.; sl. pungent irritating odor; m.w. 34.02; dens. 1.133 g/ml; visc. 1.11 cP; vapor pressure 23 mm Hg (30 C); b.p. 108 C; m.p. -33 C; pH 2.5; 35% conc., 16.5% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

**Albone® 50** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide, stabilized

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent, bleaching agent for org. synthesis, paper/pulp, textiles, chem. mfg., minerals industry, etc.

*Properties:* Colorless clear liq.; sl. pungent irritating odor; m.w. 34.02; dens. 1.196 g/ml; visc. 1.17 cP; vapor pressure 18 mm Hg (30 C); b.p. 114 C; f.p. -52 C; pH 1.8; 50% conc., 23.5% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

**Albone® 70** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide, lightly stabilized

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent, bleaching agent for org. synthesis, paper/pulp, textiles, chem. mfg., minerals industry, metal surf. treatment, etc.

*Properties:* Colorless clear liq.; sl. pungent irritating odor; m.w. 34.02; dens. 1.288 g/ml; visc. 1.93 cP; vapor pressure 11 mm Hg (30 C); b.p. 126 C; f.p. -40 C; pH 0.5; 70% conc., 32.9% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

**Albone® 70 DG** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide, highly stabilized

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent, bleaching agent for org. synthesis, paper/pulp, tex-

tiles, chem. mfg., minerals industry, etc.; diluted to 35-50% for storage in user's tank

*Properties:* Colorless clear liq.; sl. pungent irritating odor; m.w. 34.02; dens. 1.288 g/ml; visc. 1.93 cP; vapor pressure 11 mm Hg (30 C); b.p. 126 C; f.p. -40 C; pH 0.5; 70% conc., 32.9% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

**Albrite® N-Butyl Acid Phosphate** [Albright & Wilson Am.]

*Chem. Descrip.:* Butyl acid phosphate

CAS 12788-93-1

*Uses:* Catalyst used in coatings and inks, for appliance, automotive, floor, furniture, paper, and other finishes; also for corrosion inhibitors, solder fluxes, lubricants, and tanning chems.; raw material for mfg. of textile auxs., wetting agents, dispersants, antistats, foams; provides high reactivity while offering improved storage stability; compat. with alkyds, cellulosics, epoxies, melamine, urethane, B/S

*Properties:* Pale yel. liq.; sol. in ethanol, acetone, benzene; partly sol. in water; insol. in toluene, hexane; sp.gr. 1.13; visc. 75 cs (40 C); decomp. pt. gradual above 180 C; flash pt. (CC) 90 C; fire pt. (OC) 202 C; ref. index 1.428; VOC 0.2 lb/gal

*Toxicology:* Corrosive; avoid prolonged/repeated skin and eye contact

**Albrite® Isooctyl Acid Phosphate** [Albright & Wilson Am.]

*Chem. Descrip.:* Isooctyl acid phosphate

CAS 12645-53-3

*Uses:* Catalyst used in solder fluxes (eliminates noxious fumes, spattering, corrosive residues); in coatings and inks (high reactivity, improves storage stability); for appliance, automotive, floor, furniture, paper, and other coatings; for anti-static agents, corrosion inhibitors, lubricants, tanning chems.; compat. with alkyds, cellulosics, epoxies, melamines, urethane, B/S

*Properties:* Pale yel. liq.; sol. in ethanol, acetone, benzene, toluene, hexane; insol. in water; sp.gr. 1.02; visc. 75 cs (40 C); decomp. pt. gradual above 180 C; flash pt. (CC) 115 C; fire pt. (OC) 207 C; ref. index 1.446; VOC 0.3 lb/gal

*Toxicology:* Corrosive; avoid prolonged/repeated skin and eye contact

**Albrite® PA-75** [Albright & Wilson Am.]

*Chem. Descrip.:* 75% Phenyl acid phosphate in butyl alcohol

*Uses:* Acid catalyst in resin curing; chemical intermediate in formulation of rust preventatives, antistats, textile lubricants, oil additives, heavy metal extractants; in coatings and inks provides high reactivity and improved storage (appliance, automotive, floor, furniture, paper, and other coatings); compat. with alkyds, cellulosics, epoxies, melamine, urethane, B/S

*Properties:* Pale yel. liq.; sol. in ethanol, acetone, benzene, toluene, hexane; partly sol. in water; sp.gr. 1.14 (20/4 C); visc. 49 cps; decomp. pt. gradual above 200 C; acid no. 270 min.; flash pt. (OC) 40 C; fire pt. (OC) 52 C; ref. index 1.483; VOC 3.1 lb/gal

*Toxicology:* Corrosive; avoid prolonged/repeated eye or skin contact

*Precaution:* Flamm. liq.

**Alcaid 10** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Very lt. pale liq.; visc. 9.56 cSt (40 C), 2.44 cSt (100 C); pour pt. -30 F; aniline pt. 175 F; flash pt. (COC) 320 F; 0.03% carbon residue

**Alcaid 13** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Lt. pale liq.; visc. 12.5 cSt (40 C), 2.8 cSt (100 C); pour pt. -30

F; aniline pt. 170 F; flash pt. (COC) 305 F

**Alcaid 19** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Lt. pale liq.; visc. 19.7 cSt (40 C), 3.5 cSt (100 C); pour pt. -20 F; aniline pt. 165 F; flash pt. (COC) 315 F; 0.03% carbon residue

**Alcaid 32** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Lt. pale liq.; visc. 29.5 cSt (40 C), 4.4 cSt (100 C); pour pt. -15 F; aniline pt. 176 F; flash pt. (COC) 325 F; 0.03% carbon residue

**Alcaid 46** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Lt. pale liq.; visc. 44.0 cSt (40 C), 5.3 cSt (100 C); pour pt. -10 F; aniline pt. 185 F; flash pt. (COC) 350 F; 0.03% carbon residue

**Alcaid 60** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Lt. pale liq.; visc. 59.8 cSt (40 C), 6.5 cSt (100 C); pour pt. 5 F; aniline pt. 192 F; flash pt. (COC) 370 F; 0.04% carbon residue

**Alcaid 100** [Texaco]

*Chem. Descrip.:* Naphthenic mineral oil

*Uses:* Lubricant, process or extender oil in rubber and plastics for use in mfg. of ink oils, carbon paper, floor oils, and component or carrier of upper cylinder lubricants, motor tune-up oils, and crankcase additives; general purpose; rec. in applics. requiring straight min. naphthenic oils

*Properties:* Lt. pale liq.; visc. 105 cSt (40 C), 8.8 cSt (100 C); pour pt. 0 F; aniline pt. 202 F; flash pt. (COC) 400 F; 0.05% carbon residue

**Alcan Aluminum Sulphate Sol'n.** [Alcan]

*Chem. Descrip.:* Aluminum sulfate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (8%)

CAS 10043-01-3; EINECS/ELINCS 233-135-0

*Uses:* Coagulant, flocculant in pulp/paper mills, water treatment; paper sizing (with rosin)

*Properties:* Colorless liq.; odorless; dens. 1320 kg/m<sup>3</sup>; b.p. > 100 C; pH 1.9-2.5

*Toxicology:* Low acute toxicity; eye and skin irritant

*Environmental:* Will dissolve rapidly in water

**Alcan Aluminum Sulphate Solid** [Alcan]

*Chem. Descrip.:* Aluminum sulfate

CAS 10043-01-3; EINECS/ELINCS 233-135-0

*Uses:* Paper sizing (with rosin); coagulant/flocculant in pulp/paper mills, water treatment; leather; textiles; wallboard gypsum treatment; component in fire retardants

*Properties:* Wh. cryst., flakes, gran., powd.; odorless; completely sol. in water; dens. 1760 kg/m<sup>3</sup>; m.p. 110-115 C; b.p. dec. before boiling; pH 1.5 (10% aq.); 100% act.

*Toxicology:* Risk of serious eye damage; dust will cause conjunctival irritation, possible corneal damage; dust may cause skin irritation and drying; may cause nose/throat/respiratory tract irritation; low acute toxicity

*Environmental:* Will dissolve rapidly in water

*Hazardous Decomp. Prods.:* Combustion will generate SO<sub>2</sub>

**Alcan Superfine SF 2** [Alcan]

*Chem. Descrip.:* Alumina trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%), water (34.9%), Na<sub>2</sub>O (0.2%), SiO<sub>2</sub> (0.015%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Fire retardant/smoke suppressant filler for plastics, PVC, rubber tech. goods, cable compds., conveyor belting, flooring compds., thermoplastic

molding/extrusion/sheet, thermosetting molding compds., polyester and acrylic pultrusion, fabric coatings, paper filling and coating, printing inks, paints, adhesives, adhesive tapes and in toothpaste, cosmetics, polishes and waxes

*Properties:* Wh. cryst. powd.; 0.1% max. on 45 µm; 1.6 µm median particle size; sp.gr. 2.42; bulk dens. 0.3 g/cc (untamped); surf. area 2 m<sup>2</sup>/g; oil absorp. 30; brightness 96; ref. index 1.57; pH 9.5 (5% w/v slurry); hardness (Mohs) 2.5-3.5

*Toxicology:* ACGIH airborne particulate 10 mg/m<sup>3</sup> (total), 4 mg/m<sup>3</sup> (respirable)

**Alcan Superfine SF 4** [Alcan]

*Chem. Descrip.:* Alumina trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%), water (34.9%), SiO<sub>2</sub> (0.015%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Fire retardant/smoke suppressant filler for plastics, PVC, rubber tech. goods, cable compds., conveyor belting, flooring compds., thermoplastic molding/extrusion/sheet, thermosetting molding compds., polyester and acrylic pultrusion, fabric coatings, paper filling and coating, printing inks, paints, adhesives, adhesive tapes and in toothpaste, cosmetics, polishes and waxes; whitener and brightener in paper coatings

*Properties:* Wh. cryst. powd.; 0.1% max. on 325 mesh; 1.4 µm median particle size; sp.gr. 2.42; bulk dens. 0.25 g/cc (untamped); surf. area 4 m<sup>2</sup>/g; oil absorp. 36; brightness 97; ref. index 1.57; pH 10 (5% w/v slurry); hardness (Mohs) 2.5-3.5

**Alcan Superfine SF 7** [Alcan]

*Chem. Descrip.:* Alumina trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%), water (34.9%), SiO<sub>2</sub> (0.015%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Fire retardant/smoke suppressant filler for plastics, PVC, rubber tech. goods, cable compds., conveyor belting, flooring compds., thermoplastic molding/extrusion/sheet, thermosetting molding compds., polyester and acrylic pultrusion, fabric coatings, paper filling and coating, printing inks, paints, adhesives, adhesive tapes and in toothpaste, cosmetics, polishes and waxes; whitener and brightener in paper coatings

*Properties:* Wh. cryst. powd.; 0.1% max. on 325 mesh, 1.0 µm median particle size; sp.gr. 2.42; bulk dens. 0.2 g/cc (untamped); surf. area 7 m<sup>2</sup>/g; oil absorp. 42; brightness 98; ref. index 1.57; pH 10 (5% w/v slurry); hardness (Mohs) 2.5-3.5

**Alcan Superfine SF 9** [Alcan]

*Chem. Descrip.:* Alumina trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%), water (34.9%), Na<sub>2</sub>O (0.45%), SiO<sub>2</sub> (0.015%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Fire retardant/smoke suppressant filler for plastics, PVC, rubber tech. goods, cable compds., conveyor belting, flooring compds., thermoplastic molding/extrusion/sheet, thermosetting molding compds., polyester and acrylic pultrusion, fabric coatings, paper filling and coating, printing inks, paints, adhesives, adhesive tapes and in toothpaste, cosmetics, polishes and waxes

*Properties:* Wh. cryst. powd.; 0.1% max. on 45 µm; 0.6 µm median particle size; sp.gr. 2.42; bulk dens. 0.2 g/cc (untamped); surf. area 8-10 m<sup>2</sup>/g; oil absorp. 45; brightness 98; ref. index 1.57; pH 10.5 (5% w/v slurry); hardness (Mohs) 2.5-3.5

*Toxicology:* ACGIH airborne particulate 10 mg/m<sup>3</sup> (total), 4 mg/m<sup>3</sup> (respirable)

**Alcan Superfine SF 11** [Alcan]

*Chem. Descrip.:* Alumina trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%), water (34.9%), SiO<sub>2</sub> (0.015%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Fire retardant/smoke suppressant filler for plastics, PVC, rubber tech. goods, cable compds., conveyor belting, flooring compds., thermoplastic molding/extrusion/sheet, thermosetting molding compds., polyester and acrylic pultrusion, fabric coatings, paper filling and coating, printing inks, paints, adhesives, adhesive tapes and in toothpaste, cosmetics, polishes and waxes; whitener and brightener in paper coatings

*Properties:* Wh. cryst. powd.; 0.1% max. on 325 mesh, 0.7 µm median particle size; sp.gr. 2.42; bulk dens. 0.2 g/cc (untamped); surf. area 11 m<sup>2</sup>/g; oil absorp. 44; brightness 98; ref. index 1.57; pH 10.5 (5% w/v slurry); hardness (Mohs) 2.5-3.5

**Alcan Ultrafine UF15** [Alcan]

*Chem. Descrip.:* Alumina trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65.1%), water (34.5%), Na<sub>2</sub>O (0.12-0.21%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant/smoke suppressant filler for plastics (PVC, PP, PE)



and rubbers, cable, conveyor belting, thermoplastic moldings, paper coatings, toothpaste, paint (titania extender), adhesives, cosmetics, flooring compds., coated fabrics, furniture foams

*Properties:* Wh. ultrafine cryst. powd.: 0.8 µm median particle size; sp.gr. 2.42; bulk dens. 0.50 g/cc (untamped); surf. area 15 m<sup>2</sup>/g; oil absorp. 37 g/100 g; ref. index 1.57; pH 10 (5% slurry)

**Alcan Ultrafine UF25** [Alcan]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65.1%), water (34.5%), Na<sub>2</sub>O (0.12-0.21%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant/smoke suppressant filler for plastics (PVC, PP, PE) and rubbers, cable, conveyor belting, thermoplastic moldings, paper coatings, toothpaste, paint (titania extender), adhesives, cosmetics, flooring compds., coated fabrics, furniture foams

*Properties:* Wh. ultrafine cryst. powd.: 0.7 µm median particle size; sp.gr. 2.42; bulk dens. 0.55 g/cc (untamped); surf. area 25 m<sup>2</sup>/g; oil absorp. 43 g/100 g; ref. index 1.57; pH 10.5 (5% slurry)

**Alcan Ultrafine UF35** [Alcan]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65.1%), water (34.5%), Na<sub>2</sub>O (0.12-0.21%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant/smoke suppressant filler for plastics (PVC, PP, PE) and rubbers, cable, conveyor belting, thermoplastic moldings, paper coatings, toothpaste, paint (titania extender), adhesives, cosmetics, flooring compds., coated fabrics, furniture foams

*Properties:* Wh. ultrafine cryst. powd.: 0.5 µm median particle size; sp.gr. 2.42; bulk dens. 0.60 g/cc (untamped); surf. area 35 m<sup>2</sup>/g; oil absorp. 50 g/100 g; ref. index 1.57; pH 11 (5% slurry)

**Alcoa® Grade C-231** [Alcoa]

*Chem. Descrip.:* Hydrated alumina

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Reinforcing agent, smoke suppressant, flame retardant used in mfg. of glass, chems., catalysts, vitreous enamels, ceramic whitewares; pigment; filler in polymer systems (elec. wire insulation, cultured marble, countertop surfs.); filler for toothpastes, adhesives, coatings, paper, cosmetics, waxes, and polishes

*Properties:* Wh. ground powd.: 14 µ median particle size; 75-85% thru 325 mesh; sp.gr. 2.42; bulk dens. 0.8 g/cc (loose); surf. area 2.5 m<sup>2</sup>/g; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Alcoa® Grade C-333** [Alcoa]

*Chem. Descrip.:* Hydrated alumina

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Reinforcing agent, smoke suppressant, flame retardant used in mfg. of glass, chems., catalysts, vitreous enamels, ceramic whitewares; pigment; filler in polymer systems (elec. wire insulation, cultured marble, countertop surfs.); filler for toothpastes, adhesives, coatings, paper, cosmetics, waxes, and polishes

*Properties:* Wh. ground powd.: 7 µ median particle size; 98% thru 325 mesh; sp.gr. 2.42; bulk dens. 0.6 g/cc (loose); surf. area 3.6 m<sup>2</sup>/g; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Alcoa® KB30** [Alcoa; Alcoa of Australia]

*Chem. Descrip.:* Hydrated alumina

*Chem. Analysis:* Al(OH)<sub>3</sub> (99.6%); Al<sub>2</sub>O<sub>3</sub> (65.1%); Na<sub>2</sub>O (0.28%); CaO (0.013%); Fe<sub>2</sub>O<sub>3</sub> (0.008%); sol. Na<sub>2</sub>O (0.005%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant filler for polymers, zeolite prod. (for detergents, adsorbents, catalysts); water treatment; paper sizing; titanium dioxide production

*Properties:* Dry free-flowing powd. or wet (5% moisture); 86% on 325 mesh (45 µ); 65 µ median particle size; good sol. in acid and caustic; bulk den. 1150 kg/m<sup>3</sup> (loose), 1430 kg/m<sup>3</sup> (packed); brightness 90%

**Alcodet® 218** [Rhodia HPCII; Rhodia HPCII France; Costec]

*Chem. Descrip.:* PEG-10 isolauryl thioether

CAS 9004-83-5

*Uses:* Emulsifier, wetting agent, detergent for metal cleaning specialties, steel processing, textile scouring, insecticide emulsions, cosmetics, wood pulp/paper industries; carbon soil and grease cleaners

*Properties:* Gardner 6 max. liq.; sol. in water and alkaline detergent builders; sp.gr. 1.05; dens. 8.6 lb/gal; HLB 13.9; cloud pt. 52 C (1% aq.); surf. tens. 28 dynes/cm (0.05%); 95% act.; nonionic

**Alcodet® 260** [Rhodia HPCII; Costec]

*Chem. Descrip.:* PEG-6 isolauryl thioether

CAS 9004-83-5

*Uses:* Emulsifier, wetting agent, detergent for metal cleaning specialties, steel processing, textile scouring, insecticide emulsions, cosmetics, wood pulp/paper industries; carbon soil and grease cleaners

*Properties:* Gardner 6 max. liq.; sol. in org. solvs.; sp.gr. 1.01; dens. 8.4 lb/gal; HLB 11.0; surf. tens. 29 dynes/cm (0.05%); 100% conc.; nonionic

**Alcodet® SK** [Rhodia HPCII; Costec]

*Chem. Descrip.:* PEG-8 isolauryl thioether

CAS 9004-83-5

*Uses:* Emulsifier, wetting agent, detergent for metal cleaning specialties, textile scouring, insecticide emulsions, paints, hair prods., wood and paper industries; emulsifier for petrol oils, chlorinated solvs., silicones; carbon soil and grease cleaners

*Properties:* Gardner 6 max. liq.; sol. in water; sp.gr. 1.03; dens. 8.5 lb/gal; HLB 12.7; cloud pt. 28 C (1% aq.); surf. tens. 31 dynes/cm (0.05%); 100% conc.; nonionic

**Alcofix®** [Ciba Spec. Chems./Paper]

*Uses:* Pitch fixative, antiredeposition aid for pulp, paper, and paperboard

*Properties:* Cationic

**Alcogum® L-15** [Alco]

*Chem. Descrip.:* Polyacrylic acid

CAS 9003-01-4

*Uses:* Thickener for adhesives, paints, paper coatings, natural and syn. latexes, textiles; alkali-swellable

*Regulatory:* FDA approved

*Properties:* Milky wh. liq.; sp.gr. 1.05; visc. 15 cps; pH 3.0; 30% solids; anionic

**Alcoproof®** [Ciba Spec. Chems./Paper]

*Uses:* Sizing agent for paper and paperboard

**Alcoseal®** [Ciba Spec. Chems./Paper]

*Uses:* Tail seal adhesive for tissue industry

**Alcosperse® 149** [Alco]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* General purpose min. dispersant, sequestrant, antiredeposition agent used in pigments, paints, coatings, mining, pigment slurries, adhesives, textiles, and water softeners; pigment dispersant, stabilizer in NR and SR latexes; food pkg. adhesives, coatings, paper/paperboard; low foaming; high efficiency

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 176.180

*Properties:* Dry and liq. forms; m.w. 2500; pH 8; 40% solids; anionic

*Toxicology:* Very low toxicity

**Alcosperse® 404** [Alco]

*Chem. Descrip.:* Polyacrylic acid aq. sol'n.

CAS 9003-01-4

*Uses:* Dispersant, suspending agent, stabilizer, thickener for hard. surf. detergents, textile scours and rinse aids, pigment slurries, paper coatings, paints, mining, and ceramic applics.; dispersant for NR and SR latexes

*Properties:* Liq.; water-sol.; m.w. 250,000; visc. 270 cps; 25% act.; anionic

**Alcosperse® 602-N** [Alco]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Dispersant, sequestrant, antiredeposition agent, process aid for powd. or liq. laundry, hard surf., auto dish liqs. and powd. detergents, pigments, high solids slurries, paper coatings, paints, textile scours, rinses, dye baths, water softeners, mining, ceramics

*Properties:* Dry, liq., and acid; water-sol.; anionic

**Alcostat®** [Ciba Spec. Chems./Paper]

*Chem. Descrip.:* Conductive resins and antistats

*Uses:* Antistat for computer tapes, electroreprographic printing, and offset litho masters

**Alcotech® RCS** [Ciba Spec. Chems./Paper]

*Uses:* Closed-loop retention control system for paper and paperboard

**Aldo® MS LG FG** [Lonza]

*Chem. Descrip.:* Glyceryl stearate, low glycerin

CAS 31566-31-1

*Uses:* Food emulsifier and emulsion stabilizer for baked goods, dairy prods., edible oils/shortenings, confectionery, pet foods; slip and antitack agent in hot-melt adhesives, solv. or solventless coatings; emulsifier for paper defoamers; emulsifier for cosmetic creams, lotions, pastes, and gels

*Use Level:* 4-6% on shortening (cake), 0.1-0.2% (frozen desserts), 0.5% (margarine), 0.05-1% (dry potatoes)

*Regulatory:* FDA 21CFR §184.1505, GRAS

*Properties:* Wh. beads, bland odor and taste; m.p. 58-62 C; HLB 3; acid no. 2 max.; sapon. no. 162; 40-45% alpha monoglycerides; nonionic

*Storage:* Store in cool, dry area

#### Alfol® 20+ [Condea Vista]

*Chem. Descrip.:* Blend of C20 and higher even-carbon-number primary linear alcohols

*Uses:* Lubricant for plastics, textiles, and metals; defoamer for paper, aq. slurries; water evaporation control agent; intermediate for emulsifiers, biodeg. surfactants, plastic lubricants, syn. waxes and binders

*Regulatory:* FDA approved

*Properties:* Off-wh. solid; sol. in alcohol, acetone, ether; water-insol.; m.w. 431; sp.gr. 0.817 (140/140 F); dens. 6.80; m.p. 113-129 F; b.p. > 650 F; iodine no. 8.7; sapon. no. 5.7; hyd. no. 157; flash pt. (PM) 390 F; 88.5% act.

#### Alfol® 22+ [Condea Vista]

*Chem. Descrip.:* C22 and higher linear alcohols

*Uses:* Detergent intermediate; lubricant; defoamer; emollient; in fuel oil; waxes and polishes; in paper pulp defoamers

*Properties:* Wh. solid; sol. in alcohol, acetone, ether; water-insol.; 100% conc.

*Environmental:* Biodeg.

#### Alfonic® 1012-5.5 [Condea Vista]

*Chem. Descrip.:* C10-12 parath-5.6

CAS 66455-15-0

*Uses:* Emulsifier, foaming agent, detergent for household cleaners, heavy duty cleaners, laundry detergents, textile/leather processing, pulp/paper processing, metal cleaners, carwash, agric. sprays, circuit board cleaners

*Properties:* APHA 5 clear liq.; sol. in polar solvs. e.g., water, ethanol, IPA, glycol ethers; m.w. 410; sp.gr. 0.972; visc. 21 cSt (100 F); m.p. 37-40 F; HLB 12; hyd. no. 145; pour pt. 39 F; cloud pt. 99 F (1% aq.); flash pt. (PM) 290 F; pH 7.0 (1% aq.); nonionic

*Environmental:* Biodeg.

*Storage:* Nitrogen blanketing during storage and transfer is rec.

#### Alfonic® 1412-9 [Condea Vista]

*Chem. Descrip.:* C14-12 parath-9

CAS 68439-50-9

*Uses:* Emulsifier, foaming agent, cleaner for household cleaning prods., heavy-duty liq. and powd. laundry detergents, all-purpose cleaners, industrial applics. for textile and leather processing, pulp/paper processing, metal cleaners, car wash, agric. sprays, circuit board cleaners; dispersant; wetting agent; soil carrying and homogenizing ability

*Properties:* APHA 30 max. solid; sol. in polar solvs., e.g., water, ethanol, IPA, glycol ethers; m.w. 601; sp.gr. 0.995 (122/122 F); visc. 43.1 cSt (100 F); m.p. 68-77 F; HLB 13.2; hyd. no. 94; pour pt. 72 F; cloud pt. 175 F (1% aq.); flash pt. (PM) > 450 F; pH 7; 100% act.; nonionic

#### Alkafoam™ 20 [BASF]

*Uses:* General purpose cleaning chem. for paper processing

#### Alkamide® STEDA [Rhodia HPCII]

*Chem. Descrip.:* Ethylene bisstearamide

CAS 110-30-5; EINECS/ELINCS 203-755-6

*Uses:* Additive in pulp/paper defoamer formulations; lubricant, mold release agent, antiblocking agent in calendaring, extrusion, and inj. molding of PVC and other plastics; plasticizer, antistat, pigment dispersant for resins and plastics

*Properties:* Flakes; 95% amide; nonionic

#### Alkamuls® EL-620 [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* PEG-30 castor oil

CAS 61791-12-6

*Uses:* Detergent, emulsifier, wetting agent, pigment dispersant, antistat, lubricant, solubilizer for industrial/household cleaners, cosmetics, pharmaceuticals, metalworking fluids, leather, pesticides, herbicides, paper industries, magnetic coupling fluids; stabilizer for PVAc emulsion paints; emulsifier for oleoresinous binders; coemulsifier for fabric softeners and dye carriers; food-contact surfactant; food pkg. adhesives, paper/paperboard, animal glue

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210, 178.3120; exempt from tolerance under EPA 40CFR §180.1001(c)

*Properties:* Lt. brn. clear visc. liq., mild oily odor; sol. in water, acetone, CCl<sub>4</sub>, alcohols, veg. oil, ethers, toluene, xylene; sp.gr. 1.04-1.05; dens. 8.705 lb/gal; visc. 600-1000 cps; HLB 12.0; cloud pt. 42 C (1% aq.); flash

pt. 291-295 C; surf. tens. 41 dynes/cm; 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 40 g/kg; low oral toxicity; not primary skin or eye irritants

#### Alkamuls® EL-719 [Rhodia HPCII; Rhodia HPCII France; Costec]

*Chem. Descrip.:* PEG-40 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, wetting agent for industrial/household cleaners, pesticides, paper, leather, plastics, paints, textiles, and cosmetics; dispersant for pigments; emulsifier for vitamins and drugs; indirect food additive; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210, 178.3120; exempt from tolerance under EPA 40CFR §180.1001(c)(e)

*Properties:* Yel. clear liq., oily odor; sol. in water, acetone, CCl<sub>4</sub>, alcohols, veg. oil, ether, toluene, xylene; sp.gr. 1.06-1.07; dens. 8.9-9.0 lb/gal; visc. 500-800 cps; HLB 13.6; cloud pt. 80 C (1% aq.); flash pt. 275-279 C; surf. tens. 38 dynes/cm (0.1%); 96% min. act.; nonionic

*Toxicology:* LD50 (oral, rat) 70 g/kg; low oral toxicity; not primary skin or eye irritants

#### Alkamuls® PSMS-20 [Rhodia HPCII]

*Chem. Descrip.:* Polysorbate 60

CAS 9005-67-8

*Uses:* Wetting agent, emulsifier for cosmetics, food, textiles, paper coatings; fiber-to-metal lubricant for fibers and yarns

*Properties:* Yel. visc. liq., gel on standing; typ. odor; water disp.; dens. 1.1 g/ml; HLB 14.9; sapon. no. 45-55; 97% act.; nonionic

#### Alkamuls® S-8 [Rhodia HPCII]

*Chem. Descrip.:* PEG-8 stearate

CAS 9004-99-3

*Uses:* Emulsifier, self-emulsifying lubricant and softener for syn. fibers, textiles, leather; thickener, stabilizer for starch-based paper coatings; internal antistat for PS

*Regulatory:* FDA approved

*Properties:* Off-wh. solid, bland char. odor; disp. in water, aromatic and aliphatic solvs.; insol. in min. oil; m.p. 28 C; HLB 11.2; acid no. 1 max.; sapon. no. 87-97; hyd. no. 87-102; pH 7-9 (5% in DI water); 100% conc.; nonionic

#### Alkanol® 189-S [DuPont; DuPont Canada]

*Chem. Descrip.:* Sodium alkyl sulfonate

*Uses:* Wetting agent, detergent, penetrant, foaming agent for textiles, elastomers, plastics, film, metal cleaning and pickling, hard surf. cleaning, and chemical mfg.; wetting agent for paper industry; dyeing assistant; leveling agent for acid dyes on nylon; dispersant, wetting agent, penetrant for agric. chems.; effective in acid and alkali media

*Properties:* Reddish-br. liq., alcoholic odor; sol. in water; sp.gr. 1.06 g/mL; dens. 8.8 lb/gal; visc. 30 cps; cloud pt. < 0 C; flash pt. (PMCC) 21 C; pH 7.5-9.0 (1%); surf. tens. 38 dynes/cm (0.1%); 31.5% act.; contains IPA; anionic

*Precaution:* Flamm.

#### Alkanol® 1009C [DuPont]

*Uses:* Detergent for hard surf. cleaners; metal cleaning and pickling; wetting agent, rewetting agent for textiles, paper; dyeing assistant; leveling agent for acid dyes on nylon; dispersant, wetting agent, penetrant for agric. chems.; adhesives; aerospace and aircraft; chem. processing; coatings; sealants; military; mining; petrol. refining/distribution

#### Alkanol® 6112 [DuPont; DuPont Canada]

*Chem. Descrip.:* Fatty alcohol ethoxylate

*Uses:* Wetting agent for textile processing, paper industry; dyeing assistant; leveling agent for acid dyes on nylon; detergent for hard surf. cleaners; metal cleaning and pickling; dispersant, wetting agent, penetrant for agric. chems.; nonrewetting; stable to acids, bases

*Properties:* Milky wh. emulsion, mild soapy odor; misc. with water; sp.gr. 0.91 g/mL; dens. 7.6 lb/gal; flash pt. (PMCC) 113 C; pH 6.6; surf. tens. 26 dynes/cm (0.1%); 100% act.; nonionic

#### Alkanol® A-CN [DuPont; DuPont Canada]

*Chem. Descrip.:* Amine ethoxylate

*Uses:* Surfactant, antiprecipitant, dyeing assistant, dye solubilizer, leveling agent, contrast agent for textile dyeing; wetting agent for paper industry; detergent for hard surf. cleaners; metal cleaning and pickling; dispersant, wetting agent, penetrant for agric. chems.

*Properties:* Lt. amber liq., alcoholic odor; 50% sol. in water; sol. in polar solvs.; sp.gr. 0.98 g/mL; dens. 8.2 lb/gal; HLB 14.4; cloud pt. > 100 C (upper, 1%); flash pt. (PMCC) 45 C; pH 7-9; surf. tens. 39 dynes/cm

(0.1%); 60% act.; nonionic

*Precaution:* Combustible

**Alkanol® ND** [DuPont; DuPont Canada]

*Chem. Descrip.:* Sodium alkyl diaryl sulfonate

*Uses:* Foaming agent, wetting agent, dyeing assistant, surfactant for textiles, chemical mfg.; leveling agent for acid dyes on nylon; detergent for hard surf. cleaners; metal cleaning and pickling; wetting agent for paper industry; dispersant, wetting agent, penetrant for agric. chems.

*Properties:* Clear yel. liq.; terpene odor; misc. with water; sp. gr. 1.15 g/mL; dens. 9.6 lb/gal; visc. 118 cP; cloud pt. < 0 C; flash pt. extinguishes flame; surf. tens. 34 dynes/cm (0.1% aq.); 45% act.; anionic

**Alkanol® SB** [DuPont]

*Uses:* Detergent for hard surf. cleaners; metal cleaning and pickling; wetting agent, rewetting agent for textiles, paper; dyeing assistant; leveling agent for acid dyes on nylon; dispersant, wetting agent, penetrant for agric. chems.; adhesives; aerospace and aircraft; chem. processing; coatings; sealants; military; mining; petrol. refining/distribution

**Alkanol® XC** [DuPont; DuPont Canada]

*Chem. Descrip.:* Sodium alkylnaphthalene sulfonate

*Uses:* Wetting agent, dispersant, penetrant for bleaching and dyeing of textiles, leather, paper, agric., chemical mfg., photography; reduces shrinkage in ceramics mfg.; dry colors mfg.; detergent in hard surf. cleaners; metal cleaning and pickling; low foaming

*Properties:* Lt. buff powd., naphthenic odor; sol. in ethyl alcohol, acetone, benzene; 8-10% in water; sp. gr. 0.41 g/mL; dens. 3.4 lb/gal; pH 9.5-10.0 (1% aq.); surf. tens. 41 dynes/cm (0.1% aq.); 90% act.; anionic

**Alkanox® P-24** [Great Lakes]

*Chem. Descrip.:* Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphate  
CAS 26741-53-7; EINECS/ELINCS 247-952-5

*Uses:* Antioxidant for stabilization of polyolefins, ABS, PVC, PC; color stabilizer; food pkg. adhesives, paper/paperboard, polymers; synergistic with UV stabilizers

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1520(c), 177.1580, 177.1950, 177.1960, 177.1970, 177.1980, 178.2010; BGA approval

*Properties:* Wh. powd., odorless; sol. (g/100 ml): 41 g toluene, 35.7 g THF, 34.2 g dichloromethane, 10.7 g acetone, 7.3 g hexane; insol. in water; m.w. 604; dens. 0.43 g/ml (20 C); m.p. 160-175 C; acid no. 2.5 max.; 10.0-10.9% P

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; moderate eye irritant

*Storage:* Sensitive to humidity; store in dry place

**Alkopen™ 50** [BASF]

*Uses:* Alkaline boilout cleaning chem. for paper processing

**Alkaquat® DMB-451-50, DMB-451-80** [Rhodia Canada; Rhodia HPCII France]

*Chem. Descrip.:* Benzalkonium chloride

CAS 8001-54-5

*Uses:* Wetting agent, emulsifier, biocide, disinfectant for use in beverage industry, dairy industry, food processing, water treatment, paper industry, pest control, preservatives, antiodandruff rinses, general disinfection and sanitization for hospitals, laundries

*Properties:* Pale-yel. liq.; sol. in water, ethanol, acetone, aliphatic solv.; sp. gr. 0.96; surf. tens. 33 dynes/cm (1%); 50 and 80% act.; cationic

**Alkasan™ Dyestrip X** [BASF]

*Chem. Descrip.:* Surfactant, chelating agents, and caustic

*Uses:* Alkaline cleaning agent for printing inks and dyes, boiling out dye systems and size presses, or as boilout on machines making colored grades of paper; felt cleaner on machines where dye carryover on fabric is concern; effective on all dyes, incl. cationic dyes

**Alkasan™ GNF** [BASF]

*Uses:* General purpose cleaning chem. for paper processing

**Alkasolv™ BP** [BASF]

*Uses:* Alkaline boilout cleaning chem. for paper processing

**Alkasolv™ BQ** [BASF]

*Uses:* Coating kitchen boilout cleaning chem. for paper processing

**Alkasurf® CA-520** [Rhodia Canada]

*Chem. Descrip.:* Octoxynol-5

CAS 9002-93-1

*Uses:* Emulsifier for nonpolar solvs. in solv. emulsion cleaners, pesticides, dry cleaning detergents, floor polishes, paints; anti-icing additive for gasoline; solubilizer/dispersant for hair colorants; aq. textile processing; aq. pulp/paper processing; metal cleaners, floor cleaners, sanitizers

*Properties:* HLB 10.0; cloud pt. < 20 C (1% aq.); nonionic

**Alkasurf® CA-620** [Rhodia Canada]

*Chem. Descrip.:* Octoxynol-7 (7-8 EO)

CAS 9002-93-1

*Uses:* Emulsifier for solvs. such as xylene, emulsion polymerization, detergents, paints, aq. textile and pulp/paper processing, industrial metal cleaners, floor cleaners, sanitizers; controlled foam

*Properties:* HLB 12.0; cloud pt. < 20 C (1% aq.); nonionic

**Alkasurf® CO-630** [Rhodia Canada]

*Chem. Descrip.:* Nonoxynol 9

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier for detergent compounding, textiles, leather, pulp/paper processing, acid cleaners, corrosion inhibitors, emulsion and soak tank cleaners, agric. inerts

*Properties:* HLB 13; cloud pt. 52-56 C (1% aq.); nonionic

**Alkasurf® CO-710** [Rhodia Canada]

*Chem. Descrip.:* Nonoxynol 10.5-11

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier for detergent compounding, textiles, leather, pulp/paper processing, acid cleaners, corrosion inhibitors, emulsion and soak tank cleaners, agric. inerts

*Properties:* HLB 13.6; cloud pt. 70-74 C (1% aq.); nonionic

**Alkasurf® CO-720** [Rhodia Canada]

*Chem. Descrip.:* Nonoxynol-12

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier for detergent compounding, textiles, leather, pulp/paper processing, acid cleaners, corrosion inhibitors, emulsion and soak tank cleaners, agric. inerts

*Properties:* HLB 14.2; cloud pt. 50-54 C (1% in 10% NaCl); nonionic

**Alkaterge®-E** [ANGUS]

*Chem. Descrip.:* Ethyl hydroxymethyl oleyl oxazoline

CAS 68140-98-7; EINECS/ELINCS 268-820-3

*Uses:* Detergent, emulsifier, wetting agent, antifoam, antioxidant for salts, soaps, paper, textiles, and metal cleaners; emulsion stabilizer; acid acceptor; cosmetic and personal care raw material; pigment grinding aid and dispersant for coatings, nonaq. systems

*Properties:* Gardner 15 max. clear liq.; sol. in most org. liq., slight sol. in water; sp. gr. 0.9; dens. 7.74 lb/gal; visc. 155 cp; f.p. -31 C; HLB 4.0-5.0; flash pt. > 200 F; surf. tens. 40 dynes/cm; 70% conc.; amphoteric

**Alkenyl Succinic Anhydride C1618 (ASA)** [Albemarle]

*Chem. Descrip.:* Alkenyl succinic anhydride C1618

CAS 70983-55-0

*Uses:* Sizing agent in paper production; surfactant intermediate; lubricant additive; plasticizer; corrosion inhibitor

**Alpha-Cel** [Int'l. Fiber]

*Uses:* Thickener and binder in latex paints, inks, dyes, drilling muds, workover fluids; visc. builder improving prod. finish for syn. leather goods (shoes, belts, purses); filter aid medium for wine/beer/juice filtration; lightweight filler, absorbent, bulking agent for spray coatings for steel/pipe, adhesives, sealing compds., textured paints; deflocculant preventing streaking and ink blotting in carbonless copy paper; artificial snow; welding electronics; nonsiliceous; nonabrasive

*Environmental:* Environmentally safe

*Storage:* Indefinite shelf life

**Alphatex HP** [IMERYS]

*Chem. Descrip.:* Calcined kaolin clay

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Pigment, opacifier in paper coatings and filling applics.; titanium dioxide extender; imparts high brightness and opacity with minimal abrasion

*Properties:* Pulverized, slurry; 0.01% 325-mesh residue; 85% finer than 2 µ particle size; sp. gr. 2.72; visc. 500 cps (50% solids); brightness (GE) 92.5-93.5; ref. index 1.56; pH 4-7 (20% aq.); hardness (Mohs) 2; 0.5-1.0% moisture (pulverized), 47-51% moisture (slurry)

**Altriform®** [BK Giulini Chemie]

*Chem. Descrip.:* Aluminum triformate

CAS 7360-53-4; EINECS/ELINCS 230-898-1

*Uses:* Precipitant, fixing agent for mfg. of acid-free papers

**Aluminasol 100** [Nissan Chem. Ind.]

*Chem. Descrip.:* Alumina colloidal aq. sol'n

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (10%); EINECS/ELINCS 215-691-6

*Uses:* Binder, caking agent in glass fiber, asbestos, ceramic fiber in inorg. textiles; caking agent, film-former with heat resist. and adhesion for mfg. of porcelain, refractories; antistat, hand improver in textiles; catalyst carrier;



polymer film-former; fiber finishing agent; fixing agent for resin treatments; abrasion resist. aid in fishing nets/ropes; filler improving smoothness, whiteness, and moisture resist. in paper; binder in paper surf. treatments; coagulant; emulsifier; dispersant; strong thixotropy; heat resist.; bond str.; adhesion; corrosion resist.; weatherproof

*Properties:* Opal colored amorphous cryst.; sp.gr. 1.11 (20 C); pH 3.6 (20 C)

*Storage:* Store @ normal temps. in original sealed containers

#### Aluminasol 200 [Nissan Chem. Ind.]

*Chem. Descrip.:* Alumina colloidal aq. sol'n.

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (10%); EINECS/ELINCS 215-691-6

*Uses:* Binder, caking agent in glass fiber, asbestos, ceramic fiber in inorg. textiles; caking agent, film-former with heat resist. and adhesion for mfg. of porcelain, refractories; antistat, hand improver in textiles; catalyst carrier; polymer film-former; fiber finishing agent; fixing agent for resin treatments; abrasion resist. aid in fishing nets/ropes; filler improving smoothness, whiteness, and moisture resist. in paper; binder in paper surf. treatments; coagulant; emulsifier; dispersant; strong thixotropy; heat resist.; bond str.; adhesion; corrosion resist.; weatherproof

*Properties:* Opal colored amorphous cryst.; sp.gr. 1.10 (20 C); pH 4.8 (20 C)

*Storage:* Store @ normal temps. in original sealed containers

#### AMA® [Vinings Ind.]

*Uses:* Biocide for pulp/paper, mineral, and starch slurries

#### Ambond® 1505 [Georgia-Pacific Resins]

*Chem. Descrip.:* Polyacrylamide

CAS 9003-05-8

*Uses:* Dry str. resin for thin or thick paper stock systems; boosts cationic starch efficiency and wet str. efficiency in the sheet; can be applied to balance wet end system charge

*Properties:* Clear to pale yel. liq.; visc. 5000 cps; pH 5.0; 22% NV; anionic

#### Ambond® 1590 [Georgia-Pacific Resins]

*Chem. Descrip.:* Polyacrylamide resin

CAS 9003-05-8

*Uses:* Dry str. resin for thin or thick paper stock systems; charge promoter resin; manages cationic demand in stock systems whenever interfering anionics are present

*Properties:* Clear to straw amber liq.; visc. 300 cps; pH 5.0; 50% NV; cationic

#### Amerfloc® 275 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Acrylamide-acrylic acid resin

*Uses:* Flocculant and coagulant for potable water clarification, water plant sludge dewatering applics., paper/paperboard applics.; flocculant for beet/cane sugar clarification; thickener in aq. animal feeds; food-contact paper/paperboard

*Use Level:* 0.1-1.0 ppm (flocculant, coagulant aid), 0.5-10 lb/ton dry solids (sludge conditioning), 1 ppm (potable water)

*Regulatory:* FDA 21CFR § 173.5, 176.110, 176.170, 176.180, 573.120; EPA approved for potable water @ 1 ppm max.

*Properties:* Wh. free-flowing powd.; pH 7.0 (0.5%); anionic

*Storage:* Store in cool, dry place

#### Amerfloc® 285 [Ashland/Drew Ind. Div.]

*Uses:* Flocculant; dewatering agent for industrial slurries and water and wastewater clarification applics.; food-contact paper/paperboard

*Use Level:* 0.1-1.0 ppm (flocculant or clarification); 0.5-10 lb/ton (sludge conditioning)

*Regulatory:* FDA 21CFR § 173.5, 176.110, 176.170, 176.180, 573.120

*Properties:* Wh. free-flowing powd.; high m.w.; pH 7.5 (0.5%); anionic

*Storage:* Store in cool, dry place in plastic, glass, epoxy lined, or stainless steel equip.

#### Amerfloc® 485 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Polyamine

*Uses:* Coagulant for water and wastewater clarification, oily wastewater demulsification, save-all clarification; as paper retention or drainage aid; solid/liq. separation agent for paints and coatings; food-contact paper/paperboard; can be used in place of conventional inorg. coagulants to produce low turbidity waters in influent water and effluent wastewater applics.

*Use Level:* 1-10 ppm (raw water clarification), 5-1000 ppm (industrial wastewater), 0.5-5 lbs/ton (retention and drainage aids)

*Regulatory:* FDA 21CFR § 173.60, 176.170, 176.180; EPA approved for potable water treatment up to 20 ppm

*Properties:* Lt. amber liq.; sp.gr. 1.16; visc. 750 cps; f.p. -7 C; flash pt. none; pH 6; cationic

*Storage:* 1 yr. shelf life in glass, plastic, epoxy or rubber lined or stainless

steel equip.

#### Amergel® 100 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Organics, surfactants, water blend

*Uses:* Antifoam for aq. process systems, e.g., pulp/paper, nonwovens, effluent systems; defoamer in food-contact paper/paperboard; rec. where oils, solvs., waxes, silicas are undesirable

*Regulatory:* FDA 21CFR § 176.210

*Properties:* Wh. creamy liq.; disp. in water; sp.gr. 0.97; visc. 600-1800 cps; thixotropic

*Storage:* Store indoors in winter; subject to freezing below 0 C; if prod. freezes, gradually thaw @ R.T. with mild agitation to restore

#### Amergel® 200 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Organics, surfactants, water blend

*Uses:* Antifoam for aq. process systems, e.g., pulp/paper, nonwovens, effluent systems, aeration lagoons; defoamer in food-contact paper/paperboard; rec. where oils, solvs., waxes, silicas are undesirable

*Regulatory:* FDA 21CFR § 176.210

*Properties:* Wh. free-flowing creamy liq.; disp. in water; sp.gr. 0.97; visc. 400 cps; f.p. < -3 C; flash pt. (PMCC) > 93 C

*Storage:* Store indoors in winter; subject to freezing below 0 C; if prod. freezes, gradually thaw @ R.T. with mild agitation to restore

#### Amergel® 500 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Organics, surfactants, water blend

*Uses:* Antifoam for aq. process systems, e.g., pulp/paper, nonwovens, effluent systems, aeration lagoons; defoamer in food-contact paper/paperboard; patented; rec. where oils, solvs., waxes, silicas are undesirable

*Regulatory:* FDA 21CFR § 176.210

*Properties:* Wh. free-flowing creamy liq.; disp. in water; sp.gr. 0.97; visc. 400 cps; f.p. < 32 F; flash pt. (PMCC) > 200 F

*Storage:* Store indoors in winter; subject to freezing below 0 C; if prod. freezes, gradually thaw @ R.T. with mild agitation to restore

#### Ameripol Synpol 1013 [Ameripol Synpol]

*Chem. Descrip.:* Hot polymerized non-crosslinked SBR

CAS 9003-55-8

*Uses:* Used for paper saturation, as barrier coat prior to applic. of pressure-sensitive adhesive; useful in blends with other elastomer to increase cohesive str., green str.

*Properties:* Bale, crumb

#### Amerstat® 233 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* 3,5-Dimethyl tetra-hydro-2-H,1,3,5-thiadiazole-2-thione

CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Antimicrobial in industrial water systems; preservative in aq. systems, paint, food pkg. adhesives/paper/animal glue, latex, mineral slurries, inks, and metalworking; effective pH 6-8; 60 C max. temp.

*Use Level:* 0.1-0.5%

*Regulatory:* FDA 21CFR § 175.105, 176.230, 176.320, 178.3120; EPA registered

*Properties:* Clear pale yel. to amber liq.; water-misc.; sp.gr. 1.16-1.20; dens. 9.85 lb/gal; flash pt. (PMCC) 68 C; 24% act.

#### Amerstat® 251 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* 1.15% 5-Chloro-2-methyl-4-isothiazolin-3-one and 0.35% 2-methyl-4-isothiazolin-3-one

*Uses:* Antimicrobial, preservative in latex, food pkg. adhesives/paper, mineral slurries, inks, metal working; effective pH 6-9.5; 50 C max. temp.

*Use Level:* 0.01-0.1%

*Regulatory:* FDA 21CFR § 175.105, 176.170, 176.180; EPA reg. no. 1757-79

*Properties:* Pale green to yel. liq.; water-sol.; sp.gr. 1.02; dens. 8.6 lb/gal; pH 2.0-5.0 (neat)

*Storage:* Storage stability of at least 6 months at 50 C and one year at ambient temp.

#### Amerstat® 272 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Sodium dimethyl dithiocarbamate and disodium ethylene bisdithiocarbamate

*Uses:* Microbicide, slimicide for paper and sugar mills, industrial recirculating water cooling towers and evaporative condensers, air washers

*Regulatory:* FDA 21CFR § 173.320; EPA reg. no. 9386-11-1757

*Properties:* Pale yel. to amber liq.; water-misc.; dens. 9.6 lb/gal; f.p. -12 C; flash pt. > 93 C; pH 11.5

#### Amerstat® 282 [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Methylene bis (thiocyanate) and dispersants

CAS 6317-18-6

*Uses:* Antimicrobial in industrial water systems; preservative in water-con-



taining systems, paint, adhesives, latex, mineral slurries, inks, metalworking, drilling muds, and paper coatings

*Regulatory:* EPA reg. no. 1757-40

*Properties:* Clear yel.-amber liq.; water-disp.; sp.gr. 1.00-1.02; dens. 9.01 lb/gal; flash pt. (PMCC) 39 C

**Amerstat® 300** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* 2,2-Dibromo-3-nitrilo propionamide

CAS 10222-01-2

*Uses:* Paper mill slimicide; antimicrobial for enhanced oil recovery systems; preservative for metalworking fluids containing water; antimicrobial in paints, latex, adhesives, mineral slurries, inks

*Regulatory:* EPA reg. no. 1757-72

*Properties:* Clear to amber liq.; little/no odor; water-misc.; sp.gr. 1.25; dens. 10.4 lb/gal; pH 1.2-2.4 (neat)

*Toxicology:* LD50 (oral, rat) 177 mg/kg; ingestion of small amts. may cause serious illness; serious eye hazard

*Precaution:* Biologically active; aq., alkaline sol'n. (pH 9) cause it to lose biological act., also elevated temp. and/or UV light

*Storage:* Acidic sol'ns. (pH 3-4) kept at room temp. out of UV light stable for at least 7 days

**Amgard® TBEP** [Albright & Wilson Am.]

*Chem. Descrip.:* Tributyoxyethyl phosphate

CAS 78-51-3; EINECS/ELINCS 201-122-9

*Uses:* Flame retardant, plasticizer for plastics; leveling agent, gloss aid, and coalescing agent for emulsion polymers, acrylic and styrenic floor polishes, acrylic gloss paints; wetting agent and rheology control agent for pigments; defoamer for paints, textiles, and paper

*Properties:* Clear mobile liq., mild char. odor; misc. with most org. solvs.; sol. 0.11% in water; sp.gr. 1.1020 ± 0.005; visc. 10.7 cps; vapor pressure < 1 mm Hg (100 C); b.p. 210-220 (4 mm); decomp. pt. gradual above 200 C; pour pt. -70 C; flash pt. (COC) > 180 C; ref. index 1.435; 7.8% P; 0.1% max. water

**Amical® 48** [ANGUS]

*Chem. Descrip.:* Diiodomethyl p-tolyl sulfone

CAS 20018-09-1; EINECS/ELINCS 243-468-3

*Uses:* Mildewcide, fungicide for latex paints, paper coatings, tanned leather, metalworking fluids, emulsions, caulks, adhesives and sealants, and in lumber, construction, home improvement, textile, and automotive industries; fungicide in cosmetic preservation; food pkg. adhesives, coatings, can sealants, rubber articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2600; EPA reg. no. 48301-19

*Properties:* Tan finely divided powd.; sol. in dimethyl formamide, acetone, n-propyl acetate, tributyl phosphate; insol. in water; sp.gr. 2.20 g/cc; dens. 18.3 lb/gal; m.p. 157 C; pH 5.0-7.0 (1% aq. disp.); 90% min. act.

*Toxicology:* LD50 (oral, rat) 9400 mg/kg; nonirritating to skin; may cause temporary eye irritation, toxic to fish

**Amine 2HBG** [Akzo Nobel Surf. Chem. AB]

*Chem. Descrip.:* Di (hydrogenated tallow) amine

CAS 61789-79-5; EINECS/ELINCS 263-089-7

*Uses:* Surfactant intermediate for pour pt. depressant formulations for diesel fuel, paper chem. aux., personal care prods.

*Properties:* Off-wh. solid; sol. in alcohols, chloroform, other hydrocarbons; m.w. 509; dens. 810 kg/m<sup>3</sup>; visc. 11 cP (70 C); set pt. 60-67 C; iodine no. 3 max.; flash pt. 220 C; 88% conc.; cationic

*Toxicology:* Skin and severe eye irritant

**Amine 2 VT** [Akzo Nobel Surf. Chem. AB]

*Chem. Descrip.:* Dihydrogenated tallowamine

CAS 61789-79-5; EINECS/ELINCS 263-089-7

*Uses:* Intermediate for pour pt. depressant formulations for diesel fuel, paper chem. aux.

*Properties:* Cationic

**Amine D®** [Hercules]

*Chem. Descrip.:* 92% Dehydro-abietylamine derived from rosin

CAS 1446-61-3; EINECS/ELINCS 215-899-7

*Uses:* Chem. intermediate; used in asphalt additives; in corrosion inhibitors, flotation reagents, preservatives for latex paints and wood treating compds. in cordage, felt, fabric, and paper; prod. of algicides; reactive; heat-stable to < 100 C

*Properties:* Gardner 7.5 color; sol. in common org. solvs. incl. alcohols, ethers, hydrocarbons, chlorinated solvs.; essentially insol. in water; dens. 8.3 lb/gal; visc. 87 poises; flash pt. (COC) 192 C; ref. index 1.545 (20 C)

*Storage:* Store at ambient temps.; visc. decreases sharply with temp.; maintain strict inventory control

**Amizyme DTX-11** [PMP Fermentation Prods.]

*Chem. Descrip.:* Alpha-amylase (bacterial)

CAS 9000-92-4; EINECS/ELINCS 232-567-7

*Uses:* Starch liquefying enzyme for prep. of paper coatings and sizes; heat stability props.

*Properties:* Tablets; dissolves in water

**Amizyme TX-8** [PMP Fermentation Prods.]

*Chem. Descrip.:* Alpha-amylase (bacterial)

CAS 9000-92-4; EINECS/ELINCS 232-567-7

*Uses:* Starch liquefying enzyme for prep. of paper coatings and sizes; heat stability props.

*Properties:* Liq.; dissolves in water

**Amoco® H-15** [BP Amoco]

*Chem. Descrip.:* Polybutene (isobutylene butene copolymer)

CAS 9003-29-6

*Uses:* Tackifier, strengthener, and extender in adhesives; plasticizer for rubber; vehicle and fugitive binder for coatings; cling additive for LLDPE stretch wrap films; reactive intermediate for specialty chemicals; leather impregnant; vehicle or modifier for caulks, sealants, and glazing compds.; in lubricants, paper treatments, elec. compds.; food-contact polymers; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §177.1430, 178.3570, 178.3910

*Properties:* Visc. liq.; sp.gr. 0.860-0.871 (15.5 C); visc. 2441 SUS (38 C); pour pt. -35 C; flash pt. (PMCC) 138 C; acid no. 0.29; ref. index 1.4847

**Amoco® L-14** [BP Amoco]

*Chem. Descrip.:* Polybutene

CAS 9003-29-6

*Uses:* Tackifier, strengthener, and extender in adhesives; plasticizer for rubber; vehicle and fugitive binder for coatings; cling additive for LLDPE stretch wrap films; reactive intermediate for specialty chemicals; as leather impregnant, as vehicle or modifier for caulks, sealants, and glazing compds., and in lubricants, paper treatments, elec. compds.; food-contact polymers; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §177.1430, 178.3570, 178.3910

*Properties:* Visc. liq.; sp.gr. 0.830-0.845 (15.5 C); visc. 139 SUS (38 C); pour pt. -51 C; flash pt. (PMCC) 121 C; acid no. 0.18; ref. index 1.4680

**Amoco® L-50** [BP Amoco]

*Chem. Descrip.:* Polybutene (isobutylene butene copolymer)

CAS 9003-29-6

*Uses:* Tackifier, strengthener, and extender in adhesives; plasticizer for rubber; vehicle and fugitive binder for coatings; cling additive for LLDPE stretch wrap films; reactive intermediate for specialty chemicals; leather impregnant; vehicle or modifier for caulks, sealants, and glazing compds.; in lubricants, paper treatments, elec. compds.; food-contact polymers; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §177.1430, 178.3570, 178.3910

*Properties:* Sp.gr. 0.845-0.860 (15.5 C); visc. 504 SUS (38 C); pour pt. -40 C; flash pt. (PMCC) 135 C; acid no. 0.23; ref. index 1.4758

**AMPS® 2401 Monomer** [Lubrizol]

*Chem. Descrip.:* 90-100% 2-Acrylamido-2-methylpropanesulfonic acid

CAS 15214-89-8; EINECS/ELINCS 239-268-0

*Uses:* Protective colloid and/or copolymerizable surfactant in acrylic/modified acrylic latexes for use in paints, adhesives, and sealants; acrylic/modified acrylic water-reducible resins for use in paints and inks; acrylic/modified acrylic printing ink binders; improves latex stability and film scrub resist.; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170

*Properties:* APHA 100 max.; gray/wh., free-flowing, crystalline powd.; mild odor; sol. in water; m.w. 207; bulk dens. 4.0 lb/gal; m.p. 185 C (dec.); acid no. 272-282; 99% min. NV

*Toxicology:* LD50 (oral, rat) 500-2000 mg/kg, (skin, rabbit) > 2000 mg/kg; mod. toxic; causes severe eye irritation; risk of irreversible eye damage; may cause heritable genetic damage; components may cause cancer; TSCA listed

*Environmental:* LC50 (acute) > 100 ppm (freshwater fish); limited biodegradation

*Precaution:* Forms explosive dust-air mixt.; incompat. with oxidizing agents; material may polymerize when heated

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: smoke, CO, aldehydes; combustion may produce NO<sub>x</sub>, SO<sub>x</sub>

- Storage:* 1 yr storage life in original unopened containers; store in dry areas, at 0-100 F
- AMPS® 2404 Monomer** [Lubrizol]  
*Chem. Descrip.:* 90-100% 2-Acrylamido-2-methylpropanesulfonic acid  
 CAS 15214-89-8; EINECS/ELINCS 239-268-0  
*Uses:* Protective colloid and/or copolymerizable surfactant in acrylic/modified acrylic latexes for use in paints, adhesives, and sealants; acrylic/modified acrylic water-reducible resins for use in paints and inks; acrylic/modified acrylic printing ink binders; improves latex stability, film scrub resist.; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* APHA 100 max.; gray/wh., free-flowing, crystalline powd.; mild odor; sol. in water; m.w. 207; bulk dens. 4.0 lb/gal; m.p. 185 C (dec.); acid no. 280 max.; 99% min. NV  
*Toxicology:* LD50 (oral, rat) 500-2000 mg/kg, (skin, rabbit) > 2000 mg/kg; mod. toxic; causes severe eye irritation; risk of irreversible eye damage; components may cause cancer; TSCA listed  
*Environmental:* LC50 (acute) > 100 ppm (freshwater fish); limited biodegradation  
*Precaution:* Forms explosive dust-air mixt.; incompat. with oxidizing agents; may polymerize when heated  
*Hazardous Decomp. Prods.:* Thermal decomp. prods.: smoke, CO, aldehydes; combustion may produce NO<sub>x</sub>, SO<sub>x</sub>  
*Storage:* 1 yr storage life in original unopened containers; store in dry areas, at 0-100 F
- Amres® 2747** [Georgia-Pacific Resins]  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; repulpable; rec. where enhanced fiber recovery is desired  
*Properties:* Burgundy liq.; visc. 75 cps; pH 5.5; 12.5% NV; cationic
- Amres® 8855** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; general purpose; high efficiency  
*Properties:* Pale amber liq.; visc. 70 cps; pH 3.7; 12.5% NV; cationic
- Amres® 8870** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; reduces freight costs; inc. storage capacity  
*Properties:* Pale amber liq.; infinite water sol.; sp. gr. 1.074-1.082; dens. 8.95-9.02 lb/gal; visc. 135 cps; f.p. -3.3 C; b.p. 100 C; flash pt. none to boiling; pH 3.8; 25% solids in water; cationic
- Amres® C12** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; general purpose; high efficiency  
*Properties:* Pale amber liq.; visc. 45 cps; pH 3.9; 12.5% NV; cationic
- Amres® C20** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; general purpose; high efficiency  
*Properties:* Pale amber liq.; visc. 90 cps; pH 4.0; 20% NV; cationic
- Amres® C25** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; general purpose; high solids; high efficiency  
*Properties:* Pale amber liq.; visc. 100 cps; pH 3.6; 25% NV; cationic
- Amres® C28** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; general purpose; high solids; high efficiency  
*Properties:* Pale amber liq.; visc. 90 cps; pH 3.6; 28% NV; cationic
- Amres® C382** [Georgia-Pacific Resins]

- Chem. Descrip.:* Urea-formaldehyde resin  
 CAS 9011-05-6  
*Uses:* Wet str. resin for papermaking incl. kraft paper, linerboard, carrierboard; general purpose; high efficiency  
*Properties:* Amber clear liq.; visc. 45 cps; pH 6.8; 27% NV; cationic
- Amres® HP-25** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; advanced technology; high performance; exc. with highly filled furnishes  
*Properties:* Pale amber liq.; visc. 100 cps; pH 3.5; 25% NV; cationic
- Amres® HS-30** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; high solids; reduces freight costs and inc. storage capacity  
*Properties:* Pale amber liq.; visc. 225 cps; pH 3.4; 30% NV; cationic
- Amres® LA-12-2** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; low-AOX  
*Properties:* Pale amber liq.; visc. 100 cps; pH 3.8; 12.75% NV; cationic
- Amres® LOPR** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Urea-formaldehyde resin  
 CAS 9011-05-6  
*Uses:* Wet str. resin for papermaking incl. kraft paper, linerboard, carrierboard; rec. where very low free formaldehyde residuals are required  
*Properties:* Amber clear liq.; visc. 50 cps; pH 7.0; 28% NV; cationic
- Amres® MOC-3066** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; low-AOX  
*Properties:* Pale amber liq.; visc. 60 cps; pH 3.7; 12.5% NV; cationic
- Amres® PR-247 HV** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Urea-formaldehyde resin  
 CAS 9011-05-6  
*Uses:* Wet str. resin for papermaking incl. kraft paper, linerboard, carrierboard; rec. where low free formaldehyde residuals are required  
*Properties:* Amber clear liq.; visc. 48 cps; pH 6.7; 25% NV; cationic
- Amres® PR-335 CU** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Urea-formaldehyde resin  
 CAS 9011-05-6  
*Uses:* Wet str. resin for papermaking incl. kraft paper, linerboard, carrierboard; high solids; reduces freight costs and inc. storage capacity; low free formaldehyde  
*Properties:* Amber clear liq.; visc. 35 cps; pH 6.8; 35% NV; cationic
- Amres® X-184** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* Wet str. resin for papermaking incl. towel, napkins, linerboard, medium, carrierboard, bag, liq. pkg., and specialties; low AOX; exc. with highly filled furnishes  
*Properties:* Pale amber liq.; visc. 45 cps; pH 3.7; 12.75% NV; cationic
- AMV 100** [BF Goodrich]  
*Chem. Descrip.:* Alkoxy fatty diamide chloride-based compd.  
*Uses:* Debonder, softener for pulp for facial tissue, toweling, disposable diapers, personal care prods.; reduces tens. or burst str. of pulp; reduces energy needed to defiber pulp; good release props.; reduces picking/linting on Yankee dryers  
*Use Level:* 0.1-0.3% by wt. of pulp  
*Properties:* Cationic
- Ancamide® 220** [Air Prods./Perf. Chems.]  
*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4  
*Uses:* R.T. epoxy curing agent for solv.-based maintenance coatings, primers, sealers, coatings for concrete floorings; food pkg. adhesives, coatings, paper/paperboard; provides high flexibility, long pot life; cure can be accelerated with up to 5 phr Ancamine K54

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.970; visc. 330,000 cps; amine no. 245; equiv. wt. 185

**Ancamide® 220-IPA-73** [Air Prods./Perf. Chems.]

*Chem. Descr.:* 73% Polyamide sol'n. in isopropanol

*Uses:* R.T. epoxy curing agent for solv.-based maintenance coatings, primers, sealers, coatings for concrete floorings; food pkg. adhesives, coatings, paper/paperboard; provides high flexibility, long pot life

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.940; visc. 2100 cps; amine no. 180; equiv. wt. 253

**Ancamide® 220-X-70** [Air Prods./Perf. Chems.]

*Chem. Descr.:* 70% Polyamide sol'n. in xylene

*Uses:* R.T. epoxy curing agent for solv.-based maintenance coatings, primers, sealers, coatings for concrete floorings; food pkg. adhesives, coatings, paper/paperboard; provides high flexibility, long pot life

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.940; visc. 1100 cps; amine no. 170; equiv. wt. 264

**Ancamide® 260A** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Amide/imidazoline

*Uses:* R.T. epoxy curing agent for coatings, concrete repairs, sealants, cable-jointing compds., consumer adhesives; food pkg. adhesives, coatings, paper/paperboard; 1:1 vol. ratios with std. liq. epoxy resin possible; improved reactivity, chem. resist., or visc. reduction in blends

*Use Level:* 65 phr

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.960; visc. 40,000 cps; amine no. 350; equiv. wt. 120

**Ancamide® 260TN** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Amide/imidazoline

*Uses:* R.T. epoxy curing agent for coatings, concrete repairs, sealants, cable-jointing compds., consumer adhesives, coal tar-extended coatings; food pkg. adhesives, coatings, paper/paperboard; higher imidazoline version of Ancamide 260A for improved compatibility

*Use Level:* 65 phr

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.960; visc. 35,000 cps; amine no. 350; equiv. wt. 120

**Ancamide® 350A** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Imidazoline/amide

*Uses:* R.T. epoxy curing agent for high-solids coatings, adhesives, sealants, putties, flexible cable-jointing compds.; food pkg. adhesives, coatings, paper/paperboard; improved chem. solv. resist.

*Use Level:* 55 phr

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.970; visc. 11,000 cps; amine no. 380; equiv. wt. 100

**Ancamide® 375A** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Imidazoline/amide

*Uses:* R.T. epoxy curing agent for low VOC coatings, adhesives, sealants, putties, flexible cable-jointing compds.; food pkg. adhesives, coatings, paper/paperboard

*Use Level:* 50 phr

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.960; visc. 150 cps; amine no. 379; equiv. wt. 100

**Ancamide® 500** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Amide/imidazoline

*Uses:* R.T. epoxy curing agent for concrete coatings, tile grouts, crack injection, floorings, riverstone mortars, elec. encapsulation, tooling, general-purpose adhesives; food pkg. coatings, paper/paperboard; provides low visc., moderate pot life, good adhesion to concrete; used alone or with other curing agents; noncritical mixing ratio

*Use Level:* 50 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.950; visc. 250 cps; amine no. 445; equiv. wt. 90; heat distort. temp. 113 F (264 psi)

**Ancamide® 501** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Modified amide/imidazoline; accelerated version of Ancamide 500

*Uses:* R.T. epoxy curing agent for matte floorings, concrete coatings, patching

compds., old-to-new concrete adhesives; food pkg. coatings, paper/paperboard; provides cures under humid conditions, very good adhesion, exc. adhesion to concrete, good chem. resist.

*Use Level:* 35 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.980; visc. 600 cps; amine no. 550; equiv. wt. 68; heat distort. temp. 116 F (264 psi)

**Ancamide® 502** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Amide/imidazoline; short pot life version of Ancamide 500

*Uses:* R.T. epoxy curing agent for matte floorings, concrete coatings, patching compds., old-to-new concrete adhesives; food pkg. coatings, paper/paperboard; provides short pot life

*Use Level:* 50 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.950; visc. 300 cps; amine no. 450; equiv. wt. 90; heat distort. temp. 113 F (264 psi)

**Ancamide® 503** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Amide

*Uses:* R.T. epoxy curing agent for concrete coatings, floorings, old-to-new concrete adhesives, tile grouts; food pkg. coatings, paper/paperboard; provides faster pot life and thin film cure time than Ancamide 500 or 502

*Use Level:* 50 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 6 liq.; sp.gr. 0.950; visc. 350 cps; amine no. 500; equiv. wt. 90; heat distort. temp. 119 F (264 psi)

**Ancamide® 506** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Imidazoline/amide

*Uses:* R.T. epoxy curing agent for civil engineering, building and construction, wet lay-up laminates, elec. encapsulation, high-solids coatings (often with Ancamine 1618 or 1693); pot life extender for cycloaliphatic amine; food pkg. coatings, paper/paperboard; provides highest imidazoline content of amidoamine range giving lowest reactivity/visc., good thru-cure with very little exotherm

*Use Level:* 55 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 7 liq.; sp.gr. 0.940; visc. 300 cps; amine no. 420; equiv. wt. 105; heat distort. temp. 113 F (264 psi)

**Ancamide® 507** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Amidoamine adduct

*Uses:* R.T. epoxy curing agent for high-solids, anticorrosive marine coatings, concrete patching and flooring mortars, adhesives and patch kits; food pkg. coatings, paper/paperboard; provides fast cure, improved water resist.; for use alone or with polyamide adducts

*Use Level:* 35 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 6 liq.; sp.gr. 0.990; visc. 950 cps; amine no. 600; equiv. wt. 65; heat distort. temp. 127 F (264 psi)

**Ancamide® 700-B-75** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Polyamide adduct, 75% solids in butanol

*Uses:* R.T. epoxy curing agent for high-solids anticorrosive coatings for marine/industrial use; food pkg. adhesives, coatings, paper/paperboard; provides exc. adhesion and cure under adverse conditions; no induction period required

*Use Level:* 90 phr

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170; meets US Navy MIL-P-24441

*Properties:* Gardner 7 liq.; sp.gr. 0.960; visc. 5000 cps; amine no. 240; equiv. wt. 170

**Ancamine® 1916** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Modified aliphatic amine; phenol-free version of Ancamine 1483

*Uses:* R.T. epoxy curing agent for heat-resist., solv.-free and sol'n. coatings, food pkg. coatings, paper/paperboard

*Use Level:* 25 phr

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Gardner 4 liq.; sp.gr. 1.09; visc. 6000 cps; amine no. 840; equiv. wt. 43; heat distort. temp. 136 F (264 psi)

**Ancamine® DETA** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Diethylenetriamine

CAS 111-40-0; EINECS/ELINCS 203-865-4

*Uses:* Ambient temp. epoxy curing agent for flooring, sol'n. coatings, and encapsulation; for intermediates for amidoamines, imidazolines, epoxy ad-



ducts, and other addition compds.; food pkg. coatings, paper/paperboard; provides low equiv. wt., high nitrogen content

*Use Level:* 11 phr

*Regulatory:* FDA 21CFR §175.300, 176.170 compliant

*Properties:* Gardner 1 liq.; sp.gr. 0.948; visc. < 10 cps; amine no. 1640; equiv. wt. 21; heat distort. temp. 127 F (264 psi); gel time 25 min. (150 g mix)

**Ancamine® TEPA** [Air Prods./Perf. Chems.]

*Chem. Descrip.:* Tetraethylenepentamine

CAS 112-57-2; EINECS/ELINCS 203-986-2

*Uses:* R.T. epoxy curing agent for flooring, sol'n. coatings, and encapsulation; intermediates for amidoamines, imidazolines, epoxy adducts, and other addition compds.; food pkg. adhesives, coatings, paper/paperboard

*Use Level:* 18 phr

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170 compliant

*Properties:* Gardner 2 liq.; sp.gr. 0.996; visc. 80 cps; amine no. 1340; equiv. wt. 34; heat distort. temp. 127 F (264 psi); gel time 35 min. (150 g mix)

**Ancamine® TETA** [Air Prods./Perf. Chems.]

*Chem. Descrip.:* Triethylenetetraamine

CAS 112-24-3; EINECS/ELINCS 203-950-6

*Uses:* R.T. epoxy curing agent for flooring, sol'n. coatings, and encapsulation; intermediates for amidoamines, imidazolines, epoxy adducts, and other addition compds.; food pkg. coatings, paper/paperboard

*Use Level:* 14 phr

*Regulatory:* FDA 21CFR §175.300, 176.170 compliant

*Properties:* Gardner 1 liq.; sp.gr. 0.984; visc. 20 cps; amine no. 1435; equiv. wt. 27; heat distort. temp. 126 F (264 psi); gel time 30 min. (150 g mix)

**Ancowet A-70** [Venchem]

*Chem. Descrip.:* Ammonium salt of dinonyl sulfosuccinate in 10% industrial alcohol (95/5 ethanol, methanol) and water

*Uses:* Emulsifier, pigment wetting agent/dispersant for agric. pesticides, paper pulp mfg., water treatment, oil recovery and pollution control, textile auxiliaries, cleaning materials, antimist compds., emulsion polymerization

*Properties:* Amber liq.; sl. char. odor; water-sol.: gels form @ > 1%, fully sol. @ < 1%; sp.gr. 1.08; flash pt. < 55 C; pH 7 (1% sol'n.); 70% act. solids; anionic

*Toxicology:* Skin and eye irritant

*Precaution:* Flamm.

*Storage:* 6 mos. shelf life @ 8-25 C

**Ancowet S-60** [Venchem]

*Chem. Descrip.:* Sodium salt of dioctyl sulfosuccinate in 15% industrial alcohol (95/5 ethanol/methanol) and water

*Uses:* Emulsifier, pigment wetting agent/dispersant for agric. pesticides, paper pulp mfg., water treatment, oil recovery and pollution control, textile auxiliaries, cleaning materials and antimist compds., emulsion polymerization

*Properties:* Sl. amber liq.; sl. char. odor; water-sol.: gels form @ > 2%, fully sol. @ < 2%; sp.gr. 1.05; flash pt. < 55 C; pH 7 (1%); 60% act. solids; anionic

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; not harmful by ingestion; mildly toxic by inhalation; eye irritant; sl. irritating to skin; can be harmful if swallowed; danger of choking on foam

*Environmental:* 90% biodeg.; prevent entry into drains, sewers, and water courses

*Precaution:* Flamm.; keep away from ignition sources; burning may evolve toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

*Storage:* 1 yr. shelf life @ 8-25 C; store away from heat and ignition sources; avoid low temps. below 4 C which will lead to inc. in visc. and may cause salt deposition

**Ancowet S-70PG** [Venchem]

*Chem. Descrip.:* Sodium salt of dioctyl sulfosuccinate in 15% monopropylene glycol and water

*Uses:* Emulsifier, pigment wetting agent/dispersant for agric. pesticides, paper pulp mfg., water treatment, oil recovery and pollution control, textile auxiliaries, cleaning materials and antimist compds., emulsion polymerization

*Properties:* Very sl. amber liq.; very sl. char. odor; water-sol.: gels form @ > 2%, fully sol. @ < 2%; sp.gr. 1.09; flash pt. > 100 C; pH 7 (1% sol'n.); 70% solids; anionic

*Toxicology:* Skin and eye irritant

*Storage:* 1 yr. shelf life @ 8-25 C

**Anox® PP18** [Great Lakes]

*Chem. Descrip.:* Octadecyl-3-(3',5'-di-*t*-butyl-4'-hydroxyphenyl) propionate

CAS 2082-79-3; EINECS/ELINCS 218-216-0

*Uses:* Antioxidant/stabilizer for polyolefins, impact styrenics, blocked copoly-

mers, PVC, PU, elastomers, adhesives; food pkg. adhesives, paper/paperboard, polymers; retards oxidative degradation during polymerization, processing and in end-use applics.

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350, 177.1420, 177.1480, 177.1520, 177.1580, 177.1640, 177.1810, 178.3790; BGA, France, Italy approvals

*Properties:* Wh. powd., gran. or flakes, odorless; sol. (g/100 ml): 140 g in chloroform, 104 g in xylene, 95 g in ethyl acetate, 52 g in hexane, 50 g in acetone; insol. in water; m.w. 531; sp.gr. 1.07 g/cc (20 C); m.p. 49-53 C; flash pt. 273 C; 98% min. purity

*Toxicology:* LD50 (oral, rat) > 10 g/kg, (dermal, rabbit) > 2 g/kg; sl. skin irritation; nonirritating to eyes

**Ansilex®** [Engelhard]

*Chem. Descrip.:* Calcined kaolin

*Uses:* Pigment for papermaking; high brightness, opacity, and print-through resist.

**Antarox® 17-R-2** [Rhodia HPCII]

*Chem. Descrip.:* Merxapal 172

CAS 9003-11-6

*Uses:* Defoamer, dispersant, wetting agent, emulsifier, demulsifier, binder, stabilizer, gellant, leveling agent, detergent for industrial/household cleaners, fermentation, paper processing, rinse aids, automatic dishwashing, metal cleaning, cosmetics, textiles, paints, pharmaceuticals; chemical intermediate

*Properties:* Liq.; sol. in aliphatic solvs.; HLB 8.0; pour pt. -25 C; cloud pt. 39 C (1% aq.); 100% conc.; nonionic

**Antarox® 25-R-2** [Rhodia HPCII]

*Chem. Descrip.:* Merxapal 252

CAS 9003-11-6

*Uses:* Defoamer, dispersant, wetting agent, emulsifier, demulsifier, binder, stabilizer, gellant, leveling agent, detergent for industrial/household cleaners rinse aids, automatic dishwashing, paper processing, metal cleaning, fermentation, cosmetics, paper, textiles, paints, pharmaceuticals; chemical intermediate

*Properties:* Liq.; HLB 6.0; pour pt. -5 C; cloud pt. 33 C (1% aq.); 100% conc.; nonionic

**Antarox® 31-R-1** [Rhodia HPCII]

*Chem. Descrip.:* Merxapal 311

CAS 9003-11-6

*Uses:* Defoamer, dispersant, wetting agent, emulsifier, demulsifier, binder, stabilizer, gellant, leveling agent, detergent for industrial/household cleaners rinse aids, automatic dishwashing, paper processing, metal cleaning, fermentation, cosmetics, paper, textiles, paints, pharmaceuticals; chemical intermediate

*Properties:* Liq.; HLB 4.0; pour pt. 25 C; cloud pt. 25 C (1% aq.); 100% conc.; nonionic

**Antarox® EGE 25-2** [Rhodia Canada]

*Chem. Descrip.:* Merxapal 252

CAS 9003-11-6

*Uses:* Surfactant, defoamer/foam control agent for pulp/paper industry; dye leveling agent and wetting agent for textile processing

*Properties:* Liq.; 100% conc.; nonionic

**Antarox® L-64** [Rhodia HPCII]

*Chem. Descrip.:* Poloxamer 184

CAS 9003-11-6

*Uses:* Defoamer, dispersant, wetting agent, emulsifier, oil demulsifier, leveling agent, detergent for industrial/household cleaners, hard surf. cleaning, metal-working fluids, laundry, skin care, emulsion polymerization; plasticizer for resin compositions; defoamer in paper coatings

*Properties:* Liq.; HLB 15.0; pour pt. 16 C; cloud pt. 59 C (1% aq.); 100% conc.; nonionic

**Antarox® PGP 18-2LF** [Rhodia Canada]

*Chem. Descrip.:* Ethoxylated propoxylated glycol

*Uses:* Surfactant, detergent, emulsifier for sulfate pulp washing, rinse aids, dishwash, hard surf. cleaners, laundry compds., cosmetics, shampoos, emulsion polymers

*Properties:* Liq.; HLB 7.0; cloud pt. 26-30 C; 100% conc.; nonionic

**Antarox® PGP 23-7** [Rhodia Canada]

*Chem. Descrip.:* Poloxamer 237

CAS 9003-11-6

*Uses:* Coemulsifier for cosmetics, toiletries, pulp/paper defoamers; dispersant; visc. control agent



*Properties:* Wh. flake; sol. in water, aromatic and chlorinated solvs.; insol. in min. oil and aliphatic solvs.; m.w. 6700-8373; dens. 1.04 g/ml; HLB 24.0; cloud pt. > 100 C (1% aq.); pH 5.0-7.5 (2.5% aq.); foam height 44 mm (0.1%); 99% min. act.; nonionic

**Anthosin®** [BASF; BASF AG]

*Uses:* Acid dyes for calender or size press dyeing in papermaking

**Antiblaze® 100** [Albright & Wilson Am.]

*Chem. Descrip.:* Chlorinated diphosphate ester

CAS 38051-10-4

*Uses:* Flame retardant for virgin and bonded flexible urethane foam, in textiles, paper, adhesives, and epoxy and phenolic-based laminates; low volatility; cost-effective means to comply with Cal. 117 and other flamm. tests

*Properties:* Liq.; 10.6% P, 36% Cl

**Antiblaze® CL** [Albright & Wilson Am.]

*Chem. Descrip.:* Ammonium polyphosphate aq. sol'n.

CAS 14728-39-3

*Uses:* Flame retardant for cellulose fabrics, paper, particleboard, and timber; nondurable

*Properties:* 13.1% P

**Antiblaze® TR** [Albright & Wilson Am.]

*Chem. Descrip.:* Water-based ammonium polyphosphate

CAS 14728-39-3

*Uses:* Flame retardant for cellulose textiles, paper, and particleboard; nondurable

*Properties:* 10.3% P

**Antiblaze® V6** [Albright & Wilson UK]

*Chem. Descrip.:* Chlorinated diphosphate ester

*Uses:* Flame retardant for virgin and bonded flexible urethane foam, and in textiles, paper, adhesives, and epoxy and phenolic-based laminates; low volatility; cost-effective means to comply with Cal. 117 and other flamm. tests

*Properties:* Liq.; 10.6% P, 36% Cl

**Antifoam 20WB** [Stockhausen]

*Chem. Descrip.:* Water-based

*Uses:* Antifoam for screen room, paper machine, bleaching applics., wastewater treatment, chem. processing industry, latex, coatings, metal treating and electroplating

*Regulatory:* FDA compliance

*Properties:* Creamy wh. emulsion, mild petrol. odor; disp. in water; sp.gr. 0.93; dens. 7.8 lb/gal; visc. 800 ± 200 cps; f.p. 0 C; b.p. 212 F; flash pt. (PMCC) 330 F

*Toxicology:* Very low toxicity; mild skin or eye irritant on prolonged contact

**Antifoam 7800 New** [Bayer/Fiber, Addits., Rubber]

*Chem. Descrip.:* Higher hydrocarbons and their sulfonic acid derivs.

*Uses:* Antifoam for aq. systems in sugar, fertilizer, phosphoric acid, dyestuffs, paper, leather, plastics, and chemical industries; resistant to acid and weak alkalis

*Properties:* Faint yel. liq., sl. turbid @ R.T.; sp.gr. 0.87; b.p. 80 C; flash pt. > 100 C

**Antifoam F-1** [Lambent Tech.]

*Chem. Descrip.:* Simethicone

CAS 8050-81-5

*Uses:* Antifoam for aq. and nonaq. systems for fermentation, chem. processing, food, cosmetics, pharmaceuticals, paints, adhesives, paper coatings, metalworking, lubricants, textile processing, petroleum, pulp/paper, cleaning compds.

*Regulatory:* FDA approved, to 10 ppm max. in final prod.

*Properties:* Translucent syrup-like compd.; sol. in amyl acetate, aromatic solvs., 2-ethylhexanol, kerosene; insol. in water, paraffin oil, glycols, ethanol, methanol, glycerin; sp.gr. 0.990; dens. 8.3 lb/gal; 100% act.; nonionic

**Antifoam FD-62** [Lambent Tech.]

*Chem. Descrip.:* Polydimethylsiloxane emulsion

CAS 63148-62-9

*Uses:* Antifoam for aq. systems for fermentation, chemical processing, food, pharmaceuticals, paints, adhesives, paper coatings, metalworking, lubricants, textiles, petroleum, pulp/paper applics.

*Regulatory:* FDA approved, 100 ppm max. in final prod.

*Properties:* Wh. creamy emulsion; disp. in water; 1.000; dens. 8.4 lb/gal; 10% act.

**Antifoam FD-82** [Lambent Tech.]

*Chem. Descrip.:* Polydimethylsiloxane emulsion

CAS 63148-62-9

*Uses:* Antifoam for aq. systems for fermentation, chem. processing, food, pharmaceuticals, paints, adhesives, paper coatings, metalworking, lubricants, textile processing, petroleum, pulp/paper, cleaning compds.

*Regulatory:* FDA approved, 30 ppm max. in final prod.

*Properties:* Wh. creamy emulsion; disp. in water; sp.gr. 0.970; dens. 8.1 lb/gal; 30% act.

**Antispumin®** [Stockhausen]

*Uses:* Defoamer, deaerating agent for pulp, paper coatings, wastewater clarification

**Apollo® 4200 Cationic Starches** [Penford Prods.]

*Chem. Descrip.:* Hydroxyethylated corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Strengthener, retention aid for paper and paperboard, incl. alkaline papermaking; filming props.; effective over entire pH range; reduces BOD

*Properties:* Cationic

**Apollo® Cationic Starches** [Penford Prods.]

*Chem. Descrip.:* Corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Wet str. agent, retention aid for paper and paperboard; for use with alkaline sizing agents; designed for batch cooking systems

*Properties:* Cationic

**Aquacid-105 EX** [Aquapharm]

*Chem. Descrip.:* Hydroxy ethylidene diphosphonic acid aq. sol'n.

CAS 2809-21-4; EINECS/ELINCS 220-552-8

*Uses:* Sequestrant, deflocculant, threshold inhibitor for scale prevention/corrosion inhibition in water treatment, oil field treatment, pulp/paper chems., leather treatment chems., textile additives; hydrolytic stability

*Properties:* Colorless to pale yel. liq.; sol. in water, phosphoric acid, ethylene acids and bases; m.w. 206; sp.gr. 1.44 ± 0.02; cryst. pt. < 0 C; 60 ± 1% act.

*Toxicology:* Sl. toxic by ing.; pract. nontoxic by skin contact; mod. irritating to skin; corrosive to eyes

**Aquacid-106 EX** [Aquapharm]

*Chem. Descrip.:* Diethylene triamine penta (methylene phosphonic acid) aq. sol'n.

CAS 15827-60-8

*Uses:* Sequestrant, deflocculant, threshold inhibitor for water treatment, oil field treatment, pulp/paper chems., leather treatment chems., textile additives; dispersant for solid particles; hydrolytic stability

*Properties:* Amber liq.; sol. in water; m.w. 573; sp.gr. 1.34 ± 0.04; pH < 2 (1%); 45% min. act.

*Toxicology:* Sl. toxic by ing.; pract. nontoxic by skin contact; mod. irritating to skin; corrosive to eyes

**Aquacid-108 EX** [Aquapharm]

*Chem. Descrip.:* Aminotrimethylene phosphonic acid aq. sol'n.

CAS 6419-19-8; EINECS/ELINCS 229-146-5

*Uses:* Sequestrant, deflocculant, threshold inhibitor for water treatment, oil field treatment, pulp/paper chems., leather treatment chems., textile additives; hydrolytic stability

*Properties:* Lt. to pale yel. liq.; sol. in water, phosphoric acid, ethylene glycol, most aq. acids and bases; m.w. 299; sp.gr. 1.33 ± 0.02; cryst. pt. < 0 C; pH < 2 (1%); 49 ± 1% act.

**Aquacid-109 EX** [Aquapharm]

*Chem. Descrip.:* Ethylenediaminetetra (methylene phosphonic acid)

CAS 1429-50-1

*Uses:* Sequestrant, deflocculant, threshold inhibitor for water treatment, oil field treatment, pulp/paper chems., leather treatment chems., textile additives; hydrolytic stability

*Properties:* Wh. solid; m.w. 436 (anhyd.); pH < 2 (1%); 91% min. act.

*Toxicology:* Pract. nontoxic by ing. and skin contact; sl. irritating to skin; mod. irritating to eyes

**Aquacoll 30 CC** [EPC Papierchemie GmbH]

*Chem. Descrip.:* Rosin disp. with fixing agents and stabilizers

*Uses:* Sizing agent, fixing agent for paper and cardboard, esp. paper containing calcium carbonate or mfg. with recycled paper base, food pkg. (Germany); rec. for high pH range

*Use Level:* 0.5-5%

*Regulatory:* BgVV XXXVI compliant

*Properties:* Milky wh.; sp.gr. 1.12 g/cc; visc. < 500 mPa·s; pH 2.5-3.5; 29 ± 1% act.; cationic

*Environmental:* Harmful to fish; do not allow prod. to reach public sewers; may be precipitated and removed in wastewater treatment plants

*Storage:* 12 wks storage stability; store at 5-35 C in upright sealed SS tanks

**Aquadoll 30 PA** [EPC Papierchemie GmbH]

*Chem. Descrip.:* Rosin disp. with polyaluminum chloride and stabilizers  
*Uses:* Sizing agent, fixing agent for paper and cardboard, esp. paper containing calcium carbonate or mfg. with recycled paper base, food pkg. (Germany); rec. for high pH range

*Use Level:* 0.5-5%

*Regulatory:* BgVV XXXVI compliant

*Properties:* Milky wh.; sp.gr. 1.12 g/cc; visc. < 500 mPa·s; pH 2.5-3.5; 29 ± 1% act.; cationic

*Environmental:* Harmful to fish; do not allow prod. to reach public sewers; may be precipitated and removed in wastewater treatment plants

*Storage:* 12 wks storage stability; store at 5-35 C in upright sealed SS tanks

**Aquadoll 300** [EPC Papierchemie GmbH]

*Chem. Descrip.:* Highly fortified disp. of modified rosins

*Uses:* Sizing agent for paper and cardboard, food pkg. (Germany); rec. to pH of 6.7

*Regulatory:* BgVV XXXVI compliant

*Properties:* Milky wh.; sp.gr. 1.0 g/cc; visc. < 100 mPa·s; 30 ± 1% act.; anionic

*Environmental:* Harmful to fish; do not allow prod. to reach public sewers

*Storage:* Very stable during storage; store at 10-35 C in upright sealed SS tanks

**Aquadoll 400** [EPC Papierchemie GmbH]

*Chem. Descrip.:* Highly fortified disp. of aq. modified rosins

*Uses:* Sizing agent for paper and cardboard, food pkg. (Germany); rec. for use in acid to moderately acid pH range

*Regulatory:* BgVV XXXVI compliant

*Properties:* Milky wh.; misc. with water; sp.gr. 1.03 g/cc; visc. < 100 mPa·s; 40 ± 1% act.

*Environmental:* Harmful to fish; do not allow prod. to reach public sewers

*Storage:* Good storage stability; store at 10-35 C in upright sealed SS tanks

**Aquadoll 433 S** [EPC Papierchemie GmbH]

*Chem. Descrip.:* Highly fortified disp. of modified rosins

*Uses:* Sizing agent for paper and cardboard, esp. coating base papers, recycled paper, food pkg. (Germany); rec. where calcium carbonate is present in the pulp system; effective in higher pH range

*Regulatory:* BgVV XXXVI compliant

*Properties:* Milky wh.; sp.gr. 1.02 g/cc; visc. < 100 mPa·s; 30 ± 1% act.

*Environmental:* Harmful to fish; do not allow prod. to reach public sewers; may be precipitated and removed in wastewater treatment plants

*Storage:* 2-3 mos storage stability when stored at 10-35 C in upright sealed SS tanks

**Aquadoll P 231** [EPC Papierchemie GmbH]

*Chem. Descrip.:* Highly fortified disp. of modified rosins with protective colloid

*Uses:* Sizing agent for paper and cardboard, esp. coating base papers, recycled paper, food pkg. (Germany); rec. where calcium carbonate is present in the pulp system; effective in higher pH range

*Regulatory:* BgVV XXXVI compliant

*Properties:* Milky wh.; sp.gr. 1.02 g/cc; visc. < 100 mPa·s; 30 ± 1% act.

*Environmental:* Harmful to fish; do not allow prod. to reach public sewers; may be precipitated and removed in wastewater treatment plants

*Storage:* 2-3 mos storage stability when stored at 10-35 C in upright sealed SS tanks

**Aquafilm** [CNC Int'l.]

*Chem. Descrip.:* Fluorocarbon

*Uses:* Waterproofing agent, greaseproofing agent for specialty papers and nonwovens

**Aquagel Gold Seal™ 200** [Cimbar Perf. Mins.]

*Chem. Descrip.:* Premium untreated bentonite

*Chem. Analysis:* SiO<sub>2</sub> (63.4%); Al<sub>2</sub>O<sub>3</sub> (21.4%); Fe<sub>2</sub>O<sub>3</sub> (3.8%); Na<sub>2</sub>O (2.5%); MgO (2.3%); CaO (0.6%) K<sub>2</sub>O (0.3%)

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* Rheological control agent for inks, coatings, pesticides, fungicides, adhesives, caulks, and sealants; filtrate and sealant in water/wastewater treatment; retention aid and deinking agent for paper industry; for foundry, refractory, and ceramic uses; consumer and industrial care prods.

*Regulatory:* EPA compliant

*Properties:* 80% thru 200 mesh (dry), 98% thru 200 mesh (wet); sp.gr. 2.5; bulk dens. 50 lb/ft<sup>3</sup> (level), 72 lb/ft<sup>3</sup> (packed); pH 9.0 (6%); free water (8%); bound water (5.7%)

*Toxicology:* Nontoxic

*Environmental:* Nonpolluting

**Aquagel Gold Seal™ 325** [Cimbar Perf. Mins.]

*Chem. Descrip.:* Premium untreated bentonite

*Chem. Analysis:* SiO<sub>2</sub> (63.4%); Al<sub>2</sub>O<sub>3</sub> (21.4%); Fe<sub>2</sub>O<sub>3</sub> (3.8%); Na<sub>2</sub>O (2.5%); MgO (2.3%); CaO (0.6%) K<sub>2</sub>O (0.3%)

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* Rheological control agent for inks, coatings, pesticides, fungicides, adhesives, caulks, and sealants; filtrate and sealant in water/wastewater treatment; retention aid and deinking agent for paper industry; for foundry, refractory, and ceramic uses; consumer and industrial care prods.

*Regulatory:* EPA compliant

*Properties:* 98% thru 325 mesh (dry), 99% thru 325 mesh (wet); sp.gr. 2.5; bulk dens. 50 lb/ft<sup>3</sup> (level), 72 lb/ft<sup>3</sup> (packed); pH 9.0 (6%); free water (8%); bound water (5.7%)

*Toxicology:* Nontoxic

*Environmental:* Nonpolluting

**Aqualon® CMC-T** [Hercules/Aqualon]

*Chem. Descrip.:* Sodium CMC, tech. grades

CAS 9004-32-4; EINECS/ELINCS 265-995-8

*Uses:* Binder, thickener, stabilizer, suspending agent, film-former, rheology control agent, water retention aid for adhesives, aerial-drop fluids, ceramics, coatings, detergents, lithography, paper, textiles, tobacco, food pkg.; surf. treatment to reduce porosity, improve grease/oil holdout, control curl in paper at size press or calender; thickener, suspending agent, adhesive prods. for paper converting operations; talc depressant in frothing/flotation (mining)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 182.70

*Properties:* Water sol.; sp.gr. 1.0068 (2%); bulk dens. 0.75 g/ml; visc. 15-30 cps (CMC-7L3T, 2%), 25-50 (CMC-7LT, 2%, CMC-7L1T, 4%), 80-200 cps (CMC-7L2T, 4%), 300-600 cps (CMC-7MT, 2%), 1600-3100 cps (CMC-7M31T, 2%); surf. tens. 71 dynes/cm (1%); ref. index 1.3355 (2%); pH 6.5-8.5 (1%)

**Aquapac™** [Alltivia]

*Chem. Descrip.:* Polyaluminum chloride

CAS 1327-41-9; EINECS/ELINCS 215-477-2

*Uses:* For use in pulp/paper industry as sizing and retention aid; also for wastewater treatment as primary coagulant aid; low alkalinity and low turbidity

*Regulatory:* SARA reportable

*Properties:* Amber clear liq.; completely sol. in water; sp.gr. 1.2-1.4; m.p. -10 C to -20 C; b.p. 100-110 C; pH 0.5-4.5

*Toxicology:* Can cause nose and throat irritation on inh., corrosive damage to GI tract, nausea, and/or diarrhea on ing., skin irritation or burns, eye burns; TSCA listed

*Precaution:* Corrosive; avoid high temps., fire conditions; prod. will slowly corrode iron, brass, copper, and aluminum metals

*Hazardous Decomp. Prods.:* Thermal decomp. may release toxic aluminum and hydrogen chloride compds.

*Storage:* Store in stainless steel or fiberglass tanks away from heat and direct sunlight

**Aquapel® Reactive Size** [Hercules]

*Uses:* Sizing agent for papermaking, industrial processes; reactive; for use against a wide variety of penetrants

**Aquaprox® MFC 1490** [Synthron SA]

*Uses:* Trash fixing agent for pitch and stickies control in wet-end paper mfg.

*Properties:* Cationic

**Aquaprox® MFC 3320** [Synthron SA]

*Uses:* Trash fixing agent for pitch and stickies control in wet-end paper mfg.

*Properties:* Cationic

**Aquaprox® TD 1100** [Synthron SA]

*Uses:* Scale inhibitor, dispersant for chem. pulp mfg.; works according to threshold effect

**Aquaprox® TD 2000** [Synthron SA]

*Uses:* Scale inhibitor for chem. pulp mfg.; works according to threshold effect

**Aquaprox® TM** [Synthron SA]

*Uses:* Biocide, slimeicide for wet-end paper mfg.

**Aquaquest 2130** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Dispersant for pigmented paper coatings, esp. with structured pigments; food pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; reduces problems associated with pigment agglomeration; exc. thermal stability; resist. to acid hydrolysis; stable at pH range in

typ. coating applics.; compat. with all commonly used paper coating ingreds.

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Pale yel. liq.; sp.gr. 1.2-1.3; dens. 10.7 lb/gal; visc. 600-800 cps; pH 8.4; 45% solids

*Storage:* 6 mos shelf life at ambient temps.; keep containers tightly closed when not in use to avoid loss due to evaporation; freezing does not damage prod., but if frozen, warm to R.T. and mix well before use

#### Aqua Superslip 6550 [Micro Powders]

*Chem. Descrip.:* Modified polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Coating additive, lubricant, blocking resist. agent, scuff/mar resist. agent, slip agent in aq. paints/coatings, waterborne furniture coatings; food-contact coatings, paper/paperboard

*Use Level:* 0.5-3.0%

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180

*Properties:* 22 µ max. particle size; 6-7.5 µ mean particle size; fineness (Hegman) 6.0-6.5; sp.gr. 0.94; m.p. 126-130 C

*Toxicology:* TSCA listed

#### Aquatac® 6025 [Arizona; Arizona Chem. AB]

*Chem. Descrip.:* Aq. resin dispersion

*Uses:* Tackifier for adhesives incl. food pkg. adhesives, carboxylated SBR, 2-ethylhexyl acrylate, butyl acrylic, SBR, NR, neoprene, VAE, urethane systems; defoamer in food-contact paper/paperboard; waterborne for environmentally friendly adhesives; provides improved aging props., enhanced adhesive props.

*Regulatory:* FDA 21CFR §175.105, 176.210

*Properties:* Visc. 5350 cps; soften. pt. (R&B) 25 C; pH 7.0; 60% solids

#### Aquatac® 6085 [Arizona; Arizona Chem. AB]

*Chem. Descrip.:* Glyceryl rosinate aq. disp.

CAS 8050-31-5; EINECS/ELINCS 232-482-5

*Uses:* Waterborne tackifier for pressure-sensitive adhesives incl. food pkg. adhesives, waterborne labels, decals, shelf liners, construction adhesives, tapes; for carboxylated SBR, 2-ethylhexyl acrylate, butyl acrylic, SBR, NR, neoprene, VAE, urethanes; defoamer in food-contact paper/paperboard; waterborne for environmentally friendly adhesives; produces formulations with aggressive tack and peel, exc. shear props. after aging

*Regulatory:* FDA 21CFR §175.105, 176.210

*Properties:* Milky beige disp.; 2.5 µ particle size; dens. 8.8 lb/gal; visc. 7500 cps; soften. pt. (R&B) 82 C (of base resin); pH 7.0; 60% solids

*Storage:* Prevent freezing, mold and bacteria contamination

#### Aquatac® 6085B-1 [Arizona; Arizona Chem. AB]

*Chem. Descrip.:* Aq. resin dispersion

*Uses:* Tackifier for adhesives incl. food pkg. adhesives, carboxylated SBR, 2-ethylhexyl acrylate, butyl acrylic, SBR, NR, neoprene, VAE, urethane systems; defoamer in food-contact paper/paperboard; waterborne for environmentally friendly adhesives; provides improved aging props., enhanced adhesive props.

*Regulatory:* FDA 21CFR §175.105, 176.210

*Properties:* Visc. 1000 cps; soften. pt. (R&B) 85 C; pH 7.0; 59% solids

#### Aquatac® 6085B-7 [Arizona; Arizona Chem. AB]

*Chem. Descrip.:* Aq. resin dispersion

*Uses:* Tackifier for adhesives incl. food pkg. adhesives, carboxylated SBR, 2-ethylhexyl acrylate, butyl acrylic, SBR, NR, neoprene, VAE, urethane systems; defoamer in food-contact paper/paperboard; waterborne for environmentally friendly adhesives; provides improved aging props., enhanced adhesive props.

*Regulatory:* FDA 21CFR §175.105, 176.210

*Properties:* Visc. 7000 cps; soften. pt. (R&B) 85 C; pH 7.0; 60% solids

#### Aquatreat® DNM-9 [Alco]

*Chem. Descrip.:* 4.5% Nabam, 4.5% dibam with 45% freeze pt. depressant and 30% water

*Uses:* Short-stop in emulsion polymerization of rubber; biocide, fungicide, and algicide used in water treatment, paper, sugar, and petrol. applics.; winterized blend

*Properties:* Straw-colored; sp.gr. 1.14; dens. 9.5 lb/gal; pH 11.5; 9% act. in water

#### Aquatreat® DNM-30 [Alco]

*Chem. Descrip.:* Sodium dimethyldithiocarbamate (15-16.6%), nabam (15-16.6%) with freeze pt. depressant

*Uses:* Short-stop in emulsion polymerization of rubber; fungicide and bactericide for use in pulp/paper mills, sugar mills, drilling fluids, petrol. recovery; algicide for use in industrial recirculating water cooling towers, etc.; winter-

ized blend

*Regulatory:* EPA reg. no. 31910-2; SARA reportable

*Properties:* Yel.-grn. liq.; char. sulfur odor; completely sol. in water; sp.gr. 1.176; dens. 9.6 lb/gal; f.p. 0 C; b.p. > 100 C; flash pt. none; pH 10.5-12.4; nonflamm.; 30-33.2% act.

*Toxicology:* LD50 (oral, male rat) 1400 mg/kg, (dermal, rabbit) > 2 g/kg; eye and skin irritant; harmful if swallowed; may cause nausea and vomiting

*Environmental:* Biodeg.; aquatic LC50 (bluegill sunfish, 96 h) 0.18 ppm, (rainbow trout, 96 h) 0.10 ppm; toxic to fish and aquatic organisms; BOD (5 day) 20,000 ppm; COD 330,000 ppm; susceptible to biological oxidation

*Precaution:* Incompat. with quat. compds., strong oxidizing agents, min. acids (sulfuric, nitric, hydrochloric)

*Hazardous Decomp. Prods.:* Thermal decomp. may release gases (amines, CS<sub>2</sub>); combustion of dry film may release CO<sub>x</sub>, NO<sub>x</sub>, SO<sub>x</sub>; degradation prods. from acidification are flamm.

NFPA: Health 2; Flammability 0; Reactivity 0

*Storage:* Avoid temp. extremes

#### Aquatreat® DNM-360 [Alco]

*Chem. Descrip.:* 18% Disodium ethylenebisdithiocarbamate, 18% sodium dimethyldithiocarbamate

*Uses:* Microbicide for use in cooling towers, air washers, pulp/paper mills, cane and beet sugar mills, drilling fluids, petroleum recovery

*Properties:* Straw color; sp.gr. 1.18; dens. 9.8 lb/gal; pH 11.5; 36% act.

#### Aquatreat® KM [Alco]

*Chem. Descrip.:* Potassium dimethyldithiocarbamate

CAS 128-03-0

UN No. 1760

*Uses:* Short-stop in emulsion polymerization of rubber, butadiene, styrene, and neoprene; biocide, fungicide, and algicide used in water treatment, industrial recirculating water cooling towers, evaporative condensers, paper mills, sugar mills, sec. and tert. oil recovery, drilling fluids

*Regulatory:* EPA reg. no. 31910-5; SARA reportable

*Properties:* Pale amber liq.; char. amine odor; completely sol. in water; sp.gr. 1.21; dens. 10.4 lb/gal; f.p. 0 C; b.p. > 100 C; pH 11.3-14.0; nonflamm.; 50% act. in water

*Toxicology:* LD50 (oral, female rat) 1.86 g/kg; sl. skin and eye irritant; may cause nausea and vomiting; vapors may be irritating to nose, throat, respiratory tract

*Environmental:* Toxic to fish

*Precaution:* Corrosive; acidification releases flamm. gases; incompat. with min. acids (sulfuric, nitric, hydrochloric)

*Hazardous Decomp. Prods.:* Thermal decomp. may release gases such as amines, CS<sub>2</sub>; combustion of dry film may release CO<sub>x</sub>, NO<sub>x</sub>, SO<sub>x</sub>

NFPA: Health 2; Flammability 0; Reactivity 0

*Storage:* Exc. storage stability

#### Aquatreat® SDM [Alco]

*Chem. Descrip.:* Sodium dimethyldithiocarbamate

CAS 128-04-1; EINECS/ELINCS 204-876-7

UN No. 1760

*Uses:* Short-stop in emulsion polymerization of rubber; biocide, fungicide, and algicide used in water treatment, industrial recirculating water cooling towers, evaporative condensers, paper mills, sugar mills, drilling fluids, sec. and tert. oil recovery

*Regulatory:* EPA reg. no. 31910-6; SARA reportable

*Properties:* Yel.-grn. liq.; char. amine odor; completely sol. in water; sp.gr. 1.18; dens. 9.8 lb/gal; f.p. 0 C; b.p. > 100 C; pH 12-13.3; nonflamm.; 40% act. in water

*Toxicology:* LD50 (oral, female rat) 2.5 g/kg, (dermal, rabbit) > 1.15 g/kg; LC50 (inh. rat) > 3.93 mg/l; sl. skin and eye irritant; inh. of vapors may be irritating to nose, throat, respiratory tract; may cause nausea and vomiting

*Environmental:* Toxic to fish

*Precaution:* Corrosive liq.; acidification releases flamm. gases; incompat. with min. acids (sulfuric, nitric, hydrochloric), nitrosating agents

*Hazardous Decomp. Prods.:* Thermal dec. may release gases (amines, CS<sub>2</sub>); combustion of dry film may release CO<sub>x</sub>, NO<sub>x</sub>, SO<sub>x</sub>

NFPA: Health 2; Flammability 0; Reactivity 0

#### Aquis® [Heucotech Ltd]

*Chem. Descrip.:* Surfactant/pigment aq. disp.

*Uses:* Colorant for aq. paints and coatings, textiles, latexes, inks, paper

#### Araldite® 93-100 [Vantico AG]

*Chem. Descrip.:* Araldite GY 281, bisphenol F resin base

*Uses:* Hardener used in adhesives, fiber-sizing, textiles, paper treatment, and



abrasives; water-based; exc. stability, good adhesion, chem. adhesion  
*Properties:* Liq.; < 2 µ particle size; visc. pourable; epoxide wt. 160-180; 70% solids

**Araldite® 94-105** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® ECN 1280 base)  
 CAS 29690-82-2

*Uses:* Hardener used in adhesives, fiber-sizing, textiles, paper treatment, and abrasives; water-based; exc. stability, good temp. and chem. adhesion; very high functionality

*Properties:* 2 µ particle size; visc. 10,000-30,000 cps; epoxide wt. 230-251; 55% solids; nonionic

**Araldite® 95-101** [Vantico AG]

*Uses:* Hardener used in adhesives, paper treatment, and abrasives; water-based; exc. stability, low temp., fast curing for use with resins

*Properties:* 3 µ particle size; visc. 135,000-145,000 cps; 40% solids

**Araldite® ECN 1400** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® ECN 1299 base)  
 CAS 29690-82-2

*Uses:* For use in adhesives, fiber-sizing, textiles, abrasives, paper treatment; better adhesion, improved temp. and chem. resist. than bis A-based epoxies; very high functionality

*Properties:* 4 µ particle size; visc. 900-1500 cps; epoxide wt. 220-250; 40% solids

**Araldite® HZ 340** [Vantico AG]

*Chem. Descrip.:* Polyamide  
 CAS 25038-54-4

*Uses:* Hardener used in adhesives, fiber-sizing, textiles, paper treatment, abrasives, and coatings (plaster, concrete, masonry, asbestos, cement, nuclear facilities); water-based; solv.-free; good adhesion

*Properties:* Visc. 18,000-23,000 cps; epoxide wt. 113; 50% solids

**Araldite® PY 302-2** [Vantico AG]

*Chem. Descrip.:* Epoxy resin, bisphenol A/F-based  
 CAS 25928-94-3

*Uses:* Noncrystallizing, low visc. epoxy resin for high solids and solventless high performance coatings, food-contact coatings; rec. for coatings for storage tanks, chem. mfg. plants, food/beverage processing plants, water reservoirs, pipes, sewage treatment plants, ships, elec., pollution control equip., pulp/paper mills, petrol. refineries, offshore drilling rigs, adhesives; superior chem. resist.

*Regulatory:* FDA 21CFR §175.300

*Properties:* Gardner 3 max. clear liq.; visc. 6500-8000 cP; epoxide wt. 170-177

*Toxicology:* Causes irritation; may cause allergic skin reaction

*Storage:* 5 yrs min. shelf life when stored away from excessive heat and humidity in sealed original container

**Araldite® PY 323** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® PY 307-1 base)  
 CAS 29690-82-2

*Uses:* For use in adhesives, fiber-sizing, textiles, abrasives, paper treatment; good abrasion resist., toughness, and chem. resist.

*Properties:* Liq.; < 1 µ particle size; visc. pourable; epoxide wt. 178-191; 75% solids

**Araldite® PZ 3901** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® GT 7097 base) in water (78%) and 2-propoxyethanol (22%)

*Uses:* For 2-component ambient temp. curing epoxy systems for concrete coatings, floor coatings, high performance architectural coatings, and lt. duty industrial maintenance coatings; adhesives, fiber-sizing, textiles, abrasives, paper treatment, and can/coil; highly dilutable, exc. adhesion and chem. resist.

*Properties:* Milky disp.; low odor; 1 µ particle size; dens. 9.1 ± 0.2 lb/gal; visc. 8000-25,000 cps; flash pt. > 200 F; pH 6-9; epoxide wt. 505-565; 55 ± 1.5% solids; nonionic

*Toxicology:* Can cause irritation and possible allergic reaction; harmful if absorbed thru skin; may have effects on blood

*Storage:* 1 yr shelf life stored @ R.T. in sealed orig. container

**Araldite® PZ 3917** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® GT 7097 base)  
 CAS 29690-82-2

*Uses:* For use in adhesives, fiber-sizing, textiles, abrasives, and paper treatment; exc. stability, adhesion and chem. resist.

*Properties:* < 2 µ particle size; visc. 10,000-20,000 cps; epoxide wt. 2100-

2600; 55% solids

**Araldite® XU 3900** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® PY 307-1 base)  
 CAS 29690-82-2

*Uses:* For use in adhesives, fiber-sizing, textiles, abrasives, and paper treatment; exc. adhesion and chem. resist.; highly dilutable

*Properties:* < 0.4 µ particle size; visc. 10,000-20,000 cps; epoxide wt. 306-322; 30% solids

**Araldite® XU 3903** [Vantico AG]

*Chem. Descrip.:* Epoxy cresol novolac (Araldite® GT 7013 base)  
 CAS 29690-82-2

*Uses:* For use in adhesives, fiber-sizing, textiles, abrasives, and paper treatment; exc. stability, adhesion and chem. resist.

*Properties:* < 2 µ particle size; visc. 10,000-20,000 cps; epoxide wt. 720-800; 60% solids

**Arcol® 11-34** [Lyondell]

*Chem. Descrip.:* Polyalkylene polyol  
 CAS 9082-00-2

*Uses:* Used in sealants, caulks, deck coatings, elastomers, tire fill and RIM, food pkg. adhesives/cellophane; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200, 176.210, 177.1200, 177.1400

*Properties:* Pt-Co 50 max. color; m.w. ≈ 4800; sp.gr. 1.026 (20/20 C); dens. 8.56; acid no. 0.015 max. mg KOH/g; flash pt. (PMCC) 376 F; 0.07% max. water

**Arcol® PPG-425** [Lyondell]

*Chem. Descrip.:* Polypropylene glycol  
 CAS 25322-69-4

*Uses:* Used in solvent and water-based coatings, high modulus adhesives, cast elastomers, thermal break, electrical potting, RIM, inks, lubrication, metalworking, antistatic agents, crude oil de-emulsification and plasticizers; food pkg. adhesives, coatings, cellophane, animal glues; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.1200, 177.1400, 177.1680, 178.3120

*Properties:* Pt-Co 75 max. color; m.w. 425; sp.gr. 1.008 (20/20 C); 8.42 lb/gal (60 F); visc. 110 cp (20 C); acid no. 0.05 max.; flash pt. (PMCC) 351 F; pH 5.0-6.0 (in 10/6 IPA/water); 0.05% max. water

*Storage:* Store in carbon steel tanks, recommend a heated tank if stored outside, temp. of stored material should not exceed 120 F

**Arcol® PPG-725** [Lyondell]

*Chem. Descrip.:* Polypropylene glycol  
 CAS 25322-69-4

*Uses:* Used in coatings, solv.-based adhesives, castable elastomers, defoamers, humectants, potting compds., tire fill, inks, lubrication, metalworking, antistatic agents, crude oil de-emulsification and plasticizers; food pkg. adhesives, coatings, cellophane, animal glues; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.1200, 177.1400, 177.1680, 178.3120

*Properties:* Pt-Co 50 max. color; m.w. 760; sp.gr. 1.007 (20/20 C); dens. 8.41 lb/gal (60 F); visc. 160 cp (20 C); acid no. 0.05 max.; flash pt. (PMCC) 346 F; pH 5.0-6.0 (in 10/6 IPA/water); 0.05% max. water

*Storage:* Store in carbon steel tanks, recommend a heated tank if stored outside, temp. of stored material should not exceed 120 F

**Arcol® PPG-1025** [Lyondell]

*Chem. Descrip.:* Polypropylene glycol  
 CAS 25322-69-4

*Uses:* Used in coatings, adhesives, caulks, sealants elastomers, potting compds., tire fill, humectants, defoamers, inks, lubrication, metalworking, antistatic agents, crude oil de-emulsification and plasticizers; food pkg. adhesives, coatings, cellophane, animal glues; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1400, 177.1680, 178.3120

*Properties:* Pt-Co 75 max. color; m.w. 1000; sp.gr. 1.005 (20/20 C); dens. 8.39 lb/gal (60 F); visc. 220 cp (20 C); acid no. 0/05 max.; flash pt. (PMCC) 356 F; pH 5.0-6.0 (in 10/6 IPA/water); 0.05% max. water

*Storage:* Store in carbon steel tanks, recommend a heated tank if stored outside, temp. of stored material should not exceed 120 F

**Arcol® PPG-2025** [Lyondell]



*Chem. Descrip.:* Polypropylene glycol

CAS 25322-69-4

*Uses:* Used in deck coatings, adhesives, plywood patch, flooring, elastomers, clay pipe sealants, tire fill, humectants, defoamers, inks, lubrication, metalworking, antistatic agents, crude oil de-emulsification and plasticizers; food pkg. adhesives, coatings, cellophane, animal glues; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1400, 177.1680, 178.3120, 178.3740

*Properties:* Pt-Co 30 color (50 C); m.w. 2000; sp.gr. 1.005 (20/20 C); dens. 8.39 lb/gal (60 F); visc. 520 cps (20 C); acid no. 0.05 max.; hyd. no. 56; flash pt. (PMCC) 341 F; pH 5.0-6.0 (in 10/6 IPA/water); 0.05% max. water

*Storage:* Store in carbon steel tanks, recommend a heated tank if stored outside, temp. of stored material should not exceed 120 F

#### Arcol® PPG-3025 [Lyondell]

*Chem. Descrip.:* Polypropylene glycol

CAS 25322-69-4

*Uses:* Used in caulks, sealants, deck and sports coatings, deck and sports flooring, inks, lubrication, metalworking, antistatic agents, crude oil de-emulsification; in adhesives for food pkg.; food pkg. adhesives, paper/paperboard, cellophane; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.170, 176.180, 176.200, 177.1200, 177.1400, 177.1680, 178.3740

*Properties:* Pt-Co 50 max. color; m.w. approx. 3000; sp.gr. 1.004 (20/20 C); dens. 8.38 lb/gal (60 F); visc. 1720 cp (20 C); acid no. 0.05 max.; flash pt. (PMCC) 346 F; pH 5.0-6.0 (in 10/6 IPA/water); 0.05% max. water

*Storage:* Store in carbon steel tanks, recommend a heated tank if stored outside, temp. of stored material should not exceed 120 F

#### Arizona DR-22 [Arizona]

*Chem. Descrip.:* Disproportionated rosin

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Emulsifier, detergent, wetting agent; used to prepare emulsifiers for SBR polymerization; as short-stop for solv. polymerizations of rubber; as plasticizer/softener/tackifier for IIR, SBR, CR; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles; defoamer in food-contact paper/paperboard; used to make Arizona disproportionated tall oil rosin soaps (DRS-40, 42, 43, 44)

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.2600, 178.3120, 178.3800, 178.3850, 178.3870

*Properties:* Gardner 6+ color; sp.gr. 1.06; dens. 8.2 lb/gal (150 C); soften. pt. (R&B) 59 C; acid no. 161; sapon. no. 165; flash pt. (OC) > 204 C; 100% solids; anionic

#### Arizona DRS-40 [Arizona]

*Chem. Descrip.:* Potassium soap of disproportionated tall oil rosin

CAS 61790-51-0; EINECS/ELINCS 263-144-5

*Uses:* Emulsifier, detergent, wetting agent for ABS, SBR, other syn. elastomers; food pkg. adhesives, paper/paperboard, cellophane, rubber articles, wood preservatives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 176.170, 176.180, 176.210, 177.1200, 177.2600, 178.3120, 178.3800, 1787.3850, 178.3870

*Properties:* Tan paste; bland odor; water disp.; sp.gr. 1.1; dens. 9.08 lb/gal (80 C); visc. 1800 cps (65 C); acid no. 16; flash pt. (OC) > 204 C; 79.5% solids; anionic

#### Arizona DRS-42 [Arizona]

*Chem. Descrip.:* Potassium soap of disproportionated tall oil rosin

CAS 61790-51-0; EINECS/ELINCS 263-144-5

*Uses:* Emulsifier, detergent, wetting agent for ABS, SBR, other syn. elastomers; food pkg. adhesives, paper/paperboard, cellophane, rubber articles, wood preservatives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 176.170, 176.180, 176.210, 177.1200, 177.2600, 178.3120, 178.3800, 1787.3850, 178.3870

*Properties:* Tan paste, bland odor; water disp.; dens. 9.08 lb/gal (80 C); visc. 1500 cps (65 C); acid no. 12.5; flash pt. (OC) > 204 C; 80% solids; anionic

#### Arizona DRS-43 [Arizona]

*Chem. Descrip.:* Sodium salt of disproportionated tall oil rosin

CAS 14351-66-7

*Uses:* Detergent, wetting agent, emulsifier for ABS, SBR, syn. elastomers; food pkg. adhesives, paper/paperboard, cellophane, rubber articles, wood preservatives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 176.170, 176.180, 176.210, 177.1200, 177.2600, 178.3120, 178.3800, 1787.3850, 178.3870

*Properties:* Tan paste; bland odor; water disp.; sp.gr. 1.1; dens. 8.92 lb/gal (80 C); visc. 2500 cps (65 C); acid no. 11.5; flash pt. (OC) > 204 C; 71% solids; anionic

#### Arizona DRS-44 [Arizona]

*Chem. Descrip.:* Sodium soap of disproportionated tall oil rosin

CAS 14351-66-7

*Uses:* Emulsifier for prod. of ABS, SBR and other syn. elastomers; food pkg. adhesives, paper/paperboard, cellophane, rubber articles, wood preservatives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 176.170, 176.180, 176.210, 177.1200, 177.2600, 178.3120, 178.3800, 1787.3850, 178.3870

*Properties:* Paste; 70% conc.; anionic

#### Arkon M-90 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C, hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 630; sp.gr. 0.993; acid no. 0; soften. pt. (R & B) 90 ± 5 C; flash pt. (OC) 356 F

*Toxicology:* TSCA listed

*Precaution:* Resin may remass during hot weather and/or prolonged storage

#### Arkon M-100 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C, hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 700; sp.gr. 0.995; acid no. 0; soften. pt. (R & B) 100 ± 5 C; flash pt. (OC) 383 F

*Toxicology:* TSCA listed

#### Arkon M-115 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C, hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 800; sp.gr. 0.998; acid no. 0; soften. pt. (R & B) 115 ± 5 C; flash pt. (OC) 410 F

*Toxicology:* TSCA listed

#### Arkon M-135 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C, hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 850; sp.gr. 0.999; acid no. 0; soften. pt. (R & B) 135 ± 5 C; flash pt. (OC) 430 F

*Toxicology:* TSCA listed

#### Arkon P-70 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C, hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 600; sp.gr. 0.983; acid no. 0; soften. pt. (R & B) 70 ± 5 C; flash pt. (OC) 324 F

*Toxicology:* TSCA listed

*Precaution:* Resin may remass during hot weather and/or prolonged storage

#### Arkon P-90 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C, hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 630; sp.gr. 0.991; acid no. 0; soften. pt. (R & B) 90 ± 5 C; flash pt. (OC) 347 F

*Toxicology:* TSCA listed

*Precaution:* Resin may remass during hot weather and/or prolonged storage

#### Arkon P-100 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C<sub>9</sub> hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 700; sp.gr. 0.995; acid no. 0; soften. pt. (R & B) 100 ± 5 C; flash pt. (OC) 383 F

*Toxicology:* TSCA listed

#### Arkon P-115 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C<sub>9</sub> hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 770; sp.gr. 0.998; acid no. 0; soften. pt. (R & B) 115 ± 5 C; flash pt. (OC) 410 F

*Toxicology:* TSCA listed

#### Arkon P-125 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C<sub>9</sub> hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 820; sp.gr. 0.999; acid no. 0; soften. pt. (R & B) 125 ± 5 C; flash pt. (OC) 437 F

*Toxicology:* TSCA listed

#### Arkon P-140 [Arakawa USA]

*Chem. Descrip.:* Hydrogenated aromatic C<sub>9</sub> hydrocarbon resin

*Uses:* Tackifying resin for elastomers; food pkg. adhesives, paper/paperboard, rubber articles; heat and water resist.

*Regulatory:* FDA 21CFR 175.105, 176.180, 177.2600

*Properties:* Water-wh. color; odorless; sol. in min. spirits, toluol; insol. in ethyl acetate, acetone, ethyl alcohol; m.w. 860; sp.gr. 0.999; acid no. 0; soften. pt. (R & B) 140 ± 5 C; flash pt. (OC) 440 F

*Toxicology:* TSCA listed

#### Armeen® 2C [Akzo Nobel]

*Chem. Descrip.:* Dicocamine (sec. amine)

CAS 61789-76-2; EINECS/ELINCS 263-086-0

*Uses:* Emulsifier; flotation agent; corrosion inhibitor; cosmetics; chem. intermediate; food pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact rubber articles, animal glue

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600, 178.3120

*Properties:* Gardner 2 max. solid; sol. in chloroform, slightly sol. in IPA, toluene, CCl<sub>4</sub>, kerosene; sp.gr. 0.793 (60/40 C); dens. 790 kg/m<sup>3</sup> (20 C); visc. 49.1 SSU (60 C); vapor pressure < 1 mm Hg (20 C); m.p. 46 C; i.b.p. 180 C; pour pt. 46 C; HLB 4.2; iodine no. 3; amine no. 144; flash pt. (PMCC) > 149 C; 90% act.; 93% min. sec. amine; cationic

#### Armid® 18 [Akzo Nobel]

*Chem. Descrip.:* Stearamide, antblock agent

CAS 124-26-5; EINECS/ELINCS 204-693-2

*Uses:* Internal lubricant and slip agent for processed plastics, coatings, and films; builder, visc. stabilizer, and foam booster/stabilizer in syn. detergents, cosmetics; water repellent for textiles; improves dye solubility in printing inks, dyes, carbon paper coatings, and fusible coatings for glassware and ceramics; intermediate for syn. waxes; pigment dispersant; thickener for paint

*Properties:* Gardner 7 flake; water-insol.; sp.gr. 0.52 (100 C); m.p. 99-109 C; iodine no. 3; flash pt. 225 C; 90% act.

#### Armid® O [Akzo Nobel]

*Chem. Descrip.:* Oleamide

CAS 301-02-0; EINECS/ELINCS 206-103-9

*Uses:* Internal lubricant and slip agent for processed plastics, coatings, and films; builder, visc. stabilizer, and foam booster/stabilizer in syn. detergents; water repellent for textiles; release agent in cosmetics; penetrant in paper manufacture

*Properties:* Gardner 7 flake, solid; bland odor; m.w. 279; sol (g/100 ml solv. with heating) 59 g in 95% IPA; 30 g in 95% ethanol; 15 g in acetone and trichloroethylene; 11 g in ethyl acetate and MIBK; insol. in water; sp.gr. 0.830 (100 C); visc. 25 cps; m.p. 68 C; iodine no. 92; flash pt. 207 C; 90% act.

#### Armul™ 910 [Crompton/Witco]

*Chem. Descrip.:* Alkylphenol PEG ether

*Uses:* Wetting agent for wettable powds., clays; dust control modifier; lime soap dispersant; detergents; visc. builders; for pulp/paper and textile industries

*Properties:* Liq.; HLB 12.9; 100% conc.; nonionic

#### Aromox® C/12 [Akzo Nobel]

*Chem. Descrip.:* Dihydroxyethyl cocamine oxide, IPA

*Uses:* Wetting agent, emulsifier, stabilizer, antistat, foaming agent for detergents, shampoos, cosmetics, textiles, metal plating, petrol. additives, paper, plastics, rubber; hair conditioner

*Properties:* Gardner 2 clear liq.; sol. in water; sp.gr. 0.949; visc. 52 cp; cloud pt. 18 F; flash pt. (PMCC) 22 C; pour pt. 0 F; surf. tens. 33 dynes/cm (0.1%); 50% act. in aq. IPA; cationic

*Toxicology:* Prolonged contact may cause severe burns to eyes and severe skin irritation

*Environmental:* Biodeg.

*Precaution:* Flamm.

#### Aromox® C/12-W [Akzo Nobel; Akzo Nobel bv]

*Chem. Descrip.:* Dihydroxyethyl cocamine oxide

CAS 61791-47-7; EINECS/ELINCS 263-180-1

*Uses:* Surfactant, wetting agent, emulsifier, stabilizer, antistat, foaming agent for detergents, shampoos, cosmetics, textiles, metal plating, petrol. additives, paper, plastics, rubber; gel sensitizer for latex foam; hair conditioner

*Properties:* Gardner 4 max. clear liq.; sol. in water; sp.gr. 0.997; visc. 2097 cp; HLB 18.4; pour pt. 35 F; flash pt. nonflamm.; surf. tens. 30.8 dynes/cm (0.1%); 40% act. in water; cationic

*Toxicology:* Prolonged contact may cause severe burns to eyes and severe skin irritation

*Environmental:* Biodeg.

#### Arquad® 2C-70 Nitrite [Akzo Nobel]

*Chem. Descrip.:* Dicoco nitrite, methanol/isopropanol

*Uses:* Surfactant, dispersant for protective coatings, pigments, inks, textiles, agric., acid pickling baths, marine applics, metalworking, electroplating, fuel treatment, emulsion/plastic mfg., wastewater treatment, min. processing, paper

*Properties:* Gardner 14 max. liq.; sol. in alcohols, benzene, chloroform, CCl<sub>4</sub>; disp. in water; pH 6-8.5; flash pt. (PMCC) 20 C; 68-72% quat. in methanol/IPA

*Environmental:* Biodeg.

*Precaution:* Flamm.

#### Arquad® 2C-75 [Akzo Nobel; Akzo Nobel bv]

*Chem. Descrip.:* Dicocodimonium chloride, aq. IPA

*Uses:* Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, softener, dyeing aid, antistat for textiles, paper, cosmetics, industrial, agric., plastics, petrol., acid pickling baths; bactericide; algicide; hair conditioner

*Properties:* Gardner 7 semiliq.; sol. in alcohols, propylene glycol, benzene, chloroform, CCl<sub>4</sub>; disp. in min. oil, IPM; insol. in water; m.w. 447; sp.gr. 0.89; HLB 11.4; pour pt. 10 F; flash pt. (PMCC) 26 C; pH 6-9; surf. tens. 30 dynes/cm (0.1%); 75% act. in aq. IPA; cationic

*Environmental:* Biodeg.

*Precaution:* Flamm.

#### Arquad® 2HT-75 [Akzo Nobel; Akzo Nobel bv]

*Chem. Descrip.:* Quaternium-18, aq. IPA

*Uses:* Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, antistat, bacteriostat for paper softening, household laundry, hair conditioning

*Properties:* Soft wh. paste; sol. in IPA, propylene glycol, benzene, chloroform, CCl<sub>4</sub>; disp. in water; insol. in min. oil, IPM; m.w. 573; sp.gr. 0.87; dens. 7.22 lb/gal; visc. 47.5 cps (120 F); f.p. 95 F; HLB 9.7; pour pt. 90-100 F; flash pt. (Seta) 44 C; pH 6-9; surf. tens. 37 dynes/cm (0.1%); 75% act. in aq. IPA; cationic

*Toxicology:* LD50 (acute oral) 7000 mg/kg; nontoxic by ingestion

*Environmental:* Biodeg.

*Precaution:* Flamm.

#### Arquad® 2HT-75PG [Akzo Nobel]

*Chem. Descrip.:* Quaternium-18 (70-80%), propylene glycol (15-20%)

*Uses:* Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, antistat, bacteriostat for paper softening, household laundry, hair conditioning

*Regulatory:* DOT nonregulated; SARA reportable

*Properties:* Wh. solid; bland odor; disp. in water; sp.gr. 0.874 (50 C); vapor pressure 0.2 mm Hg (20 C); m.p. 32 C; flash pt. (PMCC) 102 C; pH 6-9; cationic

*Toxicology:* May cause skin, eye, and respiratory tract irritation

*Environmental:* Biodeg.

**Precaution:** Incompat. with strong oxidizers; not flamm. or combustible; under fire conditions, may support combustion and dec. to emit toxic materials

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>, hydrogen chloride

HMIS: Health 3; Flammability 1; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area away from oxidizing materials and foodstuffs; tightly reseal containers after opening

**Arquad® 12-50** [Akzo Nobel]

**Chem. Descrip.:** Laurtrimonium chloride, IPA

**Uses:** Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, softener, dyeing aid, antistat for textiles, paper, cosmetics, industrial, agric., plastics, petrol., acid pickling baths; bactericide, algicide; gel sensitizer for latex foam; hair conditioner improving wet combing

**Properties:** Gardner 1 max. liq.; sol. in water, IPA, propylene glycol, chloroform, CCl<sub>4</sub>; insol. in min. oil, IPM; m.w. (act.) 263; sp.gr. 0.89; f.p. 13 F; HLB 17.1; flash pt. (PMCC) 19 C; pH 5-8 (10% aq.); surf. tens. 33 dynes/cm (0.1%); 50% act. in aq. IPA; cationic

**Environmental:** Biodeg.

**Precaution:** Flamm.

**Arquad® 16-50** [Akzo Nobel; Akzo Nobel bv]

**Chem. Descrip.:** Cetrimonium chloride, IPA

**Uses:** Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, softener, dyeing aid, antistat for textiles, paper, cosmetics, industrial, agric., plastics, petrol., acid pickling baths; bactericide, algicide; rubber to textile bonding agent; hair conditioner

**Properties:** Gardner 3 max. liq.; sol. in water, IPA, propylene glycol, chloroform, CCl<sub>4</sub>; insol. in min. oil, IPM; m.w. (act.) 319; sp.gr. 0.88; f.p. 61 F; HLB 15.8; flash pt. (PMCC) 17 C; pH 5-8 (10% aq.); surf. tens. 34 dynes/cm (0.1%); 49-52% quat. in aq. IPA; cationic

**Environmental:** Biodeg.

**Precaution:** Flamm.

**Arquad® 18-50** [Akzo Nobel; Akzo Nobel bv]

**Chem. Descrip.:** Steartrimonium chloride, IPA

**Uses:** Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, softener, dyeing aid, antistat for textiles, paper, cosmetics, industrial, agric., plastics, petrol., acid pickling baths; bactericide, algicide; dye leveling agent; visc. stabilizer; in lubricant compding.; hair conditioner

**Properties:** Gardner 3 max. liq.; sol. in IPA, propylene glycol, chloroform, CCl<sub>4</sub>; disp. in water; insol. in min. oil, IPM; m.w. (act.) 347; sp.gr. 0.88; HLB 15.7; flash pt. (Seta) 18 C; pH 5-8 (10% aq.); surf. tens. 34 dynes/cm (0.1%); 50% act. in aq. IPA; cationic

**Environmental:** Biodeg.

**Precaution:** Flamm.

**Arquad® 210-50** [Akzo Nobel; Akzo Nobel bv]

**Chem. Descrip.:** Didecyl dimonium chloride, aq. ethanol

**Uses:** Surfactant, dispersant for protective coatings, pigments, inks, textiles, agric., acid pickling baths, marine applics, metalworking, electroplating, fuel treatment, emulsion/plastic mfg., wastewater treatment, min. processing, paper

**Properties:** APHA 180 max. liq.; sol. in alcohols, benzene, chloroform, CCl<sub>4</sub>; disp. in water; pH 7-9; flash pt. (PMCC) 57 C; 50% quat. in aq. ethanol; cationic

**Environmental:** Biodeg.

**Precaution:** Flamm.

**Arquad® 218-75** [Akzo Nobel]

**Chem. Descrip.:** Dioctadecyl dimethyl ammonium chloride, aq. IPA

**Uses:** Surfactant, dispersant for protective coatings, pigments, inks, textiles, agric., acid pickling baths, marine applics, metalworking, electroplating, fuel treatment, emulsion/plastic mfg., wastewater treatment, min. processing, paper; hair conditioner

**Properties:** Gardner 3 max. paste; sol. in alcohols, benzene, chloroform, CCl<sub>4</sub>; disp. in water; pH 6-9; flash pt. (Seta) 44 C; 74-77% quat. in aq. IPA

**Environmental:** Biodeg.

**Precaution:** Flamm.

**Arquad® C-50** [Akzo Nobel; Akzo Nobel bv]

**Chem. Descrip.:** Cocotrimonium chloride, IPA

**Uses:** Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, softener, dyeing aid, antistat for textiles, paper, cosmetics, industrial, agric., plastics, petrol., acid pickling baths; bactericide, algicide; gel sensitizer for latex foam; hair conditioner improving wet combing

**Properties:** Gardner 4 max. liq.; sol. in water, alcohols, chloroform, CCl<sub>4</sub>;

m.w. (act.) 278; sp.gr. 0.89; f.p. 5 F; HLB 16.5; flash pt. (PMCC) 20 C; pH 5-8 (10% aq.); surf. tens. 31 dynes/cm (0.1%); 50% act. in aq. IPA; cationic

**Environmental:** Biodeg.

**Precaution:** Flamm.

**Arquad® HTL8(W) MS-85** [Akzo Nobel]

**Chem. Descrip.:** 2-Ethylhexyl hydrogenated tallowalkyl methosulfate

**Uses:** Surfactant, dispersant for protective coatings, pigments, inks, textiles, agric., acid pickling baths, marine applics, metalworking, electroplating, fuel treatment, emulsion/plastic mfg., wastewater treatment, min. processing, paper

**Regulatory:** EPA listed

**Properties:** Gardner 5 max. liq.; sol. in alcohols, benzene, chloroform, CCl<sub>4</sub>; disp. in water; flash pt. nonflamm.; pH 4.5-6; 81.5-84.5% quat. in water; cationic

**Environmental:** Biodeg.

**Arquad® T-27W** [Akzo Nobel]

**Chem. Descrip.:** Tallow trimonium chloride

CAS 8030-78-2; EINECS/ELINCS 232-447-4

**Uses:** Emulsifier, foaming agent, wetting agent, dispersant, corrosion inhibitor, softener, dyeing aid, antistat for textiles, paper, cosmetics, industrial, agric., plastics, petrol., acid pickling baths; bactericide, algicide; hair conditioner/antistat; imparts mod. improvement in combing props.

**Properties:** Gardner 3 max. liq.; sol. in water, alcohols, chloroform, CCl<sub>4</sub>; m.w. 343; HLB 14.2; flash pt. nonflamm.; pH 5-8 (10% aq.); 26-29% act. in water; cationic

**Environmental:** Biodeg.

**ASA 100** [Dixie]

**Chem. Descrip.:** Alkenylsuccinic anhydride

CAS 70983-55-0

**Uses:** Sizing agent for alkaline paper; corrosion inhibitor for metalworking fluids; ease of handling; suitable in both cationic starch and polymer emulsion systems

**Properties:** Amber clear liq.; visc. 270 cps max.; neutralization no. 330-355; 1.5% max. residual olefin

**Toxicology:** Mild primary skin irritant; avoid contact with skin, eyes, clothing

**Storage:** Store out of contact with moisture to avoid hydrolysis of the anhydride to acid

**A-Series Glass Beads** [Potters Ind.]

**Chem. Descrip.:** Soda-lime silica glass beads

CAS 65997-17-3

**Uses:** Grinding media, particle size reducer for CaCO<sub>3</sub> and TiO<sub>2</sub> in paper mfg.; grinding aid, dispersant, deagglomerant for magnetic tape oxides, paint and ink pigments, cosmetics, fine chems., pharmaceuticals, agric. prods., dyestuffs, mech. plating, polishing, chromatography, fluidized beds, heat transfer, filtration; virtually chemically inert; low abrasive wear; low liq. absorp.; high crush resist.; large size range selection

**Properties:** Glass beads (various sizes); sp.gr. 250 g/cm<sup>3</sup>; dens. 3.70 lg/l; ref. index 1.51-1.52; hardness (Mohs) 5-6

**ASP® 072** [Engelhard]

**Chem. Descrip.:** Hydrous aluminum silicate

**Chem. Analysis:** SiO<sub>2</sub> (45.2%), Al<sub>2</sub>O<sub>3</sub> (38.8%), free moisture (1.0%)

CAS 1332-58-7; EINECS/ELINCS 296-473-8

**Uses:** Extender pigment in paints (improves suspension of other pigments); in adhesives for corrugated board, laminated fiber board, paper bag seams, paper tubes, cores; filler, opacifier in plastics; extender in printing inks; reinforcing extender for EPDM, SBR, nitrile, most other polymers; useful in mastics, putties, caulking chemicals, textile and chemical conditioning; pretreated to form a deflocculated suspension of high fluidity in water vehicles

**Properties:** Wh. free-flowing spray-dried beads, particle size 0.3 μ; 0.01% max. residue +325 mesh; sp.gr. 2.58; dens. 42-46 lb/ft<sup>3</sup>; oil absorp. 37-41; brightness (GE) 90-92; ref. index 1.56; pH 6-8

**Toxicology:** Nontoxic

**ASP® 100** [Engelhard]

**Chem. Descrip.:** Hydrous aluminum silicate

**Chem. Analysis:** SiO<sub>2</sub> (45.2%), Al<sub>2</sub>O<sub>3</sub> (38.8%), free moisture (1.0%)

CAS 1332-58-7; EINECS/ELINCS 296-473-8

**Uses:** Extender pigment in paints (improves suspension of other pigments), in adhesives for corrugated board, laminated fiber board, paper bag seams, paper tubes, cores; filler, opacifier in plastics; extender in printing inks; in rubber industry, in mastics, putties, caulking chemicals, textile and chemical conditioning; unmodified

*Uses:* Dispersant and emulsifier for acrylates, styrene acrylic, vinyl chloride, vinylidene chloride and vinyl acetate copolymers; foaming agent for mech. latex foaming, carpet and upholstery cleaners; air entraining agent for mortars; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 178.3400; SARA §311/312 reportable  
*Properties:* Colorless clear liq.; mild odor; completely sol. in water; sp.gr. 1.05; dens. 8.75 lb/gal; visc. 200 cP; flash pt. (PMCC) > 93 C; pH 8 (10%); 30-32% solids; anionic

*Toxicology:* LD50 (oral, rat) 1288 mg/kg; severe eye, skin, and respiratory tract irritant; TSCA listed

*Environmental:* BOD5 593,340 ppm; COD 957,000 ppm; 62% biodeg.

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 3; Flammability 0; Reactivity 0

*Storage:* Protect from freezing; do not store @ < 10 C

**Avirol® SL 2020 G** [Cognis/Chems. Group]

*Chem. Descrip.:* Sodium lauryl sulfate

CAS 68585-47-7; EINECS/ELINCS 205-788-1

*Uses:* Emulsifier for emulsion polymerization; additive for mech. latex foaming; foaming agent for acrylate disps., carpet and upholstery cleaners; air entraining agent for mortars; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 178.3400; DOT nonregulated; SARA §311/312 reportable

*Properties:* Colorless clear liq.; misc. with water; sp.gr. 1.050; b.p. 100 C; 30-32% solids; anionic

*Toxicology:* LD50 (oral, rat) < 5 ml/kg; causes skin and eye irritation; TSCA listed

*Precaution:* Avoid contact with strong acids, bases, and oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

HMS: Health 3; Flammability 0; Reactivity 0

**Avitex® 6311** [DuPont]

*Chem. Descrip.:* Sodium salt of sulfated oleyl acetate

*Uses:* Softener and antistat for textiles; lubricant for fibers and fabrics; penetrant, leveling agent for textile dyeing; dyeing assistant for acid and direct dyes on paper; prep. of hair grooming aids; stabilizer for aq. applic. baths

*Properties:* Cationic

**Avitex® DN-100** [DuPont]

*Chem. Descrip.:* Sodium salt of sulfated oleyl acetate

*Uses:* Softener and antistat for textiles; lubricant for fibers and fabrics; penetrant, leveling agent for textile dyeing; dyeing assistant for acid and direct dyes on paper; prep. of hair grooming aids; stabilizer for aq. applic. baths

*Properties:* Cationic

**Avitex® E** [DuPont]

*Chem. Descrip.:* Sodium salt of sulfated oleyl acetate

*Uses:* Softener and antistat for textiles; lubricant for fibers and fabrics; penetrant, leveling agent for textile dyeing; dyeing assistant for acid and direct dyes on paper; prep. of hair grooming aids; stabilizer for aq. applic. baths

*Properties:* Cationic

**Avitex® R** [DuPont; DuPont Canada]

*Chem. Descrip.:* Sodium salt of sulfated oleyl acetate

*Uses:* Softener and antistat for textiles; modifier with hand builders and resins; lubricant for fibers and fabrics; penetrant, leveling agent for textile dyeing; dyeing assistant for acid and direct dyes on paper; prep. of hair grooming aids; stabilizer for aq. applic. baths

*Properties:* Lt. tan soft, homogenous paste; mild odor; water-disp. @ 160-180 F; sp.gr. 0.98; dens. 8.18 lb/gal; pH 6.5-7.5 (1% aq.); cationic

**Avitone® A** [DuPont; DuPont Canada]

*Chem. Descrip.:* Sodium alkyl sulfonate

*Uses:* Finishing agent, softener, lubricant for improving texture and hand of textiles, leather, and paper, and for elastomers; highly stable to chemicals and oxidation

*Properties:* Lt. tan paste, bland odor; disp. in water; sp.gr. 1.02 g/mL; dens. 8.4 lb/gal; cloud pt. none; flash pt. none; pH 7.5-9.0 (10% aq.); 75% act.; anionic



# B

## B20F [Grain Processing]

*Chem. Descrip.:* Unmodified corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Specially treated to improve functionality in applics. such as AP conversions for paper and board surf. sizing and coating; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. fine powd., flash-dried form; bulk dens. 31 lb/ft<sup>3</sup> (loose), 39 lb/ft<sup>3</sup> (packed); pH 6; 11% moisture

## B200 [Grain Processing]

*Chem. Descrip.:* Unmodified corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Specially treated to improve functionality in applics. such as AP conversions for paper and board surf. sizing and coating; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 6; 11% moisture

## Bacote™ 20 [Magnesium Elektron; Nikkei-MEL]

*Chem. Descrip.:* Stabilized ammonium zirconium carbonate aq. sol'n.

CAS 68309-95-5

*Uses:* Binder insolubilizer for paper and board coatings, nonwoven fabrics; deposit control agent in wet-end paper processes; str. additive for alkaline-sized paper; component of waterborne inks, overprint varnishes, adhesives; textile, leather, and paper water-repellent formulations; antimicrobial treatment for textiles and timber; coagulant in mfg. of syn. leather cloth; metal pretreatment coatings; precursor to zirconia in catalyst systems

*Properties:* Clear sol'n.; sp.gr. 1.37; pH 9.1; 20% ZrO<sub>2</sub>

*Storage:* Store in cool areas; protect sol'ns. from extremely high temps. and freezing; containers must remain sealed until use due to volatile nature

## Bafixan® Dyes [BASF]

*Uses:* Disperse dyes for transfer paper printing on textile printing machines

## Bag White 9 [Michelman]

*Uses:* Wh. coating for multiwall paper bags; rod-applicable; glueable; repulpable

## Barquat® 1552 [Lonza]

*Chem. Descrip.:* 42% Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride and 8% dialkyl methyl benzyl ammonium chloride

*Uses:* Algicide for swimming pools and recirculating cooling towers; slimicide in pulp/paper waters

*Regulatory:* EPA reg. no. 6836-59; FDA approved slime control in pulp/paper waters

*Properties:* Gardner < 2 clear liq.; m.w. 399; sp.gr. 0.955; dens. 7.96 lb/gal; flash pt. (Seta) 100 F; pH 6.5-8.3 (10%); 50% act.

*Toxicology:* Corrosive; causes severe eye and skin damage; harmful or fatal if swallowed

*Environmental:* Toxic to fish

## Barquat® MB-50 [Lonza]

*Chem. Descrip.:* Alkyl (50% C14, 40% C12, 10% C16) dimethylbenzyl ammonium chloride

CAS 68424-85-1

*Uses:* Germicide, disinfectant, sanitizer, deodorant, fungicide, algicide for household, institutional and industrial applics.; slimicide in pulp/paper waters; fungicide for wood protection; effective against bacteria in hard water; rec. where a min. of water is desirable in formulations

*Use Level:* 800 ppm (hospital disinfection), 400 ppm (general disinfection), 200 ppm (general sanitization)

*Regulatory:* EPA reg. no. 6836-2; FDA approved slime control in pulp/paper waters

*Properties:* Pale yel. clear liq.; mild odor; freely sol. in water, lower alcohols, ketones, glycols; sp.gr. 0.962; dens. 8.03 lb/gal; pH 6.5-8.3 (10%); 50% act.; cationic

*Toxicology:* Corrosive; causes severe eye and skin damage; harmful or fatal if swallowed

*Environmental:* Toxic to fish

*Storage:* Congealing may occur during prolonged storage at low temps.; warm to R.T. and mix to restore homogeneity

## Barquat® OJ-50 [Lonza]

*Chem. Descrip.:* Alkyl (60% C14, 25% C12, 15% C16) dimethyl benzyl ammonium chloride

CAS 139-08-2; EINECS/ELINCS 205-352-0

*Uses:* Algicide in swimming pools and cooling tower water treatment, sec. oil recovery; slimicide in pulp/paper waters

*Regulatory:* EPA reg. no. 6836-11; FDA approved slime control in pulp/paper waters

*Properties:* APHA 125 max. liq.; sp.gr. 0.960; dens. 8.01 lb/gal; flash pt. (Seta) 107 F; pH 6.5-9.0 (10%); 50% act.

*Toxicology:* Corrosive; causes severe eye and skin damage; harmful or fatal if swallowed

## Barquat® OJ-80 [Lonza]

*Chem. Descrip.:* Alkyl (60% C14, 25% C12, 15% C16) dimethyl benzyl ammonium chloride

CAS 139-08-2; EINECS/ELINCS 205-352-0

*Uses:* Algicide for swimming pools, water treatment, sec. oil recovery; sanitizer; slimicide in pulp/paper waters

*Regulatory:* EPA reg. no. 6836-82; FDA approved slime control in pulp/paper waters

*Properties:* APHA 20 max. liq.; sp.gr. 0.940; dens. 7.84 lb/gal; flash pt. (Seta) 113 F; pH 6.5-9.0 (10%); 80% act.

*Toxicology:* Corrosive; causes severe eye and skin damage; harmful or fatal if swallowed

## Basazol® [BASF; BASF AG]

*Uses:* Basic dyes for coloring paper, for unbleached and wood-containing or used paper-containing papers

## Basazol® C [BASF AG]

*Uses:* Basic dyes for unbleached and wood-containing or used paper-containing papers; high color intensity, high resist. to bleeding

## Basocoll® OV [BASF; BASF AG]

*Chem. Descrip.:* Aliphatic epoxy resin

*Uses:* Curing agent for coating mixts. in paper finishing; improves water resist.

## Basonyl® Dyes [BASF AG]

*Uses:* Cationic dyes for prod. of inks, carbon paper coatings, for dyeing natural fibers such as jute, sisal, wool; paint and varnish industry for prod. of daylight fluorescent pigments and gloss paints; coloring seeds and crop protection agents

*Properties:* Sol. in alcohols, glycol ethers, and water

## Basophob® [BASF AG]

*Chem. Descrip.:* Aq. paraffin or polyethylene wax dispersions, sol'ns. of fatty acid derivs.

- Uses:* Hydrophobing agent for internal or surface treatment of paints, mortar, concrete and paper
- Basoplast® 250 D** [BASF]  
*Chem. Descrip.:* Acrylic copolymer  
 CAS 25133-97-5  
*Uses:* Wet-end and surf. sizing agent for improved ink holdout, linting, and dusting in gravure and offset printing on paper; fully cured during drying  
*Use Level:* 2-4% (wet end sizing), 10-15 g/l (surf. sizing, hard-sized paper)  
*Properties:* Anionic/weak cationic
- Basoplast® 265 D** [BASF]  
*Chem. Descrip.:* Acrylic copolymer  
 CAS 25133-97-5  
*Uses:* Wet-end and surf. sizing agent for paper; versatile; for sizing paper in neutral or acid media; fully cured during drying; produces paper with resist. to acids and alkalis  
*Properties:* Cationic
- Basoplast® 335 D** [BASF]  
*Chem. Descrip.:* Acrylic copolymer  
 CAS 25133-97-5  
*Uses:* Wet-end and surf. sizing agent for paper, esp. filled with calcium carbonate; plasticizer for starch films; improves resist. of paper surf. to mech. action; extremely low foaming; fully cured during drying  
*Properties:* Amphoteric
- Basoplast® 400 DS** [BASF]  
*Chem. Descrip.:* Styrene acrylic copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent for improved toner adhesion and ink jet printing for paper; extremely low foaming; fully cured during drying  
*Use Level:* 10-20 g/l (hard-sized paper)  
*Properties:* Anionic
- Batch Defoamer 111** [Process Chems. LLC]  
*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing, for brownstock washing, screenroom, and bleach plant applics.; oil-based; does not contribute to deposit formation; suitable whether batch or continuous generated pulp is employed  
*Properties:* Opaque tan liq.; dens. 7-8 lb/gal; visc. 600-1000 cps  
*Toxicology:* TSCA listed  
*Storage:* Store in dry area
- Bayer SBR Latex 310 C** [Bayer AG]  
*Chem. Descrip.:* S/B latex  
 CAS 9003-55-8  
*Uses:* Binder for paper and needle felt reinforcement; nonstaining; hard  
*Properties:* Dens. 1.03 g/cc; pH 8.5 ± 0.5; 50 ± 0.5% solids; 65% styrene content
- Bayferrox® 56-AC** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® 3950** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Black 318** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Black 318M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Black 330** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Brown 686** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 110M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 115M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 120M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 130M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 180M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 320** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 330** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Red 610** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Yellow 1410** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Yellow 1420M** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Yellow 3420** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Bayferrox® Yellow 3910** [Bayer]  
*Chem. Descrip.:* Inorg. pigment  
*Uses:* Pigment for dyeing laminate-based papers and specialty papers
- Baymicron® 2107** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® 2109** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® Black C 200** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® Black R 200** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® Blue R 200** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® Defoamer 50** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® OXA WM 22** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baymicron® OXA WM 33** [Bayer]  
*Uses:* Prod. of microcapsules for carbonless copying paper
- Baypren Latex 4 R** [Bayer AG; Bayer/Fiber, Addits., Rubber]  
*Chem. Descrip.:* CR latex, 4% methacrylic acid  
*Uses:* Used in dipped goods, proofings, coatings, lamination of fabrics and paper; binder for fibers; road construction; waterproofing; corrosion inhibitor; adhesives; sealing compositions; mine safety applics.  
*Properties:* Dens. 1.11 g/cc; pH 6.5; 50 ± 0.5% solids
- Baypren Latex B** [Bayer AG; Bayer/Fiber, Addits., Rubber]  
*Chem. Descrip.:* CR latex  
 CAS 9010-98-4  
*Uses:* Used in dipped goods, proofings, coatings, lamination of fabrics and paper; binder for fibers; road construction; waterproofing; corrosion inhibitor; adhesives; sealing compositions; mine safety applics.  
*Properties:* Dens. 1.13 g/cc; pH 12.5-13.0; 58 ± 0.5% solids
- Baypren Latex GK** [Bayer AG; Bayer/Fiber, Addits., Rubber]  
*Chem. Descrip.:* CR latex  
 CAS 9010-98-4  
*Uses:* Used in dipped goods, proofings, coatings, lamination of fabrics and paper; binder for fibers; road construction; waterproofing; corrosion inhibitor; adhesives; sealing compositions; mine safety applics.  
*Properties:* Dens. 1.08 g/cc; pH 12.5-13.0; 32 ± 1.0% solids
- Baypren Latex L 200A** [Bayer/Fiber, Addits., Rubber]  
*Chem. Descrip.:* Polychloroprene aq. colloidal disp.  
 CAS 9010-98-4  
*Uses:* Used in dipped goods, paper and fabric saturants, and coatings  
*Properties:* Off-wh. color; char. smell; dens. 1.11 g/cc; visc. 21 mPa·s; pH 12.5; surf. tens. 35-45 dynes/cm; 50% solids; anionic
- Baypren Latex L 300** [Bayer AG; Bayer/Fiber, Addits., Rubber]  
*Chem. Descrip.:* Chloroprene homopolymer latex  
 CAS 9010-98-4  
*Uses:* Binder for paper prods., dipped goods, and adhesives; offers high

cohesive str.; cured films have high modulus and med. tens. str.; vulcanized with ZnO, conventional polychloroprene accelerators, and sulfur, if desired  
*Properties:* Sp.gr. 1.13; visc. 55 cps; surf. tens. 40 dynes/cm; pH 12.5; 60% solids

**Baypren Latex L 345** [Bayer/Fiber, Addits., Rubber]

*Chem. Descrip.:* Polychloroprene aq. colloidal disp.  
 CAS 9010-98-4

*Uses:* Used in paper saturation, fabric coating, and dipped goods

*Properties:* Off-wh.; 180 nm particle size; char. smell; dens. 1.13 g/cc; visc. 73 mPa·s; pH 12.0; surf. tens. 40-50 dynes/cm; 58.5% solids; anionic

**Baypren Latex MKB** [Bayer AG]

*Chem. Descrip.:* CR latex  
 CAS 9010-98-4

*Uses:* Used in dipped goods, proofings, coatings, lamination of fabrics and paper; binder for fibers; road construction; waterproofing; corrosion inhibitor; adhesives; sealing compositions; mine safety applics.

*Properties:* Dens. 1.13 g/cc; pH 12.5-13.0; 58 ± 0.5% solids

**Baypren Latex SK** [Bayer AG]

*Chem. Descrip.:* CR latex  
 CAS 9010-98-4

*Uses:* Used in dipped goods, proofings, coatings, lamination of fabrics and paper; binder for fibers; road construction; waterproofing; corrosion inhibitor; adhesives; sealing compositions; mine safety applics.; for toe caps and counters for footwear

*Properties:* Dens. 1.12 g/cc; pH 12.5-13.0; 55 ± 0.5% solids

**Baypren Latex T** [Bayer AG]

*Chem. Descrip.:* CR latex  
 CAS 9010-98-4

*Uses:* Used in dipped goods, proofings, coatings, lamination of fabrics and paper; binder for fibers; road construction; waterproofing; corrosion inhibitor; adhesives; sealing compositions; mine safety applics.

*Properties:* Dens. 1.13 g/cc; pH 12.5-13.0; 58 ± 0.5% solids

**Bayprint™ Binder E-1030** [Bayer]

*Uses:* Binder for paper prod.

**Bayprint™ Blue Tint Base E-1031** [Bayer]

*Uses:* Prod. of water-based flexographic inks for printing tissues, napkins, paper towels

**Bayprint™ Red Tint Base E-1032** [Bayer]

*Uses:* Prod. of water-based flexographic inks for printing tissues, napkins, paper towels

**Bayprint™ Yellow Tint Base E-1033** [Bayer]

*Uses:* Prod. of water-based flexographic inks for printing tissues, napkins, paper towels

**Baysynthol® AGP** [Bayer]

*Uses:* Processing chem. for paper

**Baysynthol® BMP** [Bayer]

*Uses:* Processing chem. for paper

**Beetle® 216-8** [Cytec Ind.]

*Chem. Descrip.:* Highly alkylated urea-formaldehyde resin; n-butanol (87.5%), xylene (12.5%)

*Uses:* Crosslinking agent; leveling agent in cold curing, amine catalyzed, epoxy resin coatings, metal primers, cellulosic lacquers, electrostatic sprays, and dipping enamels; food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.02; dens. 10.2 lb/gal (solids); visc. 5-9 poises; acid no. 2 max.; flash pt. (Seta) 34 C; 59 ± 2% NV by wt.; free formaldehyde (2.5% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

**Beetle® 227-8** [Cytec Ind.]

*Chem. Descrip.:* Urea-formaldehyde resin; n-butanol (50%), xylene (50%)

*Uses:* Crosslinking agent for use in epoxy/urea metal primers; as pigment grinding vehicle; food-contact coatings, paper/paperboard; fast curing speed; exc. enamel stability in pigmented systems

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.0; dens. 9.9 lb/gal (solids); visc. 13-27 poises; acid no. 4 max.; flash pt. (Seta) 22 C; 52 ± 2% NV by wt.; free formaldehyde (2.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

**Beetle® 1032-10** [Cytec Ind.]

*Chem. Descrip.:* Isobutylated urea-formaldehyde resin; isobutanol (100%)

*Uses:* Crosslinking agent for pigmented enamels; food-contact coatings, paper/paperboard; offers high gloss and film hardness on marginal curing schedules; compat. with short and med. oil alkyd resins; fast cure

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.01; dens. 10.2 lb/gal (solids); visc. 23-38 poises; acid no. 6 max.; flash pt. (Seta) 38 C; 60 ± 2% NV by wt.; free formaldehyde (2.5% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

**Beetle® 1047** [Cytec Ind.]

*Chem. Descrip.:* Isobutylated urea-formaldehyde resin; isobutanol (70%), xylene (30%)

*Uses:* Crosslinking agent for low temp. curing conversion varnishes; for paper coatings and electrostatic sprays; food-contact coatings, paper/paperboard; compat. with short and med. oil alkyd resins, low and med. m.w. epoxy resins, epoxy ester resins, and with cellulosics

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.01; dens. 10.2 lb/gal (solids); visc. 6-13 poises; acid no. 2 max.; flash pt. (Seta) 22 C; 58 ± 2% NV by wt.; free formaldehyde (2.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

**Beetle® 1050** [Cytec Ind.]

*Chem. Descrip.:* Butylated urea-formaldehyde resin; n-butanol (50%), xylene (50%)

*Uses:* Crosslinking agent; general purpose resin used in conversion varnishes for furniture and prefinished paneling; food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.0; dens. 9.9 lb/gal (solids); visc. 13-27 poises; acid no. 4 max.; flash pt. (Seta) 20 C; 52 ± 2% NV by wt.; free formaldehyde (2.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

**Bekaflex 2000 V** [BK Giulini Chemie]

*Chem. Descrip.:* Aldehydic carbohydrates

*Uses:* Peroxide stabilizer in deinking and bleaching process

*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 1.07; pH 4.5 (20 C)

*Storage:* 4 yr. shelf life @ 2-40 C; protect from frost

**Bekaperg 67** [BK Giulini Chemie]

*Chem. Descrip.:* Phosphates and hydroxide

*Uses:* Defibering agent for wet-strengthened paper

*Use Level:* 0.5-1.5%

*Regulatory:* BgVV compliant

*Properties:* Wh. powd.; sol. 70 g/l in water; sp.gr. 1.0; pH 12.5 (1%; 20 C)

*Storage:* 1 yr. shelf life; keep dry

**Bekaperg 203** [BK Giulini Chemie]

*Chem. Descrip.:* Phosphoric acid and polyglycol ether

*Uses:* Defibering agent for wet-strengthened waste paper

*Use Level:* 0.5-1.5%

*Regulatory:* BgVV compliant

*Properties:* Ylsh. or colorless liq.; misc. with water; sp.gr. 1.6 (20 C); pH 1.3-2.1 (1%; 20 C)

*Storage:* 1 yr. shelf life @ 20 C

**Bekaperg 825** [BK Giulini Chemie]

*Chem. Descrip.:* Alkaline phosphates and surfactants

*Uses:* Defibering agent for wet-strengthened waste paper

*Use Level:* 0.5-1.5%

*Regulatory:* BgVV compliant

*Properties:* Ylsh. or colorless opaque liq.; misc. with water; sp.gr. 1.5 (20 C); pH 12 (1%; 20 C)

*Storage:* 1 yr. shelf life @ 20 C; protect from frost

**Bekaperg 830** [BK Giulini Chemie]*Chem. Descrip.:* Alkaline phosphates and surfactants*Uses:* Defibering agent for wet-strengthened waste paper*Use Level:* 0.1-1.5%*Properties:* Wh. powd.; sol. 80 g/l in water (20 C), 350 g/l in water (60 C);

sp.gr. 0.8 (20 C); pH 12 (1%; 20 C)

*Storage:* 1 yr. shelf life @ 20 C; keep dry**Bekaperg 834** [BK Giulini Chemie]*Chem. Descrip.:* Phosphonic acid and phosphate*Uses:* Liq. pitch control agent for pulp/paper prod.*Use Level:* 0.2-0.5% (paper machine); 0.1-0.3% (pulp production)*Properties:* Yel. brn. liq.; misc. with water (20 C); sp.gr. 1.35 (20 C); pH 8.8 (20 C)*Storage:* 1 yr. shelf life @ 20 C; protect from frost**Belclene® 283** [BioLab Water Addit.]*Chem. Descrip.:* Polymaleic acid terpolymer

UN No. 3265

*Uses:* Antiscalant and corrosion inhibitor in industrial water, cooling water, for calcium carbonate control in kraft pulp paper mills; component of paper/paperboard in contact with aq./fatty/dry foods; used in combination with phosphates; keeps surfaces cleaner than polyacrylate/phosphonate blends; can be used in wide range of formulations; superior performance at pH 14; zinc stabilization; stable to 200 C*Regulatory:* FDA 21CFR §176.170, 176.180*Properties:* Amber clear to sl. turbid liq.; sl. odor; misc. with water, ethylene glycol, methanol; readily neutralized with 50% caustic soda with evolution of heat; sp.gr. 1.165-1.195; visc. 12-30 cps; f.p. -6 to -4 C; b.p. 100-102 C; pH 2 max.; 45-50% act.*Toxicology:* LD50 (oral, rat) 3874 mg/kg; irritating to eyes; nonirritating to skin  
*Environmental:* LC50 (zebra fish, 96 h) > 1000 mg/l, (brown shrimp, 96 h) 2160 mg/l; biodeg. 29% in 35 days*Precaution:* Corrosive**Belsperse® 164** [BioLab Water Addit.]*Chem. Descrip.:* Phosphinocarboxylic polymer*Uses:* Sludge dispersant in boilers incl. food prod. boilers; dispersant in deinking (pulp/paper applics.); barium sulfate inhibitor for paper machines; calcium oxalate control; thermally and hydrolytically stable; exc. performance under pulp/paper conditions; outperforms polyacrylates in pulp/paper applics.*Regulatory:* FDA cleared*Properties:* Clear to sl. turbid liq.; sp.gr. 1.20-1.24; visc. 75-200 mm<sup>2</sup>/sec; pH 3.5-4.5; 37.5-42.5% solids**Benaqua® 1000** [Rheox]*Chem. Descrip.:* Polysaccharide deriv.*Uses:* Rheological additive for emulsion paints, waterborne adhesives and sealants, household cleaners and polishes, crop protection agents, paper coatings, construction prods., and waterborne inks; improves sag and slump resist.; flow/leveling agent; good water retention props., does not interfere with color development*Use Level:* 0.3-3.0%*Properties:* Pale yel. free-flowing powd.; 90% thru 120 mesh particle size; water-sol.; sp.gr. 1.51; visc. 20,000 cps (2% water gel)*Storage:* Store in dry place; absorbs moisture when stored under high humidity conditions**Benzoflex® 2-45** [Velsicol]*Chem. Descrip.:* Diethylene glycol dibenzoate

CAS 120-55-8; EINECS/ELINCS 204-407-6

*Uses:* Plasticizer producing adhesives with quick grab and set times; solvator and compatible with PVC; also in latex coatings; food pkg. adhesives, paper/paperboard; compatible with PVAc homopolymer and copolymer emulsions*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180*Properties:* APHA 100 max., mild ester odor; sol. in aliphatic and aromatic hydrocarbons; sol. < 0.01% in water; m.w. 314.3; sp.gr. 1.178; dens. 9.8 lb/gal; f.p. 16 and 28 C (two cryst. forms); b.p. 240 C; flash pt. (COC) 199 C; ref. index 1.5424; dielec. const. 7.16 (10,000 Hz); 98.0% min. assay*Toxicology:* LD50 (oral, rat) 2562 mg/kg, (dermal, rabbit) > 200 mg/l; not an eye or primary skin irritant; repeated exposure may cause defatting of skin and mild irritation to eyes and nose**Benzoflex® 9-88** [Velsicol]*Chem. Descrip.:* Dipropylene glycol dibenzoate

CAS 27138-31-4; EINECS/ELINCS 202-340-7

*Uses:* Plasticizer for elastomers, PVAc emulsion adhesives, plastisols, caulks, vinyl floor coverings, latex and lacquer coating applics.; food pkg. adhesives, paper/paperboard; high solvating; enhances film formation and surf. wetting in PVAc homopolymer emulsion adhesives*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180*Properties:* APHA 100 max. clear oily liq., mild ester odor; sol. in aliphatic and aromatic hydrocarbons; sol. < 0.01% in water; m.w. 342.3; sp.gr. 1.120; dens. 9.346 lb/gal; vapor pressure 2.29 x 10<sup>-7</sup> mm Hg; f.p. -40 C; b.p. 232 C; pour pt. -19 C; flash pt. (COC) 199 C; ref. index 1.5282; dielec. const. 7.5 (1000 Hz); 98% min. assay*Toxicology:* LD50 (oral, rat) 4673 mg/kg, (dermal, rabbit) > 2000 mg/kg; not an eye or primary skin irritant; repeated exposure may cause defatting of skin and mild irritation to eyes and nose**Benzoflex® 50** [Velsicol]*Chem. Descrip.:* Diethylene glycol dibenzoate, dipropylene glycol dibenzoate (1:1)*Uses:* Plasticizer used in PVAc adhesives, acrylic latex caulk formulations, latex coatings, plastisols, and dry-blended vinyl formulations; food pkg. adhesives, paper/paperboard; monomeric*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180*Properties:* APHA 100 max. liq., mild ester odor; sol. in aliphatic and aromatic hydrocarbons; sol. < 0.01% in water; m.w. 328.3; sp.gr. 1.154; dens. 9.6 lb/gal; vapor pressure 2.29 x 10<sup>-7</sup> mm Hg; f.p. < 0 C; b.p. 240 C (5 mm); hyd. no. 15; pour pt. -21 C; flash pt. (COC) 199 C min.; ref. index 1.535; 98.0% min. assay*Toxicology:* LD50 (oral, rat) 2500 mg/kg, (dermal, rabbit) > 2500 mg/l, (inh., rabbit, 4 h) > 200 mg/l; not an eye or primary skin irritant; repeated exposure may cause defatting of skin, mild irritation to eyes and nose*Precaution:* Avoid high temps., open flame; incompat. with strong oxidizing agents; on combustion, may decomp. to produce CO*Storage:* Store in cool, ventilated area away from sources of ignition**Berbond® 8032** [Bercen]*Uses:* Water repellent for paperboard; compat. with fluorochemicals and other size press and calender stack chems.; gives high water and oil resist.**Berbond® 8200** [Bercen]*Chem. Descrip.:* Strippable latex*Uses:* Saturant, str. agent for papermaking; features wet and dry tens. str., edge tear, burst str., internal delamination resist., and strippability; easily applied on any conventional size press; mech. stability; antisticking props.**Berbond® 8980** [Bercen]*Chem. Descrip.:* Thermoplastic*Uses:* Binder, gloss aid for pigmented paper coatings; provides exc. sheet gloss and print gloss with minimal machine finishing; outstanding wet rub resist.; does not require use of a coating insolubilizer**Berocell® 25** [Eka Chems.]*Chem. Descrip.:* Surfactant*Uses:* Surfactant for pitch control in paper processing*Properties:* Nonionic**Berocel® 283** [Eka Chems.]*Uses:* Dispersant for deinking processes; used by itself or blended with fatty acids**Berocell® 286** [Eka Chems.]*Uses:* Dispersant for deinking processes; environmentally friendly components*Properties:* Nonionic**Berocell 451** [Eka Chems.]*Uses:* Deresinator for papermaking; phosphate-free**Berocell® 509** [Eka Chems.]*Chem. Descrip.:* Quaternary ammonium compd. formulated surfactant*Uses:* Surfactant, debonder in fluff pulp mfg.*Properties:* Cationic**Berocell® 509HA** [Eka Chems.]*Chem. Descrip.:* Quaternary ammonium compd. surfactant*Uses:* Surfactant, debonder in fluff pulp mfg.*Properties:* Cationic**Berocell® 535** [Eka Chems.]*Chem. Descrip.:* Surfactant*Uses:* Surfactant for pitch control in paper processing; helps maintain throughput during ultrafiltration processes*Properties:* Nonionic**Berocell® 537** [Eka Chems.]*Chem. Descrip.:* Surfactant



- Uses:* Surfactant for pitch control in paper processing; helps maintain throughput during ultrafiltration processes  
*Properties:* Nonionic
- Berocell® 564** [Eka Chems.]  
*Chem. Descr.:* Surfactant  
*Uses:* Paper tissue softener; surfactant used to inc. wettability and counteract self-sizing during aging of cellulose prods. such as soft paper and cellulose fluff  
*Properties:* Cationic
- Berocell® 569** [Eka Chems.]  
*Chem. Descr.:* Surfactant formulation  
*Uses:* Used for quick interruption of debonding effect of cationic debonders in production of fluff pulp
- Berocell® 582** [Eka Chems.]  
*Chem. Descr.:* Surfactant formulation  
*Uses:* Debonder in fluff pulp mfg.  
*Properties:* Cationic
- Berocell® 584** [Eka Chems.]  
*Chem. Descr.:* Quaternary ammonium surfactant  
*Uses:* Surfactant, debonder in fluff pulp mfg.  
*Properties:* Cationic
- Berocell® 587K** [Eka Chems.]  
*Chem. Descr.:* Quaternary ammonium surfactant  
*Uses:* Surfactant, debonder in fluff pulp mfg.  
*Properties:* Cationic
- Berocell® 596** [Eka Chems.]  
*Chem. Descr.:* Quaternary ammonium compd.-based  
*Uses:* Softener enhancing bulk softness and surf. softness of tissue paper without affecting sheet str.
- Berocell® 614** [Eka Chems.]  
*Chem. Descr.:* Polyamine  
*Uses:* Debonder in fluff pulp mfg.  
*Properties:* Liq.
- Berocell® 1025** [Eka Chems.]  
*Chem. Descr.:* Surfactant  
*Uses:* Surfactant for pitch control in paper processing  
*Properties:* Nonionic
- Berocell® 1431** [Eka Chems.]  
*Chem. Descr.:* Polymer  
*Uses:* Improves adhesion of tissue paper to Yankee dryer  
*Properties:* Cationic
- Berocell® 8000 Series** [Eka Chems.]  
*Uses:* Pulper additives for flotation of wood-containing and wood-free fibers giving high yield and improved cleanliness and deinked stock; effective in both high and low hardness systems; more tolerant to higher levels of flexographic newsprint than conventional fatty acids and collector soaps
- Berocell Displector 204** [Eka Chems.]  
*Chem. Descr.:* Nonionic surfactant mixt.  
*Uses:* Additive used in flotation deinking of wood-free waste paper; particularly effective for combination deinking (wash/flotation); works well when hardness is low  
*Properties:* Nonionic
- Berocell Displector 210, 213, 5025** [Eka Chems.]  
*Uses:* Deinking agent esp. effective for de-specking office waste
- Berocell Displector 5024** [Eka Chems.]  
*Chem. Descr.:* Nonionic surfactant mixt.  
*Uses:* Additive used in flotation deinking of wood-free waste paper; particularly effective for combination deinking (wash/flotation); works well when hardness is low; produces less foam than Berocell 204  
*Properties:* Nonionic
- Bersize® 6103** [Bercen]  
*Uses:* Sizing agent for paper and paperboard; provides good size values so that starch does not stick or pick
- Bersize® 6155** [Bercen]  
*Uses:* Sizing agent, water repellent for paper and paperboard, nonwoven fabrics, and various surgical grades; develops high spray ratings and good hydrostatic head  
*Properties:* Anionic
- Bersize® 6200** [Bercen]  
*Uses:* Sizing agent, lubricant for paper and paperboard; provides good sizing values; results in lower coeff. of friction
- Bersize® 6205** [Bercen]  
*Chem. Descr.:* Monomeric  
*Uses:* Sizing agent for paper and paperboard; compat. with most papermaking additives  
*Properties:* Nonionic
- Bersize® 6385** [Bercen]  
*Uses:* Surf. sizing agent for paper and paperboard incl. fine paper; for use alone or in combination with other surf. treatments to give good printing surf. to fine papers; higher alkalinity; improved compat.  
*Properties:* Nonionic
- Bersize® 6400** [Bercen]  
*Uses:* Sizing agent, water repellent, release agent for paper and paperboard; effective where temp. stability and performance are required
- Bersize® 6409** [Bercen]  
*Chem. Descr.:* Complex, fiber-reactive, alkali-substituted syn. nitrogen deriv.  
*Uses:* Internal sizing agent for paper and paperboard; used with fluorochemicals to obtain grease/oil/water-resist. papers; effective over wide pH range; replacement for rosin alum or rosin alum wax combinations
- Bersize® 6482** [Bercen]  
*Uses:* Internal sizing agent for paper and paperboard; provides high level of water and lactic acid resist.; improves sheet printing props.
- Bersize® 6500** [Bercen]  
*Chem. Descr.:* Polymeric  
*Uses:* Surf. sizing agent for paper and paperboard; develops high contact angles; when used in reduced amts., provides good printing props.
- Bersize® 6900** [Bercen]  
*Chem. Descr.:* Alkenyl succinic anhydride  
CAS 70983-55-0  
*Uses:* Sizing agent for paper and paperboard, alkaline or neutral papermaking; effective over wide pH range
- Bersize® 6918** [Bercen]  
*Chem. Descr.:* Alkenyl succinic anhydride  
CAS 70983-55-0  
*Uses:* Sizing agent for paper and paperboard, alkaline or neutral papermaking; provides exc. sizing value to fibers
- Bersoft® 4600** [Bercen]  
*Uses:* Plasticizer for papermaking; compat. with most papermaking additives; plasticizing effect on paper is immediately noticeable off the machine and is enhanced with supercalendering
- Bevaloid 581B** [Rhodia HPCII]  
*Chem. Descr.:* Proprietary  
*Uses:* Defoamer for suspension PVC; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard, paper coatings  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210  
*Properties:* Liq.; 100% solids
- Bevaloid 2512** [Rhodia HPCII]  
*Chem. Descr.:* Proprietary  
*Uses:* Defoamer for latex, emulsion PVC; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard, paper coatings; exc. dispersibility  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210; BGA XIV compliance  
*Properties:* Liq.; 100% solids
- Bevaloid 2514** [Rhodia HPCII]  
*Chem. Descr.:* Proprietary  
*Uses:* Defoamer for latex, emulsion and suspension PVC; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard, paper coatings; low fogging  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; BGA XIV compliance  
*Properties:* Liq.; 100% solids
- Bevaloid 6624** [Rhodia HPCII]  
*Chem. Descr.:* Proprietary  
*Uses:* Defoamer for latex, emulsion and suspension PVC; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard, paper coatings; effective in strong stripping conditions; no fish eyes; silicone free  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210; BGA XIV compliance  
*Properties:* Liq.; water-disp.; 100% solids
- Bevaloid 6683** [Rhodia HPCII]  
*Chem. Descr.:* Proprietary  
*Uses:* Defoamer for suspension PVC; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard, paper coatings  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

- Properties:* Liq.; 25% solids in water
- BHMT Amine** [DuPont Nylon]  
*Chem. Descrip.:* 25-75% Bis-hexamethylene triamine with 5-70% oligo-  
 meric amines  
 CAS 68411-90-5  
*Uses:* Asphalt antistripping agent; cationic emulsifier; ore flotation collector;  
 chelating agent; corrosion/scale inhibitor; curing agent for epoxy resins and  
 urethanes; flocculant; wet str. paper resins  
*Properties:* Liq.; sp.gr. 0.93-0.97; f.p. 33 C; b.p. 249 C (100 mm); amine no.  
 525-700; flash pt. (OC) 121 C  
*Precaution:* Corrosive liq.  
*Hazardous Decomp. Prods.:* Partial decomp. @ 200 C evolves ammonia
- BHMT-HP** [DuPont Nylon]  
*Chem. Descrip.:* Bis-hexamethylene triamine, high purity  
 CAS 143-23-7  
 UN No. 2922  
*Uses:* Chain modifier/branching agent in polyamides (adhesives, films, inks,  
 plastics); flexibilizer in adhesives, wet str. paper applics.; in cationic emul-  
 sifiers; in cationic collectors for ore flocculation; chelating agents; scale and  
 corrosion inhibitor; epoxy curing agent; flocculating agent; PU extender or  
 catalyst  
*Properties:* Solid; sol. 33% in water; m.w. 215; sp.gr. 0.88; m.p. 32-34 C;  
 b.p. 164 C (4 mm); flash pt. (OC) 121 C; pH 12.6 (5% aq.); 98% act.  
*Toxicology:* Toxic; TSCA listed  
*Precaution:* Corrosive liq.
- Biit-Plates® 145** [R.T. Vanderbilt]  
*Chem. Descrip.:* Kaolin  
 CAS 1332-58-7; EINECS/ELINCS 296-473-8  
*Uses:* Pitch control agent and filler for unbleached kraft liner board; pitch  
 control agent for unbleached pulps in papermaking; lower brightness  
*Properties:* Cream to buff powd.; fineness 0.1% max. on 325 mesh; bright-  
 ness 66-70
- Biit-Plates® 156** [R.T. Vanderbilt]  
*Chem. Descrip.:* Kaolin clay  
*Chem. Analysis:* SiO<sub>2</sub> (44.4%), Al<sub>2</sub>O<sub>3</sub> (38.9%), TiO<sub>2</sub> (1.9%)  
 CAS 1332-58-7; EINECS/ELINCS 296-473-8  
*Uses:* Reinforcing filler and extender for elastomers and latexes; pigment for  
 coatings, primers, alkyd flats, latex paints, crack fillers, and caulking compds.;  
 TiO<sub>2</sub> extender in coatings; pitch control agent for bleached chem. pulps or  
 groundwood pulps in papermaking; grit-free; provides max. reinforcement;  
 rec. where high brightness is not required; no ozone-depleting substances  
*Properties:* Wh. to cream fine powd.; 0.2 µm median particle size; 99.95%  
 thru 325 mesh; fineness (Hegman) 4.0; dens. 2.62 mg/m<sup>3</sup>; bulk dens. 43 lb/  
 ft<sup>3</sup> (compact); oil absorp. 41; GE brightness 76  
*Toxicology:* TSCA listed
- Bindzil® 15/500** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 6 nm particle size; dens. 1.1 g/cm<sup>3</sup>; visc. < 5 mPa·s; surf. area  
 500 m<sup>2</sup>/g; pH 10; 15% SiO<sub>2</sub>
- Bindzil® 30/80** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 40 nm particle size; dens. 1.2 g/cm<sup>3</sup>; visc. < 6 mPa·s; surf. area  
 80 m<sup>2</sup>/g; pH 9.6; 30% SiO<sub>2</sub>
- Bindzil® 30/220** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 15 nm particle size; dens. 1.2 g/cm<sup>3</sup>; visc. < 7 mPa·s; surf. area  
 220 m<sup>2</sup>/g; pH 9.7; 30% SiO<sub>2</sub>
- Bindzil® 30/360** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 9 nm particle size; dens. 1.2 g/cm<sup>3</sup>; visc. < 8 mPa·s; surf. area  
 360 m<sup>2</sup>/g; pH 10; 30% SiO<sub>2</sub>
- Bindzil® 30NH<sub>2</sub>/220** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 15 nm particle size; dens. 1.2 g/cm<sup>3</sup>; visc. < 10 mPa·s; surf. area  
 220 m<sup>2</sup>/g; pH 9; 30% SiO<sub>2</sub>
- Bindzil® 40/130** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 25 nm particle size; dens. 1.3 g/cm<sup>3</sup>; visc. < 10 mPa·s; surf. area  
 130 m<sup>2</sup>/g; pH 9; 40% SiO<sub>2</sub>
- Bindzil® 40/220** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 15 nm particle size; dens. 1.3 g/cm<sup>3</sup>; visc. < 25 mPa·s; surf. area  
 220 m<sup>2</sup>/g; pH 9.7; 40% SiO<sub>2</sub>
- Bindzil® 50/80** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers; frictionizer for textile or plastic films;  
 high-temp. binder for inorg. fibers, refractories, ceramics, or catalysts; abra-  
 sive for polishing silicon wafers  
*Properties:* Wh. milky liq.; odorless; tasteless; 40 nm particle size; dens. 1.4  
 g/cm<sup>3</sup>; visc. < 15 mPa·s; surf. area 80 m<sup>2</sup>/g; pH 9.3; 50% SiO<sub>2</sub>
- Bindzil® 305** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 15 nm particle size; dens. 1.2 g/cm<sup>3</sup>; visc. < 10 mPa·s; surf. area  
 220 m<sup>2</sup>/g; pH 9.5; 30% SiO<sub>2</sub>
- Bindzil® CAT80** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 40 nm particle size; dens. 1.32 g/cm<sup>3</sup>; visc. < 15 mPa·s; pH 4;  
 40% SiO<sub>2</sub>
- Bindzil® F45** [Eka Chems.]  
*Chem. Descrip.:* Colloidal silica disp.  
 EINECS/ELINCS 231-545-4  
*Uses:* Surf. sizing agent, antiskid agent used to frictionize linerboard, esp.  
 linerboard made from recycled fibers  
*Properties:* 40 nm particle size; dens. 1.36 g/cm<sup>3</sup>; visc. < 15 mPa·s; surf.  
 area 80 m<sup>2</sup>/g; pH 9.5; 45% SiO<sub>2</sub>
- Biobrom C-103L** [Dead Sea Bromine]  
*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide  
 CAS 10222-01-2  
*Uses:* Biocide for industrial water systems, incl. cooling towers, pulp/paper  
 mill effluents, oil-recovery systems, metal-cutting coolants, air conditioning  
 systems  
*Properties:* Clear to amber liq., mild antiseptic odor; misc. with water; sp.gr.  
 1.18-1.22 (20/4 C); f.p. -20 to -25 C; flash pt. 159-163 C; 20% min. act.
- Biobrom C-103 Tech.** [Dead Sea Bromine]  
*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide  
 CAS 10222-01-2  
*Uses:* Biocide for industrial water systems, incl. cooling towers, pulp/paper  
 mill effluents, oil-recovery systems, metal-cutting coolants, air conditioning  
 systems  
*Properties:* Wh. to off-wh. powd. or gran., mild antiseptic odor; m.w. 241.84;  
 sol. (g/100 g): 120 g DMF, 35 g acetone, 25 g ethanol, 1.5 g water; sp.gr.  
 2.375; m.p. 124-126 C; 98% min. act., 66% Br
- Biochek® 410** [Nalco]  
*Chem. Descrip.:* 19% 1,2-Dibromo-2,4-dicyanobutane, 6% 1,2-benzisothia-  
 zolin-3-one

*Uses:* Industrial in-can preservative which inhibits growth of bacteria, fungi, and yeasts in aq. systems incl. paints, adhesives, latex emulsions, metalworking fluids, pigment slurries, joint cements, and household prods.; food pkg. adhesives; slimicide in food-contact paper/paperboard; protects prods. during storage

*Use Level:* 0.05-0.2% (pigment slurries), 0.05-0.4% (metalworking fluids, household prods.), aq. paints, 0.05-0.8% (adhesives, latex emulsions), 0.20-0.8% (joint cements)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA reg. no. 10445-90

*Properties:* Tan to lt. brn. aq. disp.; sp.gr. 1.1 (20 C); visc. 1800-2400 cps; f.p. 0 C

*Toxicology:* Hazardous to humans and domestic animals; corrosive to eyes; causes eye damage and skin irritation; harmful if swallowed

*Storage:* Store @ 0-42 C; keep from freezing; store away from heat; keep container closed when not in use

#### Biochek® 430 [Nalco]

*Chem. Descrip.:* Disp. of 1,2-dibromo-2,4-dicyanobutane, 5-chloro-2-methyl-4-isothiazolin-3-one, and 2-methyl-4-isothiazolin-3-one

*Uses:* Preservative which inhibits growth of microorganisms in latex emulsions, metalworking fluids, adhesives, waxes, polishes, inks, cooling water, paper mfg., paints, coatings, and pigment slurries; food pkg. adhesives; slimicide in food-contact paper/paperboard

*Use Level:* 0.04-0.9% (pigment slurries), 0.05-0.4% (metalworking fluids, waxes, polishes, inks), 0.05-0.8% (adhesives, latex emulsions, cooling water, pulp/paper mills), 0.08-0.3% (aq. paints and coatings)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA reg. no. 10445-89

*Properties:* Wh. to off-wh. liq.; sp.gr. 1.1 (30 C); visc. 1800-2400 cps; f.p. 0 C; 23.8% min. act.

*Toxicology:* Corrosive; causes eye damage and skin irritation; harmful if swallowed

*Storage:* Store @ 0-42 C; keep from freezing; store away from heat; keep container closed when not in use

#### bioMeT TBTO [Atofina; Atofina SA]

*Chem. Descrip.:* Bis (tributyltin) oxide

CAS 56-35-9; EINECS/ELINCS 200-268-0

*Uses:* Antimicrobial for paper mill slime control, industrial cooling water, sec. oil recovery, hospital use, textiles, plastics, urethane foam, paper preservation; antifoulant for shipbottom paints; wood preservative

*Properties:* Straw-colored clear liq.; sol. in org. solvs.; relatively insol. in water; m.w. 596; sp.gr. 1.17; dens. 9.7 lb/gal; f.p. < -45 C; b.p. 180 C (2 mm); flash pt. (TCC) > 100 C; 96% assay, 38.8% tin

*Toxicology:* Extremely irritating to eyes and skin; can cause eye damage; prolonged/repeated skin contact can cause chemical burns

#### BIO-SOFT® S-120 [Stepan]

*Chem. Descrip.:* Dodecyl benzene sulfonic acid

CAS 27176-87-0; EINECS/ELINCS 248-289-4

*Uses:* Surfactant intermediate; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210, 178.3400; USDA authorized

*Properties:* Dk. visc. liq.; sp.gr. 1.06; dens. 8.81 lb/gal; visc. 960 cps; f.p. -18 C; pour pt. -15 C; flash pt. (PMCC) >94 C; pH < 1; 96.5% act.; anionic

*Toxicology:* Handle with extreme care; avoid contact with eyes and skin

*Environmental:* Biodeg.

*Storage:* Store in closed containers in cool, dry place

#### Bisomer EGDMA [Laporte Perf. Chems.]

*Chem. Descrip.:* Ethyleneglycol dimethacrylate with MEHQ (300-500 ppm)

CAS 97-90-5; EINECS/ELINCS 202-617-2

*Uses:* Crosslinking monomer for surf. coatings, adhesives, sealants, leather treatment, paper processing, and in optical lenses

*Properties:* Pt-Co 100 max. clear color; sol. 0.18% in water; m.w. 198; visc. 4 mPa·s; flash pt. (PMCC) 98 C; 0.1% max. water

*Toxicology:* Irritant; TSCA listed

#### Bisomer PEG 200DMA [Laporte Perf. Chems.]

*Chem. Descrip.:* PEG 200 dimethacrylate with MEHQ (300-500 ppm)

CAS 25852-47-5

*Uses:* Crosslinking agent for anaerobic adhesives, castings, plastisols, coatings, and fibers; in dental industry for preparation of dental composites containing ceramic filler; modifier for radiation-curable coatings for imaging processes, textile treatments, paper processing, anaerobic adhesives; resin modifier

*Properties:* Pt-Co 100 max. color; m.w. 330; flash pt. (PMCC) > 160 C; 0.2% max. water

*Toxicology:* TSCA listed

*Storage:* Store in cool place @ < 20 C protected from direct sunlight

#### Black Pearls® 430 [Cabot/Special Blacks]

*Chem. Descrip.:* Carbon black

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Colorant for coatings, gravure inks, carbon paper inks, etc.; blue toned black with good dispersion

*Properties:* Pellets; 27 nm particle size; dens. 29 lb/ft<sup>3</sup>; surf. area 80 m<sup>2</sup>/g; pH 6-8; 1.0% volatile

#### Black Pearls® 450 [Cabot/Special Blacks]

*Chem. Descrip.:* Carbon black

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Colorant for inks, coatings, plastics, paper; provides sl. less jetness and str. but easier dispersion than Regal 330

*Properties:* Pellets; 27 nm particle size; dens. 29 lb/ft<sup>3</sup>; surf. area 80 m<sup>2</sup>/g; pH 6-8; 1.0% volatile

#### Black Pearls® L [Cabot/Special Blacks]

*Chem. Descrip.:* Carbon black

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Colorant, UV stabilizer for elec. resistivity in plastics, optimum flow in offset inks, carbon paper, and ribbons, in dry toners, coatings; very good disp. and stability

*Properties:* Pellets; 24 nm particle size; dens. 32 lb/ft<sup>3</sup>; surf. area 138 m<sup>2</sup>/g; pH 6-8; 5.0% volatile

#### Blankit® [BASF AG]

*Chem. Descrip.:* Sodium dithionite

CAS 7775-14-6; EINECS/ELINCS 231-890-0

*Uses:* Bleaching agent for textile, leather, fur, pulp/paper industries; stabilized

#### Blankophor® ASP [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., and pigment coating

#### Blankophor® AWP [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., and pigment coating

#### Blankophor® P01 [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., pigment coating, food pkg. papers

*Regulatory:* FDA approved

#### Blankophor® P150 Liq. [Bayer]

*Uses:* Fluorescent whitening agent for paper, food-contact paper; gives bluish-wh. shade; for use internally and at size press; high acid stability; compat. with starch; 50% stronger than Blankophor P Liq.

*Regulatory:* FDA approved

*Properties:* Anionic

#### Blankophor® P167 [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., pigment coating, food pkg. papers

*Regulatory:* FDA approved

#### Blankophor® P Liq. [Bayer]

*Uses:* Fluorescent whitening agent for paper, food-contact paper; gives bluish-wh. shade; for use internally and at size press; high acid stability; compat. with starch

*Regulatory:* FDA approved

*Properties:* Anionic

#### Blankophor® PSK [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., and pigment coating

#### Blankophor® SOL [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., and pigment coating

#### Blankophor® TX [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., and pigment coating

#### Blankophor® UW [Bayer]

*Uses:* Fluorescent whitening agent for paper, stock addition, surf. applic., and pigment coating

#### Blemmer BMA [NOF]

*Chem. Descrip.:* Butyl methacrylate

CAS 97-88-1; EINECS/ELINCS 202-615-1

*Uses:* Materials for paint; syn. resin and latex; ink; adhesive; dispersant;

additive for lubricating oil; modifier for fibers; coating agent for paper

**Blemmer CMA** [NOF]

*Chem. Descrip.:* Cetyl methacrylate

CAS 2495-27-4

*Uses:* Additive for lubricating oils, paints, adhesives; modifier for fibers; coating agent for paper

**Blemmer E** [NOF]

*Chem. Descrip.:* 2-Hydroxyethyl methacrylate

CAS 868-77-9; EINECS/ELINCS 212-782-2

*Uses:* Heat curing paint; modifier for polymer, fiber paper, adhesive; photosensitive resin

**Blemmer EHMA** [NOF]

*Chem. Descrip.:* 2-Ethylhexyl methacrylate

CAS 688-84-6; EINECS/ELINCS 211-708-6

*Uses:* For paints, inks, adhesives; dispersant; additive for lubricating oil; modifier for fibers; coating agent for paper

**Blemmer GLM** [NOF]

*Chem. Descrip.:* Glycerol mono methacrylate

CAS 5919-74-4

*Uses:* Acrylic resin for paint, adhesive, and soft contact lens; heat cure paint, adhesive; photosensitive resin; medical polymer; modifier for fiber and paper

*Properties:* Water sol.

**Blemmer IBMA** [NOF]

*Chem. Descrip.:* Isobutyl methacrylate

CAS 97-86-9; EINECS/ELINCS 202-613-0

*Uses:* For paints, inks, adhesives; dispersant; additive for lubricating oil; modifier for fibers; coating agent for paper

**Blemmer IDMA** [NOF]

*Chem. Descrip.:* Isodecyl methacrylate

CAS 29964-84-9; EINECS/ELINCS 249-978-2

*Uses:* Additive for lubricating oil, paint, adhesive; modifier for fibers; coating agent for paper; internal plasticizer; modifier for deodorant

**Blemmer P** [NOF]

*Chem. Descrip.:* 2-Hydroxypropyl methacrylate

CAS 923-26-2; EINECS/ELINCS 213-090-3

*Uses:* Modifier for paint, polymer, fiber paper, and adhesive; syn. resin and latex; heat curing paint

**Blemmer PMA** [NOF]

*Chem. Descrip.:* Pentadecyl methacrylate

CAS 6140-74-5

*Uses:* Additive for lubricating oil, paint, adhesive; modifier for fibers; coating agent for paper

**Blemmer QA** [NOF]

*Chem. Descrip.:* 2-Hydroxy 3-methacryl oxypropyl trimethyl ammonium chloride

*Uses:* Antistat; electroconductive paper coatings; polyelectrolyte dispersant; flocculant acid dye receptive fibers; electrodeposition acrylic coatings; water-sol. polymers

*Properties:* Cationic

**Blemmer SLMA** [NOF]

*Chem. Descrip.:* Lauryl methacrylate (syn.)

CAS 142-90-5; EINECS/ELINCS 205-570-6

*Uses:* Additive for lubricating oil, paint, adhesive; modifier for fibers; coating agent for paper; internal plasticizer; modifier for deodorant

**Blemmer SMA** [NOF]

*Chem. Descrip.:* Stearyl methacrylate

CAS 32360-05-7

*Uses:* Additive for paint; adhesive, lubricating oil; syn. resin and latex; modifier for fibers; coating agent for paper

**Blemmer VMA** [NOF]

*Chem. Descrip.:* Behenyl methacrylate

*Uses:* For paints, inks, adhesives; dispersant; additive for lubricating oil; modifier for fibers; coating agent for paper

**BNX® 1010** [Mayzo]

*Chem. Descrip.:* Tetrakis [methylene-3(3',5'-di-*t*-butyl-4-hydroxyphenyl) propionate] methane

CAS 6683-19-8; EINECS/ELINCS 229-722-6

*Uses:* Antioxidant for PE, PS, PP, polyacetal, AS resin, methacrylic resin, PC, polyester, polymethylpentene, butadiene resin, polybutene-1, EPM, EPD, PVC; stabilizer for org. and polymeric materials; antioxidant/stabilizer for petrol. prods., syn. rubbers, latex, varnish, adhesives, wire and cable

insulation, syn. diester fluids, oils, fats, waxes; food-pkg. adhesives, coatings, paper, polymers, rubber, wood preservatives; nonstaining, nondiscoloring; good extract resist.

*Use Level:* 0.02-0.5%

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.210, 177.1210, 177.1310, 177.1330, 177.1350, 177.1420, 177.1520, 177.1570, 177.1630, 177.1640, 177.2470, 177.2480, 177.2600, 178.2010, 178.3800, 178.3850, 179.45

*Properties:* Wh. cryst. powd., odorless, tasteless; sol. 71% in chloroform, 56% in benzene, 47% acetone, 46% ethyl acetate, 1% methanol, 0.01% water; m.w. 1177.7; sp.gr. 1.15; vapor pressure  $10^{12}$  mm Hg (20 C); m.p. 110-125 C; dec. pt. > 220 C; flash pt. (Marcusson) 567 F

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 3160 mg/kg; low oral and dermal toxicity; nonsensitizing; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents; thermal decomp. may produce CO, CO<sub>2</sub>

*Storage:* 1 yr storage in sealed containers kept in cool, dry areas

**Borax** [U.S. Borax]

*Chem. Descrip.:* Sodium tetraborate decahydrate

CAS 1303-96-4; EINECS/ELINCS 215-540-4

*Uses:* Dispersant, wetting agent for NR, SR latexes; mold lubricant for dry rubber molding; pH buffer, gentle abrasive, oil emulsifier in soaps/detergents; enzyme stabilizer; flame retardant for cellulose; food pkg. adhesives/paper; crosslinking agent to emulsify waxes; base for cosmetic/pharmaceutical preps.; metallurgical flux; corrosion inhibitor; peptizing agent in adhesive mfg.; stabilizer and bonding agent in refractories; buffer/catalyst for org. dyes; herbicide carrier

*Regulatory:* FDA 21CFR §175.105, 176.180, 181.30; SARA nonreportable, DOT nonregulated

*Properties:* Wh. cryst. powd., odorless; sol. in water, glycerin; m.w. 381.37; sp.gr. 1.71; vapor pressure negligible; m.p. 62 C; pH 6.1 (0.1%); nonflamm.; > 99% act.

*Toxicology:* OSHA PEL 10 mg/m<sup>3</sup> total dust; LD50 (oral, rat) 4500-5000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; low acute oral and dermal toxicity; inh. at levels > 10 mg/m<sup>3</sup> may cause mild irritation to nose and throat; ing. of lg. amts. may cause GI symptoms; TSCA listed

*Environmental:* EC50 (daphnia magna, 24 h) 242 mg; lg. amts. can be harmful to plants and other species

*Precaution:* Reacts as weak acid which may cause corrosion of base metals; incompat. with strong reducing agents which generates hydrogen gas

NFPA: Health 0; Flammability 0; Reactivity 0

*Storage:* Store indoors in dry area; avoid wide fluctuations in temp. and humidity

**Borino®** [Finnish Chems. Oy]

*Chem. Descrip.:* Sodium borohydride sol'n.

CAS 16940-66-2; EINECS/ELINCS 241-004-4

*Uses:* Generates sodium dithionite for bleaching of mech. pulp; papermaker's grade

**Bovlon** [Nippon Gohsei; British Traders & Shippers]

*Chem. Descrip.:* Polyvinyl alcohol film

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Film for paper and pkg.; biaxially oriented

**BPO** [Sartomer]

*Chem. Descrip.:* Benzophenone

CAS 119-61-9; EINECS/ELINCS 204-337-6

*Uses:* Free radical initiator for UV curing used in adhesives, chem. intermediates, coatings (metal, paper, wood), electronics (conformal, encapsulants, photoresists, solder masks), inks (flexo and gravure, litho, offset, screen); intermediate for mfg. of antihistamines, hypnotics, insecticides; good sol.

*Properties:* Wh. to off-wh. crystals or flakes; sol. in chlroform, ethyl alcohol, ether; insol. in water; m.w. 182.21; m.p. 48-49 C; 99% min. purity

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**BPS-24** [Nicca Chem. Co Ltd]

*Chem. Descrip.:* 2,4'-Dihydroxy diphenyl sulfone

*Uses:* Developer for heat sensitive papers; exc. sensitivity; good preservability, strong resist. to plasticizers and solvs.

*Properties:* Wh. powd.; m.p. > 180 C

**BPS-P** [Nicca Chem. Co Ltd]

*Chem. Descrip.:* 4,4'-Dihydroxy diphenyl sulfone

*Uses:* Developer for heat sensitive papers; good preservability, strong resist.



to plasticizers

*Properties:* Wh. powd.; m.p. > 245 C

**BRD 2340** [Buckman Labs]

*Chem. Descrip.:* Surfactant-based

*Uses:* Deinking agent for repulping process, esp. for removing laser and xerographic inks during flotation; enhances removal of printing inks associated with wood-free sec. fiber grades; may improve final brightness

**Briquest® 543-33S** [Albright & Wilson Am.]

*Chem. Descrip.:* Sodium diethylenetriamine-penta (methylene phosphonate) aq. sol'n.

CAS 22042-96-2

*Uses:* Sequestrant for cooling water treatment, textile bleach stabilization, oil fields, pulp bleaching; desalination antiscalant

*Properties:* M.w. 727; sp.gr. 1.39 (20/4 C); visc. 150 cP (20 C); pH 7.0 (1%); 33% act.

**Briquest® 543-45AS** [Albright & Wilson Am.; Albright & Wilson UK]

*Chem. Descrip.:* Diethylene triamine pentamethylene phosphonic acid aq. sol'n.

CAS 15827-60-8

*Uses:* Sequestrant, scale inhibitor, corrosion inhibitor, detergent for water treatment, detergents, pulp/paper processing, textile processing, bleach stabilization, sec. oil recovery and desalination; crystal growth modifier; hydrolytic stability

*Properties:* Amber clear liq.; faint amine odor; m.w. 573; sp.gr. 1.42 (20/4 C); visc. 500 cps (2 C); pH 2.4 (1%); 45% act.

*Environmental:* Biodeg.

*Storage:* Store in tightly closed containers in cool, dry, well-ventilated area away from oxidizers and strong alkalis

**Briquest® ADPA-60AW** [Albright & Wilson Am.; Albright & Wilson UK]

*Chem. Descrip.:* Acetodiphosphonic acid aq. sol'n.

CAS 2809-21-4; EINECS/ELINCS 220-552-8

*Uses:* Sequestrant used in the water treatment industry for scale and corrosion inhibition, detergent action, and metal ion control; crystal growth modifier; stain removal and control in swimming pools; cooling and boiler waters; oil fields; peroxide stabilization; photographic chems., desalination antiscalant, I&I compding.; cosmetics (metal ion control in bar soaps); pulp/paper; metal plating and finishing; textiles; radioactive pharmaceuticals

*Regulatory:* Avail. kosher certified

*Properties:* Colorless clear liq.; sl. odor; m.w. 206; sp.gr. 1.46 (20 C); visc. 100 cps (20 C); pH < 1.8 (1%); 60% act.

*Environmental:* Biodeg.

*Precaution:* Corrosive

*Storage:* Store in tightly closed containers in cool, dry, well-ventilated area away from oxidizers and strong alkalis

**Britol® 6NF** [Crompton/Witco]

*Chem. Descrip.:* White mineral oil NF

CAS 8020-83-5; EINECS/ELINCS 232-384-2

*Uses:* Binder, carrier, conditioner, defoamer, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent, release agent, and/or softener in cosmetics, pharmaceuticals, food, plastics, agric., and paper making applics.

*Properties:* Sp.gr. 0.830-0.858; visc. 8.5-10.8 cst (40 C); pour pt. -24 C max.; flash pt. 166 C min.

**Britol® 7NF** [Crompton/Witco]

*Chem. Descrip.:* White mineral oil NF

CAS 8020-83-5; EINECS/ELINCS 232-384-2

*Uses:* Binder, carrier, conditioner, defoamer, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent, release agent, and/or softener in cosmetics, pharmaceuticals, food, plastics, agric., and paper making applics.

*Properties:* Sp.gr. 0.840-0.858; visc. 10.8-13.6 cst (40 C); pour pt. -18 C max.; flash pt. 171 C min.

**Britol® 9NF** [Crompton/Witco]

*Chem. Descrip.:* White mineral oil NF

CAS 8020-83-5; EINECS/ELINCS 232-384-2

*Uses:* Binder, carrier, conditioner, defoamer, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent, release agent, and/or softener in cosmetics, pharmaceuticals, food, plastics, agric., and paper making applics.

*Properties:* Sp.gr. 0.845-0.860; visc. 14.4-16.9 cst (40 C); pour pt. -18 C max.; flash pt. 171 C min.

**Britol® 20USP** [Crompton/Witco]

*Chem. Descrip.:* White mineral oil USP

CAS 8020-83-5; EINECS/ELINCS 232-384-2

*Uses:* Binder, carrier, conditioner, defoamer, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent, release agent, and/or softener in cosmetics, pharmaceuticals, food, plastics, agric., and paper making applics.

*Properties:* Sp.gr. 0.858-0.870; visc. 37.9-40.1 cst (40 C); pour pt. -18 C max.; flash pt. 193 C min.

**Britol® 35USP** [Crompton/Witco]

*Chem. Descrip.:* White mineral oil USP

CAS 8020-83-5; EINECS/ELINCS 232-384-2

*Uses:* Binder, carrier, conditioner, defoamer, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent, release agent, and/or softener in cosmetics, pharmaceuticals, food, plastics, agric., and paper making applics.

*Properties:* Sp.gr. 0.862-0.880; visc. 65.8-71.0 cst (40 C); pour pt. -15 C max.; flash pt. 216 C min.

**Britol® 50USP** [Crompton/Witco]

*Chem. Descrip.:* White mineral oil USP

CAS 8020-83-5; EINECS/ELINCS 232-384-2

*Uses:* Binder, carrier, conditioner, defoamer, dispersant, extender, heat transfer agent, lubricant, moisture barrier, plasticizer, protective agent, release agent, and/or softener in cosmetics, pharmaceuticals, food, plastics, agric., and paper making applics.

*Properties:* Sp.gr. 0.870-0.890; visc. 91-102.4 cst (40 C); pour pt. -12 C max.; flash pt. 249 C min.

**Bubble Breaker® 259, 260, 613-M, 622, 730, 737, 746, 748, 900, 913, 917** [Crompton/Witco]

*Chem. Descrip.:* Blend of org., nonsilicone compds.

*Uses:* Defoamer for water-based paper coatings, textile processing formulations, agric. chemical prods., paints, adhesives, inks, and personal care formulations

**Bubreak® 401D** [Buckman Labs]

*Chem. Descrip.:* Proprietary polymer

*Uses:* Flocculant or coagulant in effluent treatment and in waste minimization programs for water-based paints, adhesives, or other aq. systems; food-contact paper/paperboard

*Use Level:* 0.01-2%

*Regulatory:* FDA 21CFR §176.170; SARA 312 listed (immediate acute)

*Properties:* Pale yel. clear liq., odorless; completely sol. in water; sp.gr. 1.01 g/ml; flash pt. > 212 F; pH 6-7 (100 ppm in water); cationic

*Toxicology:* Mild eye irritant; nonirritating to skin; inh. may cause irritation of mucous membranes and lungs; monitor exposed individuals for respiratory distress, bronchitis, pneumonia; TSCA listed

*Precaution:* Incompat. with anionic polymers

*Hazardous Decomp. Prods.:* None known

HMIS: Health 1; Flammability 1; Reactivity 1

**Bubreak® 403** [Buckman Labs]

*Chem. Descrip.:* Proprietary polymer

*Uses:* Flocculant or coagulant in effluent treatment and in waste minimization programs for water-based paints, adhesives, or other aq. systems; EPA allowed as flocculant in potable water; food-contact paper/paperboard

*Use Level:* 0.01-2%

*Regulatory:* FDA 21CFR §176.170; SARA listed (immediate acute); EPA allowed for potable water

*Properties:* Pale amber clear liq., sl. odor; completely misc. with water; sp.gr. 1.09 g/ml; b.p. > 100 C; flash pt. > 100 C; pH 4-6 (100 ppm in water); cationic

*Toxicology:* LD50 (oral) > 5000 mg/kg, (dermal) > 2000 mg/kg; mildly irritating to eyes; nonirritating to skin; inh. may cause irritation of mucous membranes and lungs; monitor exposed individuals for respiratory distress, bronchitis, pneumonia; TSCA listed

*Environmental:* LC50 (bluegill sunfish, 96 h) 1.75 mg/l, (rainbow trout, 96 h) 0.33 mg/l

*Hazardous Decomp. Prods.:* Exposure to fire or flame can generate oxides of carbon and nitrogen

HMIS: Health 1; Flammability 1; Reactivity 1

**Bubreak® 448** [Buckman Labs]

*Chem. Descrip.:* Colloidal suspension

*Uses:* Antifoam and defoamer for water-thinned paints, coatings, adhesives, glues; air release agent in polyester spray and gel coating operations; deaerator in gluing operations with nat. and syn. adhesives; food pkg.

- adhesives, coatings; defoamer in food-contact paper coatings; effective with acrylic, PVAc, S/B resins  
*Use Level:* 0.2% based on total wt. of paint; 0.3-1% (gluing operations, polyester gel coating operations)  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200  
*Properties:* Liq.; sp.gr. 0.81 g/ml; dens. 6.7 lb/gal; flash pt. (TCC) 87 C  
*Storage:* May stratify on prolonged storage; store drums upside down to ensure some mixing prior to use
- Bubreak® 453** [Buckman Labs]  
*Chem. Descrip.:* Colloidal suspension  
*Uses:* Foam control agent for water-thinned paints, coatings; air release agent for polyester-resin spray and gel-coating operations; deaerator in gluing operations; food pkg. adhesives, coatings; defoamer in food-contact paper coatings; effective with acrylic, PVAc, S/B resins  
*Use Level:* 0.1% (paints), 0.3-1% (resins, adhesives)  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200  
*Properties:* Liq.; sp.gr. 0.86 g/ml; dens. 7.2 lb/gal; flash pt. (TCC) > 104 C
- Bubreak® 454C** [Buckman Labs]  
*Uses:* Antifoam/defoamer for use in water-based coatings, adhesives, wide range of resins incl. acrylics, vinyl acrylics, PVAc, water-reducible alkyds; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 0.2%  
*Regulatory:* FDA 21CFR §176.200, 176.210  
*Properties:* Brn. visc. liq., sl. fatty odor; sp.gr. 0.96 g/ml; dens. 8.0 lb/gal
- Bubreak® 4400** [Buckman Labs]  
*Uses:* Antifoam/defoamer for use in water-based coatings, adhesives, emulsion-based systems, wide range of resins incl. acrylics, vinyl acrylics, PVAc, water-reducible alkyds; defoamer in food-contact paper/paperboard  
*Use Level:* 0.2%  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Milky wh. disp., sl. odor; sp.gr. 0.92 g/ml; dens. 7.7 lb/gal; pH 6-7 (100 ppm in water)
- Bubreak® 4419** [Buckman Labs]  
*Uses:* Antifoam/defoamer for use in water-based coatings, adhesives, emulsion-based systems, wide range of resins incl. acrylics, vinyl acrylics, PVAc, water-reducible alkyds; defoamer in food-contact coatings and paper/paperboard; effective over wide pH range  
*Use Level:* 0.2%  
*Regulatory:* FDA 21CFR §176.200, 176.210  
*Properties:* Clear liq., mild odor; sp.gr. 0.98 g/ml; dens. 8.2 lb/gal; pH 6.5-7.5 (100 ppm in water)
- Bufloc® 5551** [Buckman Labs]  
*Chem. Descrip.:* Quaternary polyamine  
*Uses:* Coagulant for process and wastewater treatment; sludge dewatering agent; raw water clarifier; effective for solids and color removal in influent and effluent waters; food-contact paper/paperboard; coagulant for charge neutralization or in combination with other cationic or anionic flocculants  
*Regulatory:* FDA 21CFR §176.170, 176.180; SARA nonreportable  
*Properties:* Amber liq.; sl. amine odor; completely sol. in water; dens. 1.14 g/ml; visc. 80-125 cps; bulk dens. 9.5 lb/gal; flash pt. > 93 C; pH 5-7; cationic  
*Toxicology:* TSCA listed  
*Precaution:* Incompat. with strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, ammonia, hydrogen chloride vapor, NO<sub>x</sub>  
 HMIS: Health 0; Flammability 1; Reactivity 0  
*Storage:* If prod. should freeze, thaw and mix thoroughly before use
- Bufloc® 5554** [Buckman Labs]  
*Chem. Descrip.:* Quaternary polyamine  
*Uses:* Coagulant for process and wastewater treatment; sludge dewatering agent; raw water clarifier; effective for solids and color removal in influent and effluent waters; approved for potable water; food-contact paper/paperboard; coagulant for charge neutralization or in combination with other cationic or anionic flocculants  
*Regulatory:* FDA 21CFR §176.170, 176.180; EPA approved for potable water; SARA nonreportable  
*Properties:* Pale yel. liq.; ammoniacal odor; completely sol. in water; dens. 1.14 g/ml; visc. 750 cps; bulk dens. 9.5 lb/gal; vapor pressure 58 mm Hg (100 F); b.p. > 100 C; flash pt. > 100 C; pH 5-7; cationic  
*Toxicology:* Expected to be irritating to eyes; TSCA listed  
*Environmental:* Aquatic LC50 (daphnia magna, 48 h) 0.29 mg/l, (fathead minnow, 96 h) 0.3 mg/l  
*Precaution:* Incompat. with strong oxidizing agents  
*Hazardous Decomp. Prods.:* Thermal decomp. or combustion may produce NO<sub>x</sub>, CO<sub>2</sub>, hydrogen chloride gas, hydrogen cyanide, phosgene  
 HMIS: Health 1; Flammability 1; Reactivity 1  
*Storage:* If prod. should freeze, thaw and mix thoroughly before use
- Burco® Imidazoline O** [Burlington Chem.]  
*Chem. Descrip.:* Oleyl imidazoline  
 CAS 95-38-5  
*Uses:* Surfactant; detergent additive; thickening promoter; antistat; substantive to most surfs. incl. fabrics, glass, paper, and metals; flotation agent for removal of impurities from clay and ores; adhesion promoter in asphalt; emulsifier in solvent cleaners; in acid cleaners; visc. builder for attapulgite clay in paints/coatings; corrosion inhibitor in primers, paints; lubricant, corrosion inhibitor in metals  
*Properties:* Gardner 10 max. clear liq.; oil-sol.; sp.gr. 0.90 g/l; amine value 160; 90% min. imidazoline; cationic
- Burco® Imidazoline T** [Burlington Chem.]  
*Chem. Descrip.:* Tall oil imidazoline  
 CAS 61791-39-7; EINECS/ELINCS 263-171-2  
*Uses:* Surfactant; detergent additive; thickening promoter; antistat; substantive to most surfs. incl. fabrics, glass, paper, and metals; flotation agent for removal of impurities from clay and ores; adhesion promoter in asphalt; emulsifier in solvent cleaners; in acid cleaners; visc. builder for attapulgite clay in paints/coatings; corrosion inhibitor in primers, paints; lubricant, corrosion inhibitor in metals  
*Properties:* Gardner 12 max. clear liq.; oil-sol.; sp.gr. 0.90 g/l; amine value 155; 90% min. imidazoline; cationic
- Burcomul DFE-45** [Burlington Chem.]  
*Chem. Descrip.:* Polyol ester  
*Uses:* Defoamer, emulsifier for paper, textiles, water treatment, coatings, and metalworking, and other low-foaming emulsions; provides formulations with improved emulsion stability; compat. with all common org. defoamer components  
*Properties:* Clear to sl. hazy liq.; sol. in oils and solvs.; water-disp.; sp.gr. 0.94; dens. 7.84 lb/gal; pH 5 (5% disp.); 100% act.
- Burcosoft LEQ** [Burlington Chem.]  
*Chem. Descrip.:* Ester quat. softener conc. (90%) in propylene glycol (10%)  
*Uses:* Softener for textiles, commercial laundry softeners, tissue paper, I&I applics.; enhances water absorbency of fabrics; easy to dilute; disperses readily; pumpable and pourable @ 45 F; no flamm. solvs.; nonyellowing  
*Properties:* Gardner 7 max. clear to sl. hazy liq.; sp.gr. 1.007; visc. 300-500 cps (100 F); pour pt. < 45 F; flash pt. (CC) > 200 F; 90% act.; < 1% moisture  
*Environmental:* Environmentally friendly; derived from sustainable resources; known to biodegrade more readily than other cationics
- Busan® 11-M2** [Buckman Labs]  
*Chem. Descrip.:* Modified barium metaborate monohydrate  
 CAS 13701-59-2  
*Uses:* Pigment, corrosion inhibitor, tannin stain blocker, flame retardant, and UV light stabilizer for use in water- and solv.-based coatings; stabilizer for metals and metal salts, esp. zinc, for formulation in zinc-rich coatings; food-contact paper/paperboard; multifunctional  
*Use Level:* 2-30% (corrosion inhibition), 3-10% (tannin stain blocking), 2-9% (flame retardant), 2% (uv stabilization)  
*Regulatory:* FDA 21CFR §176.180  
*Properties:* Wh. amorphous cryst. solid, odorless; sol. 0.3-0.4% in water; mod. sol. in dil. aq. acids; insol. in org. solvs.; sp.gr. 3.35 g/cc; dens. 27.9 lb/gal; pH 9.85 (100 ppm in water); 90+% act.
- Busan® 90** [Buckman Labs]  
*Chem. Descrip.:* 2-Bromo-4'-hydroxyacetophenone  
 CAS 2491-38-5  
*Uses:* Bactericide for use in water-based paints, adhesives, waxes, and polishes; defoamer in food-contact coatings; slimicide in food-contact paper; provides protection against bacterial degradation in the container  
*Use Level:* 0.1-0.5%  
*Regulatory:* FDA 21CFR §176.200, 176.300  
*Properties:* Dk. brn. liq., mildly acrid odor; sp.gr. 1.18 g/ml; pH 5-6 (100 ppm in water); 30% act.
- Busan® 1058** [Buckman Labs]  
*Chem. Descrip.:* Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione  
 CAS 533-74-4; EINECS/ELINCS 208-576-7  
*Uses:* Preservative for pigment slurries incl. those based on aluminum silicate, calcium carbonate, and titanium dioxide; for use in coated/uncoated paper/paperboard for food contact applics.; food-contact slimicide

*Regulatory:* FDA 21CFR §176.230, 176.300

*Properties:* Yel. clear liq., pungent odor; sp.gr. 1.15 g/ml; dens. 9.5 lb/gal; pH > 12; 24% act.

**Busan® 1059** [Buckman Labs]

*Chem. Descrip.:* Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione  
CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Broad-spectrum bactericide for use in coatings, adhesives, emulsions, and clay slurries; food-contact paper/paperboard; food-contact slimicide; protects against bacterial attack during shipping and storage

*Use Level:* 0.01-0.03%

*Regulatory:* FDA 21CFR §176.230, 176.300

*Properties:* Wh. cryst. powd., sl. odor; sl. sol. in water; sp.gr. 0.53 g/ml; pH 6-7 (100 ppm in water); 98% act.

**Busan® 1059-WS** [Buckman Labs]

*Chem. Descrip.:* Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione  
CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Broad-spectrum bactericide for use in coatings, adhesives, emulsions, and clay slurries; food-contact paper/paperboard; food-contact slimicide; protects against bacterial attack during shipping and storage;

*Use Level:* 0.01-0.03%

*Regulatory:* FDA 21CFR §176.230, 176.300

*Properties:* Wh. cryst. powd., sl. odor; sl. sol. in water; sp.gr. 0.53 g/ml; pH 6-7 (100 ppm in water); 98% act.

**Busan® 1105** [Buckman Labs]

*Chem. Descrip.:* 10% 2-(Thiocyanomethylthio) benzothiazole, 10% methyl-enebis (thiocyanate) in inert ingreds.

*Uses:* Broad-spectrum fungicide for use in solv.-based stains, clear finishes, and wood preservatives; slimicide in food-contact paper; improved solvency in solv.-based systems; may react with certain driers to produce an off-color in wet paint

*Use Level:* 0.5-9%

*Regulatory:* FDA 21CFR §176.300

*Properties:* Amber clear liq., sl. odor; insol. in aliphatic solvs. (e.g., min. spirits) without a cosolv.; sp.gr. 1.08 g/ml; dens. 9.0 lb/gal; pH 5-7 (100 ppm in water); 20% act.

**Busan® 1118** [Buckman Labs]

*Chem. Descrip.:* 2-(Thiocyanomethylthio) benzothiazole in inert ingreds.  
CAS 21564-17-0

*Uses:* Broad-spectrum fungicide for use in water- and solv.-based coatings, caulks, sealants, and wallcovering adhesives; slimicide in food-contact paper; formulated for improved emulsification in water

*Use Level:* 0.5-5% (coatings), 0.1-0.5% (caulks, sealants, wallcovering adhesives)

*Regulatory:* FDA 21CFR §176.300

*Properties:* Amber clear liq., very sl. odor; sp.gr. 1.07 g/ml; dens. 8.9 lb/gal; flash pt. (TCC) 131 F; pH 6-7 (100 ppm in water); 30% act.

**Busan® 1130** [Buckman Labs]

*Chem. Descrip.:* 2-Bromo-4'-hydroxyacetophenone in inert ingreds.

*Uses:* Bactericide for water-based paints, adhesives, waxes, and polishes; food-contact paper/paperboard; food-contact slimicide

*Use Level:* 0.3-1.5%

*Regulatory:* FDA 21CFR §176.170, 176.300

*Properties:* Reddish-brn. opaque liq., mild vanilla odor; sp.gr. 1.03 g/ml; dens. 8.6 lb/gal; pH 5-6 (100 ppm in water); 10% act.

**Busan® 1210** [Buckman Labs]

*Uses:* Microbicide, bactericide, slimicide, fungicide for papermaking; slimicide for food-contact paper; broke and stock preservative; additive preservative; broad spectrum; fast-acting; effective at alkaline pH; hydrolyzes to nontoxic and biodeg. components; environmentally safe

*Regulatory:* FDA 21CFR §176.300; EPA reg. no. 1448-353; SARA §313 nonreportable

**Busan® 1223** [Buckman Labs]

*Chem. Descrip.:* Combination of two biocides

*Uses:* Microbicide, bactericide, slimicide for pulp/paper mfg. on wet end of paper machines and for additive preservation; fungicide for water- and solv.-based coatings, stains, and clear finishes; inc. prod. and paper quality; effective in controlling sulfate-reducing bacteria and filamentous bacteria

*Use Level:* 0.5-5% (coatings), 0.5-9% (stains, clear finishes)

*Regulatory:* FDA approved; EPA registered; SARA §313 nonreportable

*Properties:* Amber clear liq.; sp.gr. 1.10 g/ml; dens. 9.2 lb/gal; flash pt. 80 C; pH 6-7 (100 ppm in water)

**Busperse® 39** [Buckman Labs]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Dispersant for use in water-based paints and pigment slurries, corrosion-resist. latex paints, exterior paints, and in gloss latex paints; food-contact paper/paperboard; provides exc. visc. stability with reactive pigments; good color acceptance; low foaming; effective at low concs.; noncorrosive to ferrous metals; glycol compat.

*Use Level:* 0.3-0.7%

*Regulatory:* FDA 21CFR §173.310, 176.170

*Properties:* Water-sol.; 39% solids; anionic

**Busperse® 203** [Buckman Labs]

*Chem. Descrip.:* Polyelectrolytes

*Uses:* Pigment dispersant for water-thinned emulsion paints and pigment slurries; effective in paints containing TiO<sub>2</sub> or reactive pigments and in semigloss emulsion paints; food pkg. adhesives, coatings, paper/paperboard; provides long-term visc. stability

*Use Level:* 0.4-0.6% (paints with nonreactive pigments), 0.5-1.3% (paints with reactive pigments), 0.2-1.5% (pigment slurries)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Properties:* Liq.; sp.gr. 1.16 g/ml; dens. 9.7 lb/gal; flash pt. > 100 C; pH 9-10 (100 ppm in dist. water); anionic

**Busperse® 229** [Buckman Labs]

*Chem. Descrip.:* Organic

*Uses:* Pigment dispersant and wetting agent for water-reducible paints such as alkyls; defoamer in food-contact paper/paperboard; designed to minimize problems of blistering and adhesion loss

*Use Level:* 0.3-0.75%

*Regulatory:* FDA 21CFR §176.210

*Properties:* Liq.; sp.gr. 1.12 g/ml; dens. 9.3 lb/gal; flash pt. > 100 C; pH 4-5 (100 ppm in water)

**Busperse® 275** [Buckman Labs]

*Uses:* Dispersant for water-based systems such as emulsion and water-reducible coatings, pigment slurries, and adhesives; food-contact paper/paperboard

*Use Level:* 0.3-1% (coatings), 0.3-1.5% (pigment slurries), 0.2-0.5% (adhesives)

*Regulatory:* FDA 21CFR §173.310, 176.170

*Properties:* Colorless clear to sl. hazy liq., sl. odor; sp.gr. 1.18 g/ml; dens. 9.8 lb/gal; pH 3; anionic

**Busperse® 282** [Buckman Labs]

*Uses:* Dispersant for water-based systems such as emulsion and water-reducible coatings, pigment slurries, and adhesives; food-contact paper/paperboard

*Use Level:* 0.3-1% (coatings), 0.3-1.4% (pigment slurries), 0.2-0.6% (adhesives)

*Regulatory:* FDA 21CFR §173.310, 176.170

*Properties:* Yel.-orange liq., sl. odor; sp.gr. 1.35 g/ml; dens. 11.2 lb/gal; pH > 12; anionic

**Busperse® 288** [Buckman Labs]

*Uses:* Dispersant for repulping and deinking of troublesome sec. fiber in papermaking, e.g., heavily coated magazine stock, laser printed office waste; defoamer in mfg. of food-contact paper/paperboard; stable in presence of alkalis and bleaches used during repulping

*Regulatory:* FDA 21CFR §176.210

**Busperse® 379** [Buckman Labs]

*Uses:* Chelating agent for metal ions such as iron, manganese, copper, aluminum, zinc, barium, magnesium, and calcium that interfere with pulp/paper mill bleaching; brightener, visc. builder for pulps; performs well at lower temps.; improves recycled fiber bleaching efficiencies

*Toxicology:* Nontoxic

**Butofan®** [BASF AG]

*Chem. Descrip.:* Butadiene polymer dispersions

*Uses:* Paper impregnation and coating; binder for paper, adhesives, and textile coatings; binder for prod. of materials based on leather fibers

**BYK®-045** [BYK-Chemie USA]

*Chem. Descrip.:* Emulsion of hydrophobic solids, emulsifying agents and foam destroying polysiloxanes

*Uses:* Defoamer for emulsion paints, paper coatings, foil coatings, stains, plasters and bonding agents

*Properties:* Colorless to yellowish liq.; mild hydrocarbon odor; sp.gr. 1.00; dens. 8.32 lb/gal; vapor pressure 18 mm Hg; flash pt. (Seta) >100 C; 8.5% NV in water

*Toxicology:* TSCA listed

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**Bynel® CXA** [DuPont; DuPont Canada]

*Chem. Descrip.:* Coextrudable adhesive polymers

*Uses:* Tie layer in multilayer flexible pkg.; in flexible and rigid pkg. for foods, agric., pharmaceutical pkg.; in nonpkg. applics. to bond metal, wood, vinyl,

and plastic substrates; in industrial prods. and building materials such as nylon, PE, PP, PS, EVOH, aluminum, paper; 35 grades divided into 11 chemically different series designed to adhere to a wide variety of substrates



# C

**C2® Sodium Chlorite** [Arch Chems./Water Chems.]

*Chem. Descrip.:* Sodium chlorite  
 CAS 7758-19-2; EINECS/ELINCS 231-836-6  
*Uses:* Bacterial slimicide for wh. water systems in paper mills  
*Properties:* Wh. flake; dens. 53 lb/ft<sup>3</sup> (loose); 69 lb/ft<sup>3</sup> (packed); 79% min. sodium chlorite

**C110** [Grain Processing]

*Chem. Descrip.:* Acid-modified corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Component of uncoated or coated food-contact surf. of paper and paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Wh. gran. powd.; bulk dens. 38 lb/ft<sup>3</sup> (loose), 50 lb/ft<sup>3</sup> (packed); pH 6; 11% moisture

**CA** [Creanova]

*Chem. Descrip.:* Ketone-aldehyde resin  
*Uses:* Gloss, hardness, and adhesion enhancement in wood lacquers, paper varnishes, printing ink, adhesives, and industrial paints  
*Properties:* Wh. powd.; sp.gr. 1.13-1.14 g/cm<sup>3</sup>; m.p. 92-108 C; acid no. ≤ 0.3; 100% solids

**CA-394-60S** [Eastman]

*Chem. Descrip.:* Cellulose acetate  
 CAS 9004-35-7  
*Uses:* In food-contact coatings, paper/paperboard, closures with sealing gaskets for food containers; used where high strength and good resistance to heat, UV light, oils, and greases are required  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 177.1210  
*Properties:* Wh. fine powd.; low odor; m.w. 60,000; dens. 1.32 kg/l; visc. 228 poise; m.p. 240-260 C; Tukon hardness 27; 39.5% acetyl content

**CA-398-3** [Eastman]

*Chem. Descrip.:* Cellulose acetate  
 CAS 9004-35-7  
*Uses:* Used to formulate coatings for paper, glass, plastic, wire screen, and elec. wiring, and in adhesives, wood sealers, paint removers; as barrier and release coatings for pressure-sensitive tapes; in food-contact coatings, paper/paperboard, closures with sealing gaskets for food containers; used where high strength and good resistance to heat, UV light, oils, and greases are required  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 177.1210  
*Properties:* Wh. fine powd.; low odor; m.w. 30,000; sp.gr. 1.31; dens. 10.9 lb/gal; visc. 11.4 poise; m.p. 230-250 C; ref. index 1.475; Tukon hardness 26; 39.8% acetyl content

**CA-398-6** [Eastman]

*Chem. Descrip.:* Cellulose acetate  
 CAS 9004-35-7  
*Uses:* Used to formulate coatings for paper, glass, plastic, wire screen, and elec. wiring, and in adhesives, wood sealers, paint removers; as barrier and release coatings for pressure-sensitive tapes; in food-contact coatings, paper/paperboard, closures with sealing gaskets for food containers; used where high strength and good resistance to heat, UV light, oils, and greases are required  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 177.1210  
*Properties:* Wh. fine powd.; low odor; m.w. 35,000; sp.gr. 1.31; dens. 10.9 lb/gal; visc. 22.80 poise; m.p. 230-250 C; ref. index 1.475; Tukon hardness 26; 39.8% acetyl content

**CA-398-10** [Eastman]

*Chem. Descrip.:* Cellulose acetate  
 CAS 9004-35-7  
*Uses:* Used to formulate coatings for paper, glass, plastic, wire screen, and elec. wiring, and in adhesives, wood sealers, paint removers; as barrier and release coatings for pressure-sensitive tapes; in food-contact coatings, paper/paperboard, closures with sealing gaskets for food containers; used where high strength and good resistance to heat, UV light, oils, and greases are required  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 177.1210; DOT nonregulated; SARA nonreportable  
*Properties:* Wh. fine powd.; odorless; negligible sol. in water; m.w. 40,000; sp.gr. 1.31; dens. 10.9 lb/gal; visc. 38.00 poise; vapor pressure negligible; m.p. 230-250 C; ref. index 1.475; Tukon hardness 26; 100% act.; 39.8% acetyl content  
*Toxicology:* Expected to be low ing. hazard; TSCA listed  
*Environmental:* Expected to be nonbiodeg., have low biochem. oxygen demand, and low potential to affect aquatic organisms, sec. waste treatment organisms, germination/early growth of plants  
*Precaution:* Combustible solid; powd. material may form explosive dust-air mixts.; incompat. with oxidizing materials; can dec. above 304 C; mixing in a nonpolar hydrocarbon may cause static buildup which can cause a flash fire  
*Hazardous Decom. Prods.:* Combustion prods.: CO<sub>2</sub>, CO  
 HMIS: Health 0; Flammability 1; Reactivity 0  
*Storage:* Keep container closed

**CA-398-30** [Eastman]

*Chem. Descrip.:* Cellulose acetate sol'n.  
 CAS 9004-35-7  
*Uses:* Used in food-contact coatings, paper/paperboard, closures with sealing gaskets for food containers; used where high strength and good resistance to heat, UV light, oils, and greases are required  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 177.1210  
*Properties:* Wh. fine powd.; low odor; m.w. 50,000; dens. 1.31 kg/l; visc. 114 poise; m.p. 230-250 C; Tukon hardness 26

**CA 1124B** [Process Chems. LLC]

*Uses:* Defoamer, drainage aid for kraft pulp/paper applics. in brownstock washing, screenroom, bleach plant, paper machine, and effluent; water-based; does not contain EBS, min. oil, or dioxin precursors; does not contribute to deposit formation; suitable where batch or continuous pulp is employed  
*Properties:* Opaque liq.; sp.gr. 1.05; visc. 1200 ± 300 cps  
*Toxicology:* TSCA listed  
*Storage:* Store in dry area

**CA 1124XD** [Process Chems. LLC]

*Uses:* Defoamer, drainage aid for kraft pulp/paper applics., for use in brownstock washing, screen room, and bleach plant operations, on the paper machine, and in the effluent; water-based; does not contain EBS, min. oil, or dioxin precursors; does not contribute to deposit formation; suitable whether batch or continuous pulp is employed  
*Properties:* Opaque wh. liq.; sp.gr. 1.005-1.030; dens. 8.38-8.58 lb/gal; visc. 750-1250 cps; pH 5.5-6.5  
*Toxicology:* TSCA listed  
*Storage:* Store in dry area

**CAB-171-15** [Eastman]

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Useful in coatings for wire, leather, plastic, and cloth, esp. wire coatings, airplane lacquers; food pkg. adhesives, coatings, paper/paperboard, cellophane, film; produces films with superior toughness and hardness and exc. resist. to chems., oils, and greases

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Flakes; m.w. 65,000; sp.gr. 1.26; dens. 10.5 lb/gal; visc. 57 poise; m.p. 230-240 C; ref. index 1.475; Tukon hardness 27; dielec. str. 2.0-2.5 kV/mil; 29.5% acetyl, 17% butyryl

**CAB-321-0.1 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Designed for use in automotive basecoats; food pkg. adhesives, coatings, paper/paperboard, cellophane, film; resist. to attack and redissolve by solvs. in typ. clearcoats

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine, dry, powd.; m.w. 12,000; dens. 1.2 kg/l; visc. 0.38 poise; m.p. 165-175 C; Tukon hardness 21; 17.5% acetyl, 32.5% butyryl

**CAB-381-0.1 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Improves pigment control and intercoat adhesion, reduces cratering in lacquers, nail polishes, coatings for wood, metal, plastics, paper, leather, and cloth, printing inks; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; sol. in diethylene glycol diacrylate; sol. with haze in styrene/methyl methacrylate (80/20), butyl acrylate; m.w. 20,000; sp.gr. 1.20; dens. 10 lb/gal; visc. 0.38 poises; m.p. 155-165 C; ref. index 1.48; Tukon hardness 18; dielec. str. 2.0-2.5 kV/mil; 13.5% acetyl, 38% butyryl

**CAB-381-0.5 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Improves pigment control and intercoat adhesion, reduces cratering in lacquers, nail polishes, coatings for wood, metal, plastics, paper, leather, and cloth, printing inks; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; sol. in 1,3 butylene diacrylate; m.w. 30,000; sp.gr. 1.2; dens. 10 lb/gal; visc. 1.90 poise; m.p. 155-165; ref. index 1.48; Tukon hardness 18; dielec. str. 2.0-2.5 kV/mil; 13.5% acetyl, 38% butyryl

**CAB-381-2 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Used in automotive lacquers, lacquers for plastics and paper, wood finishes, nail polishes, coatings for fabrics and leather, peelable plastic coatings, heat-seal adhesives; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; sol. in glycidyl methacrylate; m.w. 40,000; sp.gr. 1.2; dens. 10 lb/gal; visc. 7.60 poise; m.p. 171-184 C; ref. index 1.475; Tukon hardness 18; dielec. str. 2.0-2.5 kV/mil; 13.5% acetyl, 38% butyryl

**CAB-381-2BP [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Used in lacquers, automotive finishes; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; m.w.40,000; dens. 1.2 kg/l; visc. 8.4 poise; m.p. 175-185 C; Tukon hardness 18; 14.5% acetyl, 35.5% butyl

**CAB-381-20 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Used in automotive lacquers, lacquers for plastics and paper, wood finishes, nail polishes, coatings for fabrics and leather, peelable plastic coat-

ings, heat-seal adhesives; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; m.w. 70,000; sp.gr. 1.2; dens. 10 lb/gal; visc. 76.0 poise; m.p. 195-205 C; ref. index 1.475; Tukon hardness 18; dielec. str. 2.0-2.5 kV/mil; 13.5% acetyl, 37% butyryl

**CAB 500-1 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Film-former and additive in hot melts, strippable coatings, inks, nail polishes, and lacquers for paper, plastic, and leather; flow control agents in PU and polyester coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; m.w. 40,000; sp.gr. 1.18; dens. 9.83 lb/gal; visc. 3.8 poises; m.p. 165-175 C; ref. index 1.475; dielec. str. 2.0-2.5 kV/mil; 50% butyryl, 5.0% acetyl

**CAB-500-5 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Film-former and additive in hot melts, strippable coatings, inks, nail polishes, and lacquers for paper, plastic, and leather; flow control agents in PU and polyester coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; m.w. 57,000; sp.gr. 1.18; dens. 9.83 lb/gal; visc. 19.0 poise; m.p. 165-175 C; ref. index 1.475; Tukon hardness 14; dielec. str. 2.0-2.5 kV/mil; 5.0% acetyl, 49% butyryl

**CAB-531-1 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Useful with CAB-551-0.2 for coating wood, plastic, or metal; in powd. coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film; compatible with many modifying resins; can produce high clarity films with good UV stability

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; sol. in glycidyl methacrylate, diethylene glycol diacrylate, 1,3-butylene glycol diacrylate; sol. hazy in styrene/methyl methacrylate (80/20), butyl acrylate; m.w. 40,000; sp.gr. 1.17; dens. 9.75 lb/gal; visc. 7.2 poise; m.p. 135-150 C; ref. index 1.475; Tukon hardness 15; dielec. str. 2.0-2.5 kV/mil; 2.8% acetyl, 50% butyryl

**CAB-551-0.01 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Compatible with modifying resins for coating wood, plastic, or metal; low visc. for high-solids coatings, thermosetting powd. coatings; minimizes sagging, cratering in baking enamels; modifier for UV-cure coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; sol. in styrene/methyl methacrylate (80/20), glycidyl methacrylate, butyl acrylate, diethylene glycol diacrylate, 1,3-butylene glycol diacrylate; sol. hazy in styrene; m.w. 16,000; dens. 1.16 kg/l; visc. 0.038 poise; m.p. 127-142 C; Tukon hardness 15; 2.0% acetyl, 53% butyryl

**CAB-551-0.2 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Compatible with modifying resins for coating wood, plastic, or metal; low visc. for high-solids coatings, thermosetting powd. coatings; modifier for UV-cure coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film

*Regulatory:* FDA 21CFR §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; sol. in styrene/unsat. polyester (45/55), glycidyl methacrylate, diethylene glycol diacrylate, 1,3-butylene glycol diacrylate; sol. hazy in styrene/methyl methacrylate (80/20), butyl acrylate; m.w. 30,000; sp.gr. 1.16; dens. 9.67 lb/gal; visc. 0.76 poise; m.p. 130-140 C; ref.

index 1.475; Tukon hardness 15; 2.0% acetyl, 52% butyryl

**CAB-553-0.4 [Eastman]**

*Chem. Descrip.:* Cellulose acetate butyrate

CAS 9004-36-8

*Uses:* Used in flexo printing inks, nail polishes, coatings for wood, paper, and plastics, coatings requiring low odor, fast-drying solv. systems, barrier coatings for PS; reactive component in conversion finishes

*Properties:* Wh. fine powd.; sol. in 95% and anhyd. ethanol and other common org. solvs.; m.w. 20,000; sp.gr. 1.20; dens. 10 lb/gal; visc. 1.14 poise; m.p. 150-160 C; Tukon hardness 18; 2.0% acetyl, 46% butyryl

**Cab-O-Sil® EH-5 [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Rheology control agent, reinforcing agent, and flow control agent for adhesives, coatings, powd. coatings, cosmetics, pharmaceuticals, defoamers, inks, insecticides, lubricants, plastisols, liq. resins, and sealants; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 380 ± 30 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® H-5 [Cabot GmbH]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Reinforcing agent for adhesives, coatings, defoamers, elastomers, lubricants, plastisols, liq. resins, sealants, silicones, cosmetics, pharmaceuticals; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 300 ± 25 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® HS-5 [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Rheology control agent and reinforcing agent for adhesives, coatings, cosmetics, defoamers, elastomers, foods, inks, insecticides, lubricants, pharmaceuticals, plastisols, liq. resins, sealants, silicones, thermal insulation; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* 0.02% 325 mesh residue; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 325 ± 25 m<sup>2</sup>/g; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® L-90 [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Dispersant, anticaking agent, rheology control agent, reinforcing agent for adhesives, elastomers, sealants, silicones, cosmetics, pharmaceuticals, coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 3 lb/ft<sup>3</sup>; surf. area 100 ± 15 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq.

slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® LM-130 [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Dispersant, anticaking agent, rheology control agent, reinforcing agent for adhesives, elastomers, sealants, silicones, coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 3 lb/ft<sup>3</sup>; surf. area 130 ± 15 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® LM-150 [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Dispersant, anticaking agent, rheology control agent, reinforcing agent for adhesives, elastomers, sealants, silicones, cosmetics, pharmaceuticals, coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* Wh. powd., odorless; 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 160 ± 15 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® LM-150D [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, densified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Rheology control agent and reinforcing agent for adhesives, elastomers, sealants, silicones; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 5 lb/ft<sup>3</sup>; surf. area 160 ± 15 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® M-5 [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica, undensified

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Rheology control agent, reinforcing agent, flow control agent for adhesives, coatings, powd. coatings, cosmetics, pharmaceuticals, defoamers, elastomers, foods, inks, insecticides, lubricants, plastisols, liq. resins, sealants, thermal insulation; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90

*Properties:* Wh. fine powd., odorless; 0.2-0.3 μ avg. particle size; 0.02% 325 mesh residue; insol. in water; sp.gr. 2.2; dens. 18.3 lb/gal; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 200 ± 25 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (40% aq. slurry); > 99.8% assay

*Toxicology:* LD50 (oral, rat) > 5 g/kg; nontoxic by ingestion; inert to mildly irritating to skin; inert to very mildly irritating to eyes

*Storage:* Store in dry environment away from chemical vapors

**Cab-O-Sil® M-5P [Cabot/Cab-O-Sil]**

*Chem. Descrip.:* Untreated fumed silica

- CAS 112945-52-5; EINECS/ELINCS 231-545-4  
*Uses:* Rheology control agent, flow control agent for cosmetics, pharmaceuticals, and foods; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
*Properties:* Wh. fine powd., odorless; 0.02% 325 mesh residue; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 200 ± 15 m<sup>2</sup>/g; pH 3.8-4.2 (4% aq. slurry)  
*Toxicology:* LD50 (oral) > 5000 mg/kg  
*Storage:* 2 yr shelf life in clean, dry area away from chem. vapors @ ambient temps.
- Cab-O-Sil® M-7D** [Cabot/Cab-O-Sil]  
*Chem. Descrip.:* Untreated fumed silica, densified  
 CAS 112945-52-5; EINECS/ELINCS 231-545-4  
*Uses:* Reinforcing agent for adhesives, elastomers, sealants, silicones, coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
*Properties:* 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 5 lb/ft<sup>3</sup>; surf. area 200 ± 25 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes  
*Storage:* Store in dry environment away from chemical vapors
- Cab-O-Sil® MS-75D** [Cabot/Cab-O-Sil]  
*Chem. Descrip.:* Untreated fumed silica, densified  
 CAS 112945-52-5; EINECS/ELINCS 231-545-4  
*Uses:* Reinforcing agent for elastomers, sealants, silicones; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
*Properties:* 0.02% 325 mesh residue; sp.gr. 2.2 bulk dens. 5 lb/ft<sup>3</sup>; surf. area 255 ± 25 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes  
*Storage:* Store in dry environment away from chemical vapors
- Cab-O-Sil® PTG** [Cabot/Cab-O-Sil]  
*Chem. Descrip.:* Untreated fumed silica, undensified  
 CAS 112945-52-5; EINECS/ELINCS 231-545-4  
*Uses:* Rheology control agent and flow control agent for adhesives, coatings, inks, lubricants, pharmaceuticals, plastisols, liq. resins, sealants; food pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.2420, 177.2600, 182.90  
*Properties:* 0.02% 325 mesh residue; sp.gr. 2.2; bulk dens. 2.5 lb/ft<sup>3</sup>; surf. area 200 ± 25 m<sup>2</sup>/g; ref. index 1.46; pH 3.7-4.3 (4% aq. slurry); > 99.8% assay  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; inert to mildly irritating to skin; inert to very mildly irritating to eyes  
*Storage:* Store in dry environment away from chemical vapors
- Calcitem S** [Microfill K. Zafranias]  
*Chem. Descrip.:* Calcium carbonate (99.3%)  
 CAS 471-34-1; EINECS/ELINCS 207-439-9  
*Uses:* Filler for high quality emulsion paints, paper coatings, PVC dry blend or compounding, and rubber works  
*Properties:* Amorphous crystals; 65% < 2 µ; sp.gr. 2.7; bulk dens. 0.9 g/ml (packed); oil absorb. 29/100 g; dry brightness 94%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture
- Calgon PTH** [BK Giulini Chemie]  
*Chem. Descrip.:* Sodium carbonate and phosphates  
*Uses:* Inorg. pigment dispersant used in paper finishing  
*Use Level:* 0.2-0.4% (avg.); 0.5-0.7% (improves adhesive str. of coating colors); 1-2% (casein based colors)  
*Regulatory:* BgVV compliant  
*Properties:* Wh. powd.; highly sol. in water; sp.gr. 1.0; pH 8.5 (10 g/l; 20 C)
- Storage:* 1 yr. shelf life @ 20 C
- Calimulse EM-22** [Pilot]  
*Chem. Descrip.:* Sodium branched dodecylbenzene sulfonate  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Surfactant for emulsion polymerization of wide range of polymers incl. SBR, vinyl acetate, vinyl chloride, styrene and acrylic latexes; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600  
*Properties:* Clear liq.; visc. 1500 cps; pH 7-8.5 (10% sol'n.); 22-24% act.; anionic  
 Custom prod.
- Calimulse EM-30** [Pilot]  
*Chem. Descrip.:* Sodium branched dodecylbenzene sulfonate (hard)  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Emulsifier for emulsion polymerization; food pkg. adhesives, rubber articles; defoamer in food-contact paper/paperboard; rec. for prods. which do not enter sewage streams  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600  
*Properties:* Liq.; 30% conc.; anionic
- Calimulse EM-96F** [Pilot]  
*Chem. Descrip.:* Sodium branched dodecylbenzene sulfonate  
*Chem. Analysis:* sodium sulfate (0.5%); sodium chloride (0.1%)  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Surfactant for emulsion polymerization incl. styrene and acrylic systems, styrene butadiene rubber, polyvinyl acetate, and polyvinyl chloride; defoamer in food-contact paper/paperboard; high purity  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600  
*Properties:* Flake; pH 7.0-9.5 (10% sol'n.); 96% act.; 1.5% max. water; anionic  
 Custom prod.
- Calimulse EM-99** [Pilot]  
*Chem. Descrip.:* Branched dodecylbenzene sulfonic acid  
 CAS 27176-87-0; EINECS/ELINCS 248-289-4  
*Uses:* Neutralized as emulsifiers for agric., emulsion polymers; defoamer in food-contact paper/paperboard; for prods. which do not enter sewage streams  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Thick liq.; 97% conc.; anionic
- Calimulse L-22** [Pilot]  
*Chem. Descrip.:* Sodium linear alkylbenzene sulfonate (22% sol'n.)  
*Uses:* Surfactant for emulsion polymerization of range of polymers incl. SBR, vinyl acetate, vinyl chloride, styrene and acrylic latexes; defoamer in food-contact paper/paperboard; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.365, 175.380, 176.170, 176.180, 176.210, 177.1010, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.3120, 178.3400  
*Properties:* Clear liq.; visc. 1500 (LVT #2 @ 30 rpm); pH 7-8.5; 22-24% act.
- Calimulse L-30** [Pilot]  
*Chem. Descrip.:* Sodium linear alkylbenzene sulfonate (30% sol'n.)  
*Uses:* Surfactant for emulsion polymerization of range of polymers incl. SBR, vinyl acetate, vinyl chloride, styrene and acrylic latexes; defoamer in food-contact paper/paperboard; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.365, 175.380, 176.170, 176.180, 176.210, 177.1010, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.3120, 178.3400  
*Properties:* Liq.; visc. 350 cps; pH 7-8.5; 30-33% solids
- Calimulse L-50** [Pilot]  
*Chem. Descrip.:* Sodium linear alkylbenzene sulfonate  
*Chem. Analysis:* sodium sulfate (1.5%); unsulfonated matter (1.5%)  
*Uses:* Surfactant for emulsion polymerization of range of polymers incl. SBR, vinyl acetate, vinyl chloride, styrene and acrylic latexes; defoamer in food-contact paper/paperboard; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.365, 175.380, 176.170, 176.180, 176.210, 177.1010, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.3120, 178.3400  
*Properties:* Slurry; pH 7-8 (5% sol'n.); 50-53% act.
- Calimulse PR** [Pilot]  
*Chem. Descrip.:* Isopropylamine branched dodecylbenzene sulfonate  
 CAS 26264-05-1; EINECS/ELINCS 247-556-2  
*Uses:* Surfactant for emulsion polymerization; emulsifier for latexes; pigment dispersant and spreading agent in latex paints; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210



*Properties:* Pale amber clear visc. liq.; visc. 10,000 cps; pH 4-5 (50% IPA/water); 92-95% act.; anionic  
Custom prod.

**Calimulse PRS** [Pilot]

*Chem. Descrip.:* Isopropylamine dodecylbenzene sulfonate  
CAS 26264-05-1; EINECS/ELINCS 247-556-2

*Uses:* Surfactant for emulsion polymerization; emulsifier; solubilizer; dry cleaning; degreasers; latex emulsifier; pigment dispersant; agric. sprays, oil slick emulsifier; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

*Properties:* Clear amber liq.; dens. 8.5 lb/gal; pH 4.8; 90% conc.; anionic  
*Environmental:* Biodeg.

**Calimulse SLS** [Pilot]

*Chem. Descrip.:* Sodium lauryl sulfate, emulsion polymerization grade (30% sol'n.)

*Chem. Analysis:* sodium bicarbonate (0.15-0.25%); sodium sulfate (0.10-0.50%); sodium chloride (0.10%)

CAS 151-21-3; EINECS/ELINCS 205-788-1

*Uses:* Surfactant, emulsifier for emulsion polymerization, styrene acrylics, acrylics, vinyl chloride and styrene-butadiene emulsions; defoamer in food-contact paper/paperboard; in food-contact textiles; no formaldehyde present  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1210, 177.2600, 177.2800, 178.3400

*Properties:* Liq.; visc. 150 cps; pH 7.5-8.5 (10% sol'n.); 29.5-30.5% act.; anionic

**Calnox® 214** [Aquaness]

*Chem. Descrip.:* Acrylic acid polymer, 70% sodium neutralized aq. sol'n.  
CAS 9003-04-7

*Uses:* Threshold effect scale inhibitor; dispersant; sequestrant; low m.w.; neutralized to sodium salt form to enhance sol. and freeze pt.

*Properties:* Dens. 9.88 lb/gal (60 F); visc. (Hoeppler) 16-24 cps; f.p. 25-30 F; pH 4.7-5.3; 32 ± 1% act.

**Calnox® 214 DN** [Aquaness]

*Chem. Descrip.:* Sodium polyacrylate aq. sol'n.

CAS 9003-04-7

*Uses:* Threshold effect scale inhibitor; dispersant; sequestrant; specially treated to minimize odor; low m.w.

*Properties:* Dens. 10.0 lb/gal (60 F); visc. 20-30 (Hoeppler); f.p. 18-20 F; pH 6.8-7.5; 33 ± 1% act.

**Calsan™ 50** [BASF]

*Chem. Descrip.:* Calcium stearate disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant for paper coatings; low residue; low visc.; low entrained air; high whiteness; low sedimentation; rapid disp. in coating formulation

*Use Level:* 0.5-2.0% solids on dry pigment solids

*Properties:* Liq.; 50% solids

**Calsan™ 55** [BASF]

*Chem. Descrip.:* Calcium stearate disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant for paper coatings improving flow and leveling; permits inc. steam usage during supercalendering operations to achieve desired gloss levels while holding dusting to a min.; compat. with starch, protein or latex-type binder systems (such as S/B, acrylics, or polyvinyl acetates)

*Use Level:* 0.5-2.0% solids on dry pigment solids

*Properties:* Liq.; 55% solids

**Calsan™ 65** [BASF]

*Chem. Descrip.:* Calcium stearate disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant for paper coatings improving flow and leveling; permits inc. steam usage during supercalendering operations to achieve desired gloss levels while holding dusting to a min.; compat. with starch, protein or latex-type binder systems (such as S/B, acrylics, or polyvinyl acetates)

*Use Level:* 0.5-2.0% solids on dry pigment solids

*Properties:* Liq.; 65% solids

**Calsoft® LAS-99** [Pilot]

*Chem. Descrip.:* Dodecylbenzene sulfonic acid, linear

CAS 27176-87-0; EINECS/ELINCS 248-289-4

*Uses:* Detergent, emulsifier, intermediate for liq. and dry detergents, hard surf. cleaners, stripping, wetting, foaming; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §176.210, 178.3400

*Properties:* Klett 50 syrupy liq.; water-sol.; sp.gr. 1.06; dens. 8.83 lb/gal;

visc. 1100 cps; 97.5% act.; anionic

*Environmental:* Biodeg.

**Calwhite®** [Georgia Marble]

*Chem. Descrip.:* Ground calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (95% min.)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Reinforcing filler for exterior/interior paints and coatings where flat and med. gloss surfs. are required, paper coatings, adhesives, caulks and sealants based on acrylic, polyolefin, silicone, and PU, plastics (polyolefin, PU, compr. and inj. molded, plastisols), rubber (NR, SR, latex), thermosets (BMC/SMC, pultrusion); extender for wh. and colored pigments; not for use in o-rings and oil seals

*Properties:* Powd.; 6.0 μ median particle size; 0.008% on 325 mesh; fineness (Hegman) 5; oil absorp. 10; brightness 94; pH 9.0-9.5

**Camel-CAL®** [IMERYS]

*Chem. Descrip.:* Calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for water-based coatings and inks, paper, paper coatings, thermosets (glass-reinforced polyester), thermoplastics (PP, ABS), PVC pipe, siding, profiles, extrusion, film, sheeting, color concs., paint (gloss, semi-gloss, flat latex); improves impact str.

*Properties:* Wh. powd.; 0.7 μ avg. particle diam.; 100% finer than 7 μ; 65% finer than 1 μ; 0.14% sol. in water; sp.gr. 2.70-2.71; dens. 22.57 lb/gal solid; bulk dens. 35 lb/ft<sup>3</sup> (loose); oil absorp. 28 cc/100 g; brightness (Hunter) 96; ref. index 1.6; pH 9.5 (sat. sol'n.)

*Toxicology:* Nontoxic

**Camel-CAL® ST** [IMERYS]

*Chem. Descrip.:* Stearate-coated calcium carbonate

*Uses:* Filler for water-based coatings and inks, paper, paper coatings, thermosets (glass-reinforced polyester), thermoplastics (PP, ABS), PVC pipe, siding, profiles, extrusion, film, sheeting, color concs., paint (gloss, semi-gloss, flat latex); improves impact str.; easy disp.; hydrophobic

*Properties:* Wh. powd.; 0.7 μ avg. particle diam.; 100% finer than 7 μ; 65% finer than 1 μ; 0.14% sol. in water; sp.gr. 2.70-2.71; dens. 22.57 lb/gal solid; bulk dens. 25 lb/ft<sup>3</sup> (loose); oil absorp. 28 cc/100 g; brightness (Hunter) 96; ref. index 1.6; pH 9.5 (sat. sol'n.); hardness (Moh) 3.0; 1% surface treatment

*Toxicology:* Nontoxic

**Camel-CAL® Slurry** [IMERYS]

*Chem. Descrip.:* Calcium carbonate slurry

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for aq. coatings and inks, paper, paper coatings, thermosets (glass-reinforced polyester), thermoplastics (PP, ABS), PVC pipe, siding, profiles, extrusion, film, sheeting, color concs., paints (gloss, semigloss, flat latex)

*Properties:* Slurry; 0.7 μ avg. particle diam.; 100% finer than 7 μ; 90% finer than 2 μ; 0.14% sol. in water; sp.gr. 2.70-2.71; dens. 15.87 lb/gal; visc. 90-150 cps; brightness (Hunter) 96; ref. index 1.6; pH 9.5 (sat. sol'n.); hardness (Moh) 3.0; 75 ± 0.5% solids

**Camel-FINE** [IMERYS]

*Chem. Descrip.:* Calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for plastics, PVC, polyolefins, polyesters, BMC/SMC, paint, caulks, sealants, adhesives, paper, foam urethane, modified acrylics, filled thermosets/thermoplastics, and rubber; improves impact str., dimensional stability

*Regulatory:* NSF approved for potable water materials

*Properties:* Wh. powd.; 2 μ avg. particle diam.; 99.9% finer than 8 μ; 0.15% sol. in water; sp.gr. 2.70-2.71; dens. 22.57 lb/gal; bulk dens. 38 lb/ft<sup>3</sup> (loose); oil absorp. 23 ± 1 cc/100 g; brightness (Hunter) 95; ref. index 1.6; pH 9.5 (sat.); hardness (Moh) 3.0

*Toxicology:* Nontoxic

**Camel-WITE®** [IMERYS]

*Chem. Descrip.:* Calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for paints, paper, paper coating, PVC, rubber (automotive goods, footwear, medical supplies), thermoplastics (PP, nylon, urethanes, HDPE, LDPE, ABS, PS), thermosets (SMC, BMC, TMC glass reinforced polyesters, epoxy, alkaline phenolics), caulks, glazing compds., ceramics, adhesives, food processing

*Properties:* Very wh. dry powd.; 3.0 μ avg. particle diam.; 99.9% finer than 12 μ; 50% finer than 3 μ; 0.08% sol. in water; sp.gr. 2.70-2.71; dens. 22.57

lb/gal solid; bulk dens. 40 lb/ft<sup>3</sup> (loose); oil absorp. 15 cc/100 g; brightness (Hunter) 95; ref. index 1.6; pH 9.5 (sat. sol'n.); hardness (Moh) 3.0

*Toxicology:* Nontoxic

**Camel-WITE® Slurry** [IMERYS]

*Chem. Descrip.:* Calcium carbonate aq. slurry

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for paints, paper, paper coating, PVC, rubber (automotive goods, footwear, medical supplies), thermoplastics (PP, nylon, urethanes, HDPE, LDPE, ABS, PS), thermosets (SMC, BMC, TMC glass reinforced polyesters, epoxy, alkaline phenolics), caulks, glazing compds., ceramics, adhesives, food processing

*Properties:* Very wh. slurry; 3.0 μ avg. particle diam.; 99.9% finer than 12 μ; 50% finer than 3 μ; 0.08% sol. in water; sp.gr. 2.70-2.71; dens. 15.3 lb/gal; bulk dens. 40 lb/ft<sup>3</sup> (loose); visc. 100-200; brightness (Hunter) 95; ref. index 1.6; pH 9.5 (sat. sol'n.); hardness (Moh) 3.0; 72.0 ± 0.5% solids

**Camel-WITE® ST** [IMERYS]

*Chem. Descrip.:* Surface-treated calcium carbonate

*Uses:* Filler for paints, paper, paper coating, PVC, rubber (automotive goods, footwear, medical supplies), thermoplastics (PP, nylon, urethanes, HDPE, LDPE, ABS, PS), thermosets (SMC, BMC, TMC glass reinforced polyesters, epoxy, alkaline phenolics), caulks, glazing compds., ceramics, adhesives, food processing

*Properties:* Very wh. dry powd.; 3.0 μ avg. particle diam.; 99% finer than 12 μ; 50% finer than 3 μ; 0.08% sol. in water; sp.gr. 2.70-2.71; dens. 22.57 lb/gal solid; bulk dens. 35 lb/ft<sup>3</sup> (loose); oil absorp. 15 cc/100 g; brightness (Hunter) 95; ref. index 1.6; pH 9.5 (sat. sol'n.); hardness (Moh) 3.0; 1% surface treatment

*Toxicology:* Nontoxic

**Candelilla Wax SP 24A** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax substitute

CAS 136097-95-5

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Amber crude lumps, refined lumps, flakes, or powd.; m.p. (R & B) 165-175 F; acid no. 2-10; sapon. no. 50-65; 45% max. paraffinic hydrocarbons

**Candelilla Wax SP 50** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Candelilla Wax SP 75** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Candelilla Wax SP 76** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5

C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Candelilla Wax SP 78 Prime Quality Crude** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Tan crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Candelilla Wax SP 99** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Candelilla Wax SP 350** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Yel. crude lumps, refined lumps, flakes, or powd.; m.p. 68.5-72.5 C; acid no. 12-22; sapon. no. 43-65; flash pt. 241 C min.; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Candelilla Wax SP 803** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax substitute

CAS 136097-95-5

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Tan crude lumps, refined lumps, flakes, or powd.; m.p. 174-180 F; acid no. 8-15; sapon. no. 30-40; 45% max. paraffinic hydrocarbons

**Candelilla Wax Fine** [Strahl & Pitsch]

*Chem. Descrip.:* Candelilla wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Wax used in cosmetics, pharmaceuticals, precision casting, polishes, lubricants, adhesives, paper coatings and sizing, chewing gum base, elec. insulators, candle compositions; food pkg. adhesives, coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180; CTFA listed

*Properties:* Powd.; 98% min. thru 60 mesh, 70% min. thru 120 mesh, 30% min. thru 200 mesh, 10% min. thru 325 mesh; 45% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**CAP-482-0.5** [Eastman]

*Chem. Descrip.:* Cellulose acetate propionate ester

CAS 9004-39-1

*Uses:* Film-former used in printing inks, paper coatings, cloth coatings; carrier for metallic and fluorescent pigments and dyes; food pkg. adhesives, coatings, paper/paperboard, cellophane, films; wide solubility, high m.p., exc. grease barrier properties; forms films with fast solv. release, exc. antiblocking props.

*Regulatory:* FDA §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400; DOT nonregulated; SARA nonreportable

*Properties:* Wh. fine powd.; low odor; sol. in 1,6-hexanediol diacrylate, trimethylolpropane triacrylate, tetraethylene glycol diacrylate; negligible sol. in water; m.w. 25,000; sp.gr. 1.23; visc. 1.52 poise; vapor pressure negligible; m.p. 188-210 C; ref. index 1.475; Tukon hardness 23; 100% solids; 2.5% acetyl, 45% propionyl

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, guinea pig) > 5000 mg/kg; sl. skin irritant or sensitizer; expected to be low ing. hazard; TSCA listed

*Precaution:* Combustible solid; powd. material may form explosive dust-air mixts.; incompat. with strong oxidizers; mixing in a nonpolar hydrocarbon can cause static buildup which can cause flash fire

*Hazardous Decomp. Prods.:* Combustion prods.: CO<sub>2</sub>, CO

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep container closed

#### CAP-482-20 [Eastman]

*Chem. Descrip.:* Cellulose acetate propionate

CAS 9004-39-1

*Uses:* Film-former used in printing inks, paper coatings, cloth coatings, nail polishes; food pkg. adhesives, coatings, paper/paperboard, cellophane, films; exc. grease barrier properties

*Regulatory:* FDA §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400; DOT nonregulated; SARA nonreportable

*Properties:* Wh. fine powd.; low odor; negligible sol. in water; m.w. 75,000; sp.gr. 1.23; dens. 10.2 lb/gal; visc. 76 poise; vapor pressure negligible; m.p. 188-210 C; ref. index 1.475; Tukon hardness 23; 100% act.; 2.5% max. acetyl, 45-49% propionyl

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, guinea pig) > 5000 mg/kg; sl. skin irritant or sensitizer; expected to be a low ing. hazard; TSCA listed

*Precaution:* Combustible solid; powd. material may form explosive dust-air mixts.; can react with strong oxidizing materials; minimize dust generation and accumulation; mixing in a nonpolar hydrocarbon can cause static buildup which can cause flash fire

*Hazardous Decomp. Prods.:* Combustion prods.: CO<sub>2</sub>, CO

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep container closed

#### CAP-504-0.2 [Eastman]

*Chem. Descrip.:* Cellulose acetate propionate ester

CAS 9004-39-1

*Uses:* Used in printing inks, nail polishes; forms stable one-pkg. thermoset systems; food pkg. adhesives, coatings, paper/paperboard, cellophane, films; exc. grease barrier properties

*Regulatory:* FDA §175.105, 175.230, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 177.1400

*Properties:* Wh. fine powd.; low odor; sol. in alcohol/water blends; m.w. 15,000; dens. 1.26 kg/l; visc. 0.76 poise; m.p. 188-210 C; Tukon hardness 20; 0.6% acetyl, 42.5% propionyl

#### Carbital® 35 [IMERYS]

*Chem. Descrip.:* Calcium carbonate (limestone)

CAS 1317-65-3

*Uses:* Filler, pigment, reinforcing agent for paper, paints, polymers, food, caulks, matte or dull coatings; med.-fine; wet-ground

*Properties:* Wh. powd. or 72% solids slurry; odorless; 0.005% max. 325 mesh; fineness 35% 2 μ; negligible sol. in water; sp.gr. 2.71; dens 15.32 lb/gal (72% solids); visc. 500 cps (72%); surf. area 3.5 m<sup>2</sup>/g; pH 9-10; nonflamm.; TLV/TWA 10 mg/m<sup>3</sup>

*Precaution:* Considered nuisance dust; incompat. with acids

#### Carbital® 75 [IMERYS]

*Chem. Descrip.:* Calcium carbonate (limestone)

CAS 1317-65-3

*Uses:* Filler, pigment, reinforcing agent for paper, paint, polymers, food, caulks, etc.; ultrafine; exc. optical properties; low visc., low adhesive demand in coatings, good retention as filler

*Properties:* Wh. powd. or 75% solids slurry; odorless; 0.005% max. 325 mesh; fineness 75% 2 μ; negligible sol. in water; sp.gr. 2.71; dens 15.87 lb/gal (72% solids); visc. 250 cps (72%); surf. area 8 m<sup>2</sup>/g; pH 9-10; nonflamm.; TLV/TWA 10 mg/m<sup>3</sup>

*Precaution:* Considered nuisance dust; incompat. with acids

#### Carbital® 90 [IMERYS]

*Chem. Descrip.:* Calcium carbonate (limestone)

CAS 1317-65-3

*Uses:* Pigment, filler, reinforcing agent for paper, paint, polymers, food, caulks,

etc.; high brightness pigment for coating high quality papers; ultrafine; offers low visc., low abrasion

*Properties:* Wh. powd. or 75% solids slurry; odorless; 0.005% max. 325 mesh; fineness 90% 2 μ; negligible sol. in water; sp.gr. 2.71; dens 15.87 lb/gal (72% solids); visc. 250 cps (72%); surf. area 12 m<sup>2</sup>/g; pH 9-10; nonflamm.; TLV/TWA 10 mg/m<sup>3</sup>

*Precaution:* Considered nuisance dust; incompat. with acids

#### Carbodash 103 [NOF]

*Chem. Descrip.:* Mixt. of special nonions

*Uses:* Deinking agent for paper industry; low foaming

*Properties:* Lt. yellowish liq.

#### Carbopol® 907 [BFGoodrich]

*Chem. Descrip.:* Polyacrylic acid

CAS 9003-01-4

*Uses:* Emulsifier, thickener, stabilizer, suspending agent, lubricant used for drilling muds, photosensitive emulsions, water treatment, cosmetic and personal care applics., topical pharmaceuticals; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; JSPI compliance

*Properties:* Wh. fluffy powd.; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 0-3000 cps (4%); pH 2.5-3.0 (1% aq. disp.); 100% conc.; anionic

*Environmental:* Low aquatic toxicity; BOD=0, nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® 910 [BFGoodrich]

*Chem. Descrip.:* Carbomer 910

CAS 9003-01-4

*Uses:* Emulsifier; thickener; stabilizer; suspending agent; used for flocking, dip coating, textile back coating; cosmetic and personal care applics.; topical pharmaceuticals; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, BP, JSPI compliance

*Properties:* Wh. fluffy powd.; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 3000-7000 cps (1%); pH 2.5-3.0 (1% aq. disp.); 100% conc.; anionic

*Toxicology:* LD50 (oral, rat) 10.25 g/kg, (dermal, rabbit) > 3 g/kg, (inh., rat) 1.71 mg/l; eye irritant; sl. skin irritant

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® 934 [BFGoodrich]

*Chem. Descrip.:* Carbomer 934

CAS 9003-01-4

*Uses:* Rheology agent, emulsifier, thickener, stabilizer, suspending agent for lubricating, quenching and silicone emulsions, graphite, polyethylene, fiber and paper suspensions, stable pharmaceutical emulsions and suspensions, aq. and solv.-based gels; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, BP, JSPI compliance; EPA hazardous waste; SARA §312 chronic health hazard, §313 reportable (benzene)

*Properties:* Wh. fluffy powd.; sl. acetic odor; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 30,500-39,400 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); 100% conc.; < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause eye irritation, pain; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; low aquatic toxicity; BOD=0, nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 934P** [BFGoodrich]

*Chem. Descrip.:* Carbomer 934P

CAS 9003-01-4

*Uses:* For pharmaceutical industry; thickener; suspending agent; emulsifier for topical lotions and sustained release tablets, oral pharmaceuticals; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; high purity grade

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, BP, IP, JSPI compliance

*Properties:* Wh. fluffy powd., sl. acetic odor; m.w. ≈ 3,000,000; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 2050-5450 cps (0.2%), 29,400-39,400 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); anionic

*Toxicology:* LD50 (oral) 2.5-40 g/kg, low acute toxicity; mild eye irritant; minimal skin irritant

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 940** [BFGoodrich]

*Chem. Descrip.:* Carbomer 940

CAS 9003-01-4

*Uses:* Emulsifier, thickener, stabilizer, suspending agent used in cosmetics, topical pharmaceuticals, for die-casting and forging lubricants, thixotropic paints; solvent thickening with or without neutralizing; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, BP, JSPI compliance; EPA hazardous waste; SARA §312 chronic health hazard, §313 reportable (benzene)

*Properties:* Wh. fluffy powd., sl. acetic odor; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 40,000-60,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); 100% conc., < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause eye irritation, pain; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; low aquatic toxicity; BOD=0; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 941** [BFGoodrich]

*Chem. Descrip.:* Carbomer 941

CAS 9003-01-4

*Uses:* Emulsifier, thickener for cosmetics and topical pharmaceuticals; emulsion stabilizer for shampoos, lotions, and thin gels with good clarity; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, JSPI compliance; EPA hazardous waste; SARA §312 chronic health hazard, §313 reportable (benzene)

*Properties:* Wh. fluffy powd., sl. acetic odor; sol. in water, polar solvs., many nonpolar solvs. blends; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 4000-11,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); 100% conc.; < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause eye irritation, pain; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide,

potassium hydroxide, or strongly basic amines

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 971P** [BFGoodrich]

*Chem. Descrip.:* Carbomer 941 (polymerized in ethyl acetate)

CAS 9003-01-4

*Uses:* Emulsifier, thickener, stabilizer, suspending agent for pharmaceuticals, esp. oral and mucoadhesive applics., controlled-release tablets, oral suspensions, transdermals, low-visc. clear topical lotions and gels; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; USP/NF, BP, JSPI compliance

*Properties:* Wh. fluffy powd., sl. acetic odor; 2-6 μ particle size; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 4000-11,000 cps (0.5%); acid no. 700-750; pH 2.5-3.0 (1% aq. disp.); anionic

*Toxicology:* LD50 (dermal, rabbit) > 2.0 g/kg; nonirritating to eyes; nonsensitizing to human skin

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 974P** [BFGoodrich]

*Chem. Descrip.:* Carbomer 934P (polymerized in ethyl acetate)

CAS 9003-01-4

*Uses:* Emulsifier, thickener, stabilizer, suspending agent for pharmaceuticals, esp. oral and mucoadhesive applics., controlled-release tablets, oral suspensions, transdermals, topicals; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, BP, JSPI compliance

*Properties:* Wh. fluffy powd.; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 29,400-39,400 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); anionic

*Toxicology:* LD50 (dermal, rabbit) > 2.0 g/kg; nonirritating to eyes; nonsensitizing to human skin

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 980** [BFGoodrich]

*Chem. Descrip.:* Carbomer 940

CAS 9003-01-4

*Uses:* Solvent thickener for cosmetics, topical pharmaceuticals, sparkling clear water or hydroalcoholic topical gels, aq. or solv. systems; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; for use with or without neutralizing

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, DAB, JSPI compliance; SARA §312 chronic health hazard

*Properties:* Wh. fluffy powd., sl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 13,000-30,000 cps (0.2%), 40,000-60,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; sl. irritating to skin; minimal eye irritant; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

**Carbopol® 981** [BFGoodrich]

*Chem. Descrip.:* Carbomer 941

CAS 9003-01-4

*Uses:* Emulsifier, thickener for low visc. sparkling clear pharmaceutical topical gels, emulsion stabilization of topical lotions; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; effective in mod. ionic systems



*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, JSPI compliance; SARA §312 chronic health hazard

*Properties:* Wh. fluffy powd.; sl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 4000-10,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; sl. irritating to skin; minimal eye irritant; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® 1342 [BFGoodrich]

*Chem. Descrip.:* Acrylates/C10-30 alkyl acrylate crosspolymer

*Uses:* Rheology agent, emulsifier, stabilizer, moisturizer, thickener, gellant for cosmetic emulsions, skin care prods., topical pharmaceuticals; emulsion stabilizer; light gellant for water or hydroalcoholic systems; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; for pourable prods. contg. suspended incompat. ingreds.

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; NF, JSPI compliance; EPA hazardous waste; SARA §312 chronic health hazard, §313 reportable (benzene)

*Properties:* Wh. fluffy powd., sl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 9500-26,500 cps (1%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; nonirritating to skin; mod. eye irritant in conc. form, nonirritating @ 1%; dust inh. may cause coughing, mucous prod., shortness of breath; may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® 1382 [BFGoodrich]

*Chem. Descrip.:* Acrylates/C10-30 alkyl acrylate crosspolymer

*Uses:* Rheology agent, thickener, emulsion stabilizer for cosmetics, topical pharmaceuticals; light gellant for water or hydroalcoholic systems; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; formulation of pourable prods. contg. suspended incompat. ingreds.

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; JSPI compliance

*Properties:* Wh. fluffy powd.; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 25,000-45,000 (1%); pH 2.5-3.0 (1% aq. disp.); anionic

*Toxicology:* Sl. skin irritant; borderline eye irritant

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® 2984 [BFGoodrich]

*Chem. Descrip.:* Carbomer

CAS 9003-01-4

*Uses:* Rheology agent, emulsifier, thickener, stabilizer, suspending agent used in cosmetics, topical pharmaceutical stable emulsions and suspensions, aq. and solv.-based gels; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; BP, JSPI compliance; SARA §312 chronic health hazard

*Properties:* Wh. fluffy powd.; sl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 45,000-80,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause pain, eye irritation; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® 5984 [BFGoodrich]

*Chem. Descrip.:* Carbomer

CAS 9003-01-4

*Uses:* Rheology agent, emulsifier, thickener, stabilizer, suspending agent used in cosmetics, topical pharmaceutical stable emulsions and suspensions, aq. and solv. based gels; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; BP, JSPI compliance; SARA §312 chronic health hazard

*Properties:* Wh. fluffy powd.; sl. acetic odor; sol. in water; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 25,000-45,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg, (skin, rabbit) > 3000 mg/kg; dust may cause pain, eye irritation; dust inh. may cause coughing, mucous prod., shortness of breath; prolonged/repeated exposure may cause contact dermatitis; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® ETD 2001 [BFGoodrich]

*Chem. Descrip.:* Crosslinked acrylic acid polymer with processing aid

*Uses:* Rheology agent, thickener, stabilizer, suspending agent for topical pharmaceutical aq. or solv. systems, sparking clear water or hydroalcoholic topical gels; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; easier to disperse and mix

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; SARA §312 chronic health hazard

*Properties:* Wh. fluffy powd.; sl. acetic odor; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 45,000-65,000 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture

*Toxicology:* Sl. skin irritant in conc. form, non to very sl. irritant @ 1%; sl. to mod. eye irritant (undiluted); dust inh. may cause coughing, mucous prod., shortness of breath; TSCA listed

*Environmental:* LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

*Precaution:* Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® ETD 2020 [BFGoodrich]

*Chem. Descrip.:* Crosslinked acrylic acid polymer with processing aid

*Uses:* Thickener, emulsion stabilizer for cosmetics, topical pharmaceuticals; light gellant for water or hydroalcoholic systems; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; formulation of pourable prods. contg. suspended incompat. ingreds.; easier to disperse and mix

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; SARA §312 chronic

health hazard

**Properties:** Wh. fluffy powd.; sl. acetic odor; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 32,000-77,000 cps (1%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture

**Toxicology:** Sl. skin irritant in conc. form, non to very sl. irritant @ 1%; sl. to mod. eye irritant (undiluted); dust inh. may cause coughing, mucous prod., shortness of breath; TSCA listed

**Environmental:** LC50 (daphnia magna, 96 h) 168-280 mg/l; nonbiodeg.; removed with the biomass in typ. wastewater treatment

**Precaution:** Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

**NFPA:** Health 2; Flammability 1; Reactivity 0

**Storage:** 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbopol® ETD 2050 [BFGoodrich]

**Chem. Descrip.:** Crosslinked acrylic acid polymer with processing aid

**Uses:** Emulsifier, thickener for low visc. sparkling clear pharmaceutical topical gels, emulsion stabilization of topical lotions; food pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings; effective in mod. ionic systems; easier to disperse and mix

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 177.1210, 177.2260; 40CFR §180.1001; SARA §312 chronic health hazard

**Properties:** Wh. fluffy powd.; sl. acetic odor; sp.gr. 1.41; bulk dens. 208 kg/m<sup>3</sup>; visc. 8000-16,500 cps (0.5%); pH 2.5-3.0 (1% aq. disp.); < 2% moisture

**Toxicology:** Sl. skin irritant in conc. form, non to very sl. irritant @ 1%; sl. to mod. eye irritant (undiluted); dust inh. may cause coughing, mucous prod., shortness of breath; TSCA listed

**Environmental:** Nonbiodeg.; removed with the biomass in typ. wastewater treatment

**Precaution:** Take precautions against dust explosion; heat may be generated in contact with strong basic materials such as ammonia, sodium hydroxide, potassium hydroxide, or strongly basic amines

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, hydrocarbons, irritating vapors

**NFPA:** Health 2; Flammability 1; Reactivity 0

**Storage:** 2 yr min. shelf life stored in sealed containers, protected from moisture and extreme temps.; hygroscopic

#### Carbaset® 514A [BFGoodrich]

**Chem. Descrip.:** Acrylic sol'n. polymer in IPA

**Uses:** Thermoplastic film-forming resin used in protective metal coatings, paints, ceramics, adhesives, textiles, paper, leather, cosmetics, floor polishes, chemical specialties; exc. dispersant, leveling, and binding char.; rec. for solv. and solv./water formulations

**Properties:** Colorless to sl. yls. clear sol'n.; m.w. 30,000; water-sol.; dens. 8.6 lb/gal; visc. 25,000 MPa·s; acid no. 65; tens. str. 11.0 MPa; tens. elong. 50%; hardness (Sward) 24; 70% NV

#### Carbaset® 514H [BFGoodrich]

**Chem. Descrip.:** Acrylic colloidal disp. in ammonia water

**Uses:** Thermoplastic film-forming resin used in protective metal coatings, latex paints, inks, ceramics, adhesives, textiles, paper, leather, cosmetics, floor polishes, chemical specialties; exc. dispersant, leveling, and binding chars.; provides exc. pigment wetting and gloss to coating systems; rec. for clear lacquers, fastener coatings, temporary alkali strippable coating systems

**Properties:** Milky wh. disp.; m.w. 30,000; dens. 8.8 lb/gal; visc. 3500 MPa·s; acid no. 65; pH 7; film props.: clear, glossy; tens. str. 11.0 MPa; tens. elong. 50%; hardness (Sward) 24; 40% act. in ammonia water

#### Carbaset® 515 [BFGoodrich]

**Chem. Descrip.:** Acrylates copolymer

CAS 25133-97-5

**Uses:** Thermoplastic film-forming resin used in protective metal coatings, latex paints, ceramics, adhesives, textiles, cosmetics, paper, leather, floor polishes, chemical specialties; exc. dispersant, leveling, and binding chars.; plasticizer for solv. or waterborne systems; provides exc. pigment wetting

**Properties:** Colorless clear visc. liq.; m.w. 7000; dens. 9.2 lb/gal; visc. 2 x 10<sup>6</sup> MPa·s; acid no. 60-65; 100% NV

#### Carbaset® 525 [BFGoodrich]

**Chem. Descrip.:** Acrylic resin

**Uses:** Thermoplastic film-forming resin used in protective metal coatings,

paints, ceramics, printing inks, adhesives, textiles, paper, leather, cosmetics, floor polishes, chemical specialties; binder for photoresists; primer for films; exc. dispersant, leveling, and binding chars.; rec. for solv. lacquers and to modify solv. systems; produces hard, high gloss, tough films

**Properties:** Wh. gran. solid; sol. in alkaline water or solvs.; m.w. 210,000; sp.gr. 1.2; dens. 10 lb/gal; visc. 9000 cps (15% in ammonia water); acid no. 76-85; tens. str. 26.2 MPa; tens. elong. 165%; hardness (Sward) 24; 99% NV

#### Carbaset® 531 [BFGoodrich]

**Chem. Descrip.:** Acrylic colloidal disp. in ammonia water

**Uses:** Thermoset film-forming resin used in protective metal coatings, paints, printing inks, ceramics, adhesives, textile print pastes, paper, leather, cosmetics, floor polishes, chemical specialties; exc. dispersant, leveling, and binding chars.; binder for nonwoven fabrics; rec. for bake finishes; produces extremely hard, tough, stain resist. finishes with exc. water, humidity, and corrosion resist.

**Properties:** Wh. translucent sol'n.; m.w. 106 (cured); sp.gr. 1.046; dens. 8.6 lb/gal; visc. 20,000 cps; acid no. 32; pH 8.0; hardness (Sward) 24; 25% act.

#### Carbaset® GA1086 [BFGoodrich]

**Chem. Descrip.:** Acrylic copolymer emulsion

CAS 25133-97-5

**Uses:** High gloss vehicle for overprint varnishes on paper, paperboard, and foil, for use in industrial and plastic coatings; exc. clarity and adhesion to treated polyolefins

**Properties:** Dens. 8.6 lb/gal; visc. 200 cps; pH 7.8; hardness (Konig) 35; 48% NV by wt.

#### Carbaset® GA1604 [BFGoodrich]

**Chem. Descrip.:** Acrylic copolymer emulsion

CAS 25133-97-5

**Uses:** Vehicle for clear coatings on paper, paperboard, and other board coating applics.; inks and overprint varnishes; heat resist.; good block resist. and heat resist. to 450 F

**Properties:** Dens. 8.9 lb/gal; visc. 600 cps; pH 8.7; hardness (Konig) 38; 42% NV by wt.

#### Carbowax® PEG 300 [Union Carbide]

**Chem. Descrip.:** PEG-6

CAS 25322-68-3; EINECS/ELINCS 220-045-1

**Uses:** Coupling agent, solvent, vehicle, humectant, lubricant, binder, base used in adhesives, agric., ceramics, cosmetics/toiletries, electroplating/electropolishing, food processing, household prods., lubricants, metal fabrication, paints, paper, pharmaceuticals, printing, rubber and elastomers, textiles, wood processing; chem. intermediate; food pkg. adhesives and food-contact articles

**Regulatory:** FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated  
**Properties:** Water-wh. visc. liq.; sol. in water, alcohols, glycerin, glycols; m.w. 285-315; sp.gr. 1.1250; dens. 9.38 lb/gal; visc. 5.8 cSt (99 C); f.p. -15 to -8 C; hyd. no. 356-394; flash pt. (PMCC) > 180 C; ref. index 1.463; pH 4.5-7.5 (5% aq.); surf. tens. 44.5 dynes/cm; nonionic

#### Carbowax® PEG 540 Blend [Union Carbide]

**Chem. Descrip.:** PEG-6 and PEG-32 (41:59)

**Uses:** Base for ointments and suppositories; also for adhesives, agric., ceramics, chem. intermediates, electroplating, household prods., lubricants, metal fabrication, paints, paper, printing, rubber, textiles, wood processing; food pkg. adhesives and food-contact articles

**Regulatory:** FDA 21CFR §175.105, 178.3750, 178.3910; EPA regulated  
**Properties:** Soft solid; sol. in methylene chloride, 73% in water, 50% in trichloroethylene, 48% in methanol; m.w. 500-600; sp.gr. 1.0930 (60 C); dens. 9.17 lb/gal (55 C); visc. 15.1 cSt (210 F); f.p. 38-41; flash pt. (CCC) > 350 F; pH 4.5-7.5 (5% aq.)

#### Cardipol® LP 0-25 [Baker Petrolite]

**Chem. Descrip.:** Oxidized polyethylene

CAS 68441-17-8; EINECS/ELINCS 200-815-3

**Uses:** For formulating hot-melt adhesives; food pkg. adhesives and textiles; defoamer in food-contact paper coatings, food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, 177.2800

**Properties:** Color 1.5 (D1500) wax; m.p. 104.4 C; acid no. 32; sapon. no. 72

#### Carnauba Wax SP 8 [Strahl & Pitsch]

**Chem. Descrip.:** Carnauba (Copernicia cerifera) wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

**Uses:** Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks,

paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Toxicology:* TSCA listed

**Carnauba Wax SP 59-2** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax substitute

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Lt. brn. flakes, lumps, or powd.; m.p. 175-187 F; acid no. 8-15; sapon. no. 80-95

**Carnauba Wax SP 63** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Yel. flakes, lumps, or powd.; m.p. 83 C min.; acid no. 2-6; sapon. no. 78-88; flash pt. 310 C min.; 2% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Carnauba Wax SP 63 NF** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Yel. flakes, lumps, or powd.; m.p. 80-86 C min.; acid no. 2-7; sapon. no. 78-95; 0.004% max. heavy metals

*Toxicology:* TSCA listed

**Carnauba Wax SP 64 (Extra Light)** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax substitute

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Yel. flakes, lumps, or powd.; m.p. 75-80 C; acid no. 8-12; sapon. no. 46-54

*Toxicology:* TSCA listed

**Carnauba Wax SP 135** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax substitute

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Tan flakes, lumps, or powd.; m.p. 169-175 F; acid no. 5 max.; sapon. no. 15-21

**Carnauba Wax SP 142** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Brn. flakes, lumps, or powd.; m.p. 82.5 C min.; acid no. 4-10; sapon. no. 78-88; flash pt. 299 C min.; 2% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Carnauba Wax SP 200** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Tan flakes, lumps, or powd.; m.p. 82.5 C min.; acid no. 4-10; sapon. no. 78-88; flash pt. 299 C min.; 2% max. paraffinic hydrocarbons

*Toxicology:* TSCA listed

**Carnauba Wax Coarse** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Powd.; 80% min. thru 60 mesh, 60% min. thru 120 mesh, 20% min. thru 200 mesh, 10% min. thru 325 mesh

*Toxicology:* TSCA listed

**Carnauba Wax Fine** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Powd.; 98% min. thru 60 mesh, 75% min. thru 120 mesh, 50% min. thru 200 mesh, 20% min. thru 325 mesh

*Toxicology:* TSCA listed

**Carnauba Wax Hard** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Yel. confectioner's powd.; 75% min. thru 120 mesh; m.p. 81 C min.; acid no. 4-10; sapon. no. 78-98

*Toxicology:* TSCA listed

**Carnauba Wax Soft** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Yel. confectioner's powd.; 75% min. thru 120 mesh; m.p. 81 C min.; acid no. 6-12; sapon. no. 80-100

*Toxicology:* TSCA listed

**Carnauba Wax Superfine** [Strahl & Pitsch]

*Chem. Descrip.:* Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Wax for cosmetics, pharmaceuticals, ointments, tablet coatings, candles, confections, investment casting, auto/floor/shoe polishes, carbon paper, inks, paper coatings, fruit coatings

*Regulatory:* FDA 21CFR §182.1978; CTFA listed

*Properties:* Powd.; 99% min. thru 60 mesh, 98% min. thru 120 mesh, 65% min. thru 200 mesh, 40% min. thru 325 mesh

*Toxicology:* TSCA listed

**Carsonon® TD-10** [Lonza]

*Chem. Descrip.:* Trideceth-10

CAS 24938-91-8

*Uses:* Emulsifier, detergent, wetting agent, foaming agent, solubilizer used for household/industrial cleaners, textile processing, paper industry

*Properties:* Gardner 1 liq.; water sol.; dens. 8.5 lb/gal; HLB 13.7; cloud pt. 162-166 F (1% aq.); flash pt. > 300 F (COC); pour pt. 67 F; pH 5.0-7.0 (3% aq.); 100% act.; nonionic

**Carsoquat® SDQ-25** [Lonza]

*Chem. Descrip.:* Stearalkonium chloride (21%), stearyl alcohol (4%), IPA (5%), water (70%)

*Uses:* Surfactant, conditioner, softener for cosmetics (cream hair rinses, skin creams and lotions, aerosol hair sprays, hair color rinses), textiles, paper; antistat for natural and syn. fibers; dispersant for pigments and dyestuffs

*Properties:* Wh. thick creamy paste; mild, sweet odor; sol. in lower alcohols and glycols; readily disp. in water; dens. 7.9 lb/gal; pour pt. 110-120 F; clear pt. 140 F; pH 3.0-4.0 (1% disp.); 21% act.; cationic

**Cartabond® TSI Liq.** [Clariant UK]

*Chem. Descrip.:* Reactive polyhydroxylated aq. resin

*Uses:* Surf. str. improver for printed paper and board, esp. offset printing papers, carbonless papers, pkg. paper/board, food pkg., coated board, silicon release papers (self adhesives, labels); crosslinking agent for nat. and syn. binders (starch, PVAL, casein, CMC, acrylic, S/B) for paper

mfg.; insolubilizer of binders in coatings, size press, and film press for upgrading surf. props. of paper and board; good freeze-thaw stability; compat. with anionics, cationics, nonionics; formaldehyde-free

**Regulatory:** FDA 21CFR §176.180

**Properties:** Clear liq.; sol. in water in all proportions; dens. 1.24 kg/l; visc. 70 mPa·s (20 C); flash pt. nonflamm.; pH 4.0; 42% solids

**Storage:** 1 yr storage stability if stored in closed containers at 5-35 C

**Cartacol® ASN Liq.** [Clariant UK]

**Chem. Descrip.:** Styrene maleic anhydride copolymer  
CAS 9011-13-6

**Uses:** Surf. treatment for paper for use at size press or film press to improve sizing and printability of paper and board, esp. office stationery, coating base, offset printing paper, food-contact paper (dry food); improves holdout of aq. coatings and inks; low foaming; compat. with anionics, nonionics

**Regulatory:** FDA 21CFR §176.180; BgVV compliant

**Properties:** Turbid sol'n.; sl. aromatic odor; misc. with water in all proportions; visc. 350 mPa·s; pH 8.5; 28% act.; anionic

**Storage:** 1 yr storage stability; freezes below 0 C, but is fully effective after thawing

**Cartacol® NP Liq.** [Clariant UK]

**Chem. Descrip.:** Styrene maleic anhydride copolymer  
CAS 9011-13-6

**Uses:** Surf. treatment for paper for use at size press or film press to improve sizing and printability of paper and board, esp. office stationery, coating base, offset printing paper, specialty papers, food-contact paper (dry food); improves holdout of aq. coatings and inks; compat. with anionics, nonionics

**Regulatory:** FDA 21CFR §176.180; BgVV compliant

**Properties:** Colorless, sl. turbid sol'n.; sl. ammonia odor; misc. with water in all proportions; visc. 100 mPa·s; pH 9.0; 14% act.; anionic

**Storage:** 6 mos storage stability; freezes below 0 C, but is fully effective after thawing

**Cartacol® SI Liq.** [Clariant UK]

**Chem. Descrip.:** Styrene/acrylic ester copolymer  
CAS 9010-92-8

**Uses:** Surf. treatment for neutral or alkaline sized paper for use at size press or film press to improve sizing and printability of paper and board, esp. office stationery, coating base, ink jet printing paper, specialty food wrap (dry food contact); sizing agent for recycled fiber; improves holdout of aq. coatings and inks; compat. with anionics, nonionics

**Regulatory:** FDA 21CFR §176.180; BgVV compliant

**Properties:** Off-wh. disp.; sl. aromatic odor; misc. with water in all proportions; visc. < 100 mPa·s (20 C); pH 7 (10%); 25% act.; anionic

**Storage:** 6 mos storage stability at 5-25 C; not freeze-thaw stable

**Cartacol® XP Liq.** [Clariant UK]

**Chem. Descrip.:** Styrene/acrylic ester copolymer  
CAS 9010-92-8

**Uses:** Surf. treatment for use at size press or film press to improve sizing and printability of paper and board, esp. office stationery, coating base, ink jet printing paper, specialty papers not sized at wet-end; sizing agent for recycled fiber; improves holdout of aq. coatings and inks; compat. with anionics, nonionics; good mech. stability; low foaming tendency

**Properties:** Off-wh. disp.; sl. aromatic odor; misc. with water in all proportions; visc. 100 mPa·s; pH 9 (10%); 23% act.; anionic

**Storage:** 6 mos storage stability at 25 C; do not freeze

**Cartafen ZFN Liq.** [Clariant UK]

**Chem. Descrip.:** Aromatic resin

**Uses:** Retention aid for paper and board mfg. where pulps are highly contaminated with sol. and colloidal impurities; incl. newsprint, paper/board from recycled waste; for use with Cartaretin E powd. as part of Cartafen Technology, a dual component system; substantive to mech. pulp; interacts strongly with Cartaretin E powd.

**Use Level:** 0.03-0.08%

**Properties:** Brn. sl. visc. liq.; dens. 1.1 kg/l; visc. 56 mPa·s (20 C); pH 9.0; weakly anionic

**Storage:** 12 mos storage stability at 25 C; solidifies below 0 C but regains full effectiveness after thawing

**Cartafix® CB Liq.** [Clariant UK]

**Chem. Descrip.:** Crosslinked polyalkylamine

**Uses:** Pitch and anionic trash control agent for paper, coated paper/board, food-contact paper; reduced COD/BOD in backwater and waste streams; improved runnability; improved dyestuff yield and fixation; reduced usage/ increased efficiency of other additives

**Regulatory:** FDA 21CFR §176.170, GbVV XXXVI

**Properties:** Pale yel. visc. liq.; dens. 1.147 kg/l; visc. 435 mPa·s (20 C), 910 mPa·s (0 C); pH 3.8; 44% dry solids; cationic

**Storage:** 12 mos min. storage stability @ 20 C; solidifies below -12 C but regains full effectiveness after thawing

**Cartafix® DPR Liq.** [Clariant UK]

**Chem. Descrip.:** Polyamine

**Uses:** Anionic trash control agent for paper; lower backwater COD levels; increased efficiency of other additives; reduced sticking problems; formaldehyde-free; effective @ pH 4-8; stable to salts, acids, water hardness; nonfoaming

**Properties:** Colorless to pale yel. clear liq.; dilutable in water in all proportions; dens. 1.06 kg/l; visc. 100 mPa·s (20 C); pH 4.5; cationic

**Storage:** 12 mos min. storage stability @ 20 C; solidifies below -12 C but regains full effectiveness after thawing

**Cartafix® F Liq.** [Clariant UK]

**Chem. Descrip.:** Quat. polyhydroxylalkylene polyamine

**Uses:** Fixing agent for anionic direct dyes and aux. for dyeing with cationic direct dyes (paper industry); economical; formaldehyde-free; maintains its high charge under both acid and alkaline conditions; good stability to salts, acids, hard water; precipitates in alkali at high concs.

**Use Level:** 0.4-3% (fixative for anionic direct dyes, to improve bleedfastness), 0.2-2% (to control/prevent colored two-sidedness), 0.05-0.5% (dyeing with cationic direct dyes)

**Properties:** Colorless clear low-visc. liq.; dilutable with water in all proportions; dens. 1.06 kg/l; pH 7-8; strongly cationic

**Storage:** Good storage stability

**Cartaflex® K Liq.** [Clariant UK]

**Chem. Descrip.:** Fatty acid condensation prod.

**Uses:** Detackifier, adhesion control aux. on the cylinder in prod. of creped tissue and paper grades and very lightweight paper grades such as one-way carbon paper, flower wrapping tissue, etc.; softener for tissue and handtowel crepe; reduces dusting, electrostatic charging; stable to acids, alkali (to pH 9), hard water; insensitive to salts; compat. with cationics, nonionics; low foaming

**Properties:** Wh. pumpable liq.; dilutable with water in all proportions; visc. ≈ 2000 mPa·s (20 C); pH ≈ 4; 25% act.; cationic

**Storage:** Good storage stability; solidifies below 0 C but still effective

**Cartaflex® RW Liq.** [Clariant UK]

**Chem. Descrip.:** Fatty acid condensation prod.

**Uses:** Softener, creping additive for tissue and handtowel crepe; detackifier on the cylinder in paper mfg.; substantive; stable to acids, alkali, salt, hard water; compat. with cationics, nonionics; low foaming

**Use Level:** 0.1-2.0% (dry stock basis), 0.1-0.4% (antisticking on drying cylinder)

**Properties:** Ylsh. clear liq.; disp. with cold water in all proportions; dens. 1 kg/l; pH 5.5; 25% act.; cationic

**Storage:** Good storage stability at -10 to 40 C; solidifies below 0 C but still effective

**Cartaretin® 5CP Powd.** [Clariant UK]

**Chem. Descrip.:** Polyacrylamide

CAS 9003-05-8

**Uses:** Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

**Properties:** Wh. free-flowing powd.; dens. 0.68 kg/l; visc. 100 mPa·s (0.5% sol'n., 20 C); f.p. -15 C; pH 3.8 (0.5%); cationic

**Storage:** 8 mos storage stability @ 25 C

**Cartaretin® 10AE Liq.** [Clariant UK]

**Chem. Descrip.:** Polyacrylamide

CAS 9003-05-8

**Uses:** Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

**Properties:** Off-wh. opaque w/o emulsion; dens. 1.02 kg/l; visc. 440 mPa·s (20 C); f.p. -18 C; pH 4.9 (0.5%); anionic

**Storage:** 6 mos storage stability @ 20 C; prevent water from getting into opened containers

**Cartaretin® 10AP Powd.** [Clariant UK]

**Chem. Descrip.:** Polyacrylamide

CAS 9003-05-8

**Uses:** Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

**Properties:** Wh. free-flowing powd.; dens. 0.74 kg/l; visc. 830 mPa·s (0.5%



**Cartaretin® 10CE Liq.**

sol'n., 20 C); pH 6.7 (0.5%); anionic  
*Storage:* 10 mos storage stability @ 25 C

**Cartaretin® 10CE Liq.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Off-wh. opaque w/o emulsion; dens. 1.04 kg/l; visc. 1120 mPa·s (20 C); f.p. -15 C; pH 4.2 (0.5%); cationic

*Storage:* 6 mos storage stability @ 25 C; prevent water from getting into opened containers

**Cartaretin® 10CP Powd.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Wh. free-flowing powd.; dens. 0.68 kg/l; visc. 410 mPa·s (0.5% sol'n., 20 C); f.p. -15 C; pH 3.7 (0.5%); cationic

*Storage:* 8 mos storage stability @ 25 C

**Cartaretin® 20AE Liq.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Off-wh. opaque w/o emulsion; dens. 1.05 kg/l; visc. 640 mPa·s (20 C); f.p. -18 C; pH 5.2 (0.5%); anionic

*Storage:* 6 mos storage stability @ 20 C; prevent water from getting into opened containers

**Cartaretin® 20AP Powd.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Wh. free-flowing powd.; dens. 0.74 kg/l; visc. 1260 mPa·s (0.5% sol'n., 20 C); pH 7.0 (0.5%); anionic

*Storage:* 10 mos storage stability @ 25 C

**Cartaretin® 20CE Liq.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Off-wh. opaque w/o emulsion; dens. 1.02 kg/l; visc. 790 mPa·s (20 C); f.p. -15 C; pH 3.9 (0.5%); cationic

*Storage:* 6 mos storage stability @ 25 C; prevent water from getting into opened containers

**Cartaretin® 30AE Liq.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Off-wh. opaque w/o emulsion; dens. 1.08 kg/l; visc. 700 mPa·s (20 C); f.p. -18 C; pH 6.3 (0.5%); anionic

*Storage:* 6 mos storage stability @ 20 C; prevent water from getting into opened containers

**Cartaretin® 30AP Powd.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Wh. free-flowing powd.; dens. 0.74 kg/l; visc. 1390 mPa·s (0.5% sol'n., 20 C); pH 7.5 (0.5%); anionic

*Storage:* 10 mos storage stability @ 25 C

**Cartaretin® 30CP Powd.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Wh. free-flowing powd.; dens. 0.68 kg/l; visc. 420 mPa·s (0.5% sol'n., 20 C); f.p. -15 C; pH 3.7 (0.5%); cationic

*Storage:* 8 mos storage stability @ 25 C

**Cartaretin® 40CE Liq.** [Clariant UK]

*Chem. Descrip.:* Polyacrylamide

CAS 9003-05-8

*Uses:* Retention aid, drainage aid for paper and board mfg. and fiber recovery operations

*Properties:* Off-wh. opaque w/o emulsion; dens. 1.02 kg/l; visc. 780 mPa·s (20 C); f.p. -15 C; pH 3.7 (0.5%); cationic

*Storage:* 6 mos storage stability @ 25 C; prevent water from getting into opened containers

**Cartaretin® DS Liq.** [Clariant UK]

*Chem. Descrip.:* Polyamine

*Uses:* Retention aid, drainage aid for paper and board mfg.; for use in combination with a high m.w. polyacrylamide; good stability to acids, salts, water hardness; nonfoaming

*Properties:* Colorless or straw-colored, clear to sl. hazy liq.; dilutable with water in all proportions; dens. 1.05-1.07 kg/l; visc. < 100 mPa·s (20 C); pH 4-5; cationic

*Storage:* 12 mos storage stability @ 25 C; solidifies below 0 C but regains full effectiveness after thawing

**Cartaretin® Dual System** [Clariant UK]

*Chem. Descrip.:* Two-component system consisting of a low m.w. cationic polymer and a high m.w. cationic polyacrylamide

*Uses:* Retention aid, drainage aid for paper and board mfg.

*Properties:* Cationic

**Cartaretin® E Powd.** [Clariant UK]

*Chem. Descrip.:* High m.w. polyethylene oxide  
CAS 25322-68-3; EINECS/ELINCS 203-473-3

*Uses:* Retention aid for paper and board mfg. where pulps are highly contaminated with sol. and colloidal impurities, incl. newsprint, paper/board from recycled waste; for use with Cartafen ZFN Liq. as part of Cartafen Technology, a dual component system

*Use Level:* 0.03-0.08%

*Properties:* Wh. free-flowing powd.; bulk dens. 0.5 g/l; visc. 350 mPa·s (0.5% sol'n., 20 C); pH 7.2 (0.5%); nonionic

*Storage:* 12 mos storage stability at 25 C

**Cartaretin® F Liq.** [Clariant UK]

*Chem. Descrip.:* Polyamidamine aq. sol'n.

*Uses:* Retention aid, drainage aid for paper and board mfg., fiber recovery, backwater clarification, and food-contact papers (Germany); used alone or in combination with a high m.w. polyacrylamide

*Regulatory:* BgVV approved for food-contact papers

*Properties:* Ylsh. clear liq.; dilutable with water in all proportions; dens. 1.06 kg/l; visc. 450-1000 mPa·s (20 C); pH 6.5-7.5; cationic

*Storage:* 12 mos storage stability @ 25 C; solidifies below -2 C but regains full effectiveness after thawing

**Cartaretin® K Liq.** [Clariant UK]

*Chem. Descrip.:* Polyether amine aq. sol'n.

*Uses:* Retention aid, drainage aid for paper and board mfg., fiber recovery, backwater clarification, and food-contact papers (Germany); used alone or in combination with a high m.w. polyacrylamide

*Regulatory:* BgVV approved for food-contact papers

*Properties:* Yel.-brn. clear liq.; dilutable with water in all proportions; dens. ≈ 1.1 kg/l; visc. 100-450 mPa·s (20 C); pH 6.5-7.5; cationic

*Storage:* 12 mos storage stability @ 25 C; solidifies below -8 C but regains full effectiveness after thawing

**Cartaretin® U Liq.** [Clariant UK]

*Chem. Descrip.:* Polyfunctional amine

*Uses:* Drainage aid for paper and board mfg.

*Properties:* Colorless clear liq.; dilutable with water in all proportions; dens. 1.1 kg/l; visc. 1700 mPa·s (20 C); pH 3; cationic

*Storage:* 10 mos storage stability @ 25 C

**Cartarex® 2L Liq.** [Clariant UK]

*Chem. Descrip.:* Condensation prod. of a polyamine with a dicarboxylic acid  
*Uses:* Fluorescence quenching agent for optical brighteners in the water circulation and stock prep. equipment for paper mfg.; fluorescence quenching agent for waste paper, recycled fiber, and deinked pulps; good stability to hard water, acids; compat. with nonionics, cationics

*Properties:* Yel.-brn. clear liq.; dilutable with water in any proportion; dens. 1.15 kg/l; visc. 50-100 mPa·s (20 C), 100-200 mPa·s (0 C); solid. pt. -11 C; pH 4-6; 27% solids; cationic

*Storage:* 6 mos min. storage stability

**Cartarex® NT Liq.** [Clariant UK]

*Chem. Descrip.:* Polyimidazoline salt

*Uses:* Fluorescence quenching agent for optical brighteners in the water

- circulation and stock prep. equipment for paper mfg.; fluorescence quenching agent for waste paper, recycled fiber, and deinked pulps; good stability to hard water, acids; compat. with nonionics, cationics
- Properties:* Orange-brn. clear liq.; dilutable with water in any proportion; dens. 1.1 kg/l; visc. 56 mPa·s (20 C), 92 mPa·s (0 C); solid. pt. -6 C; pH 5.5; 26% solids; cationic
- Storage:* 6 mos min. storage stability
- Cartasol® Blue 3RF Liq.** [Clariant UK]  
*Uses:* Dye for wood-free paper and board, esp. for tinting high wh. grades; substantive; urea-free; high lightfastness; largely colorless backwater; good bleedfastness props.; true sol'n. with low visc.; applicable at pH 4-9
- Properties:* Reddish-blue; anionic
- Cartasol® Blue 3RFN Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content, and for tinting high wh. grades; substantive; dianisidine-free; low copper and urea content; largely colorless backwater; good bleedfastness props.; mod. lightfastness rating; true sol'n. with low visc.; applicable at pH 4-9
- Properties:* Reddish-blue; anionic
- Cartasol® Blue K-5R Liq.** [Clariant UK]  
*Chem. Descrip.:* Direct dye  
*Uses:* Dye for paper and board made with predominantly wood-free pulp; highly substantive; dianisidine-free; copper-free; urea-free; colorless backwater; good bleedfastness props.; good bleachability; true sol'n. with low visc.; applicable at pH 4-10
- Properties:* Reddish-blue shade; cationic
- Cartasol® Brilliant Blue 3GF Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content; substantive; dianisidine-free; very good waterfastness; largely colorless backwater; good bleedfastness props.; lightfastness rating 2-3; true sol'n. with low visc.; applicable at pH 4-8
- Properties:* Bright sl. greenish-blue; anionic
- Cartasol® Brilliant Orange 2RFN Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content, esp. fine paper and tissue; substantive; urea-free; good bleedfastness props.; true sol'n. with low visc.; applicable at pH 4-9
- Properties:* Bright reddish-orange; anionic
- Cartasol® Brilliant Violet 5BFN Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content, esp. high wh. papers and for prod. of deep navy, plum, and violet shades; highly substantive; contains no urea, dianisidine, copper, or glycols; largely colorless backwater; good bleedfastness; very good fixability; good oxidative/reductive bleachability; true sol'n. with low visc.; applic. at pH 4-9
- Properties:* Bright bluish-violet; anionic
- Cartasol K** [Clariant; Clariant AG/PPP]  
*Uses:* Dyes for coloration of cationic aq. coating systems, paper and board with little or no wood content in the stock and at the size press; highly substantive
- Cartasol® Red 2GFN Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content, esp. fine paper and tissue; highly substantive; urea-free; good bleedfastness props.; true sol'n. with low visc.; applicable at pH 4-9
- Properties:* Bright red; anionic
- Cartasol® Red 3BFN Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content; highly substantive; urea-free; largely colorless backwaters; good lightfastness; true sol'n. with low visc.; applicable at pH 3-10
- Properties:* Bluish-red shade; pH ≈ 7.6; anionic
- Cartasol® Turquoise K-ZL Liq.** [Clariant UK]  
*Uses:* Dye for predominantly wood-free paper and board, nonwovens, and inks for tissue printing; highly substantive; colorless backwater; exc. bleedfastness props.; good lightfastness; true sol'n. with low visc.; applicable at pH 3-10
- Properties:* Bright, sl. reddish turquoise; pH ≈ 3.4; cationic
- Cartasol® Turquoise RF Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content; substantive; largely colorless backwater; good bleedfastness props.; good lightfastness (rating 3); true sol'n. with low visc.; applicable at pH 4-8
- Properties:* Bright sl. reddish-turquoise; pH ≈ 11.5; anionic
- Cartasol® Yellow 3GF Liq.** [Clariant UK]  
*Uses:* Dye for paper and board with little or no wood content; substantive; negatively charged chromophore; generally good bleedfastness props.; good lightfastness rating; true sol'n. with low visc.; applicable at pH 4-9
- Properties:* Bright greenish-yel. shade; anionic
- Cartasol® Yellow 3GSFN Liq.** [Clariant UK]  
*Chem. Descrip.:* Direct dye  
*Uses:* Direct dye for dyeing wood-free paper and board; highly substantive; good shade stability; little or no fixative required; better bleedfastness ratings
- Properties:* Greenish-yel.
- Cartax® DP Liq.** [Clariant UK]  
*Chem. Descrip.:* Disp. of water-insol. oxazinone  
*Uses:* Fluorescent pigment/marketing agent for stamp and security papers for applic. in the stock, size press, or coating slips; luminesces grnsh.-yel. in UV light; exhibits no phosphorescence; good frost stability
- Properties:* Wh. disp.; readily dilutable with cold water; act. substance is insol. in water and alcohols, only sl. sol. in aromatic hydrocarbons, esters, ketones; dens. 1.02 kg/l; visc. 22.7 mPa·s (20 C); 10.3 mPa·s (0 C); pH 7; ≈ 12% pigment; anionic
- Storage:* Stable > 1 yr below 40 C; solidifies below -5 C but is fully effective on thawing; do not store < -5 C for prolonged period
- Caster Wax A** [NOF]  
*Chem. Descrip.:* Hydrogenated castor oil  
 CAS 8001-78-3; EINECS/ELINCS 232-292-2
- Uses:* Grease; surfactant; cosmetics; coating agent for paper and textiles; polishing agent for leather, etc.
- Properties:* Bead; m.p. 84 C min.; acid no. 2 max.; iodine no. 5 max.; sapon. no. 176-187; hyd. no. 150-160
- Cat-Floc® 8151** [Nalco]  
*Chem. Descrip.:* Polyelectrolyte  
*Uses:* Coagulant for clarification of drinking water; applics. incl. industrial and municipal raw water/wastewater clarifiers, wet scrubber thickeners, min. processing thickeners, lime/soda softeners; food-contact paper/paperboard; highly effective for coagulating fine colloidal turbidity and color; chlorine resist., effective over broad pH range
- Use Level:* 1% dilution  
*Regulatory:* EPA approved for drinking water; FDA approved for paper mfg. for indirect food contact
- Properties:* Water-wh. to pale yel. sl. visc. clear liq.; completely sol. in water; dens. 10.4 lb/gal; visc. 100-200 cps; f.p. 0 F; flash pt. noncombustible; pH < 1.0; cationic
- Toxicology:* May cause skin and eye irritation  
*Precaution:* Corrosive to iron and copper, incl. their alloys; incompat. with other inorganics
- Storage:* Store in heated buildings or tanks to prevent freezing; store @ > 40 F to prevent crystallization
- Cat-Floc® 8959** [Nalco]  
*Chem. Descrip.:* Polyelectrolyte  
*Uses:* Primary coagulant for water clarification; applics. incl. industrial and municipal raw water and wastewater clarifiers, wet scrubber thickeners, min. processing thickeners, lime/soda softeners; food-contact paper/paperboard; chlorine resist.; produces fast-forming floc
- Use Level:* 1% dilution  
*Regulatory:* EPA approved for drinking water; FDA approved for paper mfg. for indirect food contact
- Properties:* Water-wh. to pale yel. sl. visc. clear liq.; completely sol. in water; dens. 10.5 lb/gal; visc. 100-200 cps; f.p. 0 F; flash pt. noncombustible; pH < 1.0; cationic
- Toxicology:* May cause skin and eye irritation  
*Precaution:* Corrosive to iron and copper, incl. their alloys; incompat. with other inorganics
- Storage:* Store in heated buildings or tanks to prevent freezing; store @ > 40 F to prevent crystallization
- Cat-Floc® DL** [Nalco]  
*Chem. Descrip.:* Polyelectrolyte  
*Uses:* Primary coagulant in water clarification, mfg. of food-contact paper/paperboard; replacement for, or in conjunction with, inorg. coagulants such as ferric salts or alum; chlorine resist. and effective over broad pH range
- Use Level:* Dilution to 1%  
*Regulatory:* FDA §176.170; EPA approved
- Properties:* Clear to pale yel. liq.; completely sol. in water; dens. 8.5 lb/gal; pH 6-8; cationic
- Precaution:* Mod. corrosive to iron and copper, incl. their alloys  
*Storage:* Store @ temps. above freezing, as prod. appearance may be affected; stratification may occur upon freezing, but will homogenize again with gentle warming and agitation

**Cat-Floc® L** [Nalco]*Chem. Descrip.:* Polyelectrolyte*Uses:* Primary coagulant in raw water and wastewater clarification, mfg. of food-contact paper/paperboard; can replace or be used with inorg. coagulants such as ferric salts or alum*Use Level:* Dilution to 1%*Regulatory:* FDA §176.170; EPA approved*Properties:* Clear to pale yel. liq.; completely sol. in water; dens. 8.6 lb/gal; f.p. 27 F; flash pt. noncombustible; pH 7.0 ± 1.0; cationic*Precaution:* Corrosive to iron and copper, incl. their alloys*Storage:* Protect from freezing; stratification may occur, but will homogenize again with gentle warming and agitation**Cat-Floc® LS** [Nalco]*Chem. Descrip.:* Polyelectrolyte*Uses:* Primary coagulant in raw water and wastewater clarification, mfg. of food-contact paper/paperboard; can replace or be used with inorg. coagulants such as ferric salts or alum*Use Level:* Dilution to 1%*Regulatory:* FDA §176.170; EPA approved*Properties:* Visc. yel. liq.; completely sol. in water; dens. 8.5 lb/gal; visc. 2000-4000 cps; f.p. 30 F; flash pt. noncombustible; pH 6.0-8.0; cationic*Precaution:* Moderately corrosive to iron and copper, incl. their alloys*Storage:* Protect from freezing; stratification may occur, but will homogenize again with gentle warming and agitation**Cat-Floc® TL** [Nalco]*Chem. Descrip.:* Polyelectrolyte*Uses:* Primary coagulant in raw water and wastewater clarification, mfg. of food-contact paper/paperboard; can replace or be used with inorg. coagulants such as ferric salts or alum*Use Level:* Dilution to 1%*Regulatory:* FDA §176.170; EPA approved*Properties:* Clear to pale yel. liq.; completely sol. in water; dens. 8.6 lb/gal; f.p. 27 F; flash pt. noncombustible; pH 3.5 ± 0.2; cationic*Precaution:* Moderately corrosive to iron and copper, incl. their alloys*Storage:* Protect from freezing otherwise stratification may occur; will become homogeneous upon agitation**Catofast® GM** [BASF]*Chem. Descrip.:* Substituted polyethylenimine aq. sol'n.

CAS 9002-98-6

*Uses:* Neutralizer and fixing agent for pitch and stickies in papermaking; binds fines, fillers, slimy colloids and other org. substances that are dissolved or dispersed in the stock; fixing agent for anionic additives; reclaims fibers from excess white water; inc. drainage rates; shortens drying times*Properties:* Cationic**Catofast® NB-DF** [BASF]*Chem. Descrip.:* Polyethylenimine deriv. aq. sol'n.

CAS 9002-98-6

*Uses:* Dye fixative for wet-end papermaking; improves bleedfastness of substantive dyes; effective in acid and alkaline systems*Use Level:* 25-50% of dyestuff*Properties:* Cationic**Catofast® NB-PD** [BASF]*Chem. Descrip.:* Polyethylenimine aq. sol'n.

CAS 9002-98-6

*Uses:* Fixing agent for fillers, fines, pitch, anionic and nonionic colloids, pigment dyes, and direct dyes in papermaking; promotes performance of alkaline sizes; accelerates sizing development; synergist for anionic polyacrylamides; rec. for highly contaminated systems; enhances runnability and efficiency of savealls and waste treatment; enhances performance of cationic agents such as starch and wet str. resins; high charge dens.*Properties:* Water-sol.**Catofast® PL** [BASF]*Chem. Descrip.:* Polyethylenimine aq. sol'n.

CAS 9002-98-6

*Uses:* Fixing agent, promoter in highly contaminated, high hardness environments for papermaking; binds fines, fillers, slimy colloids and other org. substances that are dissolved or dispersed in the stock; fixing agent for anionic substances; pitch control agent; reclaims fibers from excess white water; inc. drainage rates; shortens drying time; for wet str. papers; may impair the fluorescent activity of optical brighteners in very white grades of paper*Properties:* Cationic**CC™-103** [IMERYS]*Chem. Descrip.:* Calcium carbonate

CAS 1317-65-3

*Uses:* Pigment, filler, reinforcing agent for paper, paint, polymers, food, esp. polyolefins, carpet backing, caulks, sealants, putties; mild abrasives in cleaners; coarse ground*Properties:* Wh. powd., odorless; 80% thru 325 mesh; negligible sol. in water; sp.gr. 2.71; dens. 22.57 lb/gal; bulk dens. 72 lb/ft<sup>3</sup> (loose); bulking value 0.044; ref. index 1.59; pH 9.5; nonflamm.*Toxicology:* TLV/TWA 10 mg/m<sup>3</sup>, considered nuisance dust*Precaution:* Incompat. with acids**CD-401** [Sartomer]*Chem. Descrip.:* Cyclohexane dimethanol dimethacrylate*Uses:* Produces hard, durable coatings with good clarity and adhesion to diverse substrates for window films, polycarbonate coatings, solder masks, wood, plastic and paper coatings, dry film photo imaging, metalized surf. coating; monomer that offers fast cures; resist. to yellowing; chem. resistant; steel wool scratch resist.*Properties:* Solid; sol. in butyl cellosolve acetate, 2-phenoxyethyl methacrylate, tetrahydrofurfuryl acrylate, ethoxylated<sub>2</sub> bisphenol A diacrylate, propoxylated allyl methacrylate, tetrahydrofurfuryl methacrylate; epoxy acrylate oligomer blended with 1,6 hexanediol diacrylate; m.p. 78 C; ref. index 1.475; 0.01% acid**CD-406** [Sartomer]*Chem. Descrip.:* Cyclohexane dimethanol diacrylate*Uses:* Produces hard, durable coatings with good clarity and adhesion to diverse substrates for window films, polycarbonate coatings, solder masks, wood, plastic and paper coatings, dry film photo imaging, metalized surf. coating; monomer that offers fast cures; resist. to yellowing; chem. resistant; steel wool scratch resist.*Properties:* Solid; sol. in butyl cellosolve acetate, 2-phenoxyethyl methacrylate, tetrahydrofurfuryl acrylate, ethoxylated<sub>2</sub> bisphenol A diacrylate, propoxylated allyl methacrylate, tetrahydrofurfuryl methacrylate; 1-methoxy 2-propanol; 2(2-ethoxyethoxy)ethyl acetate, dipropylene glycol monomethyl ether, epoxy acrylate oligomer blended with 1,6 hexanediol diacrylate; m.p. 78 C; 0.04% acid**CD 501** [Sartomer]*Chem. Descrip.:* PPG-6 trimethylolpropane triacrylate with 95 ppm MEHQ inhibitor*Uses:* Used in acrylics, adhesives (pressure sensitive, structural), coatings (glass, metal, optical, paper, PVC floor, release, textile, wood), electronics, inks, paints, and photopolymers; low shrinkage and fast cure*Properties:* APHA 85 clear liq.; sp.gr. 1.168; visc. 140 cps; 99% reactive esters*Toxicology:* Low skin irritation*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F**Cecamid® Resins** [Ceca SA]*Chem. Descrip.:* Polyamidoamine epichlorohydrin, urea-formaldehyde, or melamine-formaldehyde resins*Uses:* Wet str. resin for papermaking (food paper, decoration, label, tissue, and specialties); renders papers mechanically resist. to humidity, enabling them to be printed and recycled*Regulatory:* BgVV XXXVI and XXXVI.I compliance**Cecavon® CA 31** [Ceca SA]*Chem. Descrip.:* Calcium stearate

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Anticaking agent for powds. and fertilizers; water repellent for concrete, coatings; release agent, lubricant for foundry, ceramics, molding powds., composites; gellant*Use Level:* 2-4% (foundry release, composites lubricant), 1-2% (ceramics lubricant, anticaking agent), 0.5-2% (water repellent)*Properties:* Wh. powd.; sol. hot in aromatic solvs. (benzene, toluene, xylene), min. and veg. oils, waxes; insol. in water, alcohols, ketones, esters; dens. ≈ 200 kg/m<sup>3</sup>; m.p. 160-170 C; flash pt. none*Toxicology:* LD50 (oral, rat) > 10,000 mg/kg; nonhazardous in normal condition of use; avoid formation of dust*Environmental:* Biodeg.; no specific risk for environment in normal state; do not release into natural water courses or the environment*Precaution:* Dusts can form explosive mixts. with air; avoid static discharges; strong acids may dec. prod. into nondangerous prods.*Storage:* 1 yr shelf life stored in closed original pkg. @ ambient temps.; keep

away from ignition sources; protect from moisture

**Cecavon® CA 350 P** [Ceca SA]

*Chem. Descrip.:* Calcium stearate aq. susp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Waterproofing agent, dispersant in paper coating or size press; plasticizer, flexibilizer, gloss aid for paper coatings; eliminates orange peel esp. in high speed coating; reduces picking; improves printability; compat. with all binders

*Use Level:* 0.8-1.5% on dry wt. of coating

*Properties:* Wh. milky visc. liq.; disp. in water; dens. 1 g/cc; visc. 100-400

mPa·s; flash pt. none; pH ≥ 8.5 (23 C); 49-51% dry extract

*Toxicology:* Highly alkaline; sl. irritating to eyes and skin; do not ingest

*Environmental:* Do not release into natural water courses or the environment

*Precaution:* Strong acids dec. prod. into nondangerous prods.

*Hazardous Decomp. Prods.:* Possible formation of CO<sub>x</sub> and hazardous org. compds. in a fire, though not readily combustible under normal conditions

*Storage:* 2 mos shelf life @ 5-23 C; store away from cold, heat, sun, and extreme weather conditions; protect from freezing; keep containers tightly sealed

**Cecavon® NA 61** [Ceca SA]

*Chem. Descrip.:* Sodium stearate

CAS 822-16-2; EINECS/ELINCS 212-490-5

*Uses:* Waterproofing agent, lubricant, gellant, opacifier for paper and cosmetics

*Properties:* Powd.; dens. 0.30 max.; m.p. > 200 C; 8.8-9.8% Na.

**Cecavon® ZN 70** [Ceca SA]

*Chem. Descrip.:* Zinc stearate

CAS 557-05-1; EINECS/ELINCS 209-151-9

*Uses:* Waterproofing agent, lubricant, gellant, opacifier for rubber, concrete, composites, paints, varnish, cosmetics, pharmaceuticals, molding, and paper applics.

*Properties:* Powd.; dens. 0.20 max.; m.p. 125-130 C; 10.2-11% Zn.

**Cecavon® ZN 735** [Ceca SA]

*Chem. Descrip.:* Zinc stearate

CAS 557-05-1; EINECS/ELINCS 209-151-9

*Uses:* Waterproofing agent, lubricant, gellant, opacifier for rubber, concrete, composites, paints, varnish, cosmetics, pharmaceuticals, molding, and paper applics.

*Properties:* Liq.; sp.gr. 1 ± 0.10; visc. 50-200 mPa·s; 35 ± 2% dry content

**Celite® 263** [Celite]

*Chem. Descrip.:* Diatomaceous silica, flux calcined

*Chem. Analysis:* SiO<sub>2</sub> (89.6%), Al<sub>2</sub>O<sub>3</sub> (4%), Na<sub>2</sub>O + K<sub>2</sub>O (3.3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), water (0.5%)

CAS 7631-86-9; EINECS/ELINCS 231-545-4

*Uses:* Functional filler used in prod. of various specialty papers and wet laid prods.; lt. wt. bulking agent, drainage aid for slow draining stock; opacity builder, friction material in clutch papers; aids in uniform disp. and suspension of fibers; high porosity, low loose wt. dens., high brightness, lg. surf. area, and inertness

*Properties:* Wh. powd.; 1-4 μ particle size; 0.3% 325-mesh residue; sp.gr. 2.30; dens. 8.7 lb/ft<sup>3</sup> (loose); surf. area 1-3.5 m<sup>2</sup>/g; oil absorp. 120%; ref. index 1.48; pH 10.0

**Celite® 321** [Celite]

*Chem. Descrip.:* Diatomaceous silica

*Chem. Analysis:* SiO<sub>2</sub> (85.8%), Al<sub>2</sub>O<sub>3</sub> (3.8%), Fe<sub>2</sub>O<sub>3</sub> (1.2%), Na<sub>2</sub>O + K<sub>2</sub>O (1.1%), water (4%)

CAS 7631-86-9; EINECS/ELINCS 231-545-4

*Uses:* Functional filler used in prod. of various specialty papers and wet laid prods.; lt. wt. bulking agent, drainage aid for slow draining stock; opacity builder, friction material in clutch papers; aids in uniform disp. and suspension of fibers; high porosity, low loose wt. dens., high brightness, lg. surf. area, and inertness

*Properties:* Lt. gray particulate; 1-8 μ particle size, 8.0% 325-mesh residue; sp.gr. 2.10; dens. 8.0 lb/ft<sup>3</sup> (loose); bulking value 17.5 lb/gal; surf. area 10-20 m<sup>2</sup>/g; oil absorp. 210; ref. index 1.40-1.46

**Celite® 388** [Celite]

*Chem. Descrip.:* Diatomaceous silica, flux calcined

*Chem. Analysis:* SiO<sub>2</sub> (89.6%), Al<sub>2</sub>O<sub>3</sub> (4%), Na<sub>2</sub>O + K<sub>2</sub>O (3.3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), water (0.5%)

CAS 7631-86-9; EINECS/ELINCS 231-545-4

*Uses:* Functional filler used in prod. of various specialty papers and wet laid prods.; lt. wt. bulking agent, drainage aid for slow draining stock; opacity

builder, friction material in clutch papers; aids in uniform disp. and suspension of fibers; high porosity, low loose wt. dens., high brightness, lg. surf. area, and inertness

*Properties:* Wh. particulate; particle size 2-10 μ, 1.5% 325-mesh residue; sp.gr. 2.30; dens. 8.5 lb/ft<sup>3</sup> (loose); surf. area 1-3.5 m<sup>2</sup>/g; oil absorp. 140%; ref. index 1.50; pH 10.0

**Celkate® T-21** [Celite]

*Chem. Descrip.:* Synthetic hydrous magnesium silicate

*Chem. Analysis:* SiO<sub>2</sub> (65%), MgO (14.9%), Al<sub>2</sub>O<sub>3</sub> (4%), moisture (4%), Fe<sub>2</sub>O<sub>3</sub> (1.1%), Na<sub>2</sub>O + K<sub>2</sub>O (1%)

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Functional filler for chem., food, paper, agric., paint, and other industries; carrier, diluent, conditioner, grinding aid in pesticides

*Properties:* Lt. gray powd.; 6.6 μ median particle size; 3% on 325 mesh; sp.gr. 2.4; bulk dens. 12.8 lb/ft<sup>3</sup>; surf. area (BET) 190 m<sup>2</sup>/g; water absorp. 220%; oil absorp. 170%; brightness (Photovolt) 54; ref. index 1.54; pH 7.6 (10% aq. slurry)

**Celnax® CX-Z210 IP** [Nissan Chem. Ind.]

*Chem. Descrip.:* Antimony double oxide sol'n. in isopropanol

*Uses:* Antistat for various films, plastics, fibers, glass, paper, paint, ink, sensors; blocks infrared rays and UV rays; good elec. conductivity; good light and heat resist.; highly dispersive; good compatibility with resins; forms transparent antistatic coating when mixed with transparent liq. resins or inorg. binder

*Properties:* Bluish green clear disp.; 20 nm particle size; sp.gr. 0.96; visc. 14 cps; pH 4.6 (mixed 1:1 with water); vol. resist. 300 ohm-cm; 20% oxide

*Storage:* Keep container closed when not in use to prevent formation of gel by drying; keep away from open flame

**Celnax® CX-Z300H** [Nissan Chem. Ind.]

*Chem. Descrip.:* Antimony double oxide hydrosol

*Uses:* Antistat for various films, plastics, fibers, glass, paper, paint, ink, sensors; blocks infrared rays and UV rays; good elec. conductivity; good light and heat resist.; highly dispersive; good compatibility with resins; forms transparent antistatic coating when mixed with transparent liq. resins or inorg. binder

*Properties:* Bluish green clear aq. disp.; 20 nm particle size; sp.gr. 1.35; visc. 3.4 cps; pH 6.9; vol. resist. 280 ohm-cm; 30% oxide

*Storage:* Keep container closed when not in use to prevent formation of gel by drying; protect from freezing

**Celnax® CX-Z401M** [Nissan Chem. Ind.]

*Chem. Descrip.:* Antimony double oxide sol'n. in methanol

*Uses:* Antistat for various films, plastics, fibers, glass, paper, paint, ink, sensors; blocks infrared rays and UV rays; good elec. conductivity; good light and heat resist.; highly dispersive; good compatibility with resins; forms transparent antistatic coating when mixed with transparent liq. resins or inorg. binder

*Properties:* Bluish green clear disp.; 20 nm particle size; sp.gr. 1.23; visc. 1.6 cps; pH 8.2 (mixed 1:1 with water); vol. resist. 250 ohm-cm; 40% oxide

*Storage:* Keep container closed when not in use to prevent formation of gel by drying; keep away from open flame

**Cerol® M Liq.** [Clariant UK]

*Chem. Descrip.:* Fatty acid chromium (III) complex in water/IPA/acetone sol'n.

*Uses:* Water repellent, release agent, sizing agent for surf. finishing of a wide variety of paper and board incl. food-contact paper (dry food); stable to acids, chlorides, hard water, aluminum; not stable to alkali; compat. with cationics, nonionics; may precipitate with anionics

*Regulatory:* FDA 21CFR §176.180; BgVV XXXVI compliant

*Properties:* Dk. grn. clear liq.; misc. with water and aliphatic alcohol in any proportion; dens. 1.0 kg/l; visc. 75 mPa·s (20 C); flash pt. (PMCC) 1 C; pH 3 (2%); 41% chromium complex; cationic

*Precaution:* Flamm.

*Storage:* Good storage stability; a sl. sediment may form on standing in the cold, but does not affect prod. performance; heating over extended period causes gelation; gelled sol'ns. are unfit for use

**Cerol® MN Liq.** [Clariant UK]

*Chem. Descrip.:* Fatty acid chromium (III) complex

*Uses:* Water repellent, release agent, sizing agent for surf. finishing of a wide variety of paper and board; stable to acids, chlorides, hard water, aluminum; not stable to alkali; compat. with cationics, nonionics; may precipitate with anionics

*Properties:* Dk. grn. clear liq.; misc. with water and aliphatic alcohol in any



proportion; dens. 1.15 kg/l; visc. 1300 mPa·s; flash pt. nonflamm.; pH 3 (2%); 39% chromium complex; cationic

*Storage:* Good storage stability; a sl. sediment may form on standing in the cold, but does not affect prod. performance; heating over extended period causes gelation; gelled sol'ns. are unfit for use

**Chargemaster® R415** [Grain Processing]

*Chem. Descrip.:* Cationic corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Dry str. agent in paper; retention aid, drainage aid improving runnability in papermaking; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 6.5; 11% moisture; cationic

**Chargemaster® R462** [Grain Processing]

*Chem. Descrip.:* Cationic corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Size-press starch; food-contact paper/paperboard; provides good film formation even at lower solids; its chem. attraction to the fiber means less size-press starch will reach the wastewater treatment plant

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 6.5; 11% moisture; cationic

**Chargemaster® R515** [Grain Processing]

*Chem. Descrip.:* Cationic/amphoteric corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Dry str. agent in paper; retention aid, drainage aid improving runnability in papermaking; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 6.5; 11% moisture; cationic/amphoteric

**Chargemaster® R615** [Grain Processing]

*Chem. Descrip.:* Cationic/amphoteric corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Dry str. agent in paper; retention aid, drainage aid, water release aid improving runnability in papermaking; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 6.5; 11% moisture; cationic/amphoteric

**Chargepac® 8** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Org. and inorg. polymers

*Uses:* Primary coagulant for water and wastewater clarification, in oily wastewater demulsification, and greasy tower treatment; food-contact paper/paperboard; can be used in place of conventional inorg. coagulants to produce low turbidity waters in influent water and effluent wastewater clarification applics.

*Use Level:* 2-20 ppm (raw water clarification); 5-100 ppm (industrial wastewater treatment)

*Regulatory:* FDA 21CFR § 176.170, 176.180; EPA approval for potable water @ 200 ppm max. dosage

*Properties:* Colorless clear liq.; sp.gr. 1.22; visc. 130 cps; f.p. -7 C; flash pt. none; pH 2.5; cationic

*Storage:* 9 mos. shelf life in glass, plastic, and epoxy or rubber lined stainless steel equip. @ 40-95 F

**Charlab™ CHT Rapidoprint MS 30** [Catawba-Charlab]

*Chem. Descrip.:* Polymer sol'n.

*Uses:* Special auxiliary for printing of transfer paper with aq. pastes; improves abrasion resist., storability, stability

*Use Level:* 40-80 g (rotary screen printing); 30-60 g (roller printing)

*Properties:* Clear visc. liq.; sol. can be mixed with water in all ratios; pH neutral; nonionic

**Check Dye AS Liq.** [BASF]

*Uses:* Dye for security papers

**Chemal BP 235** [Chemax]

*Chem. Descrip.:* Alkoxyated block polymer

*Uses:* Defoamer in metalworking, cosmetics, paper, and textiles; defoamer in mechanical dishwashing detergents and rinse aids; lubricant base in formulating syn. metalworking lubricants

*Properties:* Liq.; m.w. 1900; HLB 18.5; cloud pt. 77 C (1% aq.); 100% act.; nonionic

**Chemal BP 261** [Chemax]

*Chem. Descrip.:* Poloxamer 181

CAS 9003-11-6

*Uses:* Defoamer, emulsifier, demulsifier, dispersant, binder, stabilizer, wetting agent for metalworking, cosmetics, paper, textiles, dishwashing detergents, rinse aids; lubricant base; chemical intermediate

*Properties:* Liq.; m.w. 2000; HLB 3.0; cloud pt. 24 C (1% aq.); 100% act.; nonionic

**Chemal BP 261PO** [Chemax]

*Chem. Descrip.:* Alkoxyated block polymer

*Uses:* Defoamer in metalworking, cosmetics, paper, and textiles; defoamer in mechanical dishwashing detergents and rinse aids; lubricant base in formulating syn. metalworking lubricants

*Properties:* Liq.; m.w. 2000; HLB 3.0; cloud pt. 24 C (1% aq.); 100% act.; nonionic

**Chemal BP-262** [Chemax]

*Chem. Descrip.:* Poloxamer 182

CAS 9003-11-6

*Uses:* Defoamer, emulsifier, demulsifier, dispersant, binder, stabilizer, wetting agent for metalworking, cosmetics, paper, textiles, dishwashing detergents, rinse aids; lubricant base; chemical intermediate

*Properties:* Liq.; m.w. 2500; HLB 7.0; cloud pt. 30 C (1% aq.); 100% act.; nonionic

**Chemal BP 268** [Chemax]

*Chem. Descrip.:* Alkoxyated block polymer

*Uses:* Defoamer in metalworking, cosmetics, paper, and textiles; defoamer in mechanical dishwashing detergents and rinse aids; lubricant base in formulating syn. metalworking lubricants

*Properties:* Solid; m.w. 8350; HLB 29.0; cloud pt. > 100 C (1% aq.); 100% act.; nonionic

**Chemal BP-2101** [Chemax]

*Chem. Descrip.:* Poloxamer 331

CAS 9003-11-6

*Uses:* Defoamer, emulsifier, demulsifier, dispersant, binder, stabilizer, wetting agent for metalworking, cosmetics, paper, textiles, dishwashing detergents, rinse aids; lubricant base; chemical intermediate

*Properties:* Liq.; m.w. 3800; HLB 1.0; cloud pt. 16 C (1% aq.); 100% act.; nonionic

**Chemal BP 3172P** [Chemax]

*Chem. Descrip.:* Polyalkylene glycol

*Uses:* Defoamer in metalworking, cosmetics, paper, and textiles; defoamer in mechanical dishwashing detergents and rinse aids; lubricant base in formulating syn. metalworking lubricants

*Properties:* Liq.; m.w. 2100; HLB 8.0; cloud pt. 39 C (1% aq.); 100% act.

**Chemal BP 3174** [Chemax]

*Chem. Descrip.:* Reversed block polymers

*Uses:* Defoamer in metalworking, cosmetics, paper, and textiles; defoamer in mechanical dishwashing detergents and rinse aids; lubricant base in formulating syn. metalworking lubricants

*Properties:* Liq.; m.w. 2700; HLB 16.0; cloud pt. 47 C (1% aq.); 100% act.

**Chemal BP 3252** [Chemax]

*Chem. Descrip.:* Reversed block polymers

*Uses:* Defoamer in metalworking, cosmetics, paper, and textiles; defoamer in mechanical dishwashing detergents and rinse aids; lubricant base in formulating syn. metalworking lubricants

*Properties:* Liq.; m.w. 3120; HLB 6.3; cloud pt. 33 C (1% aq.); 100% act.

**Chemax CO-5** [Chemax]

*Chem. Descrip.:* PEG-5 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, lubricant for textiles, cosmetics; pigment dispersant in latex paints, paper; essential oils solubilizer

*Properties:* Liq.; oil-sol.; HLB 3.8; sapon. no. 145; 100% conc.; nonionic

**Chemax CO-16** [Chemax]

*Chem. Descrip.:* PEG-16 castor oil

CAS 61791-12-6

*Uses:* Emulsifier for fiber lubricants, cutting oils, hydraulic fluids; clay and pigment dispersant, rewetting agent, softener, dyeing assistant for paint, paper, textile, and leather industries; cosmetics

*Properties:* Liq.; water-sol.; HLB 8.6; sapon. no. 100; 100% conc.; nonionic

**Chemax CO-30** [Chemax]

*Chem. Descrip.:* PEG-30 castor oil

CAS 61791-12-6

*Uses:* Emulsifier for lubricants for plastics, metals, and textiles; clay and pigment dispersant, rewetting agent, softener, dyeing assistant in textiles, paint, paper, leather

- Properties:* Liq.; HLB 11.7; sapon. no. 73; 100% conc.; nonionic
- Chemax CO-40** [Chemax]  
*Chem. Descr.:* PEG-40 castor oil  
 CAS 61791-12-6  
*Uses:* Emulsifier for lubricants for plastics, metals, and textiles; clay and pigment dispersant, rewetting agent, softener, dyeing assistant in textiles, paint, paper, leather  
*Properties:* Liq.; HLB 12.9; sapon. no. 61; 100% conc.; nonionic
- Chemax DF-10** [Chemax]  
*Chem. Descr.:* Silicone defoamer emulsion  
*Uses:* Defoamer/antifoam for detergents, inks, floor polishes, pulp/paper, textiles, paints, effluent treatment, commercial cleaning processes, adhesives, metalworking; functions well in hot and cold applics.  
*Use Level:* 10-150 ppm  
*Properties:* Off-wh. emulsion; sp.gr. 1.01; pH 7-9 (5% aq.); 10% act.  
*Storage:* Protect from freezing; use within 6 mos for max. efficiency
- Chemax DF-10A** [Chemax]  
*Chem. Descr.:* Silicone defoamer emulsion  
*Uses:* Defoamer/antifoam for pulp/paper, textiles, paints, effluent treatment, commercial cleaning processes, adhesives, metalworking; can be used to prepare dilutions contg. as little as 2% silicone solids  
*Properties:* Wh. emulsion; sp.gr. 1.0; visc. 2100-4100 cps; pH 8.5 (5% aq.); 10-15% solids  
*Storage:* 6 mos shelf life
- Chemax DF-30** [Chemax]  
*Chem. Descr.:* Silicone defoamer emulsion with preservatives  
*Uses:* Defoamer/antifoam for pulp/paper, textiles, paints, effluent treatment, commercial cleaning processes, adhesives, metalworking  
*Use Level:* 10 ppm silicone solids rec.  
*Properties:* Creamy wh. emulsion; sp.gr. 1.0; 30% silicone solids  
*Storage:* Protect from freezing; susceptible to degradation by bacterial growth; 6 mos shelf life
- Chemax DF-100** [Chemax]  
*Chem. Descr.:* Silicone defoamer compd.  
*Uses:* Defoamer/antifoam for pulp/paper, textiles, paints, effluent treatment, commercial cleaning processes, adhesives, metalworking; used to formulate defoamer emulsions; suitable where water emulsifiability is not required  
*Use Level:* 10 ppm  
*Properties:* Opaque liq.; sp.gr. 1.01; 100% act.  
*Storage:* 3 mos stability, then disp. may show some settling; stir before use
- Chemax DFO-155** [Chemax]  
*Chem. Descr.:* POE/POP dioleate  
*Chem. Analysis:* water (0.4%)  
 CAS 67167-17-3  
*Uses:* Defoamer; emulsifier for min. oils and other defoamer components; extender for silicone defoamers; defoamer for paper/paperboard mfg., textiles, paints, effluent treatment, commercial cleaning processes, adhesives, metalworking; SE; high m.w.; org.  
*Regulatory:* FDA approvals  
*Properties:* Gardner 4 max. clear pourable liq.; sol. in naphthenic and paraffinic oils; sp.gr. 0.98; sapon. no. 40-50
- Chemax DFO-199M** [Chemax]  
*Chem. Descr.:* SE high m.w. ester  
*Uses:* Defoamer; emulsifier for min. oils and other defoamer components; extender for silicone defoamers; defoamer for paper/paperboard mfg.; org.  
*Regulatory:* FDA approvals  
*Properties:* Low color; pourable liq.; sol. in naphthenic and paraffinic oils
- Chemax DNP-8** [Chemax]  
*Chem. Descr.:* Nonyl nonoxynol-8  
 CAS 9014-93-1  
*Uses:* Emulsifier for nonpolar solv. and oils; detergent for cellulosic and syn. fibers; dispersant for hard surface cleaners and laundry compds.; solubilizer for paints, paper, agric., textiles, etc.  
*Properties:* Liq.; HLB 10.4; pour pt. 32 F; cloud pt. < 25 C (1% aq.); 100% conc.; nonionic
- Chemax DNP-15** [Chemax]  
*Chem. Descr.:* Nonyl nonoxynol-15  
 CAS 9014-93-1  
*Uses:* Emulsifier for nonpolar solv. and oils; detergent for cellulosic and syn. fibers; dispersant for hard surface cleaners and laundry compds.; solubilizer for paints, paper, agric., textiles, etc.  
*Properties:* Liq.; pour pt. 64 F; nonionic
- Chemax DNP-18** [Chemax]  
*Chem. Descr.:* Nonyl nonoxynol-18  
 CAS 9014-93-1  
*Uses:* Emulsifier, detergent, solubilizer, wetting agent, dispersant, coupling agent for textiles, metalworking, household, industrial, agric., paper, paint, and other industries  
*Properties:* Paste; HLB 13.9; cloud pt. 75 C (1% aq.); 100% conc.; nonionic
- Chemax DNP-150** [Chemax]  
*Chem. Descr.:* Nonyl nonoxynol-150  
 CAS 9014-93-1  
*Uses:* Emulsifier for nonpolar solv. and oils; detergent for cellulosic and syn. fibers; dispersant for hard surface cleaners and laundry compds.; solubilizer for paints, paper, agric., textiles, etc.  
*Properties:* Flake; HLB 19.0; cloud pt. > 100 C (1% aq.); nonionic
- Chemax DNP-150/50** [Chemax]  
*Chem. Descr.:* Nonyl nonoxynol-150  
 CAS 9014-93-1  
*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for textiles, metalworking, household, industrial, agric., paper, paint, and other industries  
*Properties:* Liq.; HLB 19.0; cloud pt. > 100 C (1% aq.); 50% conc.; nonionic
- Chemax HCO-5** [Chemax]  
*Chem. Descr.:* PEG-5 hydrogenated castor oil  
 CAS 61788-85-0  
*Uses:* Emulsifier, lubricant, softener, dispersant for cosmetics, plastics, metals, textiles, leather, paint, and paper industries; coemulsifier for syn. esters  
*Properties:* Liq.; oil-sol.; HLB 3.8; sapon. no. 142; 100% conc.; nonionic
- Chemax HCO-16** [Chemax]  
*Chem. Descr.:* PEG-16 hydrogenated castor oil  
 CAS 61788-85-0  
*Uses:* Emulsifier, lubricant, dispersant, softener for cosmetics, textiles, plastics, metalworking, paint, paper, leather  
*Properties:* Liq.; HLB 8.6; sapon. no. 100; 100% conc.; nonionic
- Chemax HCO-25** [Chemax]  
*Chem. Descr.:* PEG-25 hydrogenated castor oil  
 CAS 61788-85-0  
*Uses:* Emulsifier, lubricant, and softener for cosmetics, plastics, metals, textiles, leather, paint, and paper industries  
*Properties:* Liq.; HLB 10.8; sapon. no. 80; 100% conc.; nonionic
- Chemax HCO-200/50** [Chemax]  
*Chem. Descr.:* PEG-200 hydrogenated castor oil  
 CAS 61788-85-0  
*Uses:* Emulsifier and lubricant for cosmetics, plastics, metals, textiles, paint, paper, leather industries  
*Properties:* Liq.; water-sol.; HLB 18.1; sapon. no. 17; 50% act.; nonionic
- Chemax NP-1.5** [Chemax]  
*Chem. Descr.:* Nonoxynol-1.5  
 CAS 9016-45-9; EINECS/ELINCS 248-291-5  
*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for cosmetics, textiles, metalworking, household, industrial, agric., paper, paint, and other industries  
*Properties:* Liq.; HLB 4.6; pour pt. -3 F; cloud pt. < 25 C (1% aq.); nonionic
- Chemax NP-4** [Chemax]  
*Chem. Descr.:* Nonoxynol-4  
 CAS 9016-45-9; EINECS/ELINCS 230-770-5  
*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for cosmetics, textiles, metalworking, household, industrial, agric., paper, paint, and other industries  
*Properties:* Liq.; water/oil-sol.; HLB 8.9; pour pt. -15 F; cloud pt. < 25 C (1% aq.); 100% conc.; nonionic
- Chemax NP-6** [Chemax]  
*Chem. Descr.:* Nonoxynol-6  
 CAS 9016-45-9  
*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for cosmetics, textiles, metalworking, household, industrial, agric., paper, paint, and other industries  
*Properties:* Liq.; HLB 10.9; pour pt. -26 F; cloud pt. < 25 C (1% aq.); 100% conc.; nonionic
- Chemax NP-9** [Chemax]  
*Chem. Descr.:* Nonoxynol-9  
 CAS 9016-45-9  
*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling

agent for cosmetics, textiles, metalworking, household, industrial, agric., paper, paint, and other industries

*Properties:* Liq.; HLB 13.0; pour pt. 31 F; cloud pt. 54 C (1% aq.); 100% conc.; nonionic

**Chemax NP-10** [Chemax]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for cosmetics, textiles, metalworking, household, industrial, agric., paper, paint, and other industries

*Properties:* Liq.; HLB 13.5; pour pt. 49 F; cloud pt. 72 C (1% aq.); 100% conc.; nonionic

**Chemax NP-15** [Chemax]

*Chem. Descrip.:* Nonoxynol-15

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, rewetting agent, emulsifier in cosmetics, textiles, leather, paper, paints, and metal processing

*Properties:* Paste; HLB 15.0; pour pt. 71 F; cloud pt. 96 C (1% aq.); 100% conc.; nonionic

**Chemax NP-20** [Chemax]

*Chem. Descrip.:* Nonoxynol-20

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, rewetting agent, emulsifier in cosmetics, textiles, leather, paper, paints, and metal processing

*Properties:* Solid; HLB 16.0; pour pt. 91 F; cloud pt. > 100 C (1% aq.); nonionic

**Chemax NP-30** [Chemax]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, rewetting agent, emulsifier in cosmetics, textiles, leather, paper, paints, and metal processing

*Properties:* Solid; HLB 17.1; pour pt. 109 F; cloud pt. > 100 C (1% aq.); 100% conc.; nonionic

**Chemax NP-30/70** [Chemax]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, rewetting agent, emulsifier in cosmetics, textiles, leather, paper, paints, and metal processing

*Properties:* Liq.; HLB 17.1; pour pt. 34 F; cloud pt. > 100 C (1% aq.); 70% act.; nonionic

**Chemax OP-10** [Chemax]

*Chem. Descrip.:* POE (10) octyl phenol

CAS 9002-93-1

*Uses:* Emulsifier, detergent, wetting agent, dispersant, solubilizer, and coupling agent in textiles, metalworking, household, industrial, agric., paper, paint, and other industries; primary emulsifier for vinyl acetate and acrylate polymerization

*Properties:* Liq.; sol. in oil and water; HLB 13.6; cloud pt. 62-68 C (1%); 100% conc.; nonionic

**Chemax OP-30/70** [Chemax]

*Chem. Descrip.:* Octoxynol-30

CAS 9002-93-1

*Uses:* Emulsifier, dispersant, detergent, wetting agent, solubilizer, coupling agent for cosmetics, textiles, metalworking, household, industrial, agric., paper, paint, and other industries

*Properties:* Liq.; HLB 17.3; cloud pt. > 100 C (1% aq.); 70% conc.; nonionic

**Chemistat 6300 H** [Sanyo Chem. Ind.]

*Chem. Descrip.:* Quat. ammonium polymer

*Uses:* Antistat, electroconductive agent for dielec. paper of facsimile and electrofax paper

*Properties:* Yel. liq.; pH 6.5; visc. 150 cps; 33% act.; cationic

**Chempol 13-1905** [Cook Composites & Polymers]

*Chem. Descrip.:* Vinyltoluene-modified alkyd copolymer

*Uses:* Produces high gloss coatings with high pigment loads, used in coatings for PS, toy enamels, paper coatings, finishes for trailer interiors, aerosol coatings

*Properties:* Liq.; sol. 16-18% in min. spirits, 22-24% in butanol, < 5% in xylol; dens. 7.25-7.45 lb/gal; visc. W-Z; acid no. 2-6; flash pt.(TCC) 35 F; 50 ± 1% solids in VM&P naphtha.

**Chemquat 12/33** [Chemax]

*Chem. Descrip.:* Laurtrimonium chloride

CAS 112-00-5; EINECS/ELINCS 203-927-0

*Uses:* Surfactant, corrosion inhibitor, antistat for plastics; textile dyeing aid; gel sensitizer in latex foam prod.; visc. depressant in paper and textile softener formulations

*Properties:* 33% act.; cationic

**Chemquat 12/50** [Chemax]

*Chem. Descrip.:* Laurtrimonium chloride

CAS 112-00-5; EINECS/ELINCS 203-927-0

*Uses:* Surfactant, corrosion inhibitor, antistat for plastics; textile dyeing aid; gel sensitizer in latex foam prod.; visc. depressant in paper and textile softener formulations

*Properties:* Liq.; 50% act.; cationic

**Chemquat 16/50** [Chemax]

*Chem. Descrip.:* Cetrimonium chloride

CAS 112-02-7; EINECS/ELINCS 203-928-6

*Uses:* Surfactant, corrosion inhibitor, antistat for plastics; textile dyeing aid; gel sensitizer in latex foam prod.; visc. depressant in paper and textile softener formulations

*Properties:* Liq.; 50% act.; cationic

**Chevron Clarity® Paper Machine Oils ISO 100** [Chevron Prods.]

*Chem. Descrip.:* Severely refined petrol. distillate with rust/oxidation/foam inhibitors

*Uses:* Lubricant, circulating oil for pulp/paper machines incl. wet-end systems, dryer bearings, and calender stacks; high temp. and oxidation stability; long lubricant life; exc. wear protection, water separability, foam inhibition

*Regulatory:* DOT nonregulated; SARA §311 nonreportable

*Properties:* Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.88-0.90 (15.6/15.6 C); visc. 95 cSt (40 C); pour pt. -15 C; flash pt. (COC) 276 C; VOC 1.2%

*Toxicology:* ACGIH TLV 5 mg/m<sup>3</sup>; may cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause prolonged/significant eye or skin irritation; not expected to be harmful by ing., skin absorp.; TSCA listed

*Environmental:* Inherently biodeg.; ashless formulation facilitates reclaiming/recycling; nontoxic to aquatic species

*Precaution:* Will burn, but not easily ignited; may react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

*Hazardous Decomp. Prods.:* Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

**Chevron Clarity® Paper Machine Oils ISO 150** [Chevron Prods.]

*Chem. Descrip.:* Severely refined petrol. distillate with rust/oxidation/foam inhibitors

*Uses:* Lubricant, circulating oil for pulp/paper machines incl. wet-end systems, dryer bearings, and calender stacks; high temp. and oxidation stability; long lubricant life; exc. wear protection, water separability, foam inhibition

*Regulatory:* DOT nonregulated; SARA §311 nonreportable

*Properties:* Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.88-0.90 (15.6/15.6 C); visc. 143 cSt (40 C); pour pt. -15 C; flash pt. (COC) 246 C; VOC 1.2%

*Toxicology:* ACGIH TLV 5 mg/m<sup>3</sup>; may cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause prolonged/significant eye or skin irritation; not expected to be harmful by ing., skin absorp.; TSCA listed

*Environmental:* Inherently biodeg.; ashless formulation facilitates reclaiming/recycling; nontoxic to aquatic species

*Precaution:* Will burn, but not easily ignited; may react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

*Hazardous Decomp. Prods.:* Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

**Chevron Clarity® Paper Machine Oils ISO 220** [Chevron Prods.]

*Chem. Descrip.:* Severely refined petrol. distillate with rust/oxidation/foam inhibitors

*Uses:* Lubricant, circulating oil for pulp/paper machines incl. wet-end systems, dryer bearings, and calender stacks; high temp. and oxidation stability; long lubricant life; exc. wear protection, water separability, foam inhibi-

tion

**Regulatory:** DOT nonregulated; SARA §311 nonreportable

**Properties:** Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.88-0.90 (15.6/15.6 C); visc. 209 cSt (40 C); pour pt. -15 C; flash pt. (COC) 249 C; VOC 1.2%

**Toxicology:** ACGIH TLV 5 mg/m<sup>3</sup>; may cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause prolonged/significant eye or skin irritation; not expected to be harmful by ing., skin absorp.; TSCA listed

**Environmental:** Inherently biodeg.; ashless formulation facilitates reclaiming/recycling; nontoxic to aquatic species

**Precaution:** Will burn, but not easily ignited; may react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

**Hazardous Decomp. Prods.:** Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

#### Chevron Clarity® Paper Machine Oils ISO 320 [Chevron Prods.]

**Chem. Descrip.:** Severely refined petrol. distillate with rust/oxidation/foam inhibitors

**Uses:** Lubricant, circulating oil for pulp/paper machines incl. wet-end systems, dryer bearings, and calender stacks; high temp. and oxidation stability; long lubricant life; exc. wear protection, water separability, foam inhibition

**Regulatory:** DOT nonregulated; SARA §311 nonreportable

**Properties:** Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.88-0.90 (15.6/15.6 C); visc. 304 cSt (40 C); pour pt. -15 C; flash pt. (COC) 248 C; VOC 1.2%

**Toxicology:** ACGIH TLV 5 mg/m<sup>3</sup>; may cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause prolonged/significant eye or skin irritation; not expected to be harmful by ing., skin absorp.; TSCA listed

**Environmental:** Inherently biodeg.; ashless formulation facilitates reclaiming/recycling; nontoxic to aquatic species

**Precaution:** Will burn, but not easily ignited; may react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

**Hazardous Decomp. Prods.:** Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

#### Chevron Clarity® Paper Machine Oils ISO 460 [Chevron Prods.]

**Chem. Descrip.:** Severely refined petrol. distillate with rust/oxidation/foam inhibitors

**Uses:** Lubricant, circulating oil for pulp/paper machines incl. wet-end systems, dryer bearings, and calender stacks; high temp. and oxidation stability; long lubricant life; exc. wear protection, water separability, foam inhibition

**Regulatory:** DOT nonregulated; SARA §311 nonreportable

**Properties:** Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.88-0.90 (15.6/15.6 C); visc. 437 cSt (40 C); pour pt. -18 C; flash pt. (COC) 278 C; VOC 1.2%

**Toxicology:** ACGIH TLV 5 mg/m<sup>3</sup>; may cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause prolonged/significant eye or skin irritation; not expected to be harmful by ing., skin absorp.; TSCA listed

**Environmental:** Inherently biodeg.; ashless formulation facilitates reclaiming/recycling; nontoxic to aquatic species

**Precaution:** Will burn, but not easily ignited; may react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

**Hazardous Decomp. Prods.:** Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

#### Chevron Clarity® Synthetic Paper Machine Oil ISO 100 [Chevron Prods.]

**Chem. Descrip.:** 1-Decene, homopolymer, hydrogenated (< 60%), C8, C12 olefin polymer, hydrogenated (> 38%), additives (< 2%)

**Uses:** Lubricant for pulp/paper machines, extreme temp. bearing and circulating oil systems, gear boxes, dryer section accessories, calender rolls, high temp. air compressors, high pressure hydraulic pumps; better EP props.;

high temp. and oxidation stability; long lubricant life; superior wear protection; exc. water separability, foam inhibition

**Regulatory:** DOT nonhazardous; SARA §313 nonreportable

**Properties:** Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.84 (15.6/15.6 C); visc. 95 cSt (40 C); pour pt. -48 C; flash pt. (COC) 264 C

**Toxicology:** May cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause significant eye/skin irritation or be harmful by ing., skin absorp.; accidental inj. under skin may cause serious injury; TSCA listed

**Environmental:** Not expected to be readily biodeg.; ashless formulation facilitates reclaiming/recycling; pass LC-50 aquatic toxicity test

**Precaution:** May react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

**Hazardous Decomp. Prods.:** Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Keep container closed; do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

#### Chevron Clarity® Synthetic Paper Machine Oil ISO 150 [Chevron Prods.]

**Chem. Descrip.:** 1-Decene, homopolymer, hydrogenated (< 60%), C8, C12 olefin polymer, hydrogenated (> 38%), additives (< 2%)

**Uses:** Lubricant for pulp/paper machines, extreme temp. bearing and circulating oil systems, gear boxes, dryer section accessories, calender rolls, high temp. air compressors, high pressure hydraulic pumps; better EP props.; high temp. and oxidation stability; long lubricant life; superior wear protection; exc. water separability, foam inhibition

**Regulatory:** DOT nonhazardous; SARA §313 nonreportable

**Properties:** Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.84 (15.6/15.6 C); visc. 143 cSt (40 C); pour pt. -48 C; flash pt. (COC) 258 C

**Toxicology:** May cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause significant eye/skin irritation or be harmful by ing., skin absorp.; accidental inj. under skin may cause serious injury; TSCA listed

**Environmental:** Not expected to be readily biodeg.; ashless formulation facilitates reclaiming/recycling; pass LC-50 aquatic toxicity test

**Precaution:** May react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

**Hazardous Decomp. Prods.:** Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Keep container closed; do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

#### Chevron Clarity® Synthetic Paper Machine Oil ISO 220 [Chevron Prods.]

**Chem. Descrip.:** 1-Decene, homopolymer, hydrogenated (< 60%), C8, C12 olefin polymer, hydrogenated (> 38%), additives (< 2%)

**Uses:** Lubricant for pulp/paper machines, extreme temp. bearing and circulating oil systems, gear boxes, dryer section accessories, calender rolls, high temp. air compressors, high pressure hydraulic pumps; better EP props.; high temp. and oxidation stability; long lubricant life; superior wear protection; exc. water separability, foam inhibition

**Regulatory:** DOT nonhazardous; SARA §313 nonreportable

**Properties:** Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.84 (15.6/15.6 C); visc. 209 cSt (40 C); pour pt. -45 C; flash pt. (COC) 236 C

**Toxicology:** May cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause significant eye/skin irritation or be harmful by ing., skin absorp.; accidental inj. under skin may cause serious injury; TSCA listed

**Environmental:** Not expected to be readily biodeg.; ashless formulation facilitates reclaiming/recycling; pass LC-50 aquatic toxicity test

**Precaution:** May react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

**Hazardous Decomp. Prods.:** Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Keep container closed; do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode



**Chevron Clarity® Synthetic Paper Machine Oil ISO 320** [Chevron Prods.]

*Chem. Descrip.:* 1-Decene, homopolymer, hydrogenated (< 60%), C8, C12 olefin polymer, hydrogenated (> 38%), additives (< 2%)

*Uses:* Lubricant for pulp/paper machines, extreme temp. bearing and circulating oil systems, gear boxes, dryer section accessories, calender rolls, high temp. air compressors, high pressure hydraulic pumps; better EP props.; high temp. and oxidation stability; long lubricant life; superior wear protection; exc. water separability, foam inhibition

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.84 (15.6/15.6 C); visc. 304 cSt (40 C); pour pt. -42 C; flash pt. (COC) 258 C

*Toxicology:* May cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause significant eye/skin irritation or be harmful by ing., skin absorp.; accidental inj. under skin may cause serious injury; TSCA listed

*Environmental:* Not expected to be readily biodeg.; ashless formulation facilitates reclaiming/recycling; pass LC-50 aquatic toxicity test

*Precaution:* May react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

*Hazardous Decomp. Prods.:* Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep container closed; do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

**Chevron Clarity® Synthetic Paper Machine Oil ISO 460** [Chevron Prods.]

*Chem. Descrip.:* 1-Decene, homopolymer, hydrogenated (< 60%), C8, C12 olefin polymer, hydrogenated (> 38%), additives (< 2%)

*Uses:* Lubricant for pulp/paper machines, extreme temp. bearing and circulating oil systems, gear boxes, dryer section accessories, calender rolls, high temp. air compressors, high pressure hydraulic pumps; better EP props.; high temp. and oxidation stability; long lubricant life; superior wear protection; exc. water separability, foam inhibition

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Lt. amber clear liq.; sol. in hydrocarbon solvs.; insol. in water; sp.gr. 0.84 (15.6/15.6 C); visc. 437 cSt (40 C); pour pt. -36 C; flash pt. (COC) 270 C

*Toxicology:* May cause respiratory irritation or pulmonary effects on prolonged/repeated inh. above REL; not expected to cause significant eye/skin irritation or be harmful by ing., skin absorp.; accidental inj. under skin may cause serious injury; TSCA listed

*Environmental:* Not expected to be readily biodeg.; ashless formulation facilitates reclaiming/recycling; pass LC-50 aquatic toxicity test

*Precaution:* May react with strong oxidizing agents (e.g., chlorates, nitrates, peroxides)

*Hazardous Decomp. Prods.:* Combustion prods.: CO<sub>2</sub>, water vapor; incomplete combustion prods.: CO

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep container closed; do not pressurize, cut, or weld containers or expose to heat, flame, sparks, static electricity, or ignition sources; containers may explode

**Chevron HiD 9660** [Chevron]

*Chem. Descrip.:* HDPE homopolymer resin

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Film resin for coextrusions, cereal box liners, bakery films, barrier pkg., tissue paper replacement; grease barrier properties

*Properties:* Melt flow 0.7 g/10 min; dens. 0.962 g/cc; tens. str. 4400 psi (break); tens. elong. 350%; Elmendorf tear str. 13 g/mil (MD); Dart impact 30 g/mil.

**Chevron PE 4517** [Chevron]

*Chem. Descrip.:* LDPE homopolymer resin

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Coating and laminating resin for carton stock coating and photographic paper

*Properties:* Melt flow 5 g/10 min; dens. 0.923 g/cc.

**Chimin P40** [Cesalpinia]

*Chem. Descrip.:* Sodium alkylpolyglycol ether phosphate

CAS 68071-35-2

*Uses:* Detergent, wetting agent for low foaming prods. in textiles, paper, cleaners, machine washing; alkali-stable

*Properties:* Liq.; 75% conc.; anionic

**Chimin P45** [Cesalpinia]

*Chem. Descrip.:* Sodium alkylpolyglycol ether phosphate

CAS 68071-35-2

*Uses:* Detergent, antistat, wetting agent for textiles, paper, cleaners, machine washing, and personal care prods.

*Properties:* Liq.; 30% conc.; anionic

**Chlorez® 700** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant for LDPE, NR, SR, neoprene, SBR, acrylonitrile, ABS, in coatings (traffic paints), inks, plastics, foams, adhesives, paper, and fabric coatings; tackifier in rubber; tens. str. improver in neoprene

*Properties:* Wh. powd., odorless, tasteless; 90% thru 50 mesh; sp.gr. 1.6; bulk dens. 13.5 lb/gal; soften. pt. (B&R) 95-110 C; 70% Cl

**Chlorez® 700-DF** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant for paints, printing inks, plastics, foams, adhesives, paper and fabric coatings

*Properties:* Wh. flakes; sp.gr. 1.6; soften. pt. (B&R) 95-110 C; ref. index 1.54-1.55 (105 C); 70% Cl

**Chlorez® 700-S** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant in coatings, inks, plastics, foams, adhesives, paper, and fabrics

*Properties:* Wh. powd.; 90% thru 50 mesh; sp.gr. 1.6; bulk dens. 13.5 lb/gal; soften. pt. (B&R) 95-110 C; 70% Cl

**Chlorez® 700-SS** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant with improved thermal stability for use in HIPS, PE, PP, PS and for coatings, inks, foams, adhesives, paper, fabrics

*Properties:* Wh. powd.; 90% thru 50 mesh; sp.gr. 1.6; bulk dens. 14 lb/gal; soften. pt. (B&R) 105-120 C; 71% Cl

**Chlorez® 700-SSNP** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant for coatings, inks, plastics, foams, paper, and fabrics

*Properties:* Wh. powd.; odorless; 95% thru 50 mesh; sol. in aromatic and chlorinated solvs.; limited/no sol. in lower alcohols, glycols, glycerins, and water; sp.gr. 1.6; dens. 13.5 lb/gal; soften. pt. (R&B) 120 C; 71.5% chlorine

**Chlorez® 725-S** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant for coatings, inks, plastics, foams, adhesives, paper, and fabrics; improved stability and higher soften. pt.

*Properties:* Wh. powd.; 90% thru 50 mesh; sp.gr. 1.6; bulk dens. 14 lb/gal; soften. pt. (B&R) 120-140 C; 71% Cl

**Chlorez® 760** [Dover]

*Chem. Descrip.:* Resinous chlorinated paraffin

CAS 63449-39-8

*Uses:* Flame retardant for LDPE, PP, olefins, styrenes, adhesives, wire and cable, coatings, inks, foams, paper, fabrics

*Properties:* Wh. powd.; 90% thru 50 mesh; sp.gr. 1.7; bulk dens. 14 lb/gal; soften. pt. (B&R) 160 C; 74% Cl

**Chlorostain BR** [Bayer/Industrial Chems.]

*Chem. Descrip.:* Guanidine deriv. coated extruded granules

*Uses:* Security reacting agent for use in security papers; develops a reddish-brn. stain when an ink eradicator is applied

*Properties:* Wh. to grayish min. foam; sol. in acidic conditions; sp.gr. 1.19; pH 1.5-2.0

*Storage:* 2 yr min. stability

**Chlorostain™ BR Liq.** [Bayer/Industrial Chems.]

*Uses:* Reacting agent for security papers; becomes brn. or orange when treated with commercial ink eradicators contg. a hypochlorite sol'n.

*Properties:* Liq.

**Chlorostain™ Blue RR Powd.** [Bayer/Industrial Chems.]

*Uses:* Reacting agent for security papers; becomes brn. or orange when treated with commercial ink eradicators contg. a hypochlorite sol'n.

**Chlorostain OR Liq.** [Bayer/Industrial Chems.]

*Chem. Descrip.:* Sulfonic acid deriv.

- Uses:* Security reacting agent for use in security papers; develops an orange-brn. stain when an ink eradicator is applied  
*Properties:* Dk. liq.; misc. in water in all proportions; dens. 9.5 lb/gal (20 C); visc. < 50 cps (20 C); pH 8; weakly anionic  
*Storage:* 1 yr min. stability
- CHT Prisulon SNP-113S** [Catawba-Charlab]  
*Uses:* Thickener for transfer paper printing; syn.
- CHT Rapidoprint M-4** [Catawba-Charlab]  
*Uses:* Leveling agent for transfer paper printing
- Cithrol A** [Croda Chem. Ltd; Croda Oleochems.]  
*Chem. Descrip.:* PEG-8 oleate  
 CAS 9004-96-0  
*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants  
*Properties:* Amber liq.; slight agreeable odor; sol. in wh. spirit and liq. paraffin; completely sol. in xylol, ethyl acetate, methylated spirits, oleic acid; disp. in water; sp.gr. 1.013; HLB 11.4; flash pt. 215 C; sapon. no. 85-93; pH 6.5-7.5 (10%); 97% conc.; nonionic
- Cithrol DGML N/E** [Croda Chem. Ltd; Croda Oleochems.]  
*Chem. Descrip.:* Diethylene glycol laurate  
 CAS 9004-81-3; EINECS/ELINCS 205-468-1  
*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants  
*Properties:* Paste; HLB 6.1; 100% conc.; nonionic
- Cithrol DGMS N/E** [Croda Chem. Ltd; Croda Oleochems.]  
*Chem. Descrip.:* PEG-2 stearate  
 CAS 9004-99-3; EINECS/ELINCS 203-363-5  
*Uses:* W/o emulsifier, dispersant, antistat for skin care prods., textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants  
*Properties:* Solid; HLB 4.4; 100% conc.; nonionic
- Cithrol EGDS N/E** [Croda Chem. Ltd; Croda Oleochems.]  
*Chem. Descrip.:* Glycol distearate  
 CAS 627-83-8; EINECS/ELINCS 211-014-3  
*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; pearlescent  
*Properties:* Wh. to cream pastilles; HLB 1.5; 100% conc.; nonionic
- Cithrol EGMS N/E** [Croda Chem. Ltd; Croda Oleochems.]  
*Chem. Descrip.:* Glycol stearate  
 CAS 111-60-4; EINECS/ELINCS 203-886-9  
*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; pearlescent  
*Properties:* Wh. to cream pastilles; HLB 2.0; 100% conc.; nonionic
- Cithrol EGMS S/E** [Croda Chem. Ltd; Croda Oleochems.]  
*Chem. Descrip.:* Ethylene glycol stearate SE  
 CAS 86418-55-5  
*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants  
*Properties:* Solid; HLB 2.9; 100% conc.; anionic
- Citroflex® 2** [Morflex]  
*Chem. Descrip.:* Triethyl citrate  
 CAS 77-93-0; EINECS/ELINCS 201-070-7  
*Uses:* Plasticizer for cellulose acetate, cellulose acetate butyrate, cellulose nitrate, chlorinated rubber, ethyl cellulose, PVAc, PVB, PVC, PVP, PVdC, PET, poly(acrylate/methacrylate), dammar, ester gums; lacquer formulations; fragrance carrier in perfumes, deodorants, shampoos, detergents; solvent in household, I&I cleaners; film-former, plasticizer, solvent for inks, adhesives, coatings; food-contact paper/paperboard; environmentally friendly; enhances grease resist.; lightfast  
*Regulatory:* FDA 21CFR §175.300, 175.320, 175.380, 175.390, 176.170, 177.1210, 181.27, 182.1911, 184.1911; kosher  
*Properties:* Clear liq., essentially odorless; sol. in toluene, 6.5 g/100 ml in water; insol. in heptane; m.w. 276.3; sp.gr. 1.135-1.139; visc. 35 cps; pour pt. -45 C; flash pt. (COC) 155 C; ref. index 1.440-1.442; 99% assay  
*Toxicology:* LD50 (oral, rat) 7 cc/kg, (IP, mice) 1750 mg/kg  
*Precaution:* Incompat. with oxidizing materials
- Citroflex® A-2** [Morflex]  
*Chem. Descrip.:* Acetyltriethyl citrate  
 CAS 77-89-4; EINECS/ELINCS 201-066-5  
*Uses:* Plasticizer for more polar resins such as cellulosics, polyacrylates, PVAc, polyvinyl butyral, PVC, PVP, PVdC, chlorinated rubber; lightfastness for lacquer formulations; solvent in household, I&I cleaners; solvent, film-former, plasticizer for inks, adhesives, coatings, food pkg. adhesives/coatings/paper/paperboard/polymers; environmentally friendly  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 176.170, 177.1210, 178.3910; kosher  
*Properties:* Clear liq., essentially odorless; sol. in toluene, 0.72 g/100 ml water; m.w. 318.3; sp.gr. 1.135-1.139; visc. 54 cps; pour pt. -43 C; flash pt. (COC) 188 C; ref. index 1.432-1.441; 99% assay  
*Toxicology:* LD50 (oral, rat) 7 cc/kg, (IP, mice) 1150 mg/kg; sl. but transient eye irritant; nonirritating to skin
- Citroflex® A-4** [Morflex]  
*Chem. Descrip.:* Acetyl tri-n-butyl citrate  
 CAS 77-90-7; EINECS/ELINCS 201-067-0  
*Uses:* Plasticizer for PVC, PVdC, esp. food films, medical articles, cellulose nitrate, chlorinated rubber, ethyl cellulose, PVAc, PVB, PVP, PU, poly(acrylate/methacrylate); sol'n. coatings on paperboard and foil; vinyl toys; solvent in household, I&I cleaners; solvent, film-former, and plasticizer for inks, adhesives, coatings; food pkg. adhesives, coatings, paper, polymers; environmentally friendly  
*Regulatory:* FDA 21CFR §172.515, 175.105, 175.300, 175.320, 175.380, 175.390, 176.170, 177.1210, 178.3910, 181.27; kosher  
*Properties:* Clear liq., essentially odorless; sol. in toluene, heptane, < 0.1 g/100 ml water; m.w. 402.5; sp.gr. 1.045-1.055; visc. 33 cps; pour pt. -59 C; flash pt. (COC) 104 C; ref. index 1.441-1.4425; 99% min. assay  
*Toxicology:* LD50 (oral, rat) 30 cc/kg, (IP, mice) 4000 mg/kg; sl. but transient eye irritant; nonirritating to skin
- Citroflex® A-4 Special** [Morflex]  
*Chem. Descrip.:* Acetyl tri-n-butyl citrate  
 CAS 77-90-7; EINECS/ELINCS 201-067-0  
*Uses:* Plasticizer for vinyls, adhesives, coatings; rec. for medical articles and other sensitive applics.; food pkg. adhesives, coatings, paper, polymers; improved long-term stability  
*Regulatory:* FDA 21CFR §172.515, 175.105, 175.300, 175.320, 175.380, 175.390, 176.170, 177.1210, 178.3910, 181.27  
*Toxicology:* LD50 (oral, rat) 30 cc/kg, (IP, mice) 4000 mg/kg
- Clarcel®** [Ceca SA]  
*Chem. Descrip.:* Diatomites  
*Uses:* Filler for papers
- Clar+lon™ 603** [General Chem.]  
*Chem. Descrip.:* Aluminum sulfate (< 50%) and cationic polyelectrolyte UN No. 1760 (DOT)  
*Uses:* Coagulant and flocculant for use in municipal and industrial wastewater treatment, industrial applics. (paper mfg., oil recovery, emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal  
*Properties:* Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.26; dens. 10.5 lb/gal; f.p. 25 F; m.p. 0 to -5 C; b.p. 101 C; pH 2.2; cationic  
*Toxicology:* LD50 (oral, mouse) 980 mg(Al)/kg; may cause skin, eye, respiratory, and intestinal irritation; may burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g  
*Environmental:* Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm  
*Precaution:* Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, and copper  
*Hazardous Decomp. Prods.:* SO<sub>x</sub>, CO, CO<sub>2</sub>, NO<sub>x</sub>  
*Storage:* Store in cool area; protect from freezing
- Clar+lon™ 605** [General Chem.]  
*Chem. Descrip.:* Aluminum sulfate (< 50%) and cationic polyelectrolyte UN No. 1760 (DOT)  
*Uses:* Coagulant and flocculant for use in municipal and industrial wastewater treatment, industrial applics. (paper mfg., oil recovery, emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal  
*Properties:* Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.24; dens. 10.3 lb/gal; f.p. 25 F; m.p. 0 to -5 C; b.p. 101 C;

pH 2.6; cationic

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may cause skin, eye, respiratory, and intestinal irritation; may burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g

**Environmental:** Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm

**Precaution:** Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, and copper

**Hazardous Decom. Prods.:** SO<sub>x</sub>, CO, CO<sub>2</sub>, NO<sub>x</sub>

**Storage:** Store in cool area; protect from freezing

**Clar+Ion™ 610** [General Chem.]

**Chem. Descrip.:** Aluminum sulfate (< 50%) and cationic polyelectrolyte UN No. 1760 (DOT)

**Uses:** Coagulant and flocculant for use in municipal and industrial wastewater treatment, industrial applics. (paper mfg., oil recovery, emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal

**Properties:** Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.1; dens. 9.2 lb/gal; f.p. 25 F; m.p. 0 to -5 C; b.p. 101 C; pH 2.7; cationic

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may cause skin, eye, respiratory, and intestinal irritation; may burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g

**Environmental:** Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm

**Precaution:** Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, and copper

**Hazardous Decom. Prods.:** SO<sub>x</sub>, CO, CO<sub>2</sub>, NO<sub>x</sub>

**Storage:** Store in cool area; protect from freezing

**Clar+Ion™ 610M** [General Chem.]

**Chem. Descrip.:** Aluminum sulfate (< 50%) and cationic polyelectrolyte UN No. 1760 (DOT)

**Uses:** Coagulant and flocculant for use in municipal and industrial wastewater treatment, industrial applics. (paper mfg., oil recovery, emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal

**Properties:** Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.1; dens. 9.2 lb/gal; f.p. 32 F; m.p. 0 to -5 C; b.p. 101 C; pH 2.9; cationic

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may cause skin, eye, respiratory, and intestinal irritation; may burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g

**Environmental:** Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm

**Precaution:** Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, and copper

**Hazardous Decom. Prods.:** SO<sub>x</sub>, CO, CO<sub>2</sub>, NO<sub>x</sub>

**Storage:** Store in cool area; protect from freezing

**Clar+Ion™ A405P** [General Chem.]

**Chem. Descrip.:** Aluminum sulfate (< 50%) and polyquat. amine (< 50%) UN No. 1760 (DOT)

**Uses:** Coagulant and flocculant for use in potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics. (paper mfg., emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal

**Regulatory:** EPA approved

**Properties:** Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.31; dens. 10.9 lb/gal; f.p. 10 F; m.p. -14 C; b.p. 101 C; pH 1.7; cationic

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may irritate respiratory and GI tracts; conc. sol'ns. may cause burns to digestive tract; may cause skin irritation; may strongly irritate or burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>;

recorded human fatal dose 30 g

**Environmental:** Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm

**Precaution:** Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, copper

**Hazardous Decom. Prods.:** SO<sub>x</sub>, CO, CO<sub>2</sub>

**Storage:** Store in cool area; protect from freezing

**Clar+Ion™ A410P** [General Chem.]

**Chem. Descrip.:** Aluminum sulfate and flocculating agent

CAS 10043-01-3; EINECS/ELINCS 233-135-0

UN No. 1760 (DOT)

**Uses:** Coagulant and flocculant for use in potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics. (paper mfg., emulsion breaking, lagoon treatment, coal cleaning); emulsion breaker; rec. where rapid settling is desired; superior P removal, inc. suspended solids removal

**Regulatory:** EPA approved

**Properties:** Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.30; dens. 10.8 lb/gal; f.p. 14 F; m.p. -14 C; b.p. 101 C; pH 1.7

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may irritate respiratory and GI tracts; conc. sol'ns. may cause burns to digestive tract; may cause skin irritation; may strongly irritate or burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g

**Environmental:** Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm

**Precaution:** Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, copper

**Hazardous Decom. Prods.:** SO<sub>x</sub>, CO, CO<sub>2</sub>

**Storage:** Store in cool area; protect from freezing

**Clar+Ion™ A415P** [General Chem.]

**Chem. Descrip.:** Aluminum sulfate (< 50%) and polyquat. amine (< 50%) UN No. 1760 (DOT)

**Uses:** Coagulant and flocculant for use in potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics. (paper mfg., emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal

**Regulatory:** EPA approved

**Properties:** Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.29; dens. 10.8 lb/gal; f.p. 18 F; m.p. -14 C; b.p. 101 C; pH 1.8; cationic

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may irritate respiratory and GI tracts; conc. sol'ns. may cause burns to digestive tract; may cause skin irritation; may strongly irritate or burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g

**Environmental:** Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm

**Precaution:** Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, copper

**Hazardous Decom. Prods.:** SO<sub>x</sub>, CO, CO<sub>2</sub>

**Storage:** Store in cool area; protect from freezing

**Clar+Ion™ A420P** [General Chem.]

**Chem. Descrip.:** Aluminum sulfate (< 50%) and polyquat. amine (< 50%) UN No. 1760 (DOT)

**Uses:** Coagulant and flocculant for use in potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics. (paper mfg., emulsion breaking, lagoon treatment, coal cleaning); designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal

**Regulatory:** EPA approved

**Properties:** Lt. green or amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.27; dens. 10.6 lb/gal; f.p. 25 F; m.p. -14 C; b.p. 101 C; pH 1.8; cationic

**Toxicology:** LD50 (oral, mouse) 980 mg(Al)/kg; may irritate respiratory and

- GI tracts; conc. sol'ns. may cause burns to digestive tract; may cause skin irritation; may strongly irritate or burn eyes; ACGIH TLV 2 mg(Al)/m<sup>3</sup>; recorded human fatal dose 30 g  
*Environmental:* Aquatic toxicity: fatal (fundulus, 36 hr.) 14 ppm; (mosquito fish, 48 hr.) 240 ppm  
*Precaution:* Corrosive; incompat. with alkalis and water reactive materials which cause exothermic reactions; do not store in alloys containing aluminum, magnesium, zinc, copper  
*Hazardous Decomp. Prods.:* SO<sub>x</sub>, CO, CO<sub>2</sub>  
*Storage:* Store in cool area; protect from freezing
- Claytone® 2000** [Southern Clay Prods.]  
*Chem. Descrip.:* Organophilic smectite  
 CAS 53320-86-8; EINECS/ELINCS 258-476-2  
*Uses:* Clay for use in paints and coatings, adhesives, caulks, sealants, agriculture, inks, paper, cosmetics, personal care, refractory, foundry, rubber, waste treatment, greases, gelcoats, oil field, household care, laminates, unsat. polyesters; designed for use in a variety of solvs. incl. aliphatic, aromatic, and med. polarity systems  
*Properties:* Off-wh. powd.
- Claytone® LMW** [Southern Clay Prods.]  
*Chem. Descrip.:* Organophilic smectite  
 CAS 53320-86-8; EINECS/ELINCS 258-476-2  
*Uses:* Clay for use in toluene-free or low-toluene nail lacquers, paints and coatings, adhesives, caulks, sealants, agriculture, inks, paper, cosmetics, personal care, refractory, foundry, rubber, waste treatment, greases, gelcoats, oil field, household care, laminates, unsat. polyesters; thickener for low m.w. esters
- Claytone® SO** [Southern Clay Prods.]  
*Chem. Descrip.:* Organophilic smectite  
 CAS 53320-86-8; EINECS/ELINCS 258-476-2  
*Uses:* Visc. builder, suspension control agent for use in paints and coatings, adhesives, caulks, sealants, agriculture, inks, paper, cosmetics, personal care, refractory, foundry, rubber, waste treatment, greases, gelcoats, oil field, household care, laminates, unsat. polyesters; designed for use in silicone oil systems  
*Properties:* Off-wh. powd.
- Cleer-Cote® 625** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Visc. modified waxy corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Film-former providing water holding for papermaking size press, pigmented size press, and paper coatings; provides machine cleanliness and runnability
- CN 104** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate  
*Uses:* For adhesives, paper coatings, wood coatings, metal coatings, electronics, sealants and inks; high reactivity, chem. resist., film hardness, low color  
*Properties:* Gardner 1 clear liq.; sp.gr. 1.150; visc. 19,300 cps (49 C); 100% oligomer  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 104 A80** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate oligomer/SR 306 (tripropylene glycol diacrylate) blend  
*Uses:* Used for adhesives, paper coatings, wood coatings, inks, electronics, sealants; exc. flow and gloss;  
*Properties:* Gardner 1 clear liq.; sp.gr. 1.160; visc. 35,600 cps; 80% oligomer, 20% TPGDA  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 104 B80** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate oligomer/SR 238 (hexanediol diacrylate) blend  
*Uses:* Offers flexibility for paper coatings, wood coatings, metal coatings, inks, adhesives, electronics, and sealants; high reactivity, chem. resist.  
*Properties:* Gardner 1 clear liq.; sp.gr. 1.150; visc. 12,600 cps; 80% oligomer, 20% HDDA  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 111** [Sartomer]  
*Chem. Descrip.:* Epoxidized soybean oil acrylate, with 3740 ppm MEHQ  
*Uses:* Offers flexibility, pigment wetting, high adhesion for paper coatings, wood coatings, metal coatings, concrete polymers, inks  
*Properties:* Gardner 4 lt. yel. liq.; sp.gr. 1.040; visc. 23,000 cps; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 112 C60** [Sartomer]  
*Chem. Descrip.:* Epoxy novolak acrylate/SR 351 (trimethylol propane triacrylate) blend  
*Uses:* Used for inks, solder resists and coatings (metal, paper, wood); offers high heat resist.  
*Properties:* Gardner < 2 clear liq.; sp.gr. 1.190; visc. 23,000 cps; 60% oligomer, 40% TMPTA  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 117** [Sartomer]  
*Chem. Descrip.:* Modified epoxy acrylate  
*Uses:* For use in screen and lithographic inks, paper/plastic/wood coatings, laminating adhesives; fast cure oligomer; tough, high gloss; good flexibility; chem. and abrasion resist.  
*Properties:* APHA 200 color; dens. 9.9 lb/gal; visc. 2500 cps (65 C); tens. str. 5400 psi; modulus 127,000 psi; elong. 6%  
*Toxicology:* Possible skin and eye irritant  
*Storage:* 6 mos shelf life @ 50-90 F, away from direct sunlight, oxidizing agents, and materials that may generate free radicals
- CN 118** [Sartomer]  
*Chem. Descrip.:* Acid modified epoxy acrylate  
*Uses:* For use in screen and lithographic inks, paper/plastic/wood coatings, overprint varnishes; oligomer; exc. pigment wetting; high gloss; water and chem. resist.  
*Properties:* Amber color; visc. 4400 cps (60 C); acid no. 2  
*Toxicology:* Possible skin and eye irritant  
*Storage:* 6 mos. shelf life @ 50-90 F, away from direct sunlight, oxidizing agents, and materials that may generate free radicals
- CN 120** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate, with 3800 ppm MEHQ  
*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; high reactivity, chem. resist.  
*Properties:* Gardner < 2 clear liq.; sp.gr. 1.150; visc. 26,200 cps (65 C); 100% oligomer  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 120 A75** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate blended with SR 306 (tripropylene glycol diacrylate), 3800 ppm MEHQ  
*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; high reactivity, chem. resist.  
*Properties:* Gardner < 2 clear liq.; sp.gr. 1.128; visc. 8700 cps (49 C); 75% oligomer, 25% TPGDA  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- CN 120 B60** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate/SR 238 (1,6 hexanediol diacrylate) blend, 1200 ppm MEHQ  
*Uses:* Used for hard coatings (glass, metal, optical, plastic, PVC floor, paper, wood), electronics, and inks (flexo, gravure, litho, offset, screen), sealants, adhesives (anaerobic, binder, pressure sensitive, structural); offers adhesion; chem., abrasion, and water resist.; high reactivity  
*Properties:* Gardner 1 clear liq.; visc. 520 cps
- CN 120 B80** [Sartomer]  
*Chem. Descrip.:* Epoxy acrylate blended with SR 238 (hexanediol diacrylate), 3800 ppm MEHQ  
*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; high reactivity, chem. resist.  
*Properties:* Gardner < 2 clear liq.; sp.gr. 1.124; visc. 7200 cps (49 C); 80% oligomer, 20% HDDA  
*Storage:* Store away from direct sunlight, oxidizing agents and materials

which may generate free radicals; storage temps. should not be > 90 F

**CN 120 C60 [Sartomer]**

*Chem. Descrip.:* Epoxy acrylate blended with 40% SR 351 (trimethylolpropane triacrylate), 3800 ppm MEHQ

*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; fast cure response, film hardness, water and abrasion resist.

*Properties:* Gardner < 2 clear liq.; sp.gr. 1.146; visc. 8200 cps (49 C); 60% oligomer, 40% TMPTA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 120 C80 [Sartomer]**

*Chem. Descrip.:* Epoxy acrylate blended with SR 351 (trimethylolpropane triacrylate), 3800 ppm MEHQ

*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; high reactivity, chem. resist.

*Properties:* Gardner < 2 clear liq.; sp.gr. 1.142; visc. 27,500 cps (49 C); 80% oligomer, 20% TMPTA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 120 D80 [Sartomer]**

*Chem. Descrip.:* Epoxy acrylate blended with SR 9020 (glycerylpropoxy triacrylate), 3800 ppm MEHQ

*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; high reactivity, chem. resist.

*Properties:* Gardner < 2 clear liq.; sp.gr. 1.138; visc. 39,300 cps (49 C); 80% oligomer, 20% GPTA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 120 E50 [Sartomer]**

*Chem. Descrip.:* Epoxy acrylate blended with SR 454 (ethoxylated TMPTA), 3800 ppm MEHQ

*Uses:* Used for adhesives (anaerobic, binder, pressure sensitive, structural), coatings (glass, metal, optical, paper, plastic, wood, PVC floor), electronics, inks (flexo and gravure, litho, offset, screen), and sealants; high reactivity, chem. resist.

*Properties:* Gardner < 2 clear liq.; sp.gr. 1.101; visc. 2600 cps (49 C); 50% oligomer, 50% EOTMPTA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 120 M50 [Sartomer]**

*Chem. Descrip.:* Epoxy acrylate/SR 339 (2-phenoxyethyl acrylate) blend with 3800 ppm MEHQ

*Uses:* Used for hard coatings (glass, metal, optical, plastic, PVC floor, paper, wood), electronics, and inks (flexo, gravure, litho, offset, screen), sealants, adhesives (anaerobic, binder, pressure sensitive, structural), polymer concrete; offers adhesion; chem., abrasion, and water resist.; high reactivity

*Properties:* Clear liq.; visc. 450 cps

**CN 124 [Sartomer]**

*Chem. Descrip.:* Epoxy acrylate with inhibitor

*Uses:* Used for hard coatings (glass, metal, optical, plastic, PVC floor, paper, wood), electronics, and inks (flexo, gravure, litho, offset, screen), sealants, adhesives (anaerobic, binder, pressure sensitive, structural); offers adhesion; chem., abrasion, and water resist.; high reactivity

*Properties:* Gardner 1 clear liq.; visc. 870,000,000 cps

**CN 292 [Sartomer]**

*Chem. Descrip.:* Polyester acrylate with 140 MEHQ

*Uses:* Used for coatings (paper, wood, plastics), and flexo inks; low visc. oligomer; offers chem., abrasion, and water resist.; impact str.; flexibility; weatherability

*Properties:* APHA 65 clear; sp.gr. 1.102 visc. 515 cps; ref. index 1.4653

**CN 381 [Sartomer]**

*Chem. Descrip.:* Reactive amine coinitor

*Uses:* Photoinitiator synergists for coatings (metal, paper, plastics) and inks (litho, offset, silk screen); fast cure

*Properties:* Gardner 6 clear liq.; sp.gr. 1.01 (20 C); visc. 95 cps; flash pt. > 100 C

**CN 383 [Sartomer]**

*Chem. Descrip.:* Monofunctional reactive amine with 875 ppm MEHQ

*Uses:* Coinitiator; synergist used with a photosensitizer such as benzophenone to promote rapid cure under UV light for dry offset lithographic inks and coatings, silk screen inks and varnishes, and overprint varnishes for paper, board, plastics, and metals

*Properties:* APHA 225 sl. hazy liq.; sp.gr. 0.9903; visc. 18 cps; amine no. 135; 99% reactive esters

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 384 [Sartomer]**

*Chem. Descrip.:* Difunctional amine with 920 ppm MEHQ

*Uses:* Coinitiator; synergist used with a photosensitizer to promote rapid cure under UV light for dry offset lithographic inks and coatings, silk screen inks and varnishes, and overprint varnishes for paper, board, plastics, and metals

*Properties:* APHA 100 clear liq.; sp.gr. 1.0534; visc. 115 cps; amine no. 103; 99% reactive esters

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 953 B70 [Sartomer]**

*Chem. Descrip.:* Urethane acrylate/SR 238 (1,6-hexanediol diacrylate) blend

*Uses:* Oligomer for radiation and peroxide curing; uses incl. anaerobic adhesives, optical/paper/plastic/PVC floor/wood coatings, and inks; chem, water, and heat resist.; nonyellowing

*Properties:* APHA 25 clear liq.; dens. 9.262 lb/gal; visc. 590 cps

**CN 963 A80 [Sartomer]**

*Chem. Descrip.:* Aliphatic urethane acrylate resin/SR 306 (tripropylene glycol diacrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Used for adhesives, coatings (metal, paper, PVC floor, wood), electronics, inks, photoresists; high performance difunctional oligomer; hard, nonyellowing

*Properties:* APHA 100 clear liq.; sp.gr. 1.093; visc. 2100 cps; tens. str. 6000 psi; tens. elong. 16%; 99% reactive esters; 80% oligomer, 20% TPGDA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 963 B80 [Sartomer]**

*Chem. Descrip.:* Urethane acrylate blended with SR 238 (hexanediol diacrylate) and < 400 ppm MEHQ inhibitor

*Uses:* Used for adhesives, coatings (metal, paper, PVC floor, wood), electronics, inks, photoresists; high performance difunctional oligomer; hard, nonyellowing

*Properties:* APHA 100 clear liq.; sp.gr. 1.098; visc. 1600 cps; 99% reactive esters; 80% oligomer, 20% HDDA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 963 E75 [Sartomer]**

*Chem. Descrip.:* Aliphatic urethane acrylate resin/SR 454 (ethoxylated trimethylolpropane triacrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Used for adhesives, coatings (metal, paper, PVC floor, wood), electronics, inks, photopolymers; high performance difunctional oligomer; hard, nonyellowing

*Properties:* APHA 100 clear liq.; sp.gr. 1.104; visc. 2300 cps; tens. str. 9000 psi; tens. elong. 31%; 99% reactive esters; 75% oligomer, 25% EOTMPTA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 963 E80 [Sartomer]**

*Chem. Descrip.:* Urethane acrylate/SR 454 (PEG-3 trimethylolpropane triacrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Used for radiation and peroxide cured adhesives, coatings (metal, paper, PVC floor, wood), electronics (photoresists), inks, photopolymers; hard; non-yellowing; offers weatherability; chem., abrasion, and water resist.; low shrinkage; hardness, impact str.

*Properties:* APHA 35 clear liq.; dens. 9.205 lb/gal; visc. 3300 cps

**CN 963 J85 [Sartomer]**

*Chem. Descrip.:* Urethane acrylate/SR 506 (isobornyl acrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Used for radiation and peroxide cured adhesives, coatings (metal, paper, PVC floor, wood), electronics (photoresists), inks, photopolymers; hard; non-yellowing; offers weatherability; chem., abrasion, and water resist.; low shrinkage; hardness, impact str.

*Properties:* APHA 30 clear liq.; dens. 9.069 lb/gal; visc. 4675 cps



**CN 964 A85** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 306 (tripropylene glycol diacrylate) blend, < 400 ppm MEHQ

*Uses:* Used for radiation and peroxide cured structural adhesives, coatings (paper, PVC floor, wood), elastomers, electronics, screen inks; resilient; non-yellowing; offers weatherability; chem., abrasion, and water resist.; low shrinkage; hardness, impact str.

*Properties:* APHA 45 clear liq.; dens. 9.074 lb/gal; visc. 3470 cps

**CN 970 A60** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate resin/SR 306 (tripropylene glycol diacrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Produces hard, fast curing, solv. resist. UV/EB cured prods., e.g., coatings (metal, paper, wood) and inks (flexo and gravure)

*Properties:* APHA 100 clear liq.; sp.gr. 1.118; visc. 845 cps; tens. str. 10,000 psi; tens. elong. 8%; 60% oligomer, 40% TPGDA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 970 E60** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate resin/SR 454 (PEG-3 trimethylolpropane triacrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Used for coatings (metal, paper, wood) and inks

*Properties:* APHA 100 clear liq.; sp.gr. 1.142; visc. 2200 cps; tens. str. 9000 psi; tens. elong. 13%; 60% oligomer, 40% EOTMPTA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 970 H75** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate resin/SR 256 (2-(2-ethoxyethoxy)-ethyl acrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Used for adhesives, coatings (metal, paper, wood), and inks (flexo and gravure)

*Properties:* APHA 100 clear liq.; sp.gr. 1.145; visc. 1600 cps; tens. str. 7600 psi; tens. elong. 12%; 75% oligomer, 25% EOEEOA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 971 A80** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate resin/SR 306 (tripropylene glycol diacrylate) blend, < 400 ppm MEHQ inhibitor

*Uses:* Produces resilient, fast curing, solv. resist. UV/EB cured prods. for use in paper, wood, and metal coatings, inks, adhesives, solder masks, and encapsulants

*Properties:* APHA 100 clear liq.; sp.gr. 1.088; visc. 2400 cps; tens. str. 3000 psi; tens. elong. 40%; 80% oligomer, 20% TPGDA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 972** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate, < 400 ppm MEHQ inhibitor

*Uses:* Produces flexible, fast curing, solv. resist., UV/EB cured prods. for adhesives, coatings (metal, paper, wood), elastomers, electronics (encapsulants, photoresists), inks, photopolymers

*Properties:* APHA 100 clear liq.; sp.gr. 1.054; dens. 8.8 lb/gal; visc. 3700 cps; 99% reactive esters

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 973 A80** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate blended with SR 306 (tripropylene glycol diacrylate), < 400 ppm MEHQ inhibitor

*Uses:* Produces highly flexible, fast curing, UV/EB curable films used for adhesives, coatings (metal, paper, wood), elastomers, electronics, inks, photoresists; highly flexible, hydrophobic

*Properties:* APHA 100 clear liq.; sp.gr. 1.013; visc. 10,100 cps; 99% reactive esters; 80% oligomer, 20% TPGDA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 973 H85** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate blended with SR 256 (2-(2-ethoxyethoxy)-ethyl acrylate), < 400 ppm MEHQ inhibitor

*Uses:* Produces highly flexible, fast curing, UV/EB films used for adhesives, coatings (metal, paper, wood), elastomers, electronics, inks, photoresists, photopolymers; hydrophobic

*Properties:* APHA 100 clear liq.; sp.gr. 1.089; visc. 6300 cps; 99% reactive esters; 85% oligomer, 15% EOEEOA

*Storage:* Store away from direct sunlight, oxidizing agents and materials

which may generate free radicals; storage temps. should not be > 90 F

**CN 973 J75** [Sartomer]

*Chem. Descrip.:* Aromatic urethane acrylate blended with SR 506 (isobornyl acrylate), < 400 ppm MEHQ inhibitor

*Uses:* Produces highly flexible, fast curing, UV/EB films for adhesives, coatings (metal, paper, wood), elastomers, electronics, inks, photoresists, photopolymers; hydrophobic

*Properties:* APHA 100 clear liq.; sp.gr. 1.080; visc. 5500 cps; 99% reactive esters; 75% oligomer, 25% IBOA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 978** [Sartomer]

*Chem. Descrip.:* Urethane acrylate, aromatic

*Uses:* Oligomer for adhesives, coatings (metal, paper, wood), elastomers, elec. (photoresists), inks, photopolymers; water resist., low shrinkage, flexible; hydrophobic

*Properties:* APHA 45 clear liq.; dens. 9.007 lb/gal; visc. 3210 cps

**CN 980** [Sartomer]

*Chem. Descrip.:* Urethane acrylate with < 400 ppm MEHQ inhibitor

*Uses:* Produces fast curing, nonyel., hydrolytically stable UV/EB curable prods. used for coatings (metal, paper, PVC floor), inks

*Properties:* APHA 100 clear liq.; sp.gr. 1.078; visc. 19,600 cps; 99% reactive esters

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 980 M50** [Sartomer]

*Chem. Descrip.:* Urethane acrylate blended with 50% SR 339 (2-phenoxyethyl acrylate), < 400 ppm MEHQ inhibitor

*Uses:* Used for coatings (metal, paper, PVC floor), inks; fast cure, hydrolytically stable

*Properties:* APHA 100 clear liq.; sp.gr. 1.051; visc. 183 cps; 99% reactive esters; 50% oligomer, 50% PEA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 981** [Sartomer]

*Chem. Descrip.:* Aliphatic urethane acrylate with < 400 ppm MEHQ inhibitor

*Uses:* Used for UV/EB curable coatings (metal, paper, PVC floor), inks; highly flexible, exc. pigment wetting characteristics

*Properties:* APHA 100 clear liq.; sp.gr. 1.119; visc. 6300 cps; 99% reactive esters

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 981 A75** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 306 (tripropylene glycol diacrylate) blend, < 400 ppm MEHQ

*Uses:* Used for coatings (metal, paper, PVC floor) and inks; highly flexible; non-yellowing; exc. pigment wetting; offers weatherability; chem., abrasion, and water resist.; hardness

*Properties:* APHA 65 clear liq.; dens. 9.154 lb/gal; visc. 710 cps

**CN 981 B88** [Sartomer]

*Chem. Descrip.:* Urethane acrylate blended with 12% SR 238 (1,6-hexanediol diacrylate), < 400 ppm MEHQ inhibitor

*Uses:* Used for UV/EB curable coatings (metal, paper, PVC floor), inks; highly flexible, exc. pigment wetting characteristics

*Properties:* APHA 100 clear liq.; sp.gr. 1.103; visc. 1500 cps; 99% reactive esters; 88% oligomer, 12% HDDA

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**CN 982 A75** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 306 (tripropylene glycol diacrylate) blend, < 400 ppm MEHQ

*Uses:* Used for coatings (metal, paper, PVC floor), and inks; highly flexible; non-yellowing; exc. pigment wetting; offers weatherability; chem., abrasion, and water resist.; hardness; low shrinkage; impact str.

*Properties:* APHA 30 clear liq.; dens. 9.360 lb/gal; visc. 1115 cps

**CN 982 B88** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 238 (1,6 hexanediol diacrylate), < 400 ppm MEHQ

*Uses:* Used for coatings (metal, paper, PVC floor), and inks; highly flexible; non-yellowing; exc. pigment wetting; offers weatherability; chem., abrasion, and water resist.; hardness

*Properties:* APHA 60 clear liq.; dens. 9.189 lb/gal; visc. 2175 cps

**CN 982 E75** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 454 (PEG-3 trimethylolpropane triacrylate) blend, < 400 ppm MEHQ

*Uses:* Used for coatings (metal, paper, PVC floor), and inks; highly flexible; non-yellowing; exc. pigment wetting; offers weatherability; chem., abrasion, and water resist.; hardness; low shrinkage; impact str.

*Properties:* APHA 30 clear liq.; dens. 9.612 lb/gal; visc. 2175 cps

**CN 982 P90** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 268 (tetraethylene glycol diacrylate) blend, < 400 ppm MEHQ

*Uses:* Used for coatings (metal, paper, PVC floor), and inks; highly flexible; non-yellowing; exc. pigment wetting; offers weatherability; chem., abrasion, and water resist.; hardness; low shrinkage; impact str.

*Properties:* APHA 30 clear liq.; dens. 9.241 lb/gal; visc. 3650 cps

**CN 983** [Sartomer]

*Chem. Descrip.:* Urethane acrylate, < 400 ppm MEHQ

*Uses:* Used for coatings (plastic, wood, paper, floor), inks, and flexible packaging; hard; scratch-resist.; non-yellowing; offers weatherability; optical resist.; water resist.

*Properties:* APHA 50 clear liq.; dens. 9.420 lb/gal; visc. 5150 cps

**CN 983 B88** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 238 (1,6 hexanediol diacrylate), < 400 ppm MEHQ

*Uses:* Used for coatings (plastic, wood, paper, floor), inks, and flexible packaging; hard; scratch-resist.; non-yellowing; offers weatherability; optical resist.; water resist.

*Properties:* APHA 50 clear liq.; dens. 9.282 lb/gal; visc. 750 cps

**CN 985 B88** [Sartomer]

*Chem. Descrip.:* Urethane acrylate/SR 238 (1,6 hexanediol diacrylate), < 400 ppm MEHQ

*Uses:* Used for coatings (flooring, paper, plastics, wood), inks, and flexible packaging; scratch-resist.; non-yellowing; offers weatherability; optical resist.; water resist.

*Properties:* APHA 20 clear liq.; dens. 9.625 lb/gal; visc. 205 cps

**CNC Antifoam 10-FG** [CNC Int'l.]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam/defoamer for food processing applics., industrial applics. such as paper, textiles, water-phase paints, etc.; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact

*Regulatory:* FDA 21CFR §176.170, 176.200, 176.210, 177.2260

*Properties:* Wh. visc. emulsion; pH 4-5; 10% act.; nonionic

*Storage:* 4 mos storage stability

**CNC Antifoam 30-FG** [CNC Int'l.]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam/defoam for paper, textiles, water-phase paints and other industrial uses; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact

*Regulatory:* FDA 21CFR §176.170, 176.200, 176.210, 177.2260

*Properties:* Wh. visc. emulsion; easily disp. with water; dens. 8.3 lb/gal; pH 4-5; 27-28% act. silicone; nonionic

*Storage:* 4 mos storage stability

**CNC Antifoam 495, 495-M** [CNC Int'l.]

*Chem. Descrip.:* Silicone emulsions

*Uses:* Foam control agent for aq. systems, textile dyeing, paper, water-phase paints, industrial municipal effluents

*Properties:* Wh. emulsion; visc. 1200 cps; pH 7.0; nonionic/anionic Custom prod.

**CNC Defoamer 9-W** [CNC Int'l.]

*Uses:* Defoamer for control of foam in pulp/paper mill effluent

*Properties:* Clear straw-colored liq.; sp.gr. 0.89; dens. 7.4 lb/gal; flash pt. (COC) 120 F; pH 5.5; cloud pt. 35-40 F; 100% act.

**CNC Defoamer 10B** [CNC Int'l.]

*Chem. Descrip.:* Oil-based

*Uses:* Defoamer for kraft screen room and bleach plant applic.

*Properties:* Liq.

**CNC Defoamer 12** [CNC Int'l.]

*Chem. Descrip.:* Nonsilicone oil-based

*Uses:* Defoamer for difficult, foamy high solids or high resin content coating systems, resin or latex mfg./monomer stripping, paper applics.

*Properties:* Liq.

**CNC Defoamer 28** [CNC Int'l.]

*Uses:* Liq. defoamer for sulfate or sulfite pulp systems, brown stock washing

and screening, paper machines, for heavy weight grades, liner board, roofing or flooring stock, corrugated or min.-filled grades; promotes drainage

**CNC Defoamer 30 Series** [CNC Int'l.]

*Uses:* Water-based pulp mill screen defoamer for sulfate or sulfite pulps

*Properties:* Paste or liqs.

**CNC Defoamer 34** [CNC Int'l.]

*Uses:* Liq. defoamer for difficult, foamy high solids or high resin content coating systems, paper applics.

**CNC Defoamer 44 Series** [CNC Int'l.]

*Uses:* Defoamer for coated or heavily surface sized sheet such as wallpaper

*Properties:* Liq.

**CNC Defoamer 59** [CNC Int'l.]

*Uses:* Water-based defoamer for municipal and industrial waste treatment systems, municipal water processing, boiler water, paper and textile mill waste treatment systems

*Properties:* Wh. opaque liq.; sp.gr. ≈ 0.90; dens. ≈ 7.5lb/gal; pH 7.8 (5%)

*Storage:* ≈ 3 mos storage stability; store near R.T.; prolonged storage below freezing will cause some settling or solidification; warm to 90 F with mixing to restore

**CNC Defoamer 67** [CNC Int'l.]

*Uses:* Water-based liq. defoamer for paper and paperboard.

**CNC Defoamer 69** [CNC Int'l.]

*Uses:* Water-based liq. defoamer for paper and paperboard, min. or pigment-filled paper coatings, food pkg. adhesives, coatings and liners for food containers

**CNC Defoamer 97** [CNC Int'l.]

*Chem. Descrip.:* Water-based nonsilicone

*Uses:* Defoamer for clay or pigment-filled paper coatings with protein or latex binders, print pastes for wallpaper; rec. for systems which cannot tolerate silicone or oils

**CNC Defoamer 127** [CNC Int'l.]

*Uses:* Liq. defoamer for paper machine and specialty coating applics.; low cloud pt.

**CNC Defoamer 141** [CNC Int'l.]

*Uses:* Water-based liq. defoamer for pulp/paper mill effluents

**CNC Defoamer 177** [CNC Int'l.]

*Uses:* Liq. defoamer for groundwood pulping

**CNC Defoamer 226** [CNC Int'l.]

*Uses:* Liq. defoamer for sulfate or sulfite pulp systems, brown stock washing and screening

**CNC Defoamer 297** [CNC Int'l.]

*Uses:* Liq. water-extended defoamer for paper machines, for furnishes with high percentages of ground wood or recycled fibers

**CNC Defoamer 309** [CNC Int'l.]

*Uses:* Liq. oil-base defoamer for kraft screen room and bleach plant applic.

**CNC Defoamer 403** [CNC Int'l.]

*Uses:* Conc. defoamer for paper machines, effective for filled, starch-sized, or resin-sized grades; intended for premixing with water

**CNC Defoamer 403A** [CNC Int'l.]

*Chem. Descrip.:* Conc. nonsilicone

*Uses:* Antifoam/defoamer for pulp/paper mill systems, water-based coatings and adhesives; defoamer for water treatment, industrial effluents, boiler and cooling water, and boil-out treatments; for applics. where waxes, fats, or petrol. oils are undesirable; penetrating and dispersing components aid corrosion resist. and in reducing org. deposits

*Regulatory:* FDA 21CFR §176.210

*Properties:* Amber clear liq.; sp.gr. 0.87; dens. 7.5 lb/gal; cloud pt. ≈ 35 F; flash pt. (TCC) > 200 F

*Storage:* 6 mos storage stability; store near R.T.; avoid temp. extremes; if frozen, warm to 90 F to restore to original clarity and effectiveness

**CNC Defoamer 407** [CNC Int'l.]

*Uses:* Defoamer for paper applics. for difficult, foamy high solids, or high resin content systems

*Properties:* Liq.

**CNC Defoamer 477** [CNC Int'l.]

*Uses:* Conc. defoamer for paper machines, effective for filled, starch-sized, or resin-sized grades; intended for premixing with water

**CNC Defoamer 505** [CNC Int'l.]

*Uses:* Liq. defoamer for paper machine and specialty coating applics.; low cloud pt.

**CNC Defoamer 546** [CNC Int'l.]

*Uses:* Liq. defoamer for paper machine and specialty coating applics.; low

- cloud pt.
- CNC Defoamer 1030** [CNC Int'l.]  
*Uses:* Conc. liq. defoamer for heavy weight paper grades, linear board requiring good drainage
- CNC Defoamer 1037** [CNC Int'l.]  
*Uses:* Liq. brownstock washer drainage defoamer for paper industry
- CNC Defoamer 1066** [CNC Int'l.]  
*Uses:* Liq. brownstock washer drainage defoamer for paper industry
- CNC Defoamer 1090** [CNC Int'l.]  
*Uses:* Liq. brownstock washer drainage defoamer for paper industry
- CNC Defoamer 1191** [CNC Int'l.]  
*Uses:* Liq. oil-based defoamer for aq. systems, paper machines, for heavy weight grades, liner board, roofing or flooring stock, corrugated or min.-filled grades, for glues, adhesive, or binder formulations; promotes drainage
- Coatmaster® K50F** [Grain Processing]  
*Chem. Descrip.:* Ethylated corn starch  
*Uses:* Used for size press and/or coating for paper or board; food-contact paper/paperboard; typically requires thinning in-house  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Wh. fine powd., flash-dried form; bulk dens. 31 lb/ft<sup>3</sup> (loose), 39 lb/ft<sup>3</sup> (packed); pH 6; 11% moisture
- Coatmaster® K61F** [Grain Processing]  
*Chem. Descrip.:* Ethylated corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Premium prod. for use at the size press; food-contact paper/paperboard; resist. to congealing on cooling; provides better holdout, reducing penetration and consumption of coatings, inks, varnishes, etc. which may be applied later  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Wh. fine powd.; bulk dens. 31 lb/ft<sup>3</sup> (loose), 39 lb/ft<sup>3</sup> (packed); pH 7.0; 10% moisture
- Coatmaster® K500** [Grain Processing]  
*Chem. Descrip.:* Ethylated corn starch  
*Uses:* Used for size press and/or coating for paper or paperboard; food-contact paper/paperboard; typically requires thinning in-house  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 6; 11% moisture
- Cogum®** [Showa Highpolymer]  
*Chem. Descrip.:* Acrylic resin aq. sol'n.  
*Uses:* For dry paper reinforcement; adhesive for textile printing; textile finishing; remoistening adhesive
- Colloid™ 60** [Rhodia]  
*Uses:* Antifoam, defoamer for water-based systems employing resin latex binders, e.g., for pressure-sensitive adhesives, gravure inks, elastomeric coatings, clear finishes, saturants; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 0.3-0.8% (high foam systems), 0.1% (general)  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210, 178.3400; EPA compliance  
*Properties:* Pale yel. cloudy liq.; readily disp.; sp.gr. 0.89; visc. 130 cps; pH 6 (5%); VOC 150 g/l; 100% act.  
*Toxicology:* TSCA listed
- Colloid™ 202** [Rhodia HPCII]  
*Chem. Descrip.:* Med. m.w. sodium polyacrylate sol'n.  
 CAS 9003-04-7  
*Uses:* Builder additive for detergents; antiredeposition aid for laundry applics.; dispersion aid for dishwasher formulations; process and anticaking aid for dry prods., spray applics. to improve bead str. and reduce fines; sequestrant for liq. or dry formula; suitable for dry laundry detergents, light-duty detergents, hand washing, dishwasher liqs.; food pkg. adhesives, coatings, paper/paperboard  
*Use Level:* 1-5% (phosphate replacement); 2% (antiredeposition aid, anticaking aid, process aid)  
*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 175.320, 176.170, 176.180; EPA compliance  
*Properties:* Lt. straw-colored liq.; water-sol.; m.w. 60,000; sp.gr. 1.25; visc. 2000 cps; pH 8.0; 35% solids; anionic  
*Storage:* Not affected by freeze-thaw cycling; can be stored over wide temp. range; if prod. freezes, warm to 100 F and mix well before using
- Colloid 488T** [TIC Gums]

- Chem. Descrip.:* Sodium alginate  
 CAS 9005-38-3  
*Uses:* Gellant, film-former, emulsifier, suspending agent for foods (dairy prods., extruded foods, beverages, salad dressings, dessert gels, sauces, frozen desserts, bakery prods.), cosmetics/pharmaceuticals (lotions, vitamin suspension), industrial (paper coatings, adhesives, textile printing, dyeing, explosives); reactive with milk  
*Use Level:* 0.3-0.5% (pie fillings)  
*Properties:* Sol. in cold water
- Colloid™ 581B** [Rhodia]  
*Chem. Descrip.:* Silicone-free  
*Uses:* Defoamer providing quick foam knock-down in high-surfactant polymerizations for pressure-sensitive adhesives, gravure inks; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives; low carryover into compounding; exc. compat.  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210  
*Properties:* 100% act.
- Colloid 602** [TIC Gums]  
*Chem. Descrip.:* Propylene glycol alginate  
 CAS 9005-37-2  
*Uses:* Gellant, film-former, emulsifier, suspending agent for foods (dairy prods., extruded foods, beverages, salad dressings, dessert gels, sauces, frozen desserts, bakery prods.), cosmetics/pharmaceuticals (lotions, vitamin suspension), industrial (paper coatings, adhesives, textile printing, dyeing, explosives); reactive with milk  
*Properties:* Sol. in cold water
- Colloid™ 643** [Rhodia]  
*Uses:* Defoamer for paints and coatings; defoamer in food-contact coatings, paper/paperboard; quick bubble break  
*Use Level:* 2-6 lb/100 gal (paint)  
*Regulatory:* FDA 21CFR §176.180, 176.200, 176.210; EPA compliance  
*Properties:* Lt. tan opaque liq.; sp.gr. 0.85; visc. 800 cps; VOC 25 g/l; 100% act.  
*Toxicology:* TSCA listed  
*Storage:* Store @ 50-100 F; mix before use
- Colloid™ 646** [Rhodia]  
*Uses:* Defoamer for syn. latexes, general paints, board coatings, gravure inks, pressure-sensitive adhesives, clear coats, PVAc, vinyl acrylic, acrylic emulsion compds., food-contact coatings/paper; food pkg. adhesives; emulsifiable  
*Use Level:* 2.5-5.0 lb/100 gal (adhesives, paints)  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; EPA compliance  
*Properties:* Lt. gray opaque liq.; sp.gr. 0.91; visc. 250 cps; pH 7.7 (5% disp.); 100% act.  
*Toxicology:* TSCA listed  
*Storage:* May be stored over wide temp. range; storage above 4 C rec.; if prod. solidifies due to cold, warm to R.T. and mix well before use
- Colloid™ 675** [Rhodia]  
*Uses:* Defoamer for stripping, foam knock-down, and latex handling for pressure-sensitive adhesives, gravure inks, paints; defoamer for food-contact coatings, paper/paperboard; food pkg. adhesives; easily dispersible; multi-component; very effective with ethylene copolymers and compds.  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210  
*Properties:* Liq.; 100% act.
- Colloid™ 677** [Rhodia]  
*Uses:* General purpose defoamer for industrial use, esp. resin emulsions, coatings, and adhesives; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives; exc. foam knockdown and prevention  
*Use Level:* 0.05-0.5%  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210; EPA compliance  
*Properties:* Pale yel. opaque liq.; sp.gr. 0.89; visc. 100 cps; pH 6 (5% disp.); VOC 165 g/l  
*Toxicology:* TSCA listed  
*Storage:* Store above 50 F; mix before use
- Colloid™ 679** [Rhodia HPCII]  
*Uses:* Silicone-free antifoam for industrial applics., esp. latex, traffic paints, decorative paints for asphalt, adhesives, inks, wallcoverings; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings; highly compat. in finished prod., no film defects  
*Use Level:* 0.1-0.5%  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180,

176.200, 176.210; EPA compliance

*Properties:* Off-wh. opaque liq.; sp.gr. 0.88; visc. 550 cps; pH 6.5 (5% disp.)

*Toxicology:* TSCA listed

*Storage:* Can be stored over wide temp. range; not affected by freeze-thaw cycling; if prod. freezes, warm to 120 F and mix well before using

**Colloid™ 680** [Rhodia HPCII]

*Uses:* Antifoam for water-based adhesive systems employing resin or latex binders and animal glues, and for paints, cementitious finishes, gravure inks; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings; good leveling

*Use Level:* 0.05-0.5% on total wt.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210; EPA compliance

*Properties:* Pale yel. opaque liq.; sp.gr. 0.90; visc. 200 cps; pH 6.4 (5% disp.)

*Toxicology:* TSCA listed

*Storage:* Can be stored over wide temp. range; storage above 40 F rec.; if prod. freezes, warm slowly to R.T. and mix well before using

**Colloid™ 681F** [Rhodia HPCII]

*Uses:* Easily dispersible antifoam for vinyl-acrylic polymerization; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, paper/paperboard; remains homogeneous

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210; kosher

*Properties:* 96% act.

**Colloid™ 685** [Rhodia]

*Uses:* Readily dispersible defoamer for stripping and processing carboxylated SBR and PVC emulsions; for adhesives, pressure-sensitive adhesives, food pkg. adhesives/paper; defoamer in food-contact coatings, paper/paperboard; more efficient than high-silica defoamers

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210

*Properties:* Liq.; 100% act.

**Colloid™ 796** [Rhodia]

*Uses:* Defoamer for aq. systems, adhesives, pressure-sensitive adhesives, paints, high-gloss paints, inks, paper coatings, effluent treatment; defoamer in food-contact coatings and paper/paperboard; food pkg. adhesives

*Use Level:* 0.05-0.5%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210; EPA compliance

*Properties:* Tan opaque liq.; readily disp. in water; sp.gr. 0.85; visc. 800 cps; pH 7.2 (5%); 100% act.; nonionic

*Toxicology:* TSCA listed

*Storage:* Store at R.T.; prolonged exposure below 20 F may cause settling of solids; warm slowly to 80 F with agitation; do not exceed 100 F when thawing

**Colloid™ 797** [Rhodia]

*Uses:* Defoamer for casein and protein-based coatings and adhesives, screen process inks, nonwoven saturating latex, and effluent applics.; defoamer in food-contact coatings and paper/paperboard; food pkg. adhesives

*Use Level:* 0.05-0.5%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210; EPA compliance

*Properties:* Wh. opaque liq.; readily disp. in water; sp.gr. 0.88; visc. 275 cps; pH 6.5 (5%); 100% act.

*Toxicology:* TSCA listed

*Storage:* Store at R.T.; prolonged exposure below 20 F may cause settling of solids; warm slowly to 80 F with agitation; do not exceed 100 F when thawing

**Colloid™ 929** [Rhodia]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for gravure inks, aq. urethane coatings, casein and proteinaceous-based adhesives and coatings; defoamer in food-contact coatings and paper/paperboard; food pkg. adhesives; good foam knock-down; very compat.; low visc.; easily dispersible

*Use Level:* 0.05-0.35%

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 178.3120; EPA compliance

*Properties:* Amber opaque liq.; sp.gr. 0.92; visc. 200 cps; pH 7.0 (5%); VOC 15 g/l; 100% act.

*Toxicology:* TSCA listed

*Storage:* Store above 50 F for ease of handling; if prod. solidifies due to cold, warm to R.T. and mix well before using

**Colloid™ 962** [Rhodia]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for adhesives, pressure-sensitive adhesives, gravure inks, aq. urethane coatings, paper coatings, paints, latex applics.; defoamer in food-contact coatings and paper/paperboard; food pkg. adhesives; general-purpose

*Use Level:* 0.05%

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210; EPA compliance

*Properties:* Lt. amber opaque liq.; readily disp. in water; sp.gr. 0.92; visc. 300 cps; VOC 115 g/l; 100% act.

*Toxicology:* TSCA listed

*Storage:* May be stored over wide temp. range; storage above 40 F rec.; if prod. solidifies, warm slowly to R.T. and mix well before use

**Colloid™ 985** [Rhodia]

*Chem. Descrip.:* Silicone-free

*Uses:* Defoamer for vinyl-acrylic latexes, gravure inks, sealants, adhesives, coatings; defoamer effective with starches, gums, and cellulose; defoamer in food-contact paper coatings; food pkg. adhesives; food-contact paper/paperboard; easily dispersible; nonsettling in drum

*Use Level:* 0.05-0.5%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200; EPA compliance

*Properties:* Lt. yel. liq.; sp.gr. 0.89; visc. 20 cps; pH 6 (5%); 100% act.

*Toxicology:* TSCA listed

*Storage:* Store above 50 F for ease of handling; temp. variations may cause hazing; if prod. solidifies, warm to R.T. and mix well before use

**Colloid™ 991** [Rhodia]

*Uses:* Defoamer used in coatings and in polymer synthesis and stripping; defoamer in food-contact adhesives, coatings, paper/paperboard; High-activity

*Use Level:* 0.05-0.10%

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; EPA compliance

*Properties:* Lt. tan opaque liq.; sp.gr. 0.91; visc. 100 cps; pH 10 (5% aq.); VOC 200 g/l

*Toxicology:* TSCA listed

*Storage:* Store above 50 F for ease of handling; if prod. solidifies, warm to R.T. and mix well before use

**Colloid™ 999** [Rhodia]

*Chem. Descrip.:* Silicone-free, mineral oil-free

*Uses:* Defoamer for compounded systems contg. PVA, gelatin, protein, starch, and cellulose; defoamer for flexo inks, aq. systems, latex, elastomeric and clear coatings, gas scrubbers; defoamer in food-contact adhesives, coatings, paper/paperboard; easily dispersible

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210 with use level limitations

*Properties:* Liq.; 100% act.

**Colloid™ 1010** [Rhodia]

*Chem. Descrip.:* Silicone-based

*Uses:* Highly efficient and stable foam control agent for aq. systems incl. food-contact adhesives, coatings, paper/paperboard mfg.; imparts rapid foam knockdown

*Use Level:* 10-150 ppm

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; EPA 40CFR §180.1001(c)

*Properties:* Wh. opaque liq.; sp.gr. 1.0; visc. 235 cps; pH 9 (5%); VOC 8 g/l; 15% solids

*Toxicology:* TSCA listed

*Storage:* Store above 50 F for optimum handling; protect from freezing; repeated freezing may damage container and thicken the emulsion; thaw slowly to R.T. with strong agitation if frozen

**ColorCoat White 2A™** [Michelman]

*Uses:* Wh. coating for paper; general-purpose; gluable; repulpable

*Regulatory:* FDA compliance

**Compozil™ BMA 0** [Eka Chems.]

*Chem. Descrip.:* Silica sol

*Uses:* Retention aid, drainage aid, and dry str. agent for most fine paper and board applics.; microparticle system based on anionic silica sol in combination with cationic starch; suitable for alkaline and neutral systems

*Properties:* Anionic

**Compozil™ BMA 9** [Eka Chems.]

*Chem. Descrip.:* Surface-modified silica sol

*Uses:* Retention aid, drainage aid, and dry str. agent for most fine paper and board applics.; microparticle system based on anionic silica sol in combination with cationic starch; suitable for all pH ranges

*Properties:* Anionic

**Compozil™ P BMA 780** [Eka Chems.]

*Chem. Descrip.:* Surface-modified structured silica sol with cationic polyacrylamides

*Uses:* Retention aid, drainage aid, and dry str. agent for wood-containing, board, and alkaline fine paper, and for systems with high conductivity and cationic demand; microparticle system; provides microparticle effects without necessity of starch; designed for true nanoparticle interactions with cationic polymers; for all pH ranges

**Compozil™ P BMB** [Eka Chems.]

*Chem. Descrip.:* Surface-modified structured silica sol with cationic polyacrylamides

*Uses:* Retention aid, drainage aid, dry str. agent for wood-containing, board, and alkaline fine paper, and for systems with high conductivity and cationic demand; microparticle system; provides microparticle effects without necessity of starch

*Properties:* Cationic

**Compozil™ S BMA 670** [Eka Chems.]

*Chem. Descrip.:* Surface-modified structured silica sol

*Uses:* Retention aid, drainage aid, and dry str. agent for fine paper and board applics. and for systems with high conductivity and cationic demand; based on newly developed sols in combination with cationic starch; for all pH ranges

*Properties:* Anionic

**Compozil™ S BMA 890** [Eka Chems.]

*Chem. Descrip.:* Surface-modified structured silica sol

*Uses:* Retention aid, drainage aid, and dry str. agent for fine paper and board applics.; based on newly developed sols in combination with cationic starch; for all pH ranges

*Properties:* Anionic

**Conductive Polymer 261® RV** [Nalco]

*Chem. Descrip.:* Quat. ammonium polymer

*Uses:* Conductive coating additive for sensitized papers used in nonimpact reproduction devices such as electrostatic copy machines, computer read-out printers, data retrieval systems, electrostatic communications systems, etc.; antistatic additive; papers treated with this polymer are free of odor and taste

*Use Level:* 0.5-1.5 lbs./3000 ft<sup>2</sup> ream of paper

*Properties:* Colorless to pale yel. visc. liq.; sol. in water, methanol, glacial acetic acid, and methyl cellulosolve; sp.gr. 1.085; dens. 9.05 lb/gal; visc. 8000-12,000 cps; f.p. -10 C; flash pt. nonflamm.; pH 6.5 ± 0.5; 40 ± 1% solids

*Storage:* Unlimited shelf life in unopened drums; freezing and thawing will not affect performance

**Consoplast NY** [Consols]

*Chem. Descrip.:* Self-emulsifiable sol'n. of plasticized nat. syn. resins

*Uses:* Gloss finish with adhesive props. for fabric, paper, leather, thread, or twine; will not yel. at high temps. when used alone or with other materials

**Continex® LH-10** [Continental Carbon]

*Chem. Descrip.:* Carbon black

*Chem. Analysis:* C (99%)

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Rubber reinforcement for truck and high performance tread black, plastics, paper, and printing ink industries; provides improved abrasion resist. props. with lower hysteresis

*Properties:* Blk. amorphous pellets, odorless; insol. in water; sp.gr. 1.7-1.9 (16 C); bulk dens. 20 lb/ft<sup>3</sup>; vapor pressure negligible; nitrogen surf. area 127 m<sup>2</sup>/g; fire pt. 500-700 F

*Toxicology:* OSHA and ACGIH PEL 3.5 mg/m<sup>3</sup>; nuisance dust; inh. of dust may cause temporary discomfort to nose and respiratory tract

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub> from burning

**Continex® N351** [Continental Carbon]

*Chem. Descrip.:* N351 Carbon black

*Chem. Analysis:* C (99%)

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Rubber reinforcement for passenger tread, retread rubber, cable jackets, plastics, paper, and printing ink industries; provides high structure with low hysteresis; very good tens. str. and abrasion resist.; fast mixing compds.

*Properties:* Blk. amorphous pellets, odorless; insol. in water; sp.gr. 1.7-1.9 (16 C); bulk dens. 21.5 lb/ft<sup>3</sup>; vapor pressure negligible; nitrogen surf. area 72 m<sup>2</sup>/g; iodine no. 68; fire pt. 500-700 F

*Toxicology:* OSHA and ACGIH PEL 3.5 mg/m<sup>3</sup>; nuisance dust; inh. of dust may cause temporary discomfort to nose and respiratory tract

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub> from burning

**Contraspum 211/2** [BK Giulini Chemie]

*Chem. Descrip.:* Carbonic acid ester

*Uses:* Defoamer for pulp-deaeration and foam-prevention in production of sized and unsized paper and boards, food-contact paper and boards

*Use Level:* 0.05%

*Regulatory:* BgVV approved

*Properties:* Lt. brn. liq.; emulsifiable in water; sp.gr. 1.0; visc. 80 mPa·s (20 C); pH 9.5 (20 C); 100% act.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* Store indefinitely in closed containers; not susceptible to frost, but store @ < -5 C for handling purposes

**Contraspum 1105** [BK Giulini Chemie]

*Chem. Descrip.:* Alkyl polyalkylene glycol ether

*Uses:* Defoamer for pulp-deaeration and foam-prevention in production of sized and unsized paper and boards; min. oil-free

*Properties:* Ylsh. clear liq.; emulsifiable in water; sp.gr. 1.0; visc. 300 mPa·s (20 C); pH 4.0 (10%); 100% act.; nonionic

*Toxicology:* Nontoxic

*Environmental:* > 90% biodeg.

*Storage:* Unlimited storage in closed containers; not susceptible to frost, but store @ < 2 C for handling purposes

**Contraspum 1217** [BK Giulini Chemie]

*Chem. Descrip.:* Ethylene and propylene oxide condensation prod.

*Uses:* Defoamer for paper coating pigments; silicone-free

*Use Level:* 0.1-0.6%

*Properties:* Colorless clear liq.; emulsifiable in water; sp.gr. 0.9 (20 C); visc. 30 mPa·s (20 C); flash pt. 15 C; pH 5 (10%); 100% act.; nonionic

*Storage:* Unlimited storage @ < 30 C in sealed containers

**Contraspum E 509** [BK Giulini Chemie]

*Chem. Descrip.:* Higher aliphatic alcohols

*Uses:* Emulsion defoamer for stuff-deaeration and foam-prevention, food pkg. paper and boards; min. oil-free

*Use Level:* 0.3%

*Regulatory:* BgVV approved

*Properties:* Wh. disp.; sp.gr. 0.98 (20 C); visc. 300 mPa·s (20 C); pH 8 (20 C); 30% act.; nonionic

*Toxicology:* Nontoxic

*Environmental:* > 90% biodeg.

*Storage:* 3 mos. shelf life @ 2-30 C; away from frost and direct sunlight

**Contraspum E 640** [BK Giulini Chemie]

*Chem. Descrip.:* Higher aliphatic alcohols

*Uses:* Size-protective emulsion defoamer for deaerating matter and destroying foam in paper industry; environmentally friendly; min. oil-free

*Use Level:* 0.05-0.2%

*Properties:* Wh. disp.; misc. with water; sp.gr. 0.98 (20 C); visc. < 300 mPa·s (20 C); pH 10 (20 C); nonionic

*Toxicology:* Nontoxic

*Environmental:* Biodeg.

*Storage:* 3 mos. shelf life @ 2-20 C; sensitive to frost

**Contraspum LPE** [BK Giulini Chemie]

*Chem. Descrip.:* Mixt. of fatty acid derivs. and hydrocarbons

*Uses:* Emulsion defoamer for deaeration and foam-prevention in size press

*Properties:* Ylsh., sl. turbid liq.; emulsifiable in water; sp.gr. 0.9 (20 C); visc. 500 mPa·s (20 C); pH 6 (10%, 20 C); 100% act.; nonionic

*Storage:* Unlimited storage in closed containers

**Contraspum T 50** [BK Giulini Chemie]

*Chem. Descrip.:* Ethylene and propylene oxide condensation prod. with ethylenediamine

*Uses:* Antifoam for deaeration and foam-prevention in size press, food-contact paper/paperboard

*Use Level:* 5-20 g/m<sup>3</sup> size liquor

*Regulatory:* FDA 21CFR §176.120 compliant

*Properties:* Ylsh. clear liq.; emulsifiable in water; sp.gr. 1.0 (20 C); visc. 120 mPa·s (20 C); pH 5; 50% act.; nonionic

*Storage:* Unlimited storage in closed containers



**Copisil®** [Süd-Chemie AG]*Chem. Descrip.:* Bentonite

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* Color developer for production of carbonless copy papers, thermoreactive papers, and chem. test papers; fast color development, high color intensity, and good fading resist.**CorTrol™** [Hercules]*Uses:* Oxygen scavenger for pulp/paper mill utility boiler feedwater systems**Cosmic Black 8-S** [Ebonex]*Chem. Descrip.:* Bone black

CAS 8021-99-6

*Uses:* Pigment for paints, coatings, plastics, inks, mortar and cement colors, artists colors, artificial leather and vinyl, coated paper and board, linoleum*Regulatory:* FDA GRAS*Properties:* Blk. powd.; fineness 3-15 µ; readily disp. in aq. and oil-based vehicles; insol. in water; sp.gr. 2.61; oil absorp. 0.42-0.47; 10.3% C*Toxicology:* Prolonged inh. of high concs. may lead to a deposition of tricalcium phosphate crystals in the lung tissue; TSCA listed*Precaution:* Will not support combustion; smolders like charcoal; phosphate content is dissolved in acids*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>**Cosmic Black AP** [Ebonex]*Chem. Descrip.:* Bone black

CAS 8021-99-6

*Uses:* Pigment for paints, coatings, plastics, inks, mortar and cement colors, artificial leather and vinyl, coated paper and board*Regulatory:* FDA GRAS*Properties:* Blk. powd.; fineness 3-15 µ; readily disp. in aq. and oil-based vehicles; insol. in water; sp.gr. 2.52; oil absorp. 0.40-0.43; 10.2% C*Toxicology:* Prolonged inh. of high concs. may lead to a deposition of tricalcium phosphate crystals in the lung tissue; TSCA listed*Precaution:* Will not support combustion; smolders like charcoal; phosphate content is dissolved in acids*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>**Cosmic Black D-2** [Ebonex]*Chem. Descrip.:* Bone black

CAS 8021-99-6

*Uses:* Pigment for paints, plastics, hot stamping foils, artists colors, artificial leather and vinyl, coated paper and board, poster colors, pulp colors, inks, wallpaper printing, casein paint, water colors*Regulatory:* FDA GRAS*Properties:* Blk. finely ground solid; fineness 3-15 µ; readily disp. in aq. and oil-based vehicles; insol. in water; sp.gr. 2.52; oil absorp. 0.46-0.49; 9.6% C*Toxicology:* Prolonged inh. of high concs. may lead to a deposition of tricalcium phosphate crystals in the lung tissue; TSCA listed*Precaution:* Will not support combustion; smolders like charcoal; phosphate content is dissolved in acids*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>**Cosmopon BN** [Cesalpinia]*Chem. Descrip.:* Sodium oleyl sulfosuccinamate*Uses:* Emulsifier for emulsion polymerization; foaming agent for latex emulsions; antigelling and cleaning agents for paper mill felts*Properties:* Paste; 35% conc.; anionic**Covergloss™** [Huber Engineered Materials]*Uses:* High glossing clay for paper/paperboard; promotes exc. coverage and print gloss with premium brightness*Properties:* Spray-dried slurry; 96-99% finer than 2 µ; 0.005% max. 325 mesh residue; visc. 400 cps; brightness (TAPPI) 90-91; pH 6-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture**Crepetrol®** [Hercules]*Chem. Descrip.:* Polymer*Uses:* Creping aid and adhesion aid for tissue/towel*Properties:* Cationic**Crill 1** [Croda Food Services Ltd; Croda Oleochems.]*Chem. Descrip.:* Sorbitan laurate

CAS 1338-39-2; EINECS/ELINCS 215-663-3

*Uses:* Emulsifier; pigment dispersant; cosolvent; wetting agent; antifoam; visc. reducer; mold release; antiblock agent; corrosion inhibitor; lubricant; antistat; used for cosmetics, food and food pkg., insecticides and herbicides, leather treatment; metalworking fluids, oil slick dispersing, paints and inks, pharmaceuticals, plastics, polishes, textiles, paper, adhesives; antifoam for

syrups, calf starters; food pkg. adhesives, coatings, paper; emulsifier in mfg. of food-contact articles

*Use Level:* 0.1-0.2% (calf starters), 0.01-0.05% (syrups)*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 175.390, 176.170, 176.210, 178.3120, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC, UK clearance*Properties:* Pale yel. clear visc. liq.; sol. in ethanol, oleyl alcohol, min. oil; HLB 8.6; acid no. 4-7; sapon. no. 160-175; hyd. no. 330-358; 98% conc.; nonionic*Storage:* Store under cool, dry conditions**Crill 2** [Croda Oleochems.]*Chem. Descrip.:* Sorbitan palmitate

CAS 26266-57-9; EINECS/ELINCS 247-568-8

*Uses:* Emulsifier; pigment dispersant; cosolvent; wetting agent; antifoam; visc. reducer; mold release; antiblock agent; corrosion inhibitor; lubricant; antistat; used for cosmetics, food and food pkg., polishes and cleaners, adhesives; antifoam for syrups, calf starters; food pkg. adhesives, coatings; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210, 178.3120, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC compliance*Properties:* Pale tan hard waxy solid; partially sol. in propylene glycol, ethyl and oleyl alcohols, olive oil, oleic acid; m.p. 46 C; HLB 6.7; sapon. no. 140-150; 98% conc.; nonionic**Crill 3** [Croda Inc; Croda Food Services Ltd; Croda Oleochems.]*Chem. Descrip.:* Sorbitan stearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9

*Uses:* Emulsifier; lubricant; antistat; o/w emulsions; cosmetic and pharmaceutical creams/lotions; polishes; cleaners; insecticides; herbicides; metal cleaners; buffing compds.; textile lubricants; food/food pkg.; emulsifier in mfg. of food-contact articles; emulsifier for shortenings; controls crystallization and prevents fat bloom in chocolate and coatings; emulsion stabilizer in coffee whiteners, whipped desserts; food pkg. adhesives, coatings; defoamer in food-contact paper*Use Level:* 0.5% (chocolate), 0.1-0.2% (coffee whiteners), 0.2-0.4% (shortenings, whipped desserts); 0.5-5%*Regulatory:* FDA 21CFR §172.515, 172.836, 172.842, 173.340, 175.105, 175.320, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC, UK clearance*Properties:* Cream/yel. hard waxy solid; low odor; partially sol. in oleyl alcohol, olive oil, oleic acid; insol. in water; m.p. 54 C; HLB 4.7; acid no. 5-10; sapon. no. 146-157; hyd. no. 235-260; 98% conc.; nonionic*Toxicology:* LD50 (oral, rat) > 31 g/kg; nonirritating to eyes*Storage:* Store under cool, dry conditions**Crill 4** [Croda Inc; Croda Food Services Ltd; Croda Oleochems.]*Chem. Descrip.:* Sorbitan oleate

CAS 1338-43-8; EINECS/ELINCS 215-665-4

*Uses:* W/o emulsifier; wetting agent; pigment dispersant; coupler; antifoam; cosmetic and pharmaceutical applic.; aerosol polishes; insecticidal sprays; inks and surf. coatings; metalworking lubricants; cutting oils; textile lubricants; dry cleaning; oil slick dispersant; food process antifoam; food pkg. adhesives, coatings, paper; emulsifier in mfg. of food-contact articles; emulsion stabilizer for calf starters, syn. creams, whipped desserts; aids wetting/defeathering in poultry*Use Level:* 0.5-5%; 0.2-0.4% (calf starter, whipped dessert); 0.1-0.2% (cream), 175 ppm of scald water (poultry)*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC compliance*Properties:* Amber visc. liq.; sol. in ethyl, isopropyl, and oleyl alcohols, min. oil, IPM, olive oil, oleic acid; HLB 4.3; acid no. 5.5-7.5; sapon. no. 147-160; hyd. no. 193-209; 98% conc.; nonionic*Toxicology:* LD50 (oral, rat) > 40 g/kg; nonirritating to eyes**Crill 41** [Croda Chem. Ltd; Croda Oleochems.]*Chem. Descrip.:* Sorbitan tristearate

CAS 26658-19-5; EINECS/ELINCS 247-891-4

*Uses:* Food emulsifier; controls crystallization and prevents fat bloom in chocolate and confectioners coatings; in cosmetics, food/food pkg., pesticides, metalworking fluids, pharmaceuticals, polishes and cleaners, textiles; food pkg. adhesives/coatings; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles*Use Level:* 1%*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210, 178.3120, 178.3400;

- 40CFR §180.1001(c)(e) exempt; EEC compliance  
*Properties:* Cream/lyel. solid; m.p. 53 C; HLB 2.1; acid no. 7 max.; sapon. no. 172-185; hyd. no. 60-80; nonionic
- Crillet 43** [Croda Oleochems.]  
*Chem. Descr.:* Sorbitan sesquioleate  
 CAS 8007-43-0; EINECS/ELINCS 232-360-1  
*Uses:* W/o emulsifier, wetting agent, pigment dispersant for cosmetic, pharmaceutical, food, paints, inks, pesticides, metalworking fluids, polishes and cleaners, adhesives, and industrial applics.; food pkg. adhesives, coatings; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210, 178.3120; 40CFR §180.1001(c)(e) exempt  
*Properties:* Amber visc. liq.; sol. in oleyl alcohol, min. and olive oil, oleic acid; HLB 3.7; sapon. no. 149-160; 98% conc.; nonionic
- Crillet 45** [Croda Inc; Croda Oleochems.]  
*Chem. Descr.:* Sorbitan trioleate  
 CAS 26266-58-0; EINECS/ELINCS 247-569-3  
*Uses:* W/o emulsifier, wetting agent, pigment dispersant for cosmetic, pharmaceutical, food/food pkg., paints, inks, metalworking fluids, adhesives, and industrial applics.; food pkg. adhesives, coatings; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210, 178.3120, 178.3400; 40CFR §180.1001(c)(e) exempt  
*Properties:* Amber visc. liq.; sol. in oleyl alcohol, min. and olive oil, IPM, oleic acid; HLB 1.8; sapon. no. 172-186; 98% conc.; nonionic
- Crillet 1 HP** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 20 NF  
 CAS 9005-64-5  
*Uses:* Solubilizer; emulsifier; dispersant; wetting agent; used in cosmetics, food and food pkg., pharmaceuticals, adhesives; food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; often combined with a member of the Crill range in emulsification systems  
*Regulatory:* FDA 21CFR §172.515, 175.105, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC compliance  
*Properties:* Yel. clear liq.; low odor; sol. in water, ethyl and oleyl alcohol, oleic acid; HLB 16.7; acid no. 2 max.; sapon. no. 40-51; hyd. no. 96-108; surf. tens. 38.5 dynes/cm (0.1%); 97% conc.; nonionic
- Crillet 1 NF** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 20 NF  
 CAS 9005-64-5  
*Uses:* Solubilizer; emulsifier; dispersant; wetting agent; used in cosmetics, food and food pkg., pharmaceuticals, adhesives; food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; often combined with a member of the Crill range in emulsification systems  
*Regulatory:* FDA 21CFR §172.515, 175.105, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC compliance  
*Properties:* Yel. clear liq.; low odor; sol. in water, ethyl and oleyl alcohol, oleic acid; HLB 16.7; acid no. 2 max.; sapon. no. 40-51; hyd. no. 96-108; surf. tens. 38.5 dynes/cm (0.1%); 97% conc.; nonionic
- Crillet 2** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 40  
 CAS 9005-66-7  
*Uses:* Emulsifier, solubilizer, wetting agent for cosmetic, pharmaceutical, food/food pkg., pesticides, polishes and cleaners, textiles, adhesives, and industrial applics.; food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC compliance  
*Properties:* Yel. pasty liq.; sol. in water, ethanol, oleyl alcohol, oleic acid; partly sol. in IPM, xylene, trichloroethylene; HLB 15.6; acid no. 2 max.; sapon. no. 43-49; hyd. no. 89-105; 97% conc.; nonionic
- Crillet 3** [Croda Inc; Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 60  
 CAS 9005-67-8  
*Uses:* O/w emulsifier for cosmetics/pharmaceuticals; dispersant for insecticides, herbicides, cattle dyes; penetrant; leveling agent; lubricant; antistat; food pkg.; plastics; polishes; cleaners; textiles; adhesives; food emulsifier for icings; starch/protein complexing and aeration agent in cakes; emulsion stabilizer in calf starters, coffee whiteners, margarine; controls crystallization; reduces palate cling in chocolate and coatings; defoamer in food-contact paper/paperboard  
*Use Level:* 0.2-0.4% (cake), 0.1-0.2% (calf starter), 0.5% (chocolate), 0.05-0.1% (coffee whitener); 0.5-5%  
*Regulatory:* FDA 21CFR §172.515, 172.836, 175.105, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC, UK clearance  
*Properties:* Yel. liq. gels to soft solid on cooling; sol. in ethyl, isopropyl, and oleyl alcohol, oleic acid; partly sol. in water; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; pH 5-7 (5%); surf. tens. 42.5 dynes/cm (0.1%); 97% conc.; nonionic  
*Toxicology:* LD50 (oral, rat) > 38 g/kg; nonirritating to eyes  
*Storage:* Store under cool, dry conditions
- Crillet 4** [Croda Inc; Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 80 NF  
 CAS 9005-65-6  
*Uses:* Emulsifier, dispersant, solubilizer, lubricant, detergent, antistat, wetting agent for cosmetics, pharmaceuticals, polishes and cleaners, insecticides, leather degreasing, veterinary prods., food pkg., paints, inks, metalworking fluids; adhesives, plastics, textiles, household prods., paper, oil slick dispersants; food emulsifier; controls fat agglomeration in ice cream; solubilizer producing stable vitamin and essential oil emulsions  
*Use Level:* 0.02-0.05% (ice cream), 5-15% of oil or vitamin; 0.5-5%  
*Regulatory:* FDA 21CFR §172.515, 172.623, 172.840, 172.846, 173.340, 175.105, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC, UK clearance  
*Properties:* Yel. amber clear liq.; faint char. odor; sol. in water, ethyl, isopropyl, and oleyl alcohols, oleic acid; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; pH 6-7 (5%); surf. tens. 42.5 dynes/cm (0.1%); 97% conc.; nonionic  
*Toxicology:* LD50 (oral, rat) > 38 g/kg; nonirritating to eyes  
*Storage:* Store under cool, dry conditions
- Crillet 11** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 21  
 CAS 9005-64-5  
*Uses:* Emulsifier, solubilizer, wetting agent for cosmetic, pharmaceutical, food/food pkg.; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Yel. liq.; sol. in ethanol, oleyl alcohol, oleic acid, kerosene partly sol. in water, IPM, olive oil, xylene, trichloroethylene; HLB 13.3; acid no. 2 max.; sapon. no. 100-115; hyd. no. 225-265; 97% conc.; nonionic
- Crillet 31** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 61  
 CAS 9005-67-8  
*Uses:* Emulsifier, solubilizer, wetting agent for cosmetic, pharmaceutical, food, pesticides, polishes, cleaners, textiles, and industrial applics.; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Yel./amber solid; sol. in oleyl alcohol, oleic acid; partly sol. in ethanol, IPM, olive oil, kerosene, xylene, trichloroethylene; partly sol. (gels) in water, min. oil; HLB 9.6; acid no. 2 max.; sapon. no. 98-113; hyd. no. 170-200; 97% conc.; nonionic
- Crillet 35** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 65  
 CAS 9005-71-4  
*Uses:* Emulsifier, solubilizer, wetting agent for cosmetic, pharmaceutical, food/food pkg., pesticides, polishes, cleaners, textiles, and industrial applics.; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.838, 176.210, 178.3400; 40CFR §180.1001(c)(e) exempt; EEC compliance  
*Properties:* Cream/buff waxy solid; sol. in ethyl and oleyl alcohols, oleic acid, trichloroethylene, partly sol. in water; HLB 10.5; acid no. 2 max.; sapon. no. 88-98; hyd. no. 44-60; surf. tens. 42.5 dynes/cm (0.1%); 97% conc.; nonionic
- Crillet 41** [Croda Oleochems.]  
*Chem. Descr.:* Polysorbate 81  
 CAS 9005-65-6  
*Uses:* Emulsifier, solubilizer, wetting agent for cosmetic, pharmaceutical, food, paints, inks, pesticides, leather treatment, metalworking fluids, polishes and cleaners, textiles, household and industrial prods.; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; 40CFR §180.1001(c) exempt  
*Properties:* Amber liq.; sol. in ethanol, oleyl alcohol, IPM, oleic acid, kero-

sene, butyl stearate; partly sol. in water, olive oil, xylene, trichlorethylene; HLB 10.0; acid no. 2 max.; sapon no. 96-104; hyd. no. 134-150; 97% conc.; nonionic

**Crillet 45** [Croda Oleochems.]

*Chem. Descrip.:* Polysorbate 85

CAS 9005-70-3

*Uses:* Emulsifier, solubilizer, wetting agent for cosmetic, pharmaceutical, food/food pkg., paints, inks, pesticides, leather treatment, metalworking fluids, polishes and cleaners, textiles, household and industrial prods.; esp. useful in bath and massage oils and hot oil hair treatments; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §176.210, 178.3400; 40CFR §180.1001(c)(e) exempt

*Properties:* Amber clear visc. liq.; sol. in ethyl and oleyl alcohols, IPM, oleic acid, kerosene, trichlorethylene, butyl stearate; HLB 11.0; acid no. 2 max.; sapon. no. 82-95; hyd. no. 39-52; surf. tens. 41 dynes/cm (0.1%); 97% conc.; nonionic

**Crisanol FA-260** [Christianson SA de CV]

*Chem. Descrip.:* Linear polymer of equal parts oxyethylene and oxypropylene CAS 9003-11-6

*Uses:* Component of adhesives used in articles intended for food manipulation; component of defoaming agents used in mfg. of paper and paperboard; lubricant for textile machinery; for heat treating or processing of plastics, elastomers, thread, etc.; base fluid for elec. industry applics.; reactive intermediate in preparation of resins, plasticizers, modifiers, and surfactants

*Properties:* APHA 100 max. liq.; sol. in water @ < 65 C; sp.gr. 1.035; dens. 8.62 lb/gal; visc. ≈ 260 SUS (38 C); pour pt. -40 C; cloud pt. ≈ 65 C (1% aq.); flash pt. (PMCC) > 190 C; pH 6.5-8.0 (1% aq.); surf. tens. 34-40 dynes/cm (20 C); 0.2% max. water; nonionic

*Toxicology:* Does not irritate skin or mucous membranes

*Storage:* Heated storage tanks preferred if stored outside

**Crisanol FA-660** [Christianson SA de CV]

*Chem. Descrip.:* Linear polymer of equal parts oxyethylene and oxypropylene CAS 9003-11-6

*Uses:* Component of adhesives used in articles intended for food manipulation; component of defoaming agents used in mfg. of paper and paperboard; lubricant for textile machinery; for heat treating or processing of plastics, elastomers, thread, etc.; base fluid for elec. industry applics.; reactive intermediate in preparation of resins, plasticizers, modifiers, and surfactants

*Properties:* APHA 100 max. liq.; sol. in water @ < 50 C; sp.gr. 1.051; dens. 8.75 lb/gal; visc. ≈ 660 SUS (38 C); pour pt. -34 C; cloud pt. ≈ 56 C (1% aq.); flash pt. (PMCC) > 200 C; pH 6.5-8.0 (1% aq.); surf. tens. 35-40 dynes/cm (20 C); 0.2% max. water; nonionic

*Toxicology:* Does not irritate skin or mucous membranes

*Storage:* Heated storage tanks preferred if stored outside

**Crisanol FB-625** [Christianson SA de CV]

*Chem. Descrip.:* Linear polymer of all oxypropylene groups

*Uses:* Component of adhesives used in articles intended for food manipulation; component of defoaming agents used in mfg. of cellophane and coatings for paper and paperboard; component of surf. lubricants in mfg. of metallic articles in contact with food; rubber lubricant; coating for hydraulic brake parts and similar equip.; reactive intermediate in preparation of resins, plasticizers, modifiers, and surfactants; antifoam agent

*Properties:* APHA 100 max. liq.; insol. in water; sp.gr. 1.000; dens. 8.32 lb/gal; visc. ≈ 625 SUS (38 C); pour pt. -32 C; cloud pt. ≈ 10 C (1% aq.); flash pt. (PMCC) > 160 C; pH 6.5-8.0 (1% aq.); surf. tens. 33-38 dynes/cm (20 C); 0.2% max. water

*Toxicology:* Does not irritate skin or mucous membranes

*Storage:* Heated storage tanks preferred if stored outside

**Crisanol FB-1715** [Christianson SA de CV]

*Chem. Descrip.:* Linear polymer of all oxypropylene groups

*Uses:* Component of adhesives used in articles intended for food manipulation; component of defoaming agents used in mfg. of cellophane and coatings for paper and paperboard; component of surf. lubricants in mfg. of metallic articles in contact with food; rubber lubricant; coating for hydraulic brake parts and similar equip.; reactive intermediate in preparation of resins, plasticizers, modifiers, and surfactants; antifoam agent

*Properties:* APHA 100 max. liq.; insol. in water @ R.T.; sp.gr. 1.002; dens. 8.34 lb/gal; visc. ≈ 1715 SUS (38 C); pour pt. -23 C; cloud pt. ≈ 7 C (1% aq.); flash pt. (PMCC) > 180 C; pH 6.5-8.0 (1% aq.); surf. tens. 33-38 dynes/cm (20 C); 0.2% max. water

*Toxicology:* Does not irritate skin or mucous membranes

*Storage:* Heated storage tanks preferred if stored outside

**Crisanol FH-1400** [Christianson SA de CV]

*Chem. Descrip.:* Diol-started linear polymer, oxyethylene (75%), oxypropylene (25%)

*Uses:* Adhesive additive for pkg., transporting, or holding food; defoamer for mfg. of paper/paperboard; lubricant for use on machinery used for food manipulation; for heat treating/processing of plastics, elastomers, thread, etc.; base fluid for elec. industry; textile machinery lubricant; heat transfer fluid; solv.; softener; plasticizer; antiemulsifier; for textile and paper coatings, gravure type lacquer inks for foil coating, nitrocellulose coatings; nonvolatile *Properties:* APHA 100 max. liq.; char. polyol odor; sol. in water @ < 75 C; sp.gr. 1.099; dens. 9.12 lb/gal; visc. ≈ 1400 SUS (38 C); pour pt. 4 C; flash pt. (PMCC) > 210 C; pH 6.5-8.0 (1% aq.); 0.2% max. water

*Toxicology:* Nontoxic

*Storage:* Heated storage tanks rec. if stored outside

**Crisotan NN** [Christianson SA de CV]

*Chem. Descrip.:* Sulfonated naphthalene condensate, sodium salt (75-80%) and sodium sulfates (20-25%)

*Uses:* Used in paper industry to minimize coagulation of pitch in mills using sulfite, semi-chem., or ground-wood pulps; used in pitch dispersion, slime control, size stabilizing, coating fluidizing, and dyeing; tanning aid for leather industry; dye leveler or mordant; dispersant and suspension agent for pigments in emulsion paints; visc. reducer for pigment slurries; may be used in floor cement compositions

*Properties:* Brn. powd.; sol. 10% in water; sp.gr. 0.6; pH 8.0-8.5 (10% aq.); 8% max. moisture

*Toxicology:* Transient skin and eye irritant; dust may irritate respiratory tract; sl. toxic by ing.

*Precaution:* Avoid strong oxidants

*Hazardous Decom. Prods.:* Carbon monoxide, carbon dioxide, sulfur oxides

*Storage:* Hygroscopic; store in closed containers in dry place

**Crisotan NR** [Christianson SA de CV]

*Chem. Descrip.:* Sulfonated naphthalene condensate, sodium salt (94-99%) and sodium sulfates (1-6%)

*Uses:* Used in paper industry to minimize coagulation of pitch in mills using sulfite, semi-chem., or ground-wood pulps; used in pitch dispersion, slime control, size stabilizing, coating fluidizing, and dyeing; tanning aid for leather industry; dye leveler or mordant; dispersant and suspension agent for pigments in emulsion paints; visc. reducer for pigment slurries; may be used in floor cement compositions

*Properties:* Brn. powd.; sol. 10% in water; sp.gr. 0.6; pH 8.0-8.5 (10% aq.); 8% max. moisture

*Toxicology:* Transient skin and eye irritant; dust may irritate respiratory tract; sl. toxic by ing.

*Precaution:* Avoid strong oxidants

*Hazardous Decom. Prods.:* Carbon monoxide, carbon dioxide, sulfur oxides

*Storage:* Hygroscopic; store in closed containers in dry place

**Crisotan R-5** [Christianson SA de CV]

*Chem. Descrip.:* Sulfonated naphthalene condensate, sodium salt (95%) and sodium sulfates (5%)

*Uses:* Dispersant for carbon blk. pigments in latex systems; plasticizer in concrete; mfg. of ceramic bathroom articles; in styrene-butadiene rubber reducing emulsion visc. and coagulation; also used for indirect food additive applics. such as adhesive, resinous and polymeric coatings, component of paper and paperboard in contact with aq., fatty, and dry food, cellophane, sealing gaskets for food containers, perfluorocarbon resins

*Properties:* Lt. tan powd.; sol. 10% in water; sp.gr. 0.68; pH 8.5-9.5 (10% aq.); 5% max. moisture

*Toxicology:* Transient skin and eye irritant; dust may irritate respiratory tract; sl. toxic by ing.

*Precaution:* Avoid strong oxidants

*Hazardous Decom. Prods.:* Carbon monoxide, carbon dioxide, sulfur oxides

*Storage:* Hygroscopic; store in closed containers in dry place

**Crisotan R-5M** [Christianson; Christianson SA de CV]

*Chem. Descrip.:* Condensed naphthalene sulfonate sodium salt (95%) CAS 9084-06-4

*Uses:* Dispersant for carbon blk. pigments in latex systems; plasticizer in concrete; mfg. of ceramic bathroom articles; in styrene-butadiene rubber reducing emulsion visc. and coagulation; also used for indirect food additive

applics. such as adhesive, resinous and polymeric coatings, component of paper and paperboard in contact with aq., fatty, and dry food, cellophane, sealing gaskets for food containers, perfluorocarbon resins

*Properties:* Lt. tan powd.; sol. 10% in water; sp.gr. 0.68; pH 8.5-9.5 (10% aq.); 5% max. moisture; anionic

#### Crystal™ 78 [Crosfield]

*Chem. Descrip.:* Sodium silicate sol'n.

CAS 1344-09-8; EINECS/ELINCS 215-687-4

*Uses:* Pulp/paper; detergents; adhesives; water treatment; soil consolidation; concrete treatments; ceramics; minerals; peroxide bleaching

*Regulatory:* DOT nonregulated; SARA immediate (acute) health hazard

*Properties:* Colorless, translucent, sl. visc. liq.; odorless; completely sol. in water; sp.gr. 1.38-1.40 (20 C); visc. 125-300 cps (20 C); vapor pressure negligible; b.p. 214-216 F; pH 11.2; 37-38.5% solids

*Toxicology:* LD50 (oral, male rat) 2000-3000 mg/kg; alkaline; severely irritating to skin; tissue destruction to eyes if not treated; irritating to respiratory and digestive tract; ing. may cause GI irritation, nausea, vomiting, cramps, diarrhea; TSCA listed

*Precaution:* May react to form deadly CO on contact with certain prods. or their residues; contact with acid can cause gelling and evolution of heat

*Hazardous Decomp. Prods.:* None

HMS: Health 2; Flammability 0; Reactivity 1

*Storage:* Do not store over 50 C for extended periods; keep from freezing; keep container closed; do not store in aluminum containers

#### Crystal™ 82 [Crosfield]

*Chem. Descrip.:* Sodium silicate sol'n.

CAS 1344-09-8; EINECS/ELINCS 215-687-4

*Uses:* Pulp/paper; detergents; adhesives; water treatment; soil consolidation; concrete treatments; ceramics; minerals; peroxide bleaching

*Regulatory:* DOT nonregulated; SARA immediate (acute) health hazard

*Properties:* Colorless, translucent, visc. liq.; odorless; completely sol. in water; sp.gr. 1.40-1.42 (20 C); visc. 300-700 cps (20 C); vapor pressure negligible; b.p. 214-216 F; pH 11.2; 37.45-40.20% solids

*Toxicology:* LD50 (oral, male rat) 2000-3000 mg/kg; alkaline; severely irritating to skin; tissue destruction to eyes if not treated; irritating to respiratory and digestive tract; ing. may cause GI irritation, nausea, vomiting, cramps, diarrhea

*Precaution:* May react to form deadly CO on contact with certain prods. or their residues; contact with acid can cause gelling and evolution of heat

*Hazardous Decomp. Prods.:* None

HMS: Health 2; Flammability 0; Reactivity 1

*Storage:* Do not store over 50 C for extended periods; keep from freezing; keep container closed; do not store in aluminum containers

#### CS-10 [Ducey Chem.]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam for chems., surfactants, EO, resins, distillation, scrubbers, gas-oil separation, solvs. and lt. oil processing, coatings and paints, inks, cosmetics, toiletries, household uses, indirect food uses (lubricant, pkg. additives, hog scalding), metalworking, paper and printing, textile and fibers, transportation (auto or engine radiators), wastewater treatment, effluent treatment, cooling tower reformulations; long term dilution stability

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Wh. thick liq.; very little odor; disp. in water; sp.gr. 0.99; b.p. 212 F; flash pt. (PMCC) none; pH 7-8 (1%); 87% volatiles

*Toxicology:* Prolonged/repeated contact may cause mod. skin irritation; can cause eye irritation; no evidence of adverse effects by inh., ing.

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SiO<sub>x</sub>

*Storage:* 9 mos shelf life; protect from freezing

#### CS-10A [Ducey Chem.]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam for chems., surfactants, EO, resins, distillation, scrubbers, gas-oil separation, solvs. and lt. oil processing, coatings and paints, inks, cosmetics, toiletries, household uses, indirect food uses (lubricant, pkg. additives, hog scalding), metalworking, paper and printing, textile and fibers, transportation (auto or engine radiators), wastewater treatment, effluent treatment, cooling tower reformulations; long term dilution stability

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Wh. thick liq.; very little odor; disp. in water; sp.gr. 0.99; b.p. 212 F; flash pt. (PMCC) none; pH 7-8 (1%); 86% volatiles

*Toxicology:* Prolonged/repeated contact may cause sl. skin irritation; can cause eye irritation; no evidence of adverse effects by inh., ing.

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SiO<sub>x</sub>

*Storage:* 9 mos shelf life; protect from freezing

#### CS-20 [Ducey Chem.]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam for chems., surfactants, EO, resins, distillation, scrubbers, gas-oil separation, solvs. and lt. oil processing, coatings and paints, inks, cosmetics, toiletries, household uses, indirect food uses (lubricant, pkg. additives, hog scalding), metalworking, paper and printing, textile and fibers, transportation (auto or engine radiators), wastewater treatment, effluent treatment, cooling tower reformulations; long term dilution stability

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Wh. thick liq.; very little odor; disp. in water; sp.gr. 0.99 ± 0.01; b.p. 212 F; flash pt. (PMCC) none; pH 7-8 (1%); 76 ± 1% volatiles

*Toxicology:* Prolonged/repeated contact may cause mod. skin irritation; can cause eye irritation; no evidence of adverse effects by inh., ing.

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SiO<sub>x</sub>

*Storage:* 9 mos shelf life; protect from freezing

#### CS-30 [Ducey Chem.]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam for chems., surfactants, EO, resins, distillation, scrubbers, gas-oil separation, solvs. and lt. oil processing, coatings and paints, inks, cosmetics, toiletries, household uses, indirect food uses (lubricant, pkg. additives, hog scalding), metalworking, paper and printing, textile and fibers, transportation (auto or engine radiators), wastewater treatment, effluent treatment, cooling tower reformulations; long term dilution stability

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Wh. thick liq.; very little odor; disp. in water; sp.gr. 0.99; b.p. 212 F; flash pt. (PMCC) none; pH 7-8 (1%); 65% volatiles

*Toxicology:* Prolonged/repeated contact may cause mod. skin irritation; can cause eye irritation; no evidence of adverse effects by inh., ing.

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SiO<sub>x</sub>

*Storage:* 9 mos shelf life; protect from freezing

#### CS-100 [Ducey Chem.]

*Chem. Descrip.:* Filled dimethyl polysiloxane compd.

CAS 9006-65-9

*Uses:* Antifoam for chems., surfactants, EO, resins, distillation, scrubbers, gas-oil separation, solvs. and lt. oil processing, coatings and paints, inks, cosmetics, toiletries, household uses, indirect food uses (lubricant, pkg. additives, hog scalding), metalworking, paper and printing, textile and fibers, transportation (auto or engine radiators), wastewater treatment, effluent treatment, cooling tower reformulations

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Thick, opaque liq.; very little odor; insol. in water; sp.gr. 0.97; vapor pressure < 1 mm Hg (68 F); b.p. > 200 C; flash pt. (PMCC) 400 F; < 1% volatiles

*Toxicology:* Can cause eye and minor skin irritation; no evidence of adverse effects by skin absorp. inh., ing.

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SiO<sub>x</sub>

*Storage:* 9 mos shelf life

#### CS 116 [Process Chems. LLC]

*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing, for brownstock washing, screenroom, and bleach plant applics.; water-extended; suitable whether batch or continuous generated pulp is employed

*Properties:* Opaque tan liq.; dens. 7.3 ± 0.3 lb/gal; visc. 500-1800 cps

*Toxicology:* TSCA listed

*Storage:* Store in dry area

#### CS-420 [Ducey Chem.]

*Chem. Descrip.:* Silicone emulsion

*Uses:* Antifoam for solvs. and lt. oil processing, metalworking, paper and printing, textile and fibers; high or low pH applics.; compds. and reseller applics.

*Regulatory:* DOT nonhazardous; SARA §313 nonreportable

*Properties:* Opaque liq.; very little odor; disp. in water; sp.gr. 1.00 ± 0.02; b.p. 212 F; flash pt. (PMCC) none; pH 7.5-9.5; 94 ± 0.5% volatiles

*Toxicology:* Prolonged/repeated contact may cause skin irritation; may cause eye irritation; avoid inh. of fumes in fire

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SiO<sub>x</sub>

*Storage:* 9 mos shelf life; protect from freezing

#### Cuirol® RZ 80 [Münzing Chemie GmbH]

*Chem. Descrip.:* Sulfated castor oil

CAS 8002-33-3; EINECS/ELINCS 232-306-7

*Uses:* Emulsifier, stabilizer for aq. systems, esp. emulsion paints; coating agent in paper prod.; exc. wetting agent for alkaline range

*Regulatory:* BGA, FDA compliance

*Properties:* Yel. clear liq.; sol. in water in all proportions; dens. 1.03 g/cc (20 C); visc. med.; pH 7 (10% in DW); 67% act.; anionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; sensitive to freezing; solidifies @ 0 C—warm to R.T. and stir well before use

**Cumar® LX®-509** [Neville]

*Chem. Descrip.:* Coumarone-indene resin

CAS 35343-70-5

*Uses:* Used in adhesives, coatings (emulsion, citrus fruit, epoxy, industrial, marine, paper, traffic, wire and cable), rubber (cements, mech. goods, molded goods, tires), and caulking compds.; food pkg. adhesives, coatings, paper, polymers, rubber articles; exc. resist. to alkalis, dil. acids, and moisture

*Regulatory:* FDA 21CFR §172.215, 175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 8 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene HC; m.w. 1090; sp.gr. 1.14; R&B soften. pt. 155 C; iodine no. (Wijs) 35; flash pt. (COC) 560 F

**Cumar® R-3** [Neville]

*Chem. Descrip.:* Coumarone-indene resin

CAS 35343-70-5

*Uses:* Used in adhesives, aluminum paints, varnishes, rotogravure inks, rubber compds.; food pkg. adhesives, coatings, paper, rubber articles; exc. resist. to alkalis, dilute acids and moisture

*Regulatory:* FDA 21CFR §172.215, 175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 9 (50% in toluene) flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene HC; m.w. 735; sp.gr. 1.13; R&B soften. pt. 126 C; iodine no. (Wijs) 45; flash pt. (COC) 500 F

**Cumar® R-11** [Neville]

*Chem. Descrip.:* Coumarone-indene resin

CAS 35343-70-5

*Uses:* Used in adhesives, aluminum paints, varnishes, rotogravure inks, rubber compds.; food pkg. adhesives, coatings, paper, rubber articles; exc. resist. to alkalis, dilute acids and moisture

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene HC; m.w. 700; sp.gr. 1.09; R&B soften. pt. 112 C; iodine no. (Wijs) 100; flash pt. (COC) 460 F

**Cumar® R-12 (V-2, V-2½)** [Neville]

*Chem. Descrip.:* Coumarone-indene resin

CAS 35343-70-5

*Uses:* Plasticizer, softener, reinforcer, tackifier for NR, SR (except IIR); processing aid; inc. tack in solv. cements; for use in adhesives, aluminum paints, varnishes, rotogravure inks, rubber compds.; food pkg. adhesives, coatings, paper, rubber articles; exc. resist. to alkalis, dilute acids and moisture

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene HC; m.w. 580; sp.gr. 1.09; R&B soften. pt. 112 C; iodine no. (Wijs) 100; flash pt. (COC) 515 F

**Cumar® R-13** [Neville]

*Chem. Descrip.:* Coumarone-indene resin

CAS 35343-70-5

*Uses:* Plasticizer, softener for NR, SR (except IIR); reinforcer for phys. props. esp. in nonblack rubber stocks; tackifier in solv. cements; process aid; used in adhesives, aluminum paints, varnishes, rotogravure inks, rubber compds.; food pkg. adhesives, coatings, paper, rubber articles; exc. resist. to alkalis, dilute acids and moisture

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 8 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene HC; m.w. 734; sp.gr. 1.12; R&B soften. pt. 100 C; iodine no. (Wijs) 39; flash pt. (COC) 495 F

**Cumar® R-17** [Neville]

*Chem. Descrip.:* Coumarone-indene resin

CAS 35343-70-5

*Uses:* Plasticizer, softener, reinforcer, tackifier for NR, SR (except IIR); processing aid; tackifier in solv. cements; in adhesives, aluminum paints, varnishes, rotogravure inks, rubber compds.; food pkg. adhesives, coatings, paper, rubber articles; exc. resist. to alkalis, dilute acids and moisture

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 13 (50% in toluene) solid; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene HC; m.w. 500; sp.gr. 1.10; R&B soften. pt. 76 C; iodine no. (Wijs) 65; flash pt. (COC) 390 F

**Cunilate® 2419-75** [Morton Int'l./Plastics Addit.]

*Uses:* Antimicrobial for textile applics., pulp slurries, paperboard, concrete safes

**Curesan™ 199** [BASF]

*Chem. Descrip.:* Blocked glyoxal-based

*Uses:* Insolubilizer for high solids, pigmented paper coatings and size press applics.; crosslinking agent for hydroxyl-contng. polymers and for compds. contng. anhydroglucose units; improves printability, esp. in grades contng. high syn. binder content; non-formaldehyde

*Use Level:* 2-4%

**Curesan™ 200** [BASF]

*Chem. Descrip.:* Blocked glyoxal-based

*Uses:* Insolubilizer for high solids, pigmented paper/paperboard coatings and size press applics.; crosslinking agent for hydroxyl-contng. polymers and for compds. contng. anhydroglucose units; improves printability; inc. wet and dry pick str. with rapid off-machine cure; non-formaldehyde

*Use Level:* 1-2%

**Cyasarb® UV-3529** [Cytec Ind./Polymer Addit.]

*Chem. Descrip.:* 1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidyl)-, polymers with morpholine-2,4,6-trichloro-1,3,5-triazine

CAS 193098-40-7

*Uses:* Lt. stabilizer for polymers, food contact applics.; food-contact paper/paperboard; low volatility; selective reactivity; min. color contribution; exc. compat. with other HALS and UVAs

*Regulatory:* FDA 21CFR §176.170 approved

*Properties:* Wh. to off-wh. pastille; m.w. 1700 ± 10%

*Toxicology:* LD50 (oral, rat) 500-2000 mg/kg; LC50 (inh., rat, 4 h) 2.8 mg/l; mod. eye irritation; nonirritating to skin

**Cyastat® SN** [Cytec Ind.]

*Chem. Descrip.:* Stearamidopropyl dimethyl-2-hydroxyethyl ammonium nitrate, IPA/water (1:1)

*Uses:* Antistat for polymers; used for plastics, surface coatings, paper, glass, and other materials; dispersant in coatings

*Properties:* Lt. yel. to amber liq., sl. IPA odor; sol. in water, acetone, alcohol, and other polar solvents of low m.w.; m.w. 476; sp.gr. 0.95; dens. 7.9 lb/gal; b.p. 83 C; flash pt. (CC) 12.2 C; pH 4-6; 50% solids

*Toxicology:* LD50 (oral, rat) 3300 mg/kg, (dermal, rabbit) > 5 ml/kg; direct contact may cause mod. eye and skin irritation; overexposure to vapor may cause respiratory tract irritation and CNS depression; TSCA listed

*Precaution:* Flamm. liq. and vapor; incompat. with strong oxidizing agents and min. acids

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, ammonia, NO<sub>x</sub>

*Storage:* Keep away from heat, sparks, and flame; keep container closed

**Cycat® 4040** [Cytec Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid

CAS 104-15-4; EINECS/ELINCS 203-180-0

*Uses:* Catalyst for accelerating cure of fully alkylated melamine-formaldehyde, benzoguanamine, glycoluril, and urea-formaldehyde resins, for air atomized spray applics., dipping enamels, water reducible systems, wood finishes, paper coatings

*Properties:* Gardner 1 max. color; sol. in alcohols, water; partially sol. in ketones, glycol ethers, and esters; insol. in aromatic and aliphatic hydrocarbons; sp.gr. 0.96; dens. 8.0 lb/gal; acid no. 130-140; flash pt. (Seta) 69 F; 40% NV

**Cydrain® 145 Drainage Aid** [Cytec Ind.]

*Chem. Descrip.:* Polyacrylamide

CAS 9003-05-8

*Uses:* Drainage aid for paperboard and heavier papers; reduces energy costs; inc. prod.

*Regulatory:* DOT nonregulated



*Properties:* Wh. opaque visc. liq.; very sl. hydrocarbon odor; disp. in water; sp.gr.  $\approx$  1.1; flash pt. (Seta CC) > 100 C; pH 9.3-9.7; 93% volatiles; cationic

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; LC50 (inh., rat, 4 h) > 2500 ppm; direct contact may cause minimal eye and skin irritation; not expected to be harmful by inh.

*Precaution:* Incompat. with strong oxidizing agents; spills are very slippery  
*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, ammonia, NO<sub>x</sub>

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Avoid iron, copper, or aluminum containers/equip. for handling/storage

#### Cymel® 245-8 [Cytec Ind.]

*Chem. Descrip.:* Butylated melamine-formaldehyde resin in 60% n-butanol and 40% xylene

*Uses:* Crosslinking agent for general metal finishes; food-contact coatings, paper/paperboard; provides good exterior durability and chem. resist. props.

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.0; dens. 10.2 lb/gal (solids); visc. 3-3.7 poises; acid no. 1 max.; flash pt. (Seta) 28 C; 52  $\pm$  2% NV by wt.; free formaldehyde (3.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

#### Cymel® 247-10 [Cytec Ind.]

*Chem. Descrip.:* Highly butylated melamine-formaldehyde resin in 100% n-butanol

*Uses:* Crosslinking agent; flow control additive for oil-free polyester resin systems; also rec. for TS acrylic and alkyd automotive topcoat finishes; food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.01; dens. 9.7 lb/gal (solids); visc. 5.5-10.7 poises; acid no. 1 max.; flash pt. (Seta) 43 C; 64  $\pm$  2% NV by wt.; free formaldehyde (3.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

#### Cymel® 248-8 [Cytec Ind.]

*Chem. Descrip.:* Butylated melamine-formaldehyde resin in 60% n-butanol and 40% xylene

*Uses:* Crosslinking agent for general metal finishes (e.g. appliance finishes); food-contact coatings, paper/paperboard; provides good exterior durability  
*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.01; dens. 10.2 lb/gal (solids); visc. 3.4-4.3 poises; acid no. 1 max.; flash pt. (Seta) 34 C; 55  $\pm$  2% NV by wt.; free formaldehyde (3.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

#### Cymel® 255-10 [Cytec Ind.]

*Chem. Descrip.:* Isobutylated melamine-formaldehyde resin in 100% isobutanol

*Uses:* Crosslinking agent for fast curing finishes with good exterior durability; food-contact coatings, paper/paperboard; offers high gloss and chem. resist.  
*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.0; dens. 10.9 lb/gal (solids); visc. 5-10.7 poises; acid no. 14 max.; flash pt. (Seta) 36 C; 50  $\pm$  2% NV by wt.; free formaldehyde (4.0% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

#### Cymel® 300 [Cytec Ind.]

*Chem. Descrip.:* Highly methylated melamine-formaldehyde resin  
CAS 68002-20-0

*Uses:* Crosslinking agent for use in paper coatings and catalyzed wood finishes; good stability in waterborne systems that are pH buffered on alkaline side

*Properties:* Waxy solid; sp.gr. 1.20; dens. 10 lb/gal; m.p. 30-35 C; 98% min. NV; free formaldehyde (0.3% max.)

#### Cymel® 1158 [Cytec Ind.]

*Chem. Descrip.:* Highly butylated melamine-formaldehyde resin in n-butanol  
*Uses:* Crosslinking agent rec. for higher solids general metal finishes, providing good exterior durability and resist. props.; also in alkyd or acrylic automotive finishes providing higher build with a single coat; food-contact coatings, paper/paperboard; low blistering tendency, low formaldehyde release, fast low temp. cure response, improved hydrocarbon tolerance and compat. with other resins, inc. hydrophobicity, improved wetting; responds to weak acid catalysts

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.06; dens. 9.5 lb/gal (solids); visc. 24-49 poises; acid no. 1 max.; flash pt. (Seta) 47 C; 80  $\pm$  2% NV by wt.; free formaldehyde (1.2% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

#### Cynol® 760 Softener [Cytec Ind.]

*Chem. Descrip.:* Emulsifiable mineral oil (petrol. distillate light)

CAS 64742-56-9; EINECS/ELINCS 232-298-5

*Uses:* Softener for tissue and absorbent paper grades; aids Yankee dryer release props.

*Regulatory:* DOT nonregulated

*Properties:* Pale straw oily liq.; bland hydrocarbon odor; negligible sol. in water; sp.gr. 0.86; vapor pressure < 0.01 mm Hg (20 C); b.p. 354-438 C; flash pt. (OC) 185 C; 90% act.

*Toxicology:* LD50 (oral, rat) > 4.5 ml/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 15,000 ppm; may cause skin irritation; acute overexposure may cause eye and throat irritation; prolonged/repeated exposure may cause CNS damage

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Avoid iron, copper, or aluminum containers/equip. for handling/storage

#### Cypres® 310 Surface Size [Cytec Ind.]

*Chem. Descrip.:* Styrene-acrylic

CAS 9010-92-8

*Uses:* Surf. sizing agent for papermaking; provides better printability

*Regulatory:* DOT nonregulated

*Properties:* Lt. straw to clear liq.; sl. ammonia odor; completely sol. in water; sp.gr. 1.05; b.p. 98-100 C; flash pt. (PMCC) > 93 C; pH > 9.5

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 20 mg/l; direct contact may cause minimal eye and skin irritation

*Environmental:* BOD (5 day) 4520 mg/l oxygen; COD 260,000 ppm

*Precaution:* Spills are very slippery; avoid adding cationic additives to conc. material

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

NFPA: Health 0; Flammability 1; Reactivity 0

#### Cypro® 514 Promoter [Cytec Ind.]

*Chem. Descrip.:* Polyamine

*Uses:* Promoter improving performance of other aids, resins, and additives in papermaking

*Regulatory:* DOT nonregulated

*Properties:* Amber liq.; sl. amine odor; completely sol. in water; sp.gr. 1.14-1.20; m.p. -18 C; b.p. 100 C; flash pt. (CC) > 93 C; pH 5-7; cationic

*Toxicology:* LD50 (oral, rat) 4.67 g/kg, (dermal, rabbit) > 10 g/kg; LC50 (inh., rat, 4 h) > 15,000 ppm; may cause skin irritation; not expected to be harmful by ing.; TSCA listed

*Environmental:* BOD (5 day) < 600 mg/l oxygen; COD 480,000 ppm; LC50 (bluegill, 96 h) 0.39 mg/l, (daphnia, 48 h) 0.6 mg/l

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, ammonia, dimethyl amine, NO<sub>x</sub>, hydrogen chloride

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Avoid iron, copper, or aluminum containers/equip. for handling/storage

# D

## D12F [Grain Processing]

*Chem. Descrip.:* Oxidized corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Component of uncoated or coated food-contact surf. of paper and paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Wh. fine powd., flash-dried form; bulk dens. 31 lb/ft<sup>3</sup> (loose), 39 lb/ft<sup>3</sup> (packed); pH 7.5; 11% moisture

## D120 [Grain Processing]

*Chem. Descrip.:* Oxidized corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Component of uncoated or coated food-contact surf. of paper and paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Wh. gran. powd.; bulk dens. 39 lb/ft<sup>3</sup> (loose), 48 lb/ft<sup>3</sup> (packed); pH 7.5; 11% moisture

## DA-4 [Songkang Ind. Co.]

*Chem. Descrip.:* Modified polyamine  
*Uses:* Drainage aid for board, liner; retention aid for fibers and fillers; coagulant for control of anionic trash; exc. performance at neutral pH  
*Use Level:* 0.1-0.6% of dry stock  
*Properties:* Visc. 300-1000 cps; pH 8 ± 1; 25 ± 1% solids

## Dantobrom® PG Briquette [Lonza]

*Chem. Descrip.:* Halogenated hydantoin  
*Uses:* Slimicide for pulp/paper  
*Regulatory:* EPA reg. no. 6836-282; FDA approved  
*Properties:* Briquette; 62% avail. halogen (as Cl<sub>2</sub>)

## Dantobrom® PG Granular [Lonza]

*Chem. Descrip.:* Halogenated hydantoin  
*Uses:* Slimicide for pulp/paper  
*Regulatory:* EPA reg. no. 6836-281; FDA approved  
*Properties:* Granular; 62% avail. halogen (as Cl<sub>2</sub>)

## Dantobrom® RW Briquette [Lonza]

*Chem. Descrip.:* 1-Bromo-3-chloro-5,5-dimethylhydantoin, 1,3-dichloro-5,5-dimethylhydantoin, and 1,3-dichloro-5-ethyl-5-methylhydantoin  
*Uses:* Biocide, algicide, fungicide, bactericide, and slimicide for recirculating water systems, pulp/paper mfg., enhanced oil recovery, evaporative condensers, cooling tower systems, influent systems, industrial wet scrubber systems, brewery pasteurizers; approved for once-thru use  
*Regulatory:* EPA reg. no. 6836-115  
*Properties:* Off-wh. briquette; sl. odor; sol. 0.54 g/100 g in water; dens. 1.6 g/cc; bulk dens. 65 lb/ft<sup>3</sup>; m.p. 120-148 C (powd.); decomp. pt. 180 C; pH 3.6 (1% slurry); 62% avail. halogen (as Cl), 43% avail. Cl, 43% avail. Br  
*Toxicology:* LD50 (oral, male rat) 500 mg/kg; corrosive to eyes; severe irritant to skin  
*Environmental:* Degrades in municipal waste treatment plants  
*Precaution:* Dec. if mixed with reactive oxidizers; avoid mixing with lubricating oils, strong acids, strong alkalis, reducing agents, hydrated salts  
*Storage:* Store in cool, dry area

## Dantochlor® PG Briquette [Lonza]

*Chem. Descrip.:* Halogenated hydantoin  
*Uses:* Slimicide for pulp/paper  
*Regulatory:* EPA reg. no. pending; FDA approved  
*Properties:* Briquette; 68% avail. halogen (as Cl<sub>2</sub>)

## Dantochlor® PG Granular [Lonza]

*Chem. Descrip.:* Halogenated hydantoin  
*Uses:* Slimicide for pulp/paper  
*Regulatory:* EPA reg. no. pending; FDA approved  
*Properties:* Granular; 68% avail. halogen (as Cl<sub>2</sub>)

## Dapro® DF 1161 [Elementis Spec. Colorants/Addit.]

*Chem. Descrip.:* Silicone-modified disp. of olefinic solids  
*Uses:* Foam suppresser for aq. gravure, flexographic, and metallic inks, high gloss coatings, wood lacquers and stains, clear overprint varnishes; defoamer in food-contact coatings; food-contact paper/paperboard  
*Use Level:* 0.1-0.25 w/w  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.200  
*Properties:* Sp.gr. 1.04; dens. 8.7 lb/gal; flash pt. 204 C

## Dapro® DF 2162 [Elementis Spec. Colorants/Addit.]

*Chem. Descrip.:* Hydrophobic silica/hydrocarbon  
*Uses:* Foam suppresser for waterborne industrial coatings, architectural with associative thickeners, clear overprint varnishes, wood lacquers, adhesives, flexographic and gravure inks; food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 0.2-0.7 w/w  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210  
*Properties:* Sp.gr. 0.85; dens. 7.1 lb/gal; flash pt. 196 C

## Dapro® DF 3163 [Elementis Spec. Colorants/Addit.]

*Chem. Descrip.:* Modified polyol  
*Uses:* Foam suppresser for waterborne adhesives and coatings, all types; high gloss coatings, overprint varnishes, and flexographic and gravure inks; food pkg. adhesives, coatings, paper/paperboard; defoamer in food-contact coatings  
*Use Level:* 0.1-0.5 w/w  
*Regulatory:* FDA 21CFR §175.105, 176.300, 176.170, 176.180, 176.200  
*Properties:* Sp.gr. 0.95; dens. 7.9 lb/gal; flash pt. 182 C

## Dapro® DF 4164 [Elementis Spec. Colorants/Addit.]

*Chem. Descrip.:* Metallic salt of fatty acid disp.  
*Uses:* Foam suppresser for waterborne industrial coatings, architectural with associative thickeners, clear overprint varnishes, wood lacquers, adhesives, flexographic and gravure inks; food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 0.1-0.5 w/w  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210  
*Properties:* Sp.gr. 0.87; dens. 7.3 lb/gal; flash pt. 174 C

## Dapro® DF 5165 [Elementis Spec. Colorants/Addit.]

*Chem. Descrip.:* Hydrophobic silica/hydrocarbon  
*Uses:* Foam suppresser for waterborne industrial and architectural with associative thickeners, latex and laminating adhesives, cement modifiers; food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 0.2-0.7 w/w  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210  
*Properties:* Sp.gr. 0.85; dens. 7.1 lb/gal; flash pt. 196 C

## Daratak® 56L [W.R. Grace]

*Chem. Descrip.:* PVAc emulsion  
 CAS 9003-20-7  
*Uses:* Adhesive emulsion for primer sealers, textile finishes, and paper saturation; very high m.w., low visc, fast drying; water wh., slightly hazy, low gloss odorless films with water resistance

- Properties:* Wh. emulsion, sl. char. odor; 1.0 µ particle size; dens. 9.93 lb/gal; visc. 300-600 cps; pH 5.5-7.0; 54-56% solids
- Daratak® 61L** [W.R. Grace]  
*Chem. Descrip.:* PVAc homopolymer emulsion  
 CAS 9003-20-7  
*Uses:* Adhesive emulsion used in heat sealing, paper and foil adhesives, and fire-retardant mastics; high visc., borax-tolerant; water wh., clear, med. gloss films with exc. water resistance  
*Properties:* Wh. emulsion, sl. char. odor; 1.0 µ particle size; dens. 9.93lb/gal; visc. 2000-4000 cps; pH 4.5-5.5; 54-56% solids
- Daratak® 65L** [W.R. Grace]  
*Chem. Descrip.:* PVAc homopolymer emulsion  
 CAS 9003-20-7  
*Uses:* Adhesive emulsion (strong wet tack) for paper packaging applics.; med. m.w. and visc.; water wh., slightly hazy, med. gloss films with good water resistance; compatible with fully hydrolyzed PVAL  
*Properties:* Emulsion; particle size 1.5 µ; wh.; slight, char. odor; dens. 9.93 lb/gal; visc. 1400-2000 cps; pH 4.5-5.5; 54-56% solids
- Daratak® 89L** [W.R. Grace]  
*Uses:* Adhesive emulsion for formulation of remoistenable adhesives for envelopes, labels, stamps, tapes, and for textile warp sizing and adhesives for arts and crafts; food pkg. adhesives and paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.170
- Daratak® RP2000** [W.R. Grace]  
*Chem. Descrip.:* Carboxylated polyvinyl acetate emulsion  
 CAS 9003-20-7  
*Uses:* Adhesive base for paper/paper, paper/foil laminations, bottle labels, coated paperboard  
*Regulatory:* FDA approved
- Daratak® SP1012** [W.R. Grace]  
*Chem. Descrip.:* Vinyl acetate homopolymer emulsion  
 CAS 9003-20-7  
*Uses:* Emulsion for pkg. applics. requiring quick tack development and fast setting speeds; suitable for food pkg. adhesives, coatings, paper/paperboard; nonborax compat.  
*Regulatory:* FDA 21CFR §175.105, 176.170  
*Properties:* Emulsion; 1.2 µ avg. particle size; dens. 9.1 lb/gal; visc. 800-1400 cps; pH 5-7; Film props.: dens. 1.19; 54-56% total solids
- Darex® 110L** [W.R. Grace]  
*Chem. Descrip.:* Nitrile latex  
 CAS 9003-18-3  
*Uses:* For paper and felt saturation, in tape and sandpaper bases; copolymer latex; high delamination resist. and edge tear; heat curable  
*Properties:* Particle size 0.2; dens. 8.4 lb/gal; visc. 30 cps; surf. tens. 40 dynes/cm; pH 7.0; 47% solids
- Darex® 550L** [W.R. Grace]  
*Chem. Descrip.:* Vinylidene chloride emulsion  
*Uses:* For use in flame retardant adhesives; designed for adhesion to nonporous substrates (e.g., film-to-paper, foil-to-paper applics.)
- Darex® 620L** [W.R. Grace]  
*Chem. Descrip.:* SBR 2000 type latex  
 CAS 9003-55-8  
*Uses:* Used for beater addition, paper saturation, adhesives, fabric backings, and binders (foam scrap, leather, and curled hair)  
*Properties:* Particle size 0.15 µ; dens. 8.3 lb/gal; visc. 40 cps; surf. tens. 50 dynes/cm; pH 10.5; 42% total solids; 47% styrene, 53% butadiene
- Darvan® 1** [R.T. Vanderbilt]  
*Chem. Descrip.:* Sodium polynaphthalene sulfonate  
 CAS 9084-06-4  
*Uses:* Dispersant for NR and SR latexes, paints, coatings; latex stabilizer @ 10% aq. sol'n.; wetting agent for carbon black; pigment dispersant and pitch control agent in papermaking; in coatings, inc. paste flow allowing a higher percentage of pigment to be mixed in a given amt. of vehicle; < 1% VOC; no ozone-depleting substances  
*Use Level:* 1 phr (SBR latex), 0.5-1.5 phr (NR latex), 4-8 phr (CR latex paper applics.)  
*Properties:* Amber gran.; water-sol.; dens. 1.54 mg/m<sup>3</sup>; pH 8.0-10.5 (1%); 87% min. act.; 5% max. moisture  
*Toxicology:* TSCA listed
- Darvan® 7** [R.T. Vanderbilt]  
*Chem. Descrip.:* Sodium polymethacrylate  
 CAS 25086-62-8  
*Uses:* Dispersant for NR, SR latexes, paints and coatings; post-emulsion stabilizer; surf. act. agent for preparing high solids disps.; dispersant for clay or TiO<sub>2</sub> slurries in papermaking; nondiscoloring; min. foaming; stable over wide pH range; no ozone-depleting substances  
*Properties:* Water-wh. clear to sl. opalescent liq.; very sol. in aq. systems; dens. 1.13-1.17 mg/m<sup>3</sup>; visc. 75 cps max.; pH 10.0-11.5; 25.0 ± 1% total solids  
*Toxicology:* TSCA listed
- Darvan® 811** [R.T. Vanderbilt]  
*Chem. Descrip.:* Sodium polyacrylate  
 CAS 9003-04-7  
*Uses:* Dispersant for prep. of slurries (clay, TiO<sub>2</sub>, CaCO<sub>3</sub>, other minerals) for papermaking; deflocculant for clay water systems  
*Properties:* Lt. amber liq.; dens. 1.315 mg/m<sup>3</sup>; visc. 100-300 cps; pH 7-8; 42.8-43.3% solids
- Daxad® 11G** [Hampshire]  
*Chem. Descrip.:* Low m.w. naphthalene sulfonate formaldehyde condensate, sodium salt  
 CAS 9084-06-4  
*Uses:* Dispersant for pigments in aq. media for use in agric. chemicals, mastics, caulks, sealants, pigment slurries and disps., inks, syn. polymers, paper coating disps., paper mill slime control, pitch control, pulp digestion, and tall oil separation  
*Properties:* Buff fine gran.; dens. 42 lb/ft<sup>3</sup>; pH 8.0-10.5 (1%); surf. tens. 70-71 dynes/cm (1%); 87% min. act.; anionic
- Daxad® 13** [Hampshire]  
*Chem. Descrip.:* Polymerized alkyl naphthalene sulfonic acid sodium salt  
 CAS 9084-06-4  
*Uses:* Dispersant for use in papermaking operations, pigment slurries and disp., paper coating disp., paper mill slime control, pitch control, pulp digestion, tall oil separation  
*Properties:* Amber powd.; dens. 47 lb/ft<sup>3</sup>; pH 9.5 (1%)
- Daxad® 15** [Hampshire]  
*Chem. Descrip.:* Low m.w. naphthalene sulfonate formaldehyde condensate, sodium salt  
 CAS 9084-06-4  
*Uses:* Dispersant for emulsion polymerization, agric., pigments, clay disps., dyestuffs, tanning, herbicides, pesticides, pitch, deinking, carbon blk., iron oxides, battery extenders; grinding aid; water reducer for metal oxides; industrial grade, general purpose  
*Properties:* Amber powd.; sol. in water; dens. 37-43 lb/ft<sup>3</sup> (tapped); pH 9-10 (1%); surf. tens. 70-72 dynes/cm (1%); 88% act.; anionic
- Daxad® 16** [Hampshire]  
*Chem. Descrip.:* Low m.w. naphthalene sulfonate formaldehyde condensate, sodium salt  
 CAS 9084-06-4  
*Uses:* Dispersant for low color applics., wet grinding of pigments and dyes, emulsion polymerization, agric., concrete, tanning, herbicides, pesticides, pitch, clay disps., deinking, coal water slurries, carbon blk., iron oxides, battery extenders; water reducer for metal oxides  
*Properties:* Dk. brn. transparent liq.; misc. in water; dens. 10.5 lb/gal; visc. < 60 cps (42% solids); pH 8-10 (1%); surf. tens. 70-72 dynes/cm (1%); 46.5-48.5% total solids; anionic
- Daxad® 17** [Hampshire]  
*Chem. Descrip.:* Low m.w. naphthalene sulfonate formaldehyde condensate, sodium salt  
 CAS 9084-06-4  
*Uses:* Dispersant for low-dusting applics., emulsion polymerization, pigments and dyestuffs, clays, deinking, tanning, herbicides, pesticides, pitch, coal water slurries, carbon blk., iron oxides, battery extenders; grinding aid; water reducer for metal oxides; industrial grade  
*Properties:* Amber gran.; ≤ 3% passes thru 100 mesh; sol. in water; dens. 37-43 lb/ft<sup>3</sup> (tapped); pH 9-10.5 (1%); surf. tens. 70-72 dynes/cm (1%); 88% act.; anionic  
*Storage:* Store in cool, dry environment
- Daxad® 34N10** [Hampshire]  
*Chem. Descrip.:* Sodium polymethacrylate sol'n.  
*Uses:* Dispersant for latex polymerization, industrial cleaners, and for clay in paper coating colors  
*Properties:* Pale amber clear liq.; sol. in water systems; sp.gr. 1.21; dens. 10.0 lb/gal; visc. 400 cps max.; pH 10.0; surf. tens. 70 dynes/cm (1%); 30% total solids

**Daxad® 37LN7** [Hampshire]*Chem. Descrip.:* Sodium polyacrylate sol'n.

CAS 9003-04-7

*Uses:* Dispersant, esp. for clays; deflocculant and dispersant for clay slurries used in paper coatings, in flat latex paints; fluidifier in the formulation of oil well drilling muds; antiredeposition agent in cleaning formulas*Properties:* Pale amber clear, slightly hazy liq.; infinite sol. in water; sp.gr. 1.30; dens. 10.9 lb/gal; visc. 500 cps; pH 7.0; surf. tens. 75 dynes/cm (1%); 45% total solids**Daxad® 37LN10-35** [Hampshire]*Chem. Descrip.:* Sodium polyacrylate sol'n.

CAS 9003-04-7

*Uses:* Dispersant for rapid dispersion of solid materials (esp. clays) in aq. systems; dispersant, deflocculant for pigment mfg., paper coatings, latex paints, trade sales flat paints, oil well drilling muds; antiredeposition agent in cleaning formulas; stable over wide pH range*Properties:* Pale amber sl. hazy liq.; sol. in water; sp.gr. 1.25; dens. 10.4 lb/gal; visc. 50 cps; pH 10; surf. tens. 65 dynes/cm (1%); 35% sol'n.**DBE** [DuPont Nylon]*Chem. Descrip.:* Dibasic ester mixt. (60% dimethyl glutarate, 15% dimethyl adipate, 24% dimethyl succinate)*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Regulatory:* DOT nonregulated; SARA nonreportable*Properties:* Clear colorless liq., mild sweet odor; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; m.w. 159; sp.gr. 1.092 (20 C); dens. 9.09 lb/gal; visc. 2.4 cSt; vapor pressure 0.2 mm Hg (20 C); f.p. -20 C; b.p. 196-225 C; acid no. 0.3 max.; flash pt. (TCC) 100 C; surf. tens. 35.6 dynes/cm; 99% min. esters*Toxicology:* LD50 (oral, rat) 8191 mg/kg, (dermal, rabbit) > 2250 mg/kg; mild to severe skin irritant, moderate eye irritant; may cause nose and throat irritation and blurry vision; TSCA listed*Environmental:* Aquatic toxicity: LC50 (fathead minnows, 96 h) 18-24 mg/l (mod. toxic), (daphnia magna, 48 h) 112-150 mg/l*Precaution:* Incompat. with strong oxidants, acids, or alkalis; dec. with heat  
HMIS: Health 1; Flammability 1; Reactivity 0*Storage:* Store in well ventilated place in tightly closed container**DBE-2, -2SPG** [DuPont Nylon]*Chem. Descrip.:* Dibasic ester mixt. (76% dimethyl glutarate, 24% dimethyl adipate, 0.3% dimethyl succinate)*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Properties:* Clear colorless liq., mild odor; m.w. 163; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; sp.gr. 1.081; dens. 9.00 lb/gal; visc. 2.5 cSt; f.p. -13 C; b.p. 210-225 C; acid no. 1 max.; flash pt. (TCC) 104 C; 99% min. esters*Toxicology:* Low health risk; may cause eye irritation*Environmental:* Low environmental risk**DBE-3** [DuPont Nylon]*Chem. Descrip.:* Dibasic ester mixt. (89% dimethyl adipate, 10% dimethyl glutarate, 0.2% dimethyl succinate)*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Properties:* Clear colorless liq., mild odor; m.w. 173; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; sp.gr. 1.068; dens. 8.89 lb/gal; visc. 2.5 cSt; f.p. 8 C; b.p. 215-225 C; acid no. 1 max.; flash pt. (TCC) 102 C; 99% min. esters*Toxicology:* Low health risk; may cause eye irritation*Environmental:* Low environmental risk**DBE-4** [DuPont Nylon]*Chem. Descrip.:* Dimethyl succinate

CAS 106-65-0; EINECS/ELINCS 203-419-9

*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Properties:* Clear colorless liq., mild odor; m.w. 146; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; sp.gr. 1.121; dens. 9.33 lb/gal; visc. 2.5 cSt; f.p. 19 C; b.p. 196 C; flash pt. (TCC) 94 C; 98.5% min. esters*Toxicology:* Low health risk; may cause eye irritation*Environmental:* Low environmental risk**DBE-5** [DuPont Nylon]*Chem. Descrip.:* Dimethyl glutarate

CAS 1119-40-0; EINECS/ELINCS 214-277-2

*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Properties:* Clear colorless liq., mild odor; m.w. 160; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; sp.gr. 1.091; dens. 9.08 lb/gal; visc. 2.5 cSt; f.p. -37 C; b.p. 210-215 C; acid no. 1 max.; flash pt. (TCC) 107 C; 99% min. esters*Toxicology:* Low health risk; may cause eye irritation*Environmental:* Low environmental risk**DBE-6** [DuPont Nylon]*Chem. Descrip.:* Dimethyl adipate

CAS 627-93-0; EINECS/ELINCS 211-020-6

*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Properties:* Clear colorless liq., mild odor; m.w. 174; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; sp.gr. 1.064; dens. 8.86 lb/gal; visc. 2.5 cSt; f.p. 10 C; b.p. 227-230 C; acid no. 1 max.; flash pt. (TCC) 113 C; 99% min. esters*Toxicology:* Low health risk; may cause eye irritation*Environmental:* Low environmental risk**DBE-9** [DuPont Nylon]*Chem. Descrip.:* Dibasic ester mixt. (66% dimethyl glutarate, 33% dimethyl succinate, 0.2% dimethyl adipate)*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; specialty chemical intermediate*Properties:* Clear colorless liq., mild odor; m.w. 156; sol. in alcohols, ketones, ethers, most hydrocarbons; sl. sol. in water and higher paraffinic hydrocarbons; sp.gr. 1.099; dens. 9.15 lb/gal; visc. 2.4 cSt; f.p. -10 C; b.p. 196-215 C; flash pt. (TCC) 94 C; 99% min. esters*Toxicology:* Low health risk; may cause eye irritation*Environmental:* Low environmental risk**DB-GLAZE™** [IMERYS]*Chem. Descrip.:* Kaolin clay

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Clay for paper coatings for high gloss development and outstanding ink holdout*Properties:* Spray-dried, slurry; 0.002% 325-mesh residue, 97% finer than 2  $\mu$  particle size; sp.gr. 2.72; visc. 250 cps (70% solids); brightness (GE) 86-87; ref. index 1.56; pH 6.2-7.5 (20% aq.); hardness (Mohs) 2; 0.3-1.0% moisture (spray-dried), 29-31% moisture (slurry)**DB-Kote-2** [IMERYS]*Chem. Descrip.:* Kaolin clay

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Filler clay for paper coatings, high solids formulations for publication grade papers and medium finish enamels, low cost basecoats, and pigmented size press applics.*Properties:* Spray-dried, slurry; 0.015% 325-mesh residue, 65% finer than 2  $\mu$  particle size; sp.gr. 2.72; visc. 300 cps (70% solids); brightness (GE) 85-86; ref. index 1.56; pH 6.2-7.5 (20% aq.); hardness (Mohs) 2; 0.3-1.0% moisture (spray-dried), 29-31% moisture (slurry)**DB-SHEEN™** [IMERYS]*Chem. Descrip.:* Delaminated kaolin clay

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Easy glossing filler, pigment for paper coatings, esp. merchant grade papers, label and glossy cover stock*Properties:* Spray-dried, slurry; 0.002% 325-mesh residue; sp.gr. 2.72; visc. 500 cps (70% solids); brightness (GE) 87-89; ref. index 1.56; pH 6.2-7.5 (20% aq.); hardness (Mohs) 2; 0.3-1.0% moisture (spray-dried), 29-30% moisture (slurry)

- De-Airex®** [Hercules]  
*Uses:* Defoamer for pulp/paper machine applics. (brownstock washers, starch systems, wastewater treatment, coating systems)
- Deatron WB** [Nicca Chem. Co Ltd]  
*Chem. Descr.:* Special activator  
*Uses:* Foaming agent for pulp making process; provides foaming effect when applied with fatty acid type deinking agent  
*Use Level:* 0.05-0.1% to pulp  
*Properties:* Sl. yellowish limpid liq.; anionic
- Defoamer™ 230** [Huntsman]  
*Uses:* Pulp/paper processing aid, defoamer; defoamer for mill effluent applics.; intermediate foam kill with exc. hold  
*Properties:* Liq.; nonionic
- Defoamer™ 1418** [Huntsman]  
*Uses:* Pulp/paper processing aid, defoamer; offers exc. performance with low air entrainment; add to save all wh. water pans  
*Properties:* Liq.; 100% act.; nonionic
- Defoamer™ C5B** [Huntsman]  
*Chem. Descr.:* Nonsilicone mineral oil-based  
*Uses:* Defoamer for effluents in pulp/paper industry; effective over wide pH range  
*Properties:* Lt. brn. liq.; 100% act.
- Defoamer CK-35** [Crompton & Knowles]  
*Chem. Descr.:* Ethoxylated fatty acids in petrol. hydrocarbon  
*Uses:* Defoamer eliminating entrained gas and improving drainage on paper machines  
*Properties:* Disp.
- Defoamer CK-55** [Crompton & Knowles]  
*Chem. Descr.:* Fatty amide derivs., hydrophobic silica, and nonionic surfactants in petrol. oil  
*Uses:* Defoamer for standard paper machines and hydropulpers  
*Properties:* Disp.
- Defoamer CK-75** [Crompton & Knowles]  
*Chem. Descr.:* Ethoxylated fatty acids and petrol. oil  
*Uses:* Defoamer for paper machines and hydropulpers  
*Properties:* Disp.
- Defoamer™ KCE/S** [Huntsman]  
*Chem. Descr.:* Proprietary blend, water-based  
*Uses:* Pulp/paper processing aid; defoamer for screen room, bleaching, and effluent applics. in pulp/paper industry  
*Properties:* Liq.; 5% act.; nonionic
- Defoamer™ PM** [Huntsman]  
*Chem. Descr.:* Proprietary blend  
*Uses:* Paper machine defoamer for tissues and towels  
*Properties:* Liq.
- Defoamer™ WL500** [Huntsman]  
*Uses:* Pulp/paper processing aid; defoamer for boiler feed water and condensate  
*Properties:* Liq.; nonionic
- Defoamer/Drainage Aid CK-25** [Crompton & Knowles]  
*Chem. Descr.:* Fatty acids, fatty acid derivs., and surfactants in petrol. blending oil  
*Uses:* Defoamer and drainage aid for paper industry  
*Properties:* Disp.
- Degal BP** [3V/Paper]  
*Chem. Descr.:* Sodium hydroxide and trisodium phosphate  
 UN No. 1823  
*Uses:* Wet str. breaker for repulping of wet str. papers treated with polyamide resins or glyoxal, which can be hydrolyzed under alkaline conditions; high conc.  
*Use Level:* 0.2-1%  
*Regulatory:* DOT corrosive; SARA §304/313 nonreportable  
*Properties:* Wh. coarse powd.; no odor; sol. 7% in water (1%); bulk dens. 1.3 g/ml; m.p. > 300 C; pH 11-12 (1%); 80% act.  
*Toxicology:* Strongly corrosive to eyes, skin, and mucous membranes; ing. can seriously damage tissues and cause stomach perforation; inh. may cause irritation, lung edema, and pneumonia; TSCA listed  
*Environmental:* Do not discharge into storm drains or waterways  
*Precaution:* Incompat. with water, oxidizers, acids, halogenated substances; exothermic reaction with acids, halogenated substances, and water; reacts with ammonium salts evolving ammonia vapors; attacks light metals  
*Hazardous Decomp. Prods.:* Heated to decomp., toxic fumes of Na<sub>2</sub>O may evolve  
 NFPA: Health 3; Flammability 1; Reactivity 1  
*Storage:* Keep tightly closed in cool place; protect from humid environment
- Degal S** [3V/Paper]  
*Chem. Descr.:* Phosphoric acid (97%)  
 CAS 7664-38-2; EINECS/ELINCS 231-633-2  
*Uses:* Wet str. breaker for repulping of wet str. papers treated with urea or melamine resins, which can be hydrolyzed under acid conditions; highly conc.  
*Use Level:* 0.5-2%  
*Regulatory:* DOT regulated; SARA §313 reportable  
*Properties:* Pale yel. clear liq.; char. odor; misc. with water; sp.gr. 1.51-1.57; visc. 50 cps (20 C); vapor pressure 3 mm Hg (20 C); m.p. > 10 C; b.p. > 100 C; pH 2  
*Toxicology:* TLV 1 mg/m<sup>3</sup>; strongly corrosive to eyes, skin, and mucous membranes; TSCA listed  
*Environmental:* Do not discharge into storm drains or waterways  
*Precaution:* Incompat. with water, oxidizers, strong bases; attacks some metals (titanium, nickel, aluminum); mixts. with nitromethane are explosive; other potentially explosive or violent reactions possible  
*Hazardous Decomp. Prods.:* Heated to decomp., toxic fumes of carbon oxide may evolve  
 NFPA: Health 3; Flammability 1; Reactivity 0  
*Storage:* Keep tightly closed; assure adequate ventilation
- Degalan® LP 70/01** [Degussa-Hüls AG]  
*Chem. Descr.:* i-Butylmethacrylate  
 CAS 97-86-9; EINECS/ELINCS 202-613-0  
*Uses:* Binder for roughcast solidifiers, plastic renderings, and final coatings for paper; med. hard; solv.-based  
*Properties:* Sol. in alcohols, esters, ketones, aromatics, chlorinated hydrocarbons, and aliphatic hydrocarbons; very low m.w.; visc. ≈ 60 mPa·s (in 30% MEK); acid no. < 1
- Dehydran® 1293** [Cognis/Chems. Group; Cognis/Coatings & Inks; Cognis KGaA/Coatings]  
*Chem. Descr.:* Modified polydimethylsiloxane (10%) in 2-butoxyethanol (90%)  
 UN No. 2369  
*Uses:* Defoamer/air release agent for water-based industrial coatings, high-solids coatings, acrylic urethanes, alkyds, epoxies, printing inks, wood lacquers, adhesives, latex; defoamer in food-contact paper/paperboard; food pkg. adhesives  
*Use Level:* 0.5-3.0% on total wt. (coatings)  
*Regulatory:* FDA 21CFR §175.105, 176.210; BGA approved; DOT regulated; SARA §311/312/313 reportable  
*Properties:* Water-wh. clear liq.; faint odor; disp. in water; sp.gr. 0.90; dens. 7.6 lb/gal; visc. 15 cps; flash pt. (PMCC) 65 C; VOC 90.7% (EPA Method 24); 10% act., 3.6% solids; nonionic  
*Toxicology:* Causes skin, eye, and respiratory irritation; possible central nervous system depression, blood disorder, kidney and liver damage, breathing difficulties; 2-butoxyethanol: LD50 (oral, rat) 1480 mg/kg; TSCA listed  
*Precaution:* Combustible; avoid sources of ignition; incompat. with strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO  
 NFPA: Health 2; Flammability 2; Reactivity 0  
*Storage:* Store away from heat and open flame in cool, dry place; mix well before using
- DeIONIC 100-VLF** [DeForest Enterprises]  
*Chem. Descr.:* Modified alkoxyated primary alcohol  
*Uses:* Wetting agent, detergent, pigment and dye dispersant for pigment grinding, fountain sol'ns., paints and coatings, inks, high pressure spray cleaners, low foam detergents, pulp/paper production, adhesives, emulsion polymerization, electroplating, agric. sprays; nonfoaming  
*Regulatory:* DOT nonregulated; SARA §313 compliant  
*Properties:* Gardner 1 max. clear to sl. hazy liq.; sol. 10% in alcohols and glycols; disp. in water, solvs., and oils; sp.gr. 0.96; b.p. > 200 F; cloud pt. 58-70 C (1% in 15% butyl Carbitol); flash pt. (COC) > 200 F; pH 5.0-8.0 (10% in DW); surf. tens. 24.5 dynes/cm (1%); Draves wetting instant (1%); foam height 9 ml (0.1%, initial), 10 ml (1%, initial); 99% act.; nonionic  
*Toxicology:* Can cause skin and eye irritation; may contain sm. amts. of ethylene oxide, a cancer and reproductive hazard; TSCA listed



*Environmental:* Biodeg.

*Precaution:* Avoid strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. produces CO<sub>2</sub>

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC LF-EP-20** [DeForest Enterprises]

*Chem. Descrip.:* Alkoxyolated linear alcohol

CAS 37251-67-5

*Uses:* Used in low-foaming, alkaline, acid, and high pressure spray cleaners, mech. dishwashing, metal cleaning, bottle washing, textile wetting and scouring, agric. sprays, and laundry detergents; rewetting agent in paper prods.; rinse aid for mech. dishwashing; detergent and wetting agent when applied at temps. near its cloud pt.

*Regulatory:* DOT nonregulated

*Properties:* Nearly colorless clear to hazy liq.; sol. in water < 17-23 C, alcohol, solvents, and glycols; disp. in water above 23 C; insol. in min. oil; sp.gr. 0.98 g/ml; b.p. > 200 F; HLB 6.4; cloud pt. 17-23 C (1% in DW); flash pt. (COC) > 300 F; pH 5.0-8.0 (5% in DW); surf. tens. 30 dynes/cm; Ross-Miles foam 20 mm (0.25% initial); 100% conc.; nonionic

*Toxicology:* LD50 (rat) 3800 mg/kg; nontoxic; may cause eye and skin irritation; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Environmental:* Biodeg.; aquatic toxicity (rainbow trout, 96 h) 8.7 mg/l at < 4.1 mg/l, no effect

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC LF-EP-30** [DeForest Enterprises]

*Chem. Descrip.:* Alkoxyolated linear alcohol

CAS 37251-67-5

*Uses:* Used in low-foaming, alkaline, acid, and high pressure spray cleaners, mech. dish detergents, metal cleaning, bottle washing, textile wetting and scouring, agric. sprays, and laundry detergents; rinse aid for mech. dishwashing; rewetting agent for paper towels; detergent and wetting agent when applied at temps. near its cloud pt.

*Regulatory:* DOT nonregulated

*Properties:* Nearly colorless clear to hazy liq.; sol. in water at RT, alcohol, solvents, and glycols; insol. in min. oil; sp.gr. 1.00 g/ml; b.p. > 200 F; HLB 8.0; cloud pt. 28-32 C (1% in DW); flash pt. (COC) > 300 F; pH 5.0-8.0 (5% in DW); surf. tens. 30 dynes/cm; Ross-Miles foam 25 mm (0.25% initial); 100% conc.; nonionic

*Toxicology:* LD50 (rat) 3800 mg/kg; nontoxic; may cause eye and skin irritation; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Environmental:* Biodeg.; aquatic toxicity (rainbow trout, 96 h) 8.7 mg/l at < 4.1 mg/l, no effect

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC OPE-5** [DeForest Enterprises]

*Chem. Descrip.:* Octoxynol-5

CAS 9002-93-1

*Uses:* Detergent, wetting agent, and emulsifier used in emulsion cleaners, dry cleaning detergents, floor finishing and agric. emulsions; emulsifier for o/w creams and lotions; emulsion stabilizer; gasoline anti-icing additive; solubilizer for hair dyes; food pkg. adhesives, paper, polymers; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3120, 178.3400; DOT nonregulated

*Properties:* Nearly colorless liq.; char. odor; sol. in most solvs.; insol. in water; sp.gr. 1.05 g/ml; b.p. > 300 F; HLB 10.4; cloud pt. 64.0-68.0 C (10% in 25% BC); flash pt. (COC) > 300 F; pH 4.5-7.5 (5% in DW); 100% conc.; nonionic

*Toxicology:* Severe eye irritant, may cause corneal damage; mildly irritating to skin; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>, CO

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC OPE-7.5** [DeForest Enterprises]

*Chem. Descrip.:* Octoxynol-7 (7-8 EO)

CAS 9002-93-1

*Uses:* Used in alkaline, low foam powdered laundry, and all purpose deter-

gents; metal cleaners and brighteners; detergent sanitizers; hard surface, floor, waterless hand, and acid tile cleaners; xylene emulsifier; emulsion polymerization; pesticide emulsifier; food pkg. adhesives, paper, polymers; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3120, 178.3400; DOT nonregulated

*Properties:* Nearly colorless liq.; char. odor; sol. in water and most solvs.; insol. in oils and aliphatic solvs.; sp.gr. 1.05 g/ml; b.p. > 300 F; HLB 12.4; cloud pt. 22-28 C (1% in DW); flash pt. (COC) > 300 F; pH 4.5-7.5 (5% in DW); 100% conc.; nonionic

*Toxicology:* Severe eye irritant, may cause corneal damage; mildly irritating to skin; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>, CO

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC OPE-10** [DeForest Enterprises]

*Chem. Descrip.:* Octoxynol-10 (9-10 EO)

CAS 9002-93-1

*Uses:* Used in alkaline, low foam powdered laundry, and all purpose detergents; metal cleaners and brighteners; detergent sanitizers; hard surface, floor, waterless hand, and acid tile cleaners; xylene emulsifier; emulsion polymerization; pesticide emulsifier; dedusting agent; food pkg. adhesives, paper, polymers; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3120, 178.3400; DOT nonregulated

*Properties:* Nearly colorless liq.; char. odor; sol. in water and most solvs.; insol. in oils and aliphatic solvs.; sp.gr. 1.07 g/ml; b.p. > 300 F; HLB 13.5; cloud pt. 63-69 C (1% in DW); flash pt. (COC) > 300 F; pH 4.5-7.5 (5% in DW); 100% conc.; nonionic

*Toxicology:* Severe eye irritant, may cause corneal damage; mildly irritating to skin; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>, CO

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC OPE-12** [DeForest Enterprises]

*Chem. Descrip.:* Octoxynol-13 (12-13 EO)

CAS 9002-93-1

*Uses:* In alkaline powd. laundry/all purpose detergents; metal cleaners/brighteners; detergent sanitizers; hard surface, floor, waterless hand, and acid tile cleaners; xylene emulsifier; food pkg. adhesives, paper, polymers; emulsion polymerization; pesticide emulsifier; dedusting agent; solubilizer for other surfactants; coupling agent and hydrotrope for high caustic and mineral acid systems; lye peeling; foam stabilizer; food-contact defoamer, emulsifier

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3120, 178.3400; DOT nonregulated

*Properties:* Nearly colorless liq.; char. odor; sol. in water and most solvs.; insol. in oils and aliphatic solvs.; sp.gr. 1.07 g/ml; b.p. > 300 F; HLB 14.6; cloud pt. 85-92 C (1% in DW); flash pt. (COC) > 300 F; pH 4.5-7.5 (5% in DW); 100% conc.; nonionic

*Toxicology:* Severe eye irritant, may cause corneal damage; mildly irritating to skin; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>, CO

HMIS: Health 2; Flammability 1; Reactivity 0

**DeIONIC OPE-30** [DeForest Enterprises]

*Chem. Descrip.:* Octoxynol-30

CAS 9002-93-1

*Uses:* Used in general purpose, dairy, bottle, and steam cleaners; emulsifier for VA and acrylate polymerization; emulsifier for fats and waxes; emulsion stabilizer for syn. latexes; used in high temp. and high foam detergents; wetting agent and stabilizer; food pkg. adhesives, paper, polymers; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3120, 178.3400; DOT nonregulated

*Properties:* Nearly colorless liq.; very sol. in water; insol. in oils and solvs.;

sp.gr. 1.09 g/ml; b.p. 212 F; HLB 17.5; cloud pt. 75 C (1% in 10% NaCl); flash pt. (COC) > 200 F; pH 4.5-7.5 (5% in DW); 69-71% conc.; nonionic  
*Toxicology:* LD50 (oral, rat) 1800 mg/kg; severe eye irritant, may cause corneal damage; mildly irritating to skin; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 2; Flammability 1; Reactivity 0

#### DeIONIC OPE-40 [DeForest Enterprises]

*Chem. Descrip.:* Octoxynol-40

CAS 9002-93-1

*Uses:* Used in general purpose, dairy, bottle, and steam cleaners; emulsifier for VA and acrylate polymerization; emulsifier for fats and waxes; emulsion stabilizer for syn. latexes; used in high temp. and high foam detergents; wetting agent and stabilizer; food pkg. adhesives, paper, polymers; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3120, 178.3400; DOT nonregulated

*Properties:* Nearly colorless liq.; very sol. in water; insol. in oils and solvs.; sp.gr. 1.1 g/ml; b.p. 212 F; HLB 18.7; cloud pt. 76 C (1% in 10% SC); flash pt. (COC) > 200 F; pH 4.5-7.5 (5% in DW); 69-71% conc.; nonionic

*Toxicology:* LD50 (oral, rat) 1800 mg/kg; severe eye irritant, may cause corneal damage; mildly irritating to skin; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 2; Flammability 1; Reactivity 0

#### Delfloc® 763 [Hercules]

*Chem. Descrip.:* Modified polyamide-epichlorohydrin resin aq. sol'n.

*Uses:* Flocculant, settling aid, and clarifier for industrial processing and wastewaters, in paper industry, for separating titanium dioxide and latexes

*Properties:* Liq.; sp.gr. 1.12; dens. 9.3 lb/gal; visc. 230 cps; f.p. -6.7 C; pH 4.2; 35% total solids; 14.8% N; cationic

#### DeMIDE LA-100 [DeForest Enterprises]

*Chem. Descrip.:* Lauramide DEA (1:1)

CAS 120-40-1; EINECS/ELINCS 204-393-1

*Uses:* Foam stabilizer, thickener used in shampoos, bubble baths, hand soaps, rug shampoos, dish detergents, and mild all-purpose cleaners; food pkg. adhesives, paper

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3130; DOT nonregulated

*Properties:* Straw-colored visc. semiliq. or waxy solid; sol. in alcohols, chlorinated aromatic solvs. and glycols, and min. spirits; disp. in kerosene, oils and fats; insol. in water; sp.gr. 0.98-1.01 g/ml; m.p. 34 C; b.p. > 400 F; flash pt. (COC) > 300 F; pH 9.0-11.0 (10% in IPA and DW); 100% conc.; nonionic

*Toxicology:* LD50 (rat) 2.7 g/kg; severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may irritate respiratory tract, esp. upon heating; contains DEA: LD50 (oral, rat) 710 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMIDE LLA-100 [DeForest Enterprises]

*Chem. Descrip.:* Lauramide DEA (1:1)

CAS 120-40-1; EINECS/ELINCS 204-393-1

*Uses:* Foam booster/stabilizer, visc. builder, surfactant in shampoos, bath gels, dish detergents, liq. hand soaps, etc.; solubilizer for perfumes; food pkg. adhesives, paper; can replace solid lauric amides to produce high flash foam

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3130; DOT nonregulated

*Properties:* Lt. amber clear visc. liq.; insol. in water, oils, and aliphatic solvs.; sol. in most other solvs.; sp.gr. 0.98 g/ml; b.p. > 300 F; acid no. 3 max.; cloud pt. > 1.0 C; flash pt. (COC) > 300 F; pH 8.0-11.0 (1% in DW); 100% conc.; nonionic

*Toxicology:* LD50 (rat) 2.7 g/kg; severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Material will cloud upon extended exposure to freezing temps., gently warm to 80-85 F and agitate to restore

#### DeMIDE MFM-200 [DeForest Enterprises]

*Chem. Descrip.:* Modified coconut DEA amide (2:1)

CAS 61791-31-9; EINECS/ELINCS 263-163-9

*Uses:* Detergent, lubricant, emulsifier used in hard surface, steam, pine oil, and all-purpose cleaners, degreasers, alkaline and rolling oil detergents; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

*Properties:* Amber clear visc. liq.; sol. in water, alcohol, glycols, aromatic and chlorinated solvs.; insol. in oils and aliphatic solvs.; sp.gr. 1.02 g/ml; b.p. > 200 F; acid no. 50.0-70.0; flash pt. (PMCC) > 200 F; pH 8.0-10.0 (1% in DW); 100% conc.; anionic/nonionic

*Toxicology:* Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMIDE MFS-200 [DeForest Enterprises]

*Chem. Descrip.:* Cocamide DEA (2:1)

CAS 61791-31-9; EINECS/ELINCS 263-163-9

*Uses:* Detergent, lubricant, emulsifier used in hard surface, emulsion, and all-purpose cleaners, degreasers, pine and rolling oil detergents, fuel oil sludge dispersants, buffing compounds, and waterless hand cleaners; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

*Properties:* Amber clear visc. liq.; sol. in water, alcohol, glycols, aromatic and chlorinated solvs.; insol. in oils and aliphatic solvs.; sp.gr. 1.0 g/ml; b.p. > 300 F; acid no. 40.0-60.0; flash pt. (PMCC) > 212 F; pH 8.5-10.5 (1% in DW); 100% conc.; anionic/nonionic

*Toxicology:* Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMIDE ML-100 [DeForest Enterprises]

*Chem. Descrip.:* Lauramide DEA (1:1)

CAS 120-40-1; EINECS/ELINCS 204-393-1

*Uses:* Foam booster, stabilizer and visc. building surfactant used in shampoo, bubble baths, liq. hand soaps, dish detergents, body wash, bath gels, and mild all-purpose cleaners; solubilizer in perfumes; emollient; food pkg. adhesives, paper; replacement for solid lauric amides

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3130; DOT nonregulated

*Properties:* Lt. amber visc. liq.; sol. or disp. in most solvs.; insol. or disp. in water, oils, and fats; sp.gr. 1.0 g/ml; b.p. > 300 F; flash pt. (COC) > 300 F; pH 9.0-10.5 (5% in DW); 100% conc.; nonionic

*Toxicology:* LD50 (rat) 2.7 g/kg; severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMIDE MLY-100 [DeForest Enterprises]

*Chem. Descrip.:* Lauramide DEA (1:1)

CAS 120-40-1; EINECS/ELINCS 204-393-1

*Uses:* Foam booster/stabilizer, visc. builder, surfactant, conditioner in shampoos, bubble baths, liq. hand soaps, dishwashing and high foam detergents; food pkg. adhesives, paper

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3130; DOT nonregulated

*Properties:* Lt. amber clear oily liq.; sol. in lower alcohols, glycols, and most solvs.; insol. or disp. in water, oils, and fats; sp.gr. 1.00 g/ml; b.p. > 300 F; flash pt. (COC) > 300 F; pH 9.0-11.0 (1% in DW); 100% conc.; nonionic

*Toxicology:* LD50 (rat) 2.7 g/kg; severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50

(oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE RCN-100** [DeForest Enterprises]

**Chem. Descrip.:** Cocamide DEA (1:1)

CAS 68603-42-9; EINECS/ELINCS 263-163-9

**Uses:** Foam booster, stabilizer, and visc. builder for use in low cost shampoos and bubble baths, shampoo concentrates, hand dish detergents, lubricants, and emulsion cleaners; emollient; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard; economical

**Regulatory:** FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Lt. amber visc. liq.; sol. in alcohols, glycols, chlorinated, and some aliphatic and aromatic solvs.; disp. in water, oils, and some aliphatic and aromatic solvs.; sp.gr. 1.0 g/ml; b.p. > 300 F; acid no. 1.0 max.; flash pt. (COC) > 300 F; pH 8.0-11.0 (1% in DW); 100% conc.; nonionic

**Toxicology:** Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and abdominal pain; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE RCN-100HV** [DeForest Enterprises]

**Chem. Descrip.:** Modified cocamide DEA (1:1)

CAS 61791-31-9; EINECS/ELINCS 263-163-9

**Uses:** Foam booster, stabilizer, and visc. builder for use in shampoos, bubble baths, dishwashing detergents, liq. hand soaps, bath prods., emulsion cleaners, lubricants, low irritation skin prods. aerosol high foam prods.; solubilizer for perfumes; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Amber clear liq.; sol. in most solvs.; insol. or disp. in water, oils, and aliphatic solvs.; sp.gr. 1.0 g/ml; b.p. > 300 F; acid no. 3 max.; cloud pt. > 1.0 C; flash pt. (COC) > 300 F; pH 8.0-10.0 (1% in DW); 100% conc.; nonionic

**Toxicology:** Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause headache and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE RCN-200** [DeForest Enterprises]

**Chem. Descrip.:** Cocamide DEA (2:1)

CAS 68603-42-9; EINECS/ELINCS 263-163-9

**Uses:** Detergent, foam booster/stabilizer, visc. builder, emulsifier, and lubricant used in hard surface, dishwashing, and laundry detergents, shampoo and bath prods., chain lubricants, and car wash; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Visc. straw-colored liq.; sol. in water, alcohol, chlorinated solvs. and aromatic solvs.; insol. or disp. in aliphatic solvs., oils, and fats; sp.gr. 1.0 g/ml; b.p. > 300 F; acid no. 2.0-6.0; flash pt. (COC) > 200 F; pH 9.0-11.0 (10% in DW); 100% conc.; anionic/nonionic

**Toxicology:** Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and abdominal pain; inh. may cause headache and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE RCN-276** [DeForest Enterprises]

**Chem. Descrip.:** Modified cocamide DEA (2:1)

CAS 68603-42-9; EINECS/ELINCS 263-163-9

**Uses:** Detergent for use in hard surf. cleaners, degreasers, all-purpose cleaners, pine and rolling oil cleaners, and emulsion cleaners; lubricant; emulsifier; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard; moderate foam; alkaline-stable

**Regulatory:** FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Amber clear visc. liq.; sol. in water, alcohol, glycols, chlorinated solvs. and aromatic solvs.; insol. in oils and aliphatic solvs.; sp.gr. 1.00 g/ml; b.p. > 300 F; acid no. 45.0-55.0; flash pt. (COC) > 300 F; pH 8.5-9.5 (10% in DW); 100% conc.; anionic/nonionic

**Toxicology:** Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and abdominal pain; inh. may cause headache and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE RCN-MCY-100** [DeForest Enterprises]

**Chem. Descrip.:** Cocamide DEA (1:1)

CAS 61791-31-9; EINECS/ELINCS 263-163-9

**Uses:** Foam booster, stabilizer, and visc. builder for use in personal care prods. such as shampoos, bubble baths, and bath gels, liq. hand soaps, mild all-purpose cleaners, and dish detergents; solubilizer for perfumes; emollient, lubricant; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard; useful as replacement for solid amines

**Regulatory:** FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Lt. amber visc. liq.; sol. or disp. in most solvs.; insol. or disp. in water, oils, and fats; sp.gr. 1.00 g/ml; b.p. > 300 F; flash pt. (COC) > 300 F; pH 9.0-11.0 (1% in DW); 100% conc.; nonionic

**Toxicology:** Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE RCN-ME-100** [DeForest Enterprises]

**Chem. Descrip.:** Cocamide DEA (1:1)

CAS 61791-31-9; EINECS/ELINCS 263-163-9

**Uses:** Foam booster, stabilizer, and visc. builder for use in personal care prods. such as shampoos, bubble baths, and bath gels, liq. hand soaps, mild all-purpose cleaners, and dish detergents; solubilizer for perfumes; emollient, lubricant; food pkg. adhesives, paper, cellophane, textiles; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §172.710, 173.322, 175.105, 176.180, 176.210, 177.1200, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Lt. amber visc. liq.; sol. or disp. in most solvs.; insol. or disp. in water, oils, and fats; sp.gr. 1.0 g/ml; b.p. > 300 F; flash pt. (COC) > 300 F; pH 8.0-11.0 (10% in DW); 100% conc.; nonionic

**Toxicology:** LD50 (rat) 2.7 g/kg; severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and diarrhea; inh. may cause coughing, headache, and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMIDE SBA-100** [DeForest Enterprises]

**Chem. Descrip.:** Linoleamide DEA (1:1)

CAS 56863-02-6; EINECS/ELINCS 260-410-2

**Uses:** Visc. builder, emulsifier (invert), lubricant, corrosion inhibitor for use in sol. oils, cutting fluids, textile and chain lubricants; visc. builder and conditioner in shampoos, bubble baths, etc.; invert emulsifier for min. oil in creams and lotions; food pkg. adhesives, coatings, textiles; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §172.710, 175.105, 175.300, 176.210, 177.2260, 177.2800, 178.3120; DOT nonregulated

**Properties:** Lt. amber visc. liq.; sol. or disp. in most solvs. and oils; disp. in water; sp.gr. 0.99 g/ml; b.p. > 300 F; acid no. 1.0 max.; flash pt. (COC) > 300 F; pH 8.0-11.0 (1% in DW); 100% conc.; nonionic

**Toxicology:** Severe eye irritant; skin irritant, prolonged contact may cause burns; ing. may cause nausea, vomiting, and abdominal pain; inh. may cause headache and nausea; contains DEA: LD50 (oral, rat) 710 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>, NO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeMOX CAPO** [DeForest Enterprises]

**Chem. Descrip.:** Cocamidopropylamine oxide

CAS 68155-09-9; EINECS/ELINCS 268-938-5

*Uses:* Detergent in shampoos and bath prods., chlorine, bleach, and acid cleaners, fabric, dishwashing, and laundry detergents, shaving creams, acid pickling, emulsion polymerization, pigment dispersants, electroplating, liq. toiletry preps.; antistat for textiles; foam stabilizer in foam paper coatings; emollient; stabilizer; visc. builder; foam booster; wetting agent; lime soap dispersant; conditioner

*Regulatory:* DOT nonregulated

*Properties:* Lt. yel. clear liq.; sol. in water, alcohols, and glycols; disp. in oil; insol. in most solvs.; sp.gr. 1.02 g/ml; b.p. 212 F; flash pt. > 200 F; pH 6.0-8.0; 30% act.; nonionic/cationic

*Toxicology:* LD50 (oral, rat) > 2.46 g/kg; may cause eye and skin irritation, prolonged contact may cause burns; ing. may cause nausea, vomiting, and abdominal pain; inh. at high conc. may cause headache, coughing

*Environmental:* Biodeg.

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>2</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMOX LAO [DeForest Enterprises]

*Chem. Descr.:* Lauramine oxide

CAS 1643-20-5; EINECS/ELINCS 216-700-6

*Uses:* Detergent in shampoos and bath prods., chlorine, bleach, and acid cleaners, fabric, dishwashing, and laundry detergents, shaving creams, acid pickling, emulsion polymerization, pigment dispersants, electroplating, liq. toiletry preps.; antistat for textiles; foam stabilizer in foam paper coatings; wetting agent; emollient; stabilizer; visc. builder; foam booster; pour pt. depressant; lime soap dispersant

*Regulatory:* DOT nonregulated

*Properties:* Clear to colorless lt. yel. liq.; sol. in water, alcohols, and glycols; disp. in oil; insol. in most solvs.; sp.gr. 1.0 g/ml; b.p. 212 F; pH 6.0-8.0; 30% conc.; nonionic/cationic

*Toxicology:* LD50 (acute oral) 1.0-5.0 g/kg; may cause eye and skin irritation, prolonged contact may cause burns; ing. may cause nausea, vomiting, and abdominal pain; inh. at high conc. may cause headache, coughing

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>2</sub>

HMS: Health 2; Flammability 1; Reactivity 0

#### DeMULS PSML-20 [DeForest Enterprises]

*Chem. Descr.:* Polysorbate 20

CAS 9005-64-5

*Uses:* Solubilizer for perfumes in personal care prods., vitamin oils and flavors in food industry; reduces irritation in baby shampoos; rinse aid in rayon finishing; antistat and lubricant in textiles; coemulsifier in dye carrier textile formulations; emulsifier for petrol. oils, fats, solvs., and waxes in household prods.; spinning aid for nylon; visc. modifier; food pkg. adhesives, coatings, paper, polymers, textiles; food-contact defoamer and emulsifier

*Regulatory:* FDA 21CFR §172.515, 175.105, 175.300, 176.180, 176.210, 177.1210, 177.2260, 177.2800, 178.3400; DOT nonregulated

*Properties:* Pale yel. oily liq.; sol. in water, aromatic solvs.; insol. in aliphatic, chlorinated, solvs. and oils; sp.gr. 1.10 g/ml; b.p. > 212 F; HLB 16.7; sapon no. 40.0-50.0; hyd. no. 96.0-108.0; flash no. (COC) > 300 F; 97% conc.; nonionic

*Toxicology:* LD50 (oral, rat) > 20 ml/kg; nontoxic; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMULS PSMO-80 [DeForest Enterprises]

*Chem. Descr.:* Polysorbate 80

CAS 9005-65-6

*Uses:* Emulsifier; solubilizer in edible oils, cosmetics, perfumes, and pharmaceutical prods.; solubilizer for flavors in food applics.; emulsifier for aliphatic alcohols in tobacco sucker control concs.; lubricant; antistat; antifogging agent for PVC film; coemulsifier and invert emulsifier in cosmetic creams and lotions; food pkg. adhesives, coatings, paper; food-contact defoamer and emulsifier

*Regulatory:* FDA 21CFR §172.515, 172.840, 173.340, 175.105, 175.300, 176.180, 176.200, 176.210, 178.3400; DOT nonregulated

*Properties:* Yel. liq.; sol. in water; disp. or insol. in most solvs. and oils; sp.gr. 1.10 g/ml; b.p. > 300 F; HLB 15.0; sapon no. 45.0-55.0; hyd. no. 65.0-80.0; flash no. (COC) > 300 F; 97% conc.; nonionic

*Toxicology:* LD50 (oral, rat) > 20 ml/kg; nontoxic; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMULS PSMS-60 [DeForest Enterprises]

*Chem. Descr.:* Polysorbate 60

CAS 9005-67-8

*Uses:* Emulsifier, antistat; solubilizer for vitamin oils, essential oils, balsam, and tar preps. in cosmetics and pharmaceuticals; emulsifier for petrol. oils, fats, solvs., and household waxes; solubilizer for flavors in food applics.; emulsifier for paraffin type waxes for use in textile and paper coatings; lubricant; antistat; food pkg. adhesives, paper; food-contact defoamer and emulsifier

*Regulatory:* FDA 21CFR §172.515, 172.836, 173.340, 175.105, 176.180, 176.210, 178.3400; DOT nonregulated

*Properties:* Yel. visc. liq./paste; disp. or sol. in most solvs. and oils; disp. in water; b.p. > 300 F; HLB 15.0; sapon no. 45.0-55.0; hyd. no. 81.0-96.0; flash pt. (COC) 300 F; 97% conc.; nonionic

*Toxicology:* LD50 (oral, rat) > 20 ml/kg; nontoxic; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMULS PSTS-65 [DeForest Enterprises]

*Chem. Descr.:* Polysorbate 65

CAS 9005-71-4

*Uses:* Emulsifier; softener; antistat; lubricant for textile processing; softener for compounding textile finishes; emulsifier for petrol. and veg. oils; lubricant in oil-based cutting fluids and drawing compds.; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.838, 173.340, 176.180, 176.210, 178.3400; DOT nonregulated

*Properties:* Tan waxy solid; disp. in water; disp. or sol. in most solvs. and oils; b.p. > 300 F; HLB 10.5; sapon no. 88-98; hyd. no. 44-60; flash pt. (COC) > 300 F; 96% conc.; nonionic

*Toxicology:* LD50 (oral, rat) > 20 ml/kg; nontoxic; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMULS SML [DeForest Enterprises]

*Chem. Descr.:* Sorbitan laurate

CAS 1338-39-2; EINECS/ELINCS 215-663-3

*Uses:* Emulsifier; lubricant; coupling agent; softener; antistat; dispersant; emollient; water-disp. emulsifier for oils and fats; emulsifier in creams and lotions; intermediate; may be used to retard starch crystallization in jellies; lubricant antistat process aid in PVC resin mfg.; food-contact coatings; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.300, 175.320, 175.380, 176.210, 178.3400; DOT nonregulated

*Properties:* Amber liq.; sol. in solvs. and oils; disp. in water; sp.gr. 1.0 g/ml; b.p. > 212 F; HLB 8.0; acid no. 7.0 max.; sapon no. 158-170; hyd. no. 330-358; flash pt. (COC) > 300 F; 100% conc.; nonionic

*Toxicology:* LD50 (oral, rat) > 20 ml/kg; nontoxic

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMS: Health 1; Flammability 1; Reactivity 0

#### DeMULS SMO [DeForest Enterprises]

*Chem. Descr.:* Sorbitan oleate

CAS 1338-43-8; EINECS/ELINCS 215-665-4

*Uses:* Emulsifier and coupling agent for petrol. oils, fats, and waxes; lubricant/softener for textiles and leather; pigment dispersant in cosmetics; w/o emulsifier; corrosion inhibitor in petrol. oils; emollient; food pkg. adhesives, coatings; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §173.75, 175.105, 175.300, 175.320, 175.380, 176.210, 178.3400; DOT nonregulated

*Properties:* Amber liq.; sol. in fats and oils, alcohols, min. oil, aromatic and aliphatic solvs.; insol. in water; sp.gr. 1.0 g/ml; b.p. > 300 F; HLB 4.3; acid no. 8.0 max.; sapon no. 145-160; hyd. no. 193-210; flash pt. (COC) > 300 F; 100% conc.; nonionic

*Toxicology:* LD50 (oral, rat) > 20 ml/kg; nontoxic, nonirritating

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMIS: Health 0; Flammability 1; Reactivity 0

#### DeMULS SMS [DeForest Enterprises]

*Chem. Descrip.:* Sorbitan stearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9

*Uses:* Emulsifier component for silicone defoamer, wax and oil emulsions; emulsifier for food and cosmetic articles; lubricant for textiles and PVC film; pigment dispersant in thermoplastics and paper wax coatings; intermediate; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.515, 172.842, 173.340, 175.105, 175.300, 175.320, 175.380, 176.180, 176.200, 176.210, 177.1210, 178.3400; DOT nonregulated

*Properties:* Cream flakes; sol. most solvs.; insol. in water, aliphatic solvs., and oils; m.p. 127 F; b.p. > 300 F; no. 5-10; sapon no. 147-157; hyd. no. 235-260; flash pt. (COC) > 300 F; 100% conc.; nonionic

*Toxicology:* Nontoxic, nonirritating

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO,

HMIS: Health 0; Flammability 1; Reactivity 0

#### Densefloc 30 [Graden]

*Chem. Descrip.:* Polymeric

*Uses:* Coagulant, flocculant for wastewater treatment in paper mills and municipalities, calcium carbonate-starch fine paper furnishes, treating makeup water in papermaking

*Properties:* Colorless sl. opaque liq.; sl. odor; sp.gr. 1.28; m.w. 1400; visc. 11 cps; pH 3.5-3.8; 28% total solids; cationic

*Precaution:* Corrosive liq.

*Storage:* Rec. storage < 25 C; do not store above 35 C

#### Densol P-82 [Graden]

*Chem. Descrip.:* Sulfated oleic ester

*Uses:* Wetting agent, rewetting agent, emulsifier for paper towels, latex impregnation and dipping, textile dyeing

*Properties:* Amber liq.; dens. 8.57 lb/gal; sp.gr. 1.0288; pH 5.5 (2%); 65% act.; anionic

#### DePEG 30-CO [DeForest Enterprises]

*Chem. Descrip.:* PEG-30 castor oil

CAS 61791-12-6

*Uses:* Emulsifier for oils, solvs., waxes, polyester resins; emulsifier, dispersant for PU foams; coemulsifier/lubricant for textiles; degreaser in leather processing; pigment dispersant; rewetting and softening agent for wet-str. papers; visc. stabilizer for emulsion paints; emulsifier/emollient for cosmetics; solubilizer for perfumes; food pkg. adhesives, coatings, textiles, animal glue; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800, 178.3120; DOT nonregulated

*Properties:* Yel. clear liq.; sol. in water and most aromatic solvs.; disp. in min. oil; insol. in most aliphatic solvs.; sp.gr. 1.04 g/ml; b.p. > 300 F; HLB 11.7; sapon no. 73-78; cloud pt. 48-61 C (1% in 5% NaCl); flash pt. (COC) > 300 F; pH 7.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* May cause severe eye and skin irritation; ing. or inh. in high conc. may cause nausea, coughing, headache, and abdominal pain; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

#### DePEG 40-CO [DeForest Enterprises]

*Chem. Descrip.:* PEG-40 castor oil

CAS 61791-12-6

*Uses:* Water-soluble emulsifier for oils, solvs. and waxes; coemulsifier and lubricant for textile prods.; degreaser in leather processing; pigment dispersant; rewetting and softening agent for wet-str. papers; food pkg. adhesives, coatings, paper, textiles; emulsifier for polyester resins; visc. stabilizer for emulsion paints; emulsifier/emollient for cosmetics; solubilizer for perfumes; emulsifier, dispersant for PU foams; emulsion stabilizer in PVA emulsion

paints

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800; DOT nonregulated

*Properties:* Yel. liq.; sol. in water, chlorinated and aromatic solvs.; disp. in oils; insol. in most aliphatic solvs.; sp.gr. 1.04 g/ml; b.p. > 300 F; HLB 13.0; sapon no. 58-70; pour pt. 25 C (approx.); flash pt. (COC) > 300 F; pH 7.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* May cause severe eye and skin irritation; ing. or inh. in high conc. may cause nausea, coughing, headache, and abdominal pain; ethylene oxide (carcinogenic and reproductive hazard) can accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

#### DePEG 200 [DeForest Enterprises]

*Chem. Descrip.:* PEG-4

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Surfactant; intermediate for mfg. of PEG-fatty acid esters; humectant in certain printing ink formulations; plasticizer for starch pastes; solv. for personal care prods.; binder and lubricant for compressed tablets; plasticizer in PE sheet; lubricant for rubber molds; humectant and solv. for ink pad dyes; water softener and additive in paper processing; solubilizer; coupling agent; food pkg. adhesives and food-contact articles

*Regulatory:* FDA 21CFR §172.820, 173.310, 173.340, 175.105, 178.3750; DOT nonregulated

*Properties:* Water-wh. clear liq.; sol. in water; insol. in most solvs. and oils; m.w. 190-210; sp.gr. 1.13 g/ml; f.p. < -5 C; flash pt. (COC) 385 F; pH 5.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* Nontoxic; LD50 (oral, mouse) 29,500 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO,

HMIS: Health 0; Flammability 1; Reactivity 0

#### DePEG 300 [DeForest Enterprises]

*Chem. Descrip.:* PEG-6

CAS 25322-68-3; EINECS/ELINCS 220-045-1

*Uses:* Surfactant; intermediate for mfg. of PEG-fatty acid esters; humectant in certain printing ink formulations; plasticizer for starch pastes; solv. for personal care prods.; binder and lubricant for compressed tablets; plasticizer in PE sheet; lubricant for rubber molds; humectant and solv. for ink pad dyes; water softener and additive in paper processing; solubilizer; coupling agent; food pkg. adhesives and food-contact articles

*Regulatory:* FDA 21CFR §172.820, 173.310, 173.340, 175.105, 178.3750; DOT nonregulated

*Properties:* Water-wh. clear liq.; sol. in water; insol. in most solvs. and oils; m.w. 285-315; sp.gr. 1.13 g/ml; f.p. < 0 C; flash pt. (COC) 385 F; pH 5.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* Nontoxic; LD50 (oral, mouse) 29,500 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO,

HMIS: Health 0; Flammability 1; Reactivity 0

#### DePEG 400 [DeForest Enterprises]

*Chem. Descrip.:* PEG-8

CAS 25322-68-3; EINECS/ELINCS 225-856-4

*Uses:* Surfactant; intermediate for mfg. of PEG-fatty acid esters; humectant in certain printing ink formulations; plasticizer for starch pastes; solv. for personal care prods.; binder and lubricant for compressed tablets; plasticizer in PE sheet; lubricant for rubber molds; humectant and solv. for ink pad dyes; water softener and additive in paper processing; coupling agent in creams and lotions; food pkg. adhesives and food-contact articles

*Regulatory:* FDA 21CFR §172.820, 173.310, 173.340, 175.105, 178.3750, 181.30; DOT nonregulated

*Properties:* Water wh. clear liq.; sol. in water; insol. in most solvs. and oils; m.w. 380-420; sp.gr. 1.13 g/ml; f.p. < 4-8 C; flash pt. (PMCC) 350 F; pH 5.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* Nontoxic; LD50 (oral, mouse) 29,500 mg/kg

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO,

HMIS: Health 0; Flammability 1; Reactivity 0

#### DePEG 600 [DeForest Enterprises]

*Chem. Descrip.:* PEG-12

CAS 25322-68-3; EINECS/ELINCS 229-859-1

*Uses:* Surfactant; intermediate for PEG-fatty acid esters; humectant in printing



inks; plasticizer for starch pastes; solv. for personal care prods.; binder/lubricant for compressed tablets; plasticizer in PE sheet; food pkg. adhesives; lubricant for rubber molds; humectant and solv. for ink pad dyes; water softener and additive in paper processing; coupling agent in creams and lotions; color stabilizer for fuel oils; leveling agent in electropolishing formulas

**Regulatory:** FDA 21CFR §172.820, 173.310, 173.340, 175.105, 178.3750, 178.3910; DOT nonregulated

**Properties:** Water wh. clear liq.; sol. in water; insol. in most solvs. and oils; m.w. 570-630; sp.gr. 1.13 g/ml; f.p. < 20-25 C; flash pt. (COC) 475 F; pH 5.0-8.0 (5% in DW); 100% conc.; nonionic

**Toxicology:** Nontoxic; LD50 (oral, mouse) 29,500 mg/kg

**Precaution:** Incompat. with strong oxidizers

**Hazardous Decom. Prods.:** Thermal decomp. prods.: CO<sub>x</sub>

HMIS: Health 0; Flammability 1; Reactivity 0

**Storage:** Will become hazy just below 25 C and will solidify at lower temps.

#### DePHOS HP-739 [DeForest Enterprises]

**Chem. Descrip.:** Complex phosphate ester in acid form

CAS 12645-31-7

UN No. 1760 (DOT)

**Uses:** Lubricant, EP additive, emulsifier, wetting agent, detergent for use in sol. oils, syn. coolants, cutting fluids, rolling oils, hydraulic fluids, emulsion and alkaline cleaners, chain lubricants, bottle lubricants; paper deinking; emulsion polymerization and degreasing applics.; corrosion inhibitor; low- to moderate-foaming

**Properties:** Amber clear visc. liq.; sol. in oils and aliphatic solvs.; disp. in water and other solvs.; sol. in water when neutralized to pH >= 7.5; sp.gr. 1.03 g/ml; b.p. > 200 F; flash pt. (TOC) 300 F; pH < 2.5 (1% in DW); 99% conc.; anionic

**Toxicology:** Overexposure to eyes may cause burns, to skin may damage tissue; severe irritant by inh.; ing. may cause salivation, abdominal cramps, and thirst; contains phosphoric acid: LD50 (oral, rat) 1530 mg/kg

**Precaution:** DOT: corrosive liq.; incompat. with strong oxidizers

**Hazardous Decom. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, PO<sub>x</sub>

HMIS: Health 3; Flammability 1; Reactivity 1

#### DePHOS RA-40 [DeForest Enterprises]

**Chem. Descrip.:** Polyoxyethylene decyl ether phosphate

CAS 108818-88-8

UN No. 1760 (DOT)

**Uses:** Detergent, emulsifier, hydrotrope, wetting agent used in floor, steam, oven, metal, toilet bowl, soak tank, and high alkaline cleaners, car washes, wax strippers, and textile wetting agents; solubilizer for nonionic surfactants; defoamer in food-contact paper/paperboard; food pkg. animal glues; mod. foam

**Regulatory:** FDA 21CFR §176.210, 178.3120

**Properties:** Gardner 7 max. clear visc. liq.; sol. in water, alcohols, and glycols; disp. or insol. in oils and solvs.; sp.gr. 1.19 g/ml; flash pt. (COC) > 200 F; pH < 2.5 (10% in DW); 99% conc.; anionic

**Toxicology:** Overexposure to eyes may cause burns, to skin may damage tissue; severe irritant by inh.; ing. may cause burning, inflammation, blisters, and tissue damage; contains phosphoric acid: LD50 (oral, rat) 1530 mg/kg

**Precaution:** DOT: corrosive liq.; incompat. with strong oxidizers and reducing agents

HMIS: Health 3; Flammability 1; Reactivity 1

**Storage:** Darkens upon aging

#### Dequest® 2000 [Solutia]

**Chem. Descrip.:** Aminotrimethylene phosphonic acid aq. sol'n.

CAS 6419-19-8; EINECS/ELINCS 229-146-5

UN No. 1760; 3265

**Uses:** Deflocculant, sequestrant, aq. process additive for paper, textiles, metals, general purpose ion control, oil field applics.; industrial and commercial formulations for cleaning various substrates; scale and corrosion inhibitor in aq. systems for cooling water treatment, boiler treatment, I&I cleaners

**Regulatory:** SARA reportable

**Properties:** Water-wh. to pale yel. clear liq.; sl. aromatic odor; misc. with water; m.w. 299; sp.gr. 1.3 (20/15 C); visc. 11 cstk (20 C); f.p. -12 C; pH < 2 (1%); 50% act.

**Toxicology:** LD50 (oral, rat) 2910 mg/kg (sl. toxic), (dermal, rabbit) > 6310 mg/kg (pract. nontoxic); mod. irritating to eyes and skin

**Environmental:** EC50 (algae, 96 h) 20 mg/l, (daphnia magna, 48 h) 297 mg/l; LC50 (rainbow trout, 96 h) > 330 mg/l; pract. nontoxic to invertebrates,

fish, birds; slow to resist. biodegradation

**Precaution:** Corrosive to mild steel; incompat. with conc. caustic (evolves heat), strong oxidizers

**Hazardous Decom. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>; phosphines may form after all water is removed

#### Dequest® 2000LC [Solutia]

**Chem. Descrip.:** Amino tri (methylenephosphonic acid) (48-52%)

CAS 6419-19-8; EINECS/ELINCS 229-146-5

UN No. 3265

**Uses:** Deflocculant, sequestrant, dispersant, scale inhibitor for I&I cleaning, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

**Regulatory:** RCRA hazardous waste; DOT corrosive liq., acidic, org., n.o.s.; SARA immediate hazard (40CFR §370); CERCLA not applicable

**Properties:** Pale yel. liq.; aromatic odor; completely misc. with water; m.w. 299; sp.gr. 1.33; dens. 11.3 lb/gal; visc. 36.5 cps (20 C), 15 cps (60 C); f.p. 12 C; b.p. > 105 C; flash pt. nonflamm.; pH < 2 (1%); 50% act.

**Toxicology:** LD50 (oral, rat) 2910 mg/kg, (skin, rabbit) > 6310 mg/kg; mod. irritating to skin and eyes; no more than sl. toxic by skin absorp. and ing.; TSCA listed

**Environmental:** EC50 (daphnia magna, 48 h) 297 mg/l; LC50 (rainbow trout, 96 h) > 330 mg/l; not expected to bioaccumulate; keep out of drains and water courses

**Precaution:** Corrosive to mild steel and aluminum; incompat. with strong oxidizing agents

**Hazardous Decom. Prods.:** (combustion): CO, CO<sub>2</sub>, NO<sub>x</sub>, PO<sub>x</sub>

HMIS: Health 1; Flammability 0; Reactivity 1

**Storage:** 24 mos shelf life; store > -10 C in cool, dry, well-ventilated area

#### Dequest® 2006 [Solutia]

**Chem. Descrip.:** Pentasodium aminotrimethylene phosphonate

CAS 2235-43-0; EINECS/ELINCS 218-791-8

UN No. 3265

**Uses:** Deflocculant; sequestrant; dispersant; aq. process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; retards concrete setting times; scale and corrosion inhibitor in aq. systems for cooling water treatment, boiler treatment, I&I cleaners, general purpose ion control, oil field applics.; stabilizer for peroxide bleaching sol'ns. in textiles, paper pulp; temp. and pH stability

**Regulatory:** SARA nonreportable

**Properties:** Water-wh. to pale yel. clear liq.; ammoniacal odor; misc. with water; m.w. 409; sp.gr. 1.4 (20/15 C); visc. 57.51 cstk (20 C); f.p. -16 C; pH 10-11 (1%); 40% act.

**Toxicology:** LD50 (oral, rat) > 17,800 mg/kg, (dermal, rabbit) > 15,800 mg/kg; pract. nontoxic by oral and dermal routes; pract. nonirritating to eyes; nonirritating to skin; TSCA listed

**Environmental:** EC50 (algae, 96 h) 20 mg/l, (daphnia magna, 48 h) 297 mg/l; LC50 (rainbow trout, 96 h) > 330 mg/l; pract. nontoxic to invertebrates, fish, birds; slow to resist. biodegradation

**Precaution:** Incompat. with strong oxidizing agents and acids

**Hazardous Decom. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>; phosphines may form after all water has been removed

#### Dequest® 2010 [Solutia]

**Chem. Descrip.:** Hydroxy-ethylidene diphosphonic acid aq. sol'n.

CAS 2809-21-4; EINECS/ELINCS 220-552-8

UN No. 1760 (DOT)

**Uses:** Deflocculant, sequestrant, aq. process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; scale and corrosion inhibitor in aq. systems; for cooling water, boilers, I&I cleaners, swimming pool stain prevention, personal care prods., metal ion control; exc. chlorine stability

**Regulatory:** SARA reportable; USA approvals for food contact

**Properties:** Water wh. to pale yel. clear liq.; char. odor; misc. with water; m.w. 206; sp.gr. 1.45 (20/15 C); visc. 46 cstk (20 C); f.p. 0 C; pH < 2 (1%); 60% act.

**Toxicology:** LD50 (oral, rat) 2400 mg/kg (sl. toxic), (dermal, rabbit) > 7940 mg/kg (pract. nontoxic); causes eye burns; nonirritating to skin

**Environmental:** EC50 (algae, 96 h) 3 mg/l, (daphnia magna, 48 h) 527 mg/l, (rainbow trout, 96 h) 368 mg/l; pract. nontoxic to invertebrates, fish, birds; slow to intermediate biodegradation

**Precaution:** Corrosive to mild steel; incompat. with conc. caustic (evolves heat), strong oxidizers

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, PO<sub>x</sub>; phosphines may form after all water removed

**Dequest® 2016 D Powder** [Solutia]

*Chem. Descr.:* 1-Hydroxyethylidene-1,1-diphosphonic acid, tetrasodium salt

CAS 3794-83-0; EINECS/ELINCS 223-267-7

*Uses:* Sequestrant, corrosion inhibitor, scale inhibitor, pigment dispersant for industrial cooling and boiler water treatment, metal pretreatment for coatings, drilling muds and kaolin clay slurries, metal finishing; protects against rancidification in cosmetics, personal care prods.; stabilizer for peroxide bleaching sol'ns. in textiles, paper pulp

*Properties:* Wh. crystalline powd.; 4.0% max. on 16 mesh; 10% max. thru 325 mesh; 100 min.  $\mu$  mean particle size; m.w. 294; bulk dens. 0.65-0.95 g/cc; pH 11-12 (1%); 57-62% total act. acid; 7-11% moisture

**Dequest® 2041** [Solutia]

*Chem. Descr.:* Ethylene diamine tetra (methylene phosphonic acid)

CAS 1429-50-1

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Wh. crystalline solid; m.w. 436; pH < 2 (1%); 92% act. acid

*Toxicology:* Irritating to eyes

**Dequest® 2046** [Solutia]

*Chem. Descr.:* Ethylene diamine tetra (methylene phosphonic acid), pentasodium salt

CAS 7651-99-2

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Wh. to pale yel. clear liq.; m.w. 546; sp.gr. 1.30; f.p. -14 C; pH 6-8 (1%); 25% act. acid; 31% act. salt

**Dequest® 2054** [Solutia]

*Chem. Descr.:* Hexapotassium hexamethylene diamine tetra (methylene phosphonate) aq. sol'n.

CAS 38820-59-6

*Uses:* Deflocculant, sequestrant, aq. process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; scale and corrosion inhibitor in aq. systems; rec. for boiler treatments, reverse osmosis, desalination

*Regulatory:* SARA nonreportable

*Properties:* Water-wh. to yel. clear liq.; char. odor; m.w. 721; sp.gr. 1.26; f.p. -15 C; pH 6-8 (1%); 33% act.

*Toxicology:* LD50 (oral, rat) > 12,800 mg/kg, (dermal, rabbit) > 7940 mg/kg; pract. nontoxic orally and dermally; pract. nonirritating to eyes; nonirritating to skin

*Environmental:* LC50 (midge larvae, 48 h) 4660 mg/l, (sheepshead minnow, 96 h) > 954 mg/l; LD50 (oral, mallard duck) > 2510 mg/kg; pract. nontoxic to invertebrates, fish, birds

*Precaution:* Incompat. with strong oxidizers and acids

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>; phosphines may form after all water is removed

**Dequest® 2060** [Solutia]

*Chem. Descr.:* Diethylene triamine penta (methylene phosphonic acid) aq. sol'n.

CAS 15827-60-8

*Uses:* Process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; scale and corrosion inhibitor in aq. systems; sequestrant; for cooling water treatment, detergents, peroxide bleach stabilization, I&I cleaners, geothermal, oil field applics.

*Properties:* Dk. amber clear liq.; m.w. 573; sp.gr. 1.4; pH < 2 (1%); 50% act.

**Dequest® 2066** [Solutia]

*Chem. Descr.:* Hexasodium diethylene triamine penta (methylene phosphonate) aq. sol'n.

*Uses:* Deflocculant, sequestrant, process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; cement modifier (retards concrete setting times); scale and corrosion inhibitor in aq. systems for cooling water treatment, detergents, I&I cleaners, geothermal, oil field applics.; stabilizer for peroxide bleaching sol'ns. in textiles, paper pulp; deinking/bleaching of recycled paper pulp

*Regulatory:* SARA nonreportable

*Properties:* Amber clear liq.; m.w. 705; sp.gr. 1.3; f.p. -13 C; pH 6-8 (1%); 25% act.

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 5000 mg/kg; pract. nontoxic orally, dermally; pract. nonirritating to eyes; nonirritating to skin

*Environmental:* EC50 (algae, 96 h) 2 mg/l, (daphnia magna, 48 h) 242 mg/l; LC50 (rainbow trout, 96 h) > 180 and < 252 mg/l; pract. nontoxic to invertebrates, fish, birds

*Precaution:* Incompat. with strong antiperspirants or acids

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>; phosphines may form after all water is removed

**Dequest® 2066A** [Solutia]

*Chem. Descr.:* Diethylenetriamine penta (methylenephosphonic acid), trisodium salt

CAS 22042-96-2

UN No. 3265

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Amber liq.; m.w. 640; sp.gr. 1.41; dens. 11.1 lb/gal; f.p. -20 C; pH 2-3 (1%); 45-49% act. acid; 51% act. salt

*Toxicology:* Irritating to eyes and skin

*Precaution:* Corrosive

**Dequest® 2066C2** [Solutia]

*Chem. Descr.:* Diethylenetriamine penta (methylenephosphonic acid), pentasodium salt

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Amber liq.; m.w. 727; sp.gr. 1.38-1.4; dens. 11.7 lb/gal; f.p. -13 C; pH 6-8 (1%); 31-32% act. acid; 40-43% act. salt

**Dequest® 2086** [Solutia]

*Chem. Descr.:* Phosphonate

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Amber clear liq.; m.w. 570; sp.gr. 1.342 (20 C); f.p. < -10 C; pH 5.5-6.0; 30% act. acid

**Dequest® 3000S** [Solutia]

*Chem. Descr.:* Phosphonate

UN No. 3265

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Amber liq.; sol. 1% in 45-47% NaOH; sp.gr. 1.3; dens. 11.3 lb/gal; f.p. < -15 C; pH < 2 (1%); 36-44% act. acid

*Toxicology:* Irritating respiratory system and skin; risk of serious damage to eyes

*Precaution:* Corrosive

**Dequest® 7000** [Solutia]

*Chem. Descr.:* 2-Phosphonobutane-1,2,4-tricarboxylic acid

CAS 37971-36-1

UN No. 3265

*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Properties:* Pale yel. clear liq.; m.w. 270; sp.gr. 1.30; dens. 11.3 lb/gal; f.p. -15 C; pH < 2 (1%); 50% act. acid

*Toxicology:* Irritating to eyes

*Precaution:* Corrosive

**Derakane® 411-35** [Dow]

*Chem. Descr.:* Epoxy-based vinyl ester resin

*Uses:* Used in chem. processing industry, pulp/paper mills; thermoset; provides superior toughness and corrosion resist.

*Regulatory:* FDA compliance

*Properties:* Liq.; sp.gr. 1.073; visc. 2000 cps.

**Derakane® 411-350** [Dow]*Chem. Descrip.:* Epoxy vinyl ester resin*Uses:* Used in fabricating fiber-reinforced plastic structures and equipment incl. absorp. towers, process vessels, piping, and exhaust stacks; for chem. processing, pulp/paper, contact molding and filament winding; thermosetting resin with chem. corrosion resist., impact resist., and good elec. and thermal insulation props.*Regulatory:* Can be FDA compliant*Properties:* Sp.gr. 1.045; visc. 350 cps; tens. str. 83.4 MPa; tens. elong. 8% (break); flex. str. 147.6 MPa; distort. temp. 99-104 C (1.8 MPa, unannealed)**Desmocap®** [Bayer AG]*Chem. Descrip.:* Polyurethane coating raw material*Uses:* For automotive engineering, mech. and plant engineering, industrial coatings, building, wood and furniture finishing, coatings for plastics and paper**Desmocol® 526** [Bayer AG; Bayer/Fiber, Addits., Rubber]*Chem. Descrip.:* Linear polyester PU based on MDI*Uses:* Bonding agent for adhesives for bonding plastics, rubber, leather, wood, textiles, paper; elastomeric PU; suitable for contact bonding at R.T.*Properties:* Tan pellets, lightly talced; sp.gr. 1.2 g/cc; sol. in org. solvs. (acetone, MEK, THF); visc. 600 ± 200 mPa·s (15% in MEK)**Desmolac®** [Bayer AG]*Chem. Descrip.:* Polyurethane coating raw material*Uses:* For automotive engineering, mech. and plant engineering, industrial coatings, building, wood and furniture finishing, coatings for plastics and paper**Desmotherm®** [Bayer AG]*Chem. Descrip.:* Polyurethane coating system*Uses:* For automotive engineering, mech. and plant engineering, industrial coatings, building, wood and furniture finishing, coatings for plastics and paper**DeSonic™ 4N** [Crompton/Witco]*Chem. Descrip.:* Nonoxynol-4

CAS 9016-45-9; EINECS/ELINCS 230-770-5

*Uses:* Detergent, emulsifier, defoamer for pesticide, paint, paper, and textile industries, and personal care formulations*Properties:* Liq.; oil-sol.; HLB 8.8; 100% act.; nonionic**DeSonic™ 6C** [Crompton/Witco]*Chem. Descrip.:* PEG-6 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, lubricant, dye leveling agent, antistat, and dispersant for textile applics.; mfg. of PU foams; softener and rewetting agent for paper*Properties:* Liq.; HLB 4.4; 100% conc.; nonionic**DeSonic™ 6T** [Crompton/Witco]*Chem. Descrip.:* Trideceth-6

CAS 24938-91-8

*Uses:* Wetting agent, detergent, foaming agent for mechanical and spray cleaning, pulp, paper, textile industries, personal care formulations; low-foam*Properties:* Liq.; HLB 11.4; 100% act.; nonionic**DeSonic™ 9N** [Crompton/Witco]*Chem. Descrip.:* Nonoxynol-9

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier for textiles, paper, metal cleaning, personal care formulations*Properties:* Liq.; HLB 12.8; cloud pt. 127-133 F; 100% act.; nonionic**DeSonic™ 10N** [Crompton/Witco]*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* Detergent, wetting agent, emulsifier for textiles, paper, metal cleaning*Properties:* Liq.; cloud pt. 140-149 F; 100% act.; nonionic**DeSonic™ 11N** [Crompton/Witco]*Chem. Descrip.:* Nonoxynol-11

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier for textiles, paper, metal cleaning, personal care formulations*Properties:* Liq.; HLB 13.6; cloud pt. 158-162 F; 100% act.; nonionic**DeSonic™ 13N** [Crompton/Witco]*Chem. Descrip.:* Nonoxynol-13

CAS 9016-45-9

*Uses:* Detergent, emulsifier, defoamer for pesticides, paints, paper, and textiles*Properties:* Liq.; HLB 14.3; 100% conc.; nonionic**DeSonic™ 30C** [Crompton/Witco]*Chem. Descrip.:* PEG-30 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, lubricant, dye leveling agent, antistat, dispersant for textiles; emulsifier for rigid PU foams; softener/rewetter for wet-strength paper; personal care formulations*Properties:* Liq.; HLB 11.7; 100% act.; nonionic**DeSonic™ 36C** [Crompton/Witco]*Chem. Descrip.:* PEG-36 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, lubricant, dye leveling agent, antistat, dispersant for textiles; emulsifier for rigid PU foams; softener/rewetter for wet-strength paper; personal care formulations*Properties:* Liq.; HLB 12.6; cloud pt. 122-140 F; 100% act.; nonionic**DeSonic™ 40C** [Crompton/Witco]*Chem. Descrip.:* PEG-40 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, lubricant, dye leveling agent, antistat, dispersant for textiles; emulsifier for rigid PU foams; softener/rewetter for wet-strength paper; personal care formulations*Properties:* Liq.; HLB 13.1; cloud pt. 173-179 F; 100% act.; nonionic**DeSonic™ 54C** [Crompton/Witco]*Chem. Descrip.:* PEG-54 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, lubricant, dye leveling agent, antistat, dispersant for textiles; emulsifier for rigid PU foams; softener/rewetter for wet-strength paper; personal care formulations*Properties:* Liq.; HLB 14.4; cloud pt. 136-142 F (10% NaCl); 100% act.; nonionic**DeSULF SEH-40** [DeForest Enterprises]*Chem. Descrip.:* Sodium 2-ethylhexyl sulfate

CAS 126-92-1; EINECS/ELINCS 204-812-8

*Uses:* Moderate-foaming wetting agent; rec. for use in high caustic cleaners, hard surface electrolyte cleaners, metal cleaning, rinse aid for auto. dishwashing, and in alkaline and mild acid cleaners contg. chlorine or peroxide; in washing of fruits and veg. and caustic peeling of food; post-stabilizer for latex paints, nickel brightening, aluminum cleaners, textile mercerizing, electroplating baths; visc. control in adhesives; food pkg. adhesives, paper; caustic stability*Regulatory:* FDA 21CFR §173.315, 175.105, 176.170; DOT nonregulated*Properties:* Clear liq.; typ. odor; sol. in water, alcohols, and glycols; insol in oils and solvs.; sp.gr. 0.99-1.01 g/ml; b.p. 100 C; visc. 50 cps.; cloud pt. < 10 C; pH 9.5-10.5 (10% in DW); 40% conc.; anionic*Toxicology:* LD50 (oral, rat) 3.7 g/kg; sl. toxic by ing.; inh. of aerosol may be irritating*Environmental:* Biodeg.*Precaution:* Avoid excessive heat*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

HMIS: Health 2; Flammability 1; Reactivity 0

*Storage:* Pressure may build in closed containers when exposed to heat creating risk of rupture**DeSULF SLS-30LC** [DeForest Enterprises]*Chem. Descrip.:* Sodium lauryl sulfate

CAS 151-21-3; EINECS/ELINCS 205-788-1

*Uses:* Surfactant, detergent for use in shampoos, bubble baths, liq. hand dish detergents, and mild industrial cleaners; surfactant in emulsion polymerization, esp. for styrene, butadiene, vinyl chloride, vinylidene chloride, and acrylic ester monomers; food pkg. adhesives, paper, cellophane, rubber articles, textiles; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; high foam*Regulatory:* FDA 21CFR §172.822, 175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.3120, 178.3400; DOT nonregulated*Properties:* Lt. straw clear liq.; sol. in water, alcohols, and glycols; insol. in oils and most solvs.; sp.gr. 1.00 g/ml; visc. 500 cps max.; cloud pt. 1 C (approx.); pH 7.5-8.5 (10% in DW); 29-30% conc.; anionic*Toxicology:* LD50 (oral, rat) 4.7 g/kg; sl. toxic; mod. irritating to eyes and skin; aerosol may be irritating by inh.*Precaution:* Incompat. with strong oxidizers; avoid excessive heat*Hazardous Decomp. Prods.:* SO<sub>2</sub>, HS<sub>2</sub>, CO

HMIS: Health 2; Flammability 1; Reactivity 0

**DeSULF SLS-30LS** [DeForest Enterprises]*Chem. Descrip.:* Sodium lauryl sulfate

CAS 151-21-3; EINECS/ELINCS 205-788-1

*Uses:* Foaming agent for shampoos, bubble baths, in liq. hand dish detergents, mild industrial detergents, rug shampoos, and formulations where salt additions are req. for visc. flexibility; food pkg. adhesives, coatings, paper, cellophane, textiles; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles*Regulatory:* FDA 21CFR §172.822, 175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.1630, 177.2800, 178.3120, 178.3400; DOT non-regulated*Properties:* Off-wh. clear liq.; sol. in water, alcohols, and glycols; insol in oils and most solvs.; sp.gr. 1.03 g/ml; visc. 500 cps max.; b.p. 212 F; cloud pt. 7.0-13.0 C; pH 7.0-9.0 (10% in DW); 28.5-30.5% conc.; anionic*Toxicology:* Eye and skin contact may cause severe irritation or burns*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* SO<sub>2</sub>, H<sub>2</sub>S

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTac™** [Hercules]*Uses:* Deposit control tech. for pitch and stickies control in papermaking**DeTHOX ACID L-9** [DeForest Enterprises]*Chem. Descrip.:* PEG-8 laurate (8-9 EO)

CAS 9004-81-3; EINECS/ELINCS 253-458-0

*Uses:* Lubricant in textile fiber processing; emulsifier and solubilizer for oils and solvs.; dispersant for pigment and dye systems; defoamer and leveling agent in latex paints; emulsifier and coemulsifier in personal care prods.; food-contact paper, cellophane; in surf. lubricants for mfg. of food-contact metallic articles*Regulatory:* FDA 21CFR §176.170, 177.1200, 178.3520, 178.3760, 178.3910; DOT nonregulated*Properties:* Yel. liq. to paste; bland char. odor; disp. in water, oils, and aliphatic solvs.; sol. or disp. in most other solvs.; sp.gr. 1.03 g/ml; b.p. > 200 F; HLB 12.8; acid no. 5.0 max.; sapon. no. 91-101 max.; flash pt. (COC) > 200 F; pH 7.0-9.0 (5% in DW); 100% conc.; nonionic*Toxicology:* Overexposure may cause skin and eye irritation; inh. of high conc. vapors may be irritating to respiratory tract; ing. may cause nausea; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID O-9** [DeForest Enterprises]*Chem. Descrip.:* PEG-8 oleate (8-9 EO)

CAS 9004-96-0

*Uses:* Detergent used in mild alkaline and acid cleaners, metal cleaners, cutting oils; w/o emulsifier for creams, lotions, and hair grooming prods.; wool and textile lubricant; dyeing assistant and finishing agent; emulsifier for agric. prods., defoamers, mineral oils, fatty oils, neatsfoot oil, and liquors in leather processing; dispersant; food-contact coatings, paper, cellophane; defoamer in food-contact coatings*Regulatory:* FDA 21CFR §175.300, 176.170, 176.200, 177.1200; DOT non-regulated*Properties:* Amber liq.; bland char. odor; disp. in water, min. oil, and aliphatic solvs.; sol. in aromatic solvs.; sp.gr. 1.02 g/ml; b.p. > 300 F; HLB 11.0; acid no. 5.0 max.; sapon. no. 75-85 max.; pH 5.0-7.0 (5% in DW); 99% conc. min.; nonionic*Toxicology:* Overexposure may cause skin and eye irritation; inh. of high conc. vapors may be irritating to respiratory tract; ing. may cause nausea; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID O-14** [DeForest Enterprises]*Chem. Descrip.:* PEG-14 oleate

CAS 9004-96-0

*Uses:* Detergent used in mild alkaline and acid cleaners, metal cleaners; o/w emulsifier for creams, lotions, and hair grooming prods.; lubricant in syn. cutting fluids; defoamer and leveling agent in latex paints; defoamer for pulp/paper; water-sol. emulsifier and coemulsifier in specialty lubricants, pesticides; food-contact coatings, paper, cellophane; defoamer in food-contact coatings*Regulatory:* FDA 21CFR §175.300, 176.170, 176.200, 177.1200; DOT non-regulated*Properties:* Amber liq.; bland char. odor; sol. in water, aromatic, and chlorinated solvs.; disp. or sol. in most oils and solvs.; sp.gr. 1.04 g/ml; b.p. > 300 F; HLB 13.0; acid no. 5.0 max.; sapon. no. 57-67; pH 7.0-9.0 (5% in DW); 99% conc. min.; nonionic*Toxicology:* Overexposure may cause skin and eye irritation; inh. of high conc. vapors may be irritating to respiratory tract; ing. may cause nausea; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID O-16** [DeForest Enterprises]*Chem. Descrip.:* PEG-16 oleate

CAS 9004-96-0

*Uses:* O/w emulsifier for creams, lotions, and hair grooming prods.; emulsifier and coemulsifier in specialty lubricants, pesticides; leveling agent in dyes and latex paints; lubricant in syn. cutting fluids; detergent for mild alkaline and acid systems, metal cleaners; dispersant; food-contact coatings, paper, cellophane; defoamer in food-contact coatings; mod. foaming*Regulatory:* FDA 21CFR §175.300, 176.200, 177.1200; DOT nonregulated*Properties:* Off wh. solid; sol. in water, alcohols, and aromatic solvs.; insol. or disp. in glycols, oils, and aliphatic solvs.; b.p. > 300 F; HLB 14.0; acid no. 5.0 max.; sapon. no. 53-63; pH 7.0-9.0 (5% in DW); 99% conc. min.; nonionic*Toxicology:* Overexposure may cause skin and eye irritation; inh. of high conc. vapors may be irritating to respiratory tract; ing. may cause nausea; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID S-8** [DeForest Enterprises]*Chem. Descrip.:* PEG-8 stearate

CAS 9004-99-3

*Uses:* Emulsifier, dispersant in cosmetics; fiber softener/lubricant; leather conditioner; stabilizer for starch coatings of paper; thickener in aq. and solv. systems, emulsion cleaners, and mild acid/alkaline systems; mold release agent and defoamer in emulsion-type detergents; food pkg. adhesives, paper, cellophane; defoamer in food-contact coatings*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 177.1200, 178.3910; DOT nonregulated*Properties:* Off-wh. solid; bland, char. odor; disp. in water, oils, and aliphatic solvs.; sol. in most other solvs.; m.p. 28 C; HLB 11.2; acid no. 5.0 max.; sapon. no. 80-90; flash pt. (COC) 200 F; pH 7.0-9.0 (5% in DW); 99% conc. min.; nonionic*Toxicology:* May cause eye and skin irritation; ing. may cause nausea and abdominal pain; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID TO-8.5** [DeForest Enterprises]*Chem. Descrip.:* PEG-8 tallate

CAS 61791-00-2

*Uses:* Dispersant and emulsifier used in mild alkaline and acid detergents; lubricant in skin preps. and syn. coolants; emulsifier in lubricants, textile scouring; coemulsifier in creams and lotions; food pkg. adhesives, coatings, paper, textiles, animal glue; defoamer in food-contact paper/paperboard; low to mod. foam*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1210, 177.2800, 178.3120; DOT nonregulated*Properties:* Amber liq.; disp. in water, min. oil, and aliphatic and aromatic solvs.; sp.gr. 1.02 g/ml; HLB 11; sapon. no. 80-90; flash pt. (COC) > 300 F; pH 4.5-7.5 (5% in DW); 100% conc.; nonionic*Toxicology:* Prolonged contact may cause eye and skin irritation; ing. may cause nausea; inh. of vapors at high conc. may be irritating; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels*Precaution:* Incompat. with strong oxidizers*Hazardous Decom. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID TO-14** [DeForest Enterprises]

*Chem. Descrip.:* PEG-14 tallate

CAS 61791-00-2

*Uses:* Dispersant and emulsifier used in mild alkaline and acid detergents; lubricant in skin preps. and syn. coolants; emulsifier in lubricants, textile scouring; coemulsifier in creams and lotions; food pkg. adhesives, coatings, paper, textiles, animal glue; defoamer in food-contact paper/paperboard; low to mod. foam

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800, 178.3120; DOT nonregulated

*Properties:* Amber yel. liq.; sol. in water and aromatic solvs.; disp in min. oil and aliphatic solvs.; sp.gr. 1.04 g/ml; HLB 13.0; sapon no. 57-67; flash pt. (COC) > 300 F; pH 6.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* Prolonged contact may cause eye and skin irritation; ing. may cause nausea; inh. of vapors at high conc. may be irritating; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX ACID TO-16.5** [DeForest Enterprises]

*Chem. Descrip.:* PEG-16 tallate

CAS 61791-00-2

*Uses:* Dispersant and emulsifier used in mild alkaline and acid detergents; lubricant in skin preps. and syn. coolants; emulsifier in lubricants, textile scouring; coemulsifier in creams and lotions; food pkg. adhesives, coatings, paper, textiles, animal glue; defoamer in food-contact paper/paperboard; low to mod. foam

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800, 178.3120; DOT nonregulated

*Properties:* Cream solid; sol. in water and aromatic solvs.; disp in glycols, oils, and aliphatic solvs.; HLB 14.0; acid no. 5.0 max.; sapon no. 55-65; flash pt. (COC) > 300 F; pH 6.0-8.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* Prolonged contact may cause eye irritation; ing. may cause nausea, vomiting; inh. of vapors at high conc. may be irritating; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX LA-4** [DeForest Enterprises]

*Chem. Descrip.:* Laureth-4

CAS 5274-68-0; EINECS/ELINCS 226-097-1

*Uses:* Wetting agent; o/w emulsifier in creams and lotions; lubricant in textile emulsions; dye dispersant; intermediate to produce alkyl ether sulfates; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210, 178.3520, 181.30; DOT nonregulated

*Properties:* Colorless to lt. yel. hazy liq.; insol. in water; sol. in alcohols, oils, and glycol; disp. or sol. in solvs.; sp.gr. 0.95 g/ml; b.p. > 212 F; HLB 9.5 (approx.); acid no. 2.0 max.; hyd. no. 145-165; flash pt. (COC) > 200 F; 100% conc.; nonionic

*Toxicology:* May cause eye and skin irritation; ing. may cause nausea, vomiting, and diarrhea; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX LA-23** [DeForest Enterprises]

*Chem. Descrip.:* Laureth-23

CAS 9002-92-0

*Uses:* Emulsifier and solubilizer in creams and lotions; solv. emulsifier for textile dye carriers; post-stabilizer for syn. latexes; in combination with anionics for emulsion polymerization; wetting agent; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210, 181.30; DOT nonregulated

*Properties:* Wh. waxy flakes; sol. in water, alcohols, and glycols; insol. in oil; insol. or disp. in solvs.; m.p. 40 C; HLB 16.4-16.9; acid no. 0.5 max.; hyd. no. 42-52; flash pt. (COC) > 300 F; pH 5.0-7.0 (5% in DW); 100% conc.; nonionic

*Toxicology:* May cause eye and skin irritation; ing. may cause nausea, vomiting, and diarrhea; inh. may irritate upper respiratory tract; ethylene

oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX TDA-6** [DeForest Enterprises]

*Chem. Descrip.:* Trideceth-6

CAS 24938-91-8

*Uses:* Detergent used in low foam alkaline and acid industrial and high-pressure spray cleaners, laundry detergents, cutting fluids, mech. dish-washing; dispersant for essential oils; emulsifier for silicones in petrol. oils and o/w cosmetic preps.; intermediate for sulfation and phosphation to form specialty surfactants; coupling agent; lubricant; antistat; leveling agent; food pkg. adhesives, cellophane, animal glue; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120; DOT nonregulated

*Properties:* Almost colorless opaque liq.; typ. mild odor; sol in most aromatic and aliphatic solvs.; disp. in water and min. oil; sp.gr. 0.97 g/ml; b.p. > 212 F; HLB 11.4; cloud pt. 69-73 (10% in 25% butyl Carbitol); flash pt. (COC) > 300 F; pH 5-8 (5% in DW); 100% conc.; nonionic

*Toxicology:* May cause eye and skin irritation; ing. may cause nausea, vomiting, and diarrhea inh. may irritate upper respiratory tract; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels; TSCA listed

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX TDA-8.5** [DeForest Enterprises]

*Chem. Descrip.:* Trideceth-9

CAS 24938-91-8

*Uses:* Detergent, foam stabilizer in lt. and heavy-duty, high-foam alkaline and acid detergents; wetting agent in highly acidic systems, emulsion paint strippers, oven, dairy, acid bowl, and acid tile cleaners, agric. sprays, wool scouring; wetting agent for corrosion inhibitors, acid pickling baths; rewetting agent in paper towel mfg.; solubilizer/emulsifier for essential oils, aromatic solvs., fats, waxes; emulsifier in topical cosmetics; food pkg. adhesives, cellophane, defoaming

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120; DOT nonregulated

*Properties:* Almost colorless opaque liq.; typ. mild odor; sol in water and most solvs.; sol. or disp. in oils; sp.gr. 0.98 g/ml; b.p. > 212 F; HLB 12.5; cloud pt. 42-46 (5% in DW); flash pt. (COC) > 300 F; pH 5-8 (5% in DW); 100% conc.; nonionic

*Toxicology:* Overexposure may cause eye and skin irritation; ing. may cause nausea; inh. in high conc. may be irritating; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels; TSCA listed

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeTHOX TDA-15** [DeForest Enterprises]

*Chem. Descrip.:* Trideceth-15

CAS 24938-91-8

*Uses:* Detergent, foam builder in detergents; solubilizer for alkylaryl sulfonates; emulsifier and stabilizer for synthetic latexes; for control of dissolution rate of solid or block type cleaners such as block bowl cleaners; in steam cleaners, dairy cleaners, acid pickling; in cosmetic creams and stick preps.; food pkg. adhesives, cellophane, animal glue; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120; DOT nonregulated

*Properties:* Wh. solid; typ. mild odor; completely sol. in water; disp. or insol. in most solvs. and oils; m.p. 30 C (approx.); HLB 15.4; cloud pt. 65-69 (1% in 5% NaCl); flash pt. (COC) > 200 F; pH 5-8 (5% in DW); 100% conc.; nonionic

*Toxicology:* Overexposure may cause eye and skin irritation; ing. may cause nausea, vomiting; inh. in high conc. may be irritating to upper respiratory tract; ethylene oxide (cancer and reproductive hazard) may accumulate in storage and transport vessels; TSCA listed

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO<sub>2</sub>



HMIS: Health 1; Flammability 1; Reactivity 0

**DeWET SDO-70PG** [DeForest Enterprises]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate in propylene glycol

*Uses:* Wetting agent, dispersant for dyestuffs, fire-fighting, leak detection; filtration aid; pigment dispersant in paints and ink; glass cleaner and defogging agent; dust settling agent; rinse aid and detergent in food plants; increases wetting and spreading props. of pesticides, insecticides, fungicides, and fertilizers; in dry cleaning detergents; surf. tens. reducer; solubilizer; food pkg. adhesives, coatings, paper, cellophane, textiles; food-grade emulsifier, defoamer

*Regulatory:* FDA 21CFR §172.810, 175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3120, 178.3400; USDA approved; DOT nonregulated

*Properties:* Colorless to sl. yel. clear liq.; sl. sol. in water, sol. in most other solvs.; sp.gr. 1.1 g/ml; b.p. 200 F; acid no. 2.5 max.; flash pt. (TCC) 200 F; pH 5.0-8.0; 67% conc.; anionic

*Toxicology:* May cause eye and skin irritation; ing. may cause nausea, vomiting, and abdominal pain; inh. at high conc. may be irritating

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SO<sub>2</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

**DeWET SDO-75E** [DeForest Enterprises]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate in ethanol

*Uses:* In emulsion polymerization; wetting agent, dispersant for dyestuffs; pigment dispersant in paints and inks; filtration aid; glass cleaning and defogging agent; dust settling agent; dry cleaning detergents; leak detection; cutting fluids; rinse aid and cleaning agent in food plants; increases wetting and spreading properties of pesticides, insecticides, fungicides, and fertilizers; surf. tens. reducer; solubilizer; food pkg. adhesives, coatings, paper, textiles; food-grade emulsifier

*Regulatory:* FDA 21CFR §172.810, 175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3120, 178.3400

*Properties:* Colorless clear liq.; sl. sol. in water and oils; sol. in most solvs.; sp.gr. 1.09 g/ml (approx.); acid no. 2.5 max.; cloud pt. < 5.0 C; pH 5.0-7.0 (1% in DW); anionic

*Toxicology:* LD50 (oral, mouse) 1 g/kg; eye and skin irritant upon prolonged exposure; ing. may cause nausea, vomiting, and abdominal pain; inh. in high conc. may be irritating causing coughing, headache and nausea

*Precaution:* DOT: combustible liq.; incompat. with strong oxidizers and cationic materials

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SO<sub>x</sub>

HMIS: Health 1; Flammability 2; Reactivity 0

**DeWET SDTD-70** [DeForest Enterprises]

*Chem. Descrip.:* Ditridecyl sodium sulfosuccinate

CAS 2673-22-5; EINECS/ELINCS 220-219-7

*Uses:* Wetting agent, emulsifier, dispersant, solubilizer, penetrant used in emulsion and suspension polymerization, pigment dispersion, o/w and w/o emulsions, oil-based lubricants, adhesives, penetrating oils, and agric. pesticides; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400

*Properties:* Lt. straw-colored clear to sl. hazy liq.; sol. in polar and nonpolar solvs.; sol. in water at 0.24% by wt. and may be increased by adding alcohols, glycols, and butyl Cellosolve; sp.gr. 0.97 g/ml; b.p. > 200 F; acid no. 2.5 max.; flash pt. (PMCC) 120 F; pH 5-7 (1% in 75:25/IPA-DW); 69-71% conc.; anionic

*Toxicology:* LD50 (oral, mouse) 1 g/kg; eye and skin irritant upon prolonged exposure; irritant when inh. at high conc., causing headache, coughing, and nausea; ing. may cause nausea, vomiting, and abdominal pain; TSCA listed

*Precaution:* DOT: combustible liq.; incompat. with strong oxidizers and cationic materials

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SO<sub>x</sub>

HMIS: Health 2; Flammability 2; Reactivity 0

*Storage:* Keep containers closed

**DeWET SMA-80** [DeForest Enterprises]

*Chem. Descrip.:* Dihexyl sodium sulfosuccinate

CAS 3006-15-3; EINECS/ELINCS 221-109-1

*Uses:* Emulsion or suspending agent for pesticidal sprays; solubilizer for other surfactants; rinse aid for mech. dishwashing; emulsifier in latex paints; wetting agent in electroplating baths; in emulsion or suspension polymerization; glass cleaner formulations; pigment dispersants; food pkg. adhesives,

paper; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 177.1210, 178.3400

*Properties:* Nearly colorless clear liq.; sol. in water, glycols, and alcohols; insol. or disp. in oils and most solvs.; sp.gr. 1.1 g/ml; vapor pressure 17.5 mm Hg; b.p. 212 F; acid no. 2.5 max.; flash pt. 140-155 F; pH 5-7 (5% in DW); 80% conc.; anionic

*Toxicology:* Eye irritant in liq. and vapor form; may irritate skin; inh. may cause irritation of respiratory tract; ing. can cause gastrointestinal irritation, nausea, vomiting, diarrhea; TSCA listed

*Precaution:* DOT: combustible liq.; incompat. with strong oxidizers

HMIS: Health 2; Flammability 2; Reactivity 0

**DF-40** [Sam Shin]

*Uses:* Fluorescence quenching agent for nonbrightened paper stock, wastewater; cleaner for paper machines

*Properties:* Brn. liq.; readily misc. with water; sp.gr. 1.07; visc. < 50 cps; pH 5-6; ≈ 27% solids; cationic

*Storage:* 6 mos shelf life

**DiaFil® 110** [CR Mins.]

*Chem. Descrip.:* Amorphous diatomite

*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)

CAS 61790-53-2

*Uses:* Functional filler for asphalt compositions and roof coatings; antiblock agent in plastic film; filler in plastics, molding compds., agric., paints, cement, paper, caulks, adhesives, sealants, encapsulants, food applics.; catalyst carrier/support; inert mild abrasive in polishes/cleaners; contributes visc. control, reduced settling, reduced VOC requirement

*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1

*Properties:* Sl. off-wh. fine powd.; odorless; 15 μ median particle size; sp.gr. 2.2; dens. 19-22 lb/ft<sup>3</sup> (wet); surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; pH 7.5-8.5

**DiaFil® 190** [CR Mins.]

*Chem. Descrip.:* Amorphous diatomite

*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)

CAS 61790-53-2

*Uses:* Functional filler for asphalt compositions and roof coatings; antiblock agent in plastic film; filler in plastics, molding compds., agric., paints, cement, paper, caulks, adhesives, sealants, encapsulants; catalyst carrier/support; inert mild abrasive in polishes/cleaners; contributes visc. control, reduced settling, reduced VOC requirement

*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1

*Properties:* Sl. off-wh. fine powd.; odorless; 6 μ median particle size; sp.gr. 2.2; dens. 19-22 lb/ft<sup>3</sup> (wet); surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; pH 7.5-8.5

**DiaFil® 210** [CR Mins.]

*Chem. Descrip.:* Amorphous diatomite

CAS 61790-53-2

*Uses:* Extender in friction papers; high brightness; improved sheet formation, drainage, resin distrib., and heat dissipation; < 0.1% respirable cryst. silica

*Properties:* Sl. off-wh. fine powd.; odorless; 10 μ median particle size; < 7% +325 mesh; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; brightness 82; pH 8

*Toxicology:* Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.

*Precaution:* Reacts with hydrofluoric acid

HMIS: Health 0; Flammability 0; Reactivity 0

**DiaFil® 215** [CR Mins.]

*Chem. Descrip.:* Amorphous diatomite

CAS 61790-53-2

*Uses:* Extender in friction papers; high brightness; improved sheet formation, drainage, resin distrib., and heat dissipation; < 0.1% respirable cryst. silica

*Properties:* Sl. off-wh. fine powd.; odorless; 14 μ median particle size; < 18% +325 mesh; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; brightness 82; pH 8

*Toxicology:* Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.

- Precaution:* Reacts with hydrofluoric acid  
HMIS: Health 0; Flammability 0; Reactivity 0
- DiaFil® 230** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
CAS 61790-53-2  
*Uses:* Extender in friction papers; high brightness; improved sheet formation, drainage, resin distrib., and heat dissipation; < 0.1% respirable cryst. silica  
*Properties:* Sl. off-wh. fine powd.; odorless; 11 µ median particle size; < 2% +325 mesh; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; brightness 82; pH 8  
*Toxicology:* Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.  
*Precaution:* Reacts with hydrofluoric acid  
HMIS: Health 0; Flammability 0; Reactivity 0
- DiaFil® 270** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
CAS 61790-53-2  
*Uses:* Extender in friction papers; high brightness; improved sheet formation, drainage, resin distrib., and heat dissipation; < 0.1% respirable cryst. silica  
*Properties:* Sl. off-wh. fine powd.; odorless; 9 µ median particle size; < 0.5% +325 mesh; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; brightness 82; pH 8  
*Toxicology:* Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.  
*Precaution:* Reacts with hydrofluoric acid  
HMIS: Health 0; Flammability 0; Reactivity 0
- DiaFil® 290** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
CAS 61790-53-2  
*Uses:* Extender in friction papers; high brightness; improved sheet formation, drainage, resin distrib., and heat dissipation; < 0.1% respirable cryst. silica  
*Properties:* Sl. off-wh. fine powd.; odorless; 4 µ median particle size; < 0.04% +325 mesh; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; brightness 82; pH 8  
*Toxicology:* Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.  
*Precaution:* Reacts with hydrofluoric acid  
HMIS: Health 0; Flammability 0; Reactivity 0
- DiaFil® 295** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
CAS 61790-53-2  
*Uses:* Extender in friction papers; high brightness; improved sheet formation, drainage, resin distrib., and heat dissipation; < 0.1% respirable cryst. silica  
*Properties:* Sl. off-wh. fine powd.; odorless; 12 µ median particle size; < 2% +325 mesh; sol. in HF; negligible sol. in water; sp.gr. 2.2; water absorp. 150%; brightness 82; pH 8  
*Toxicology:* Exposure to dust may cause irritation of upper respiratory tract and lungs, coughing, wheezing, shortness of breath, tightness in chest; inh. may cause lung damage; may aggravate pre-existing asthma, bronchitis, emphysema, etc.  
*Precaution:* Reacts with hydrofluoric acid  
HMIS: Health 0; Flammability 0; Reactivity 0
- DiaFil® 520** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)  
CAS 61790-53-2  
*Uses:* Filler, flattening agent which controls gloss, sheen, rheology, and surf. texture in paints and coatings; enhances intercoat adhesion; antiblock agent in plastic film; filler in molding compds.; catalyst carrier/support; inert mild abrasive in toothpastes, polishes/cleaners; filler for agric., asphalt, roof coatings, cement, paper, caulks, adhesives, sealants, encapsulants  
*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1  
*Properties:* Sl. off-wh. fine powd.; odorless; 16 µ median particle size; fineness (Hegman) 0; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; ref. index 1.43; pH

- 7.5-8.5
- DiaFil® 525** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)  
CAS 61790-53-2  
*Uses:* Filler, flattening agent which controls gloss, sheen, rheology, and surf. texture in paints and coatings; enhances intercoat adhesion; antiblock agent in plastic film; filler in molding compds.; catalyst carrier/support; inert mild abrasive in toothpastes, polishes/cleaners; filler for agric., asphalt, roof coatings, cement, paper, caulks, adhesives, sealants, encapsulants  
*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1  
*Properties:* Sl. off-wh. fine powd.; odorless; 16 µ median particle size; fineness (Hegman) 1-2; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5
- DiaFil® 530** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)  
CAS 61790-53-2  
*Uses:* Filler, flattening agent which controls gloss, sheen, rheology, and surf. texture in paints and coatings; enhances intercoat adhesion; antiblock agent in plastic film; filler in molding compds.; catalyst carrier/support; inert mild abrasive in toothpastes, polishes/cleaners; filler for agric., asphalt, roof coatings, cement, paper, caulks, adhesives, sealants, encapsulants  
*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1  
*Properties:* Sl. off-wh. fine powd.; odorless; 12 µ median particle size; fineness (Hegman) 2-3; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5
- DiaFil® 570** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)  
CAS 61790-53-2  
*Uses:* Filler, flattening agent which controls gloss, sheen, rheology, and surf. texture in paints and coatings; enhances intercoat adhesion; antiblock agent in plastic film; filler in molding compds.; catalyst carrier/support; inert mild abrasive in toothpastes, polishes/cleaners; filler for agric., asphalt, roof coatings, cement, paper, caulks, adhesives, sealants, encapsulants  
*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1  
*Properties:* Sl. off-wh. fine powd.; odorless; 9 µ median particle size; fineness (Hegman) 4-4.5; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5
- DiaFil® 590** [CR Mins.]  
*Chem. Descrip.:* Amorphous diatomite  
*Chem. Analysis:* SiO<sub>2</sub> (93%), Al<sub>2</sub>O<sub>3</sub> (3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%), CaO (1.1%), cryst. silica (< 1%)  
CAS 61790-53-2  
*Uses:* Filler, flattening agent which controls gloss, sheen, rheology, and surf. texture in paints and coatings; enhances intercoat adhesion; antiblock agent in plastic film; filler in molding compds.; catalyst carrier/support; inert mild abrasive in toothpastes, polishes/cleaners; filler for agric., asphalt, roof coatings, cement, paper, caulks, adhesives, sealants, encapsulants  
*Regulatory:* FDA GRAS; FCC compliance; EPA reg. no. 59910-1  
*Properties:* Sl. off-wh. fine powd.; odorless; 6 µ median particle size; fineness (Hegman) 5.5-6.0; sp.gr. 2.2; dens. 18.28 lb/solid gal; bulking value 0.055 gal/lb; surf. area 26-28 m<sup>2</sup>/g; oil absorp. 112-116; ref. index 1.43; pH 7.5-8.5
- Diaq 60** [Vinings Ind.]  
*Chem. Descrip.:* Anthraquinone disp.  
CAS 84-65-1; EINECS/ELINCS 201-549-0  
*Uses:* Digester additive for improving pulp yield and reducing alkali consumption
- Digitex™** [Engelhard]  
*Chem. Descrip.:* Kaolin-based  
*Uses:* Pigment for color inkjet printing applics. (paper market)
- Dilurit 189 E** [BK Giulini Chemie]  
*Chem. Descrip.:* Org. bromine compd.  
*Uses:* Slicicide for paper and chem. pulp production, food-contact paper;

biocide for treatment of water systems in papermaking  
*Use Level:* 50-100 g/ton bone dry stock (shock dose)  
*Regulatory:* FDA 21CFR §176.300; BgVV compliant  
*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 1.25  
*Storage:* 6 mos. shelf life @ < 40 C; avoid direct sunlight

**Dilurit 464 C** [BK Giulini Chemie]

*Chem. Descrip.:* Org. sulfur-nitrogen compd.  
*Uses:* Preservative for antimicrobial finishing of paper/paperboard, food-contact paper/paperboard; BfVV compliant  
*Use Level:* 0.4-0.5% (packaging papers, labels, and soap boxes); 0.2-1.0% (hospital bed pads from wastepaper); 0.1-0.3% (craped cellulose towels); 10-50 ppm (for odor control)  
*Properties:* Wh. fluid paste; disp. in water; sp.gr. 1.23; pH 7  
*Storage:* Keep cool and dry

**Dilurit 850** [BK Giulini Chemie]

*Chem. Descrip.:* Isothiazolinones  
*Uses:* Slimicide and preservative for paper and chem. pulp production, food-contact paper  
*Use Level:* 100-200 g/ton bone dry stock (shock dose)  
*Regulatory:* FDA 21CFR §176.300; BgVV compliant  
*Properties:* Ylsh. liq.; misc. with water; sp.gr. 1.14; pH 3.5 (20 C)  
*Storage:* Store @ R.T. in closed containers

**Dilurit 853 T** [BK Giulini Chemie]

*Chem. Descrip.:* Isothiazolinone and fatty alcohol polyglycol ether  
*Uses:* Slimicide and dispersant for paper and chem. pulp production  
*Use Level:* 100-200 g/ton bone dry stock (shock dose)  
*Regulatory:* BfVV compliant  
*Properties:* Ylsh. liq.; misc. with water; sp.gr. 1.13; pH 4.4 (20 C)  
*Storage:* Keep containers closed in cool, ventilated place

**Dilurit 876** [BK Giulini Chemie]

*Chem. Descrip.:* Isothiazolinone  
*Uses:* Fungistat for treatment of paper  
*Use Level:* 0.2-0.5 g/m<sup>2</sup> paper or cardboard  
*Properties:* Lt. yel. liq.; misc. with water; sp.gr. 1.04; pH 3.7 (20 C)  
*Storage:* Keep containers closed in cool, ventilated place

**Dilurit 946** [BK Giulini Chemie]

*Chem. Descrip.:* Aldehydic carbohydrates  
*Uses:* Slimicide and preservative for paper and chem. pulp production  
*Use Level:* 100-200 g/ton bone dry stock (shock dose)  
*Regulatory:* FDA 221CFR §176.110; BgVV compliant  
*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 1.12; pH 3.8 (20 C)  
*Storage:* Store in closed containers @ < 40 C

**Dilurit 953** [BK Giulini Chemie]

*Chem. Descrip.:* Org. sulfur nitrogen compd.  
*Uses:* Slimicide for paper and chem. pulp production, food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.300; BgVV compliant as slimicide  
*Properties:* Orange to yel. liq.; misc. with water; sp.gr. 1.05; pH 5 (20 C)  
*Storage:* Store cool in closed containers in ventilated area

**Dilurit 974** [BK Giulini Chemie]

*Chem. Descrip.:* Quaternary ammonium compds.  
*Uses:* Slimicide and preservative for paper and chem. pulp production; effective against bacteria, fungi, and algae  
*Use Level:* 50-200 g/ton bone dry stock (shock dose); 100-500 ppm (preservative)  
*Regulatory:* BgVV compliant for slime control  
*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 0.96; pH 6.5 (1%; 20 C)  
*Storage:* Store in closed containers in ventilated area

**Disfoam BF-75** [NOF]

*Chem. Descrip.:* Polyalkylene glycol  
*Uses:* Effective in foaming of water washing step after digestion of pulp and in step prior to sheet machine; easy dispersion; no thermal aggregation to polyester dyes and good dyeing prop.

**Disfoam C Series** [NOF]

*Chem. Descrip.:* Polyalkylene glycol derivs.  
*Uses:* Defoamer for fermentation field, pulp, synthetics, etc.  
*Properties:* Liq.

**Dispel®** [Vinings Ind.]

*Uses:* Scale inhibitor for papermaking

**Dispercel-A** [Runnymede Dispersions Ltd; Kane Int'l.]

*Chem. Descrip.:* Nitrocellulose prep., phthalate plasticized

CAS 9004-70-0; EINECS/ELINCS 239-069-9

*Uses:* Pigmented chip disp. used in mfg. of flexographic and gravure printing inks for paper, polymer films, foil, and board; used in combination with maleic, polyamide, or acrylic resins; exc. scratch and rub resist.

*Properties:* Sol. in alcohol

**Dispercel-AS** [Runnymede Dispersions Ltd; Kane Int'l.]

*Chem. Descrip.:* Nitrocellulose prep., nonphthalate plasticized  
 CAS 9004-70-0; EINECS/ELINCS 239-069-9

*Uses:* Pigmented chip disp. used in mfg. of flexographic and gravure printing inks for paper, polymer films, foil, and board; used in combination with maleic, polyamide, or acrylic resins; exc. scratch and rub resist.

*Properties:* Sol. in alcohol

**Dispersant 1084** [Huntsman]

*Chem. Descrip.:* Proprietary blend

*Uses:* Pitch dispersant for pulp/paper industry; prevents deposition; effective as continuous hardwood digester additive; rapid spreading

*Properties:* Liq.; disp. in water

**Dispersant 3000E** [Huntsman]

*Uses:* Pitch dispersant for pulp/paper industry; formulated for spreadability in lower temp. brownstock and screen room applics.

*Properties:* Liq.; nonionic

**Dispersant LF-88** [Huntsman]

*Uses:* Pulp machine pitch dispersant; low foaming

*Properties:* Liq.; nonionic

**Dispersant LF-89** [Huntsman]

*Uses:* Screen room pitch dispersant for pulp/paper industry; low foaming

*Properties:* Liq.; nonionic

**Dispex®** [Ciba Spec. Chems./Paper]

*Chem. Descrip.:* Polymeric

*Uses:* Pigment dispersant for paper coatings

**Disponil® AAP 43** [Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Alkylpolyglycoether aq. sol'n.

*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved

*Properties:* Colorless liq.; little intrinsic odor; unlimited sol. in water; sp.gr. 1.1 (20 C); HLB 17.9; flash pt. > 100 C; pH 6-7; 69-71% act.

*Environmental:* LC50 (zebra fish) 1-10 mg/l

*Hazardous Decomp. Prods.:* None

*Storage:* Store tightly closed in frost-free place

**Disponil® AAP 307** [Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Octyl phenol ethoxylate

CAS 9002-93-1; EINECS/ELINCS 232-658-1

*Uses:* Coemulsifier for polyacrylates, acrylate-vinyl acetate copolymers, other applics.; costabilizer to inc. mech. or salt stability of polymer disp.; dispersant for emulsion paints; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400, BGA approved

*Properties:* Liq.; HLB 17.3; 70% act.; nonionic

**Disponil® AAP 436** [Cognis/Chems. Group; Cognis/Coatings & Inks; Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Octyl phenol ethoxylate (40 EO)

CAS 9002-93-1

*Uses:* Coemulsifier for polyacrylates, acrylate vinyl acetate copolymers; costabilizer to inc. mech. or salt stability of polymer disp.; dispersant for emulsion paints; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400, BGA approved

*Properties:* Colorless liq.; little intrinsic odor; unlimited sol. in water; sp.gr. 1.1; HLB 17.9; flash pt. > 100 C; pH 6-7; 60% act.; nonionic

*Environmental:* LC50 (zebra fish) 1-10 mg/l

*Hazardous Decomp. Prods.:* None

*Storage:* Store tightly closed in frost-free place

**Disponil® AES 21 IS** [Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Sodium alkylphenol ether sulfate aq. sol'n.; contains preservatives

*Uses:* Emulsifier for vinyl acetate homo and copolymers, acrylate homo and copolymers, styrene-acrylate, S/B latexes, vinyl propionate copolymers, PVdC, vinyl chloride homo and copolymer latexes; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180, BGA approved

- Properties:* Yellowish liq.; odorless; unlimited sol. in water; sp.gr. 1.06; pH 7-8.5 (100 g/l water); 30-35% solids; anionic  
*Toxicology:* Eye irritant  
*Environmental:* LC50 (fish) > 100 mg/l; EC50 (bacteria) > 100 mg/l; poorly biodeg.  
*Hazardous Decomp. Prods.:* None  
*Storage:* Store in cool, frost-free place
- Disponil® AES 60 IS** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium alkylphenol ether sulfate aq. sol'n., preserved grade  
*Uses:* Emulsifier for vinyl acetate homo and copolymers, acrylate homo and copolymers, styrene-acrylate, S/B latexes, vinyl propionate copolymers, PVdC, vinyl chloride homo and copolymer latexes; food pkg. adhesives, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.180, BGA approved; SARA §311/312 reportable  
*Properties:* Colorless to lt. yel. liq.; odorless; sol. 400 g/l in water; sp.gr. 1.075; dens. 8.95 lb/gal; vapor pressure 15 mbar (20 C); flash pt. (PMCC) > 93 C; pH 7.5 (10%); 34-36% solids; 73% volatiles; anionic  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; may cause skin and eye irritation; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>  
 NFPA: Health 1; Flammability 1; Reactivity 0  
*Storage:* May congeal or stratify if cold; warm to R.T., mix well
- Disponil® AES 72 IS** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium alkylphenol ether sulfate aq. sol'n., preserved grade  
*Uses:* Low foaming emulsifier for vinyl acetate homo and copolymers, acrylate homo and copolymers, styrene-acrylate, S/B latexes, vinyl propionate copolymers, PVdC, vinyl chloride homo and copolymer latexes; food pkg. adhesives, paper/paperboard  
*Use Level:* 1-5%  
*Regulatory:* FDA 21CFR §175.105, 176.180, BGA approved  
*Properties:* Lt. yel. liq.; little intrinsic odor; misc. with water; sp.gr. 1.07; pour pt. < 8 C; pH 8; 32.5-34.5% act.; anionic  
*Toxicology:* Eye irritant  
*Environmental:* Nontoxic to fish  
*Hazardous Decomp. Prods.:* None  
*Storage:* 2 yr shelf life stored in tightly closed containers in frost-free place
- Disponil® MGS 65 IS** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Surfactant blend, preserved grade  
*Uses:* Emulsifier for vinyl acetate homopolymers, vinyl acetate-dibutyl maleate copolymers, esp. suitable for highly filled PVAc and PC emulsions; food pkg. adhesives, paper/paperboard  
*Use Level:* 2-6%  
*Regulatory:* FDA 21CFR §175.105, 176.180, BGA approved  
*Properties:* Colorless to sl. yel. clear liq.; odorless; misc. with water; sp.gr. 1.1; pH 7-8.5 (10%); 42.5-45.5% act. in water; anionic/nonionic  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; low toxicity; eye irritant  
*Environmental:* LC50 (zebra fish) 1-10 mg/l  
*Hazardous Decomp. Prods.:* None  
*Storage:* 1 yr shelf life @ R.T. in closed containers; protect from frost
- Disponil® NP 4** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved  
*Properties:* HLB 8.8; 99-100% act.; nonionic
- Disponil® NP 6** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved  
*Properties:* HLB 10.9; 99-100% act.; nonionic
- Disponil® NP 10** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved  
*Properties:* HLB 13.3; 99-100% act.; nonionic
- Disponil® NP 11** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved  
*Properties:* HLB 13.8; 99-100% act.; nonionic
- Disponil® NP 12** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved  
*Properties:* HLB 14.3; 99-100% act.; nonionic
- Disponil® NP 20** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.180; BGA approved  
*Properties:* HLB 16.0; 99-100% act.; nonionic
- Disponil® NP 208** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonyl phenol ethoxylate (20 EO)  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved; SARA §311/312 reportable  
*Properties:* Colorless liq.; little intrinsic odor; sol. in water; sp.gr. 1.05; dens. 8.7 lb/gal; visc. 500 mPa·s; HLB 16.0; flash pt. (PMCC) > 93 C; pH 7 (1%); 79-81% act. in water; nonionic  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; can cause skin, eye, and respiratory irritation  
*Environmental:* LC50 (fish) > 100 mg/l; EC50 (bacteria) > 100 mg/l  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* Protect from frost
- Disponil® NP 307** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Nonylphenol polyglycoether, aq. sol'n.  
 CAS 9016-45-9  
*Uses:* Surfactant; costabilizer to inc. mech. or salt stability of polymer disp.; emulsifier for mfg. of o/w emulsions; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved  
*Properties:* HLB 17.2; 69-71% act.; nonionic
- Disponil® O 250** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Cetoeth-25  
 CAS 8065-81-4  
*Uses:* Emulsifier for emulsion polymerization, o/w emulsions; costabilizer to inc. mech. and salt stability of polymer disp.; solubilizer; dispersant; latex stabilizer; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.180  
*Properties:* Flakes; HLB 16.5; 100% act.; nonionic
- Disponil® SUS IC 865** [Cognis; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium di-2-ethyl hexyl sulfosuccinate (65%), ethanol (18%), water (17%)  
 UN No. 1170  
*Uses:* Wetting agent in aq. coatings, printing inks, related systems; wetting agent for difficult-to-wet substrates, e.g., plastics, metal surfs., cellulose film, aluminum/plastic foils, silicone-treated papers or glass; emulsifier for emulsion polymerization of pract. all types of monomers, mfg. of food-contact articles; food pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in cellophane for food pkg.  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.1200, 178.3400; DOT regulated; SARA §311/323 reportable

*Properties:* Yel. clear low-visc. liq.; alcohol odor; sl. water-sol.; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 100 cps; flash pt. (PMCC) 45 C; pH 6.5; 65% solids; 35% volatiles; anionic

*Toxicology:* Harmful if swallowed or inhaled; causes skin, eye, and respiratory irritation; possible CNS depressant; TSCA listed

*Precaution:* Flamm.; avoid open flames and strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>, NO<sub>x</sub>

NFPA: Health 2; Flammability 2; Reactivity 0

*Storage:* 2 yrs shelf life in original sealed containers; store @ > 10 C in warm, dry place; protect from freezing; mix well before using

**Disponil® SUS IC 875** [Cognis; Cognis KGaA/Coatings; Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Sodium di-2-ethylhexyl sulfosuccinate (75%), ethanol (3-6%), water (19-22%)

UN No. 1170

*Uses:* Wetting agent in aq. coatings, printing inks; suitable for difficult-to-wet substrates such as plastics and metal surfaces, cellulose film, aluminum and plastic foils, silicone-treated papers or glass; emulsifier for emulsion polymerization; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; med. tendency to foam; ideal surf. act. agent due to low critical micelle conc. and strong reduction in surf. tens. of aq. sol'n.s., even when using low concs.

*Use Level:* 0.1-1.0% (on finished coating)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.1200, 178.3400; BGA approved; DOT regulated; SARA §311/312 reportable

*Properties:* Yel. clear low-visc. liq.; sl. odor; sol. 15-18 g/l in water; sp.gr. 1.05; dens. 8.7 lb/gal; visc. 350 mPa·s; flash pt. (PMCC) 45 C; pH 6-7 (1.5%); 75% act.; anionic

*Toxicology:* Harmful if inhaled or swallowed; causes skin, eye, and respiratory tract irritation; possible CNS depressant; TSCA listed

*Precaution:* Flamm.; avoid sources of ignition, strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 2; Flammability 2; Reactivity 0

*Storage:* 2 yr shelf life in original containers @ R.T.; protect from heat and frost

**DK-100 Nonsilicone Defoamer** [Genesee Polymers]

*Chem. Descrip.:* Aliphatic hydrocarbon

*Uses:* Defoamer for aq. systems, paints, coatings, paper/paperboard, metal-working lubricants, wastewater treatment, cleaner formulations, textiles, food-contact coatings

*Regulatory:* FDA 21CFR §176.200; SARA nonreportable

*Properties:* Tan liq., petrol. odor; disp. in water; sp.gr. 0.85; dens. 7.0 lb/gal; b.p. 480 F; flash pt. (COC) 265 F; 0.2% moisture

*Toxicology:* Mod. hazardous by inh.; vapors may cause respiratory tract irritation; high concs. may cause CNS depression; mod. irritating to eyes and skin; sl. toxic by ingestion; may cause GI upset; TSCA listed

*Precaution:* Incompat. with strong acids or bases, oxidizing agents, selected amines

*Hazardous Decomp. Prods.:* Hydrocarbon decomp. prods.

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Keep container closed; store in well-ventilated area; do not store over 100 F; mix before use

**DK-230 Nonsilicone Defoamer** [Genesee Polymers]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for aq. systems, paints, coatings, paper/paperboard, metal-working lubricants, cutting oils, coolants, adhesives, water treatment, food-contact coatings; rec. where air entrapment is a problem; alkaline resistant

*Regulatory:* FDA 21CFR §176.200; SARA nonreportable

*Properties:* Straw-colored liq., mild solv. odor; disp. in water; sp.gr. 0.82; dens. 7.0 lb/gal; b.p. 350 F; flash pt. (PMCC) 158 F; 100% act.

*Toxicology:* Prolonged/repeated inh. exposure can cause adverse kidney effects; severe eye irritant; prolonged/repeated contact may cause skin irritation; low acute oral and dermal toxicity, but minute amts. in lungs may cause mild-severe pulmonary injury; TSCA listed

*Precaution:* Flamm. liq.; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Hydrocarbon decomp. prods.

HMS: Health 2; Flammability 2; Reactivity 0

*Storage:* Keep container closed; store in well-ventilated area; do not store above 100 F; mix before use

**DM-1735-D** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Brownstock defoamer effective on hardwood and softwood; reduces potential for pitch deposits; amide-free; fast spreading and exc. drainage

**DM-2146** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Proprietary blend of active ingreds. in a water-based formulation

*Uses:* Defoamer, drainage aid for paper machine operations; rec. where high temps. are not present

**DM-2184** [Hi-Mar Spec.; Thornley]

*Uses:* Brownstock defoamer effective on hardwood and softwood; esp. suited for defoaming in dirty screen room operations; fast spreading

**DM-25100-C** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Blend of nonyl phenol-free surfactants and detergent builders

*Uses:* Textile brightener; for deinking in tissue applics.; low foaming

**Donlar C-20C** [Donlar]

*Chem. Descrip.:* Polyaspartic acid homopolymer, sodium salt

*Uses:* Antiscalant in hard water environ.; inorg. scale remover; dispersant for min. slurries; controls redeposition of soil in laundry and hard surf. cleaners; used for textile sizing in paper industry

*Properties:* Amber liq.; water-sol.; m.w. 20,000; sp.gr. 1.26-1.28; visc. 180-230 cps; pH 8-9.5; 39-41% solids

*Toxicology:* Nontoxic

*Environmental:* Biodeg.

**Donlar C-30D** [Donlar]

*Chem. Descrip.:* Polyaspartic acid homopolymer, sodium salt

*Uses:* Antiscalant in hard water environ.; inorg. scale remover; dispersant for min. slurries; controls redeposition of soil in laundry and hard surf. cleaners; used for textile sizing in paper industry

*Properties:* Amber liq.; water-sol.; m.w. 30,000; sp.gr. 1.26-1.28; visc. 250-325 cps; pH 8-9.5; 39-41% solids

*Toxicology:* Nontoxic

*Environmental:* Biodeg.

**Donlar C-50D** [Donlar]

*Chem. Descrip.:* Polyaspartic acid homopolymer, sodium salt

*Uses:* Used for textile sizing in paper industry

*Properties:* Amber liq.; water-sol.; m.w. 50,000; sp.gr. 1.26-1.28; visc. 450-550 cps; pH 8-9.5; 39-41% solids

*Toxicology:* Nontoxic

*Environmental:* Biodeg.

**Douglas® Starches** [Penford Prods.]

*Chem. Descrip.:* Corn starch, lightly oxidized

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Paper additive improving surf. props.; high shear cooked starch; used at the size press in low to mod. solids; strong films; stable visc.

**Doversperse 3** [Dover]

*Chem. Descrip.:* Aq. emulsion of Paroil 170HV (chlorinated flame retardant)

*Uses:* Flame retardant, plasticizer, tackifier for water-based coatings and adhesives, rubber coatings, inks, carpetbackings, paper and fabric coatings; improves adhesion; imparts chem. and water resist.

*Properties:* Cream wh. liq.; sp.gr. 1.54; dens. 11.3 lb/gal; visc. 150-300 poise; pH 7; 66.5% solids, 45% Cl

**Doversperse A-1** [Dover]

*Chem. Descrip.:* Aq. disp. of Chlorez 700

*Uses:* Flame retardant, plasticizer, tackifier for water-based coatings and adhesives, rubber coatings, inks, carpetbackings, paper and fabric coatings; improves adhesion; imparts chem. and water resist.; rec. where increased hardness is required

*Properties:* Cream wh. liq.; sp.gr. 1.60; dens. 11 lb/gal; visc. 48 poise; pH 7.5; 65% solids, 45% Cl; nonionic

**Dow EP530** [Dow]

*Chem. Descrip.:* Poloxamer-181

CAS 53637-25-5

*Uses:* Provides solvency, low odor, low irritation, and low toxicity to personal care prods. and cosmetics; defoamer in scald baths for poultry defeathering and hog dehairing machines; defoamer for food-grade papers and coatings and sanitizing sol'n.s. for food processing equip.

*Regulatory:* 21CFR §172.808, 176.200, 176.210, 178.1010

*Properties:* Liq.; m.w. 2000; sp.gr. 1.017; dens. 8.46 lb/gal; visc. 321 cSt; pour pt. -32 C; flash pt. (PMCC) > 420 F; ref. index 1.452; surf. tens. 42.6 dynes/cm (100 ppm); nonionic

**Dow P1000TB** [Dow]

*Chem. Descrip.:* PPG-17

CAS 25322-69-4



- Uses:* Provides solvency, low odor, low irritation, and low toxicity to personal care prods. and cosmetics; defoamer for food-grade coatings and paper prods.
- Regulatory:* 21CFR §176.200, 176.210
- Properties:* Liq.; m.w. 1000; sp.gr. 1.005; dens. 8.38 lb/gal; visc. 162 cSt; pour pt. -25 C; flash pt. (PMCC) > 360 F; ref. index 1.448; surf. tens. 40.7 dynes/cm (100 ppm); sp. heat 0.461 cal/g/°C; nonionic
- Dow P1200** [Dow]
- Chem. Descrip.:* PPG-20  
CAS 25322-69-4
- Uses:* Provides solvency, low odor, low irritation, and low toxicity to personal care prods. and cosmetics; boiler water additive for prep. of steam that will contact food; defoamer for beet sugar and yeast processing; defoamer for food-grade coatings and paper prods.
- Regulatory:* 21CFR 173.310, 173.340(a)(3), 176.200, 176.210
- Properties:* Liq.; m.w. 1200; sp.gr. 1.007; dens. 8.38 lb/gal; visc. 175 cSt; pour pt. -40 C; flash pt. (PMCC) 345 F; ref. index 1.448; surf. tens. 43.3 dynes/cm (100 ppm); sp. heat 0.459 cal/g/°C; nonionic
- Dow P2000** [Dow]
- Chem. Descrip.:* PPG-26  
CAS 25322-69-4
- Uses:* Provides solvency, low odor, low irritation, and low toxicity to personal care prods. and cosmetics; boiler water additive for prep. of steam that will contact food; defoamer for beet sugar and yeast processing; defoamer for food-grade coatings and paper prods.
- Regulatory:* 21CFR 173.310, 173.340(a)(3), 176.200, 176.210
- Properties:* Liq.; sol. in ethanol, IPM, cyclomethicone, sunscreens, lactic acid; partly sol. in water, lt. min. oil; m.w. 2000; sp.gr. 1.002; dens. 8.34 lb/gal; visc. 300 cSt; pour pt. -30 C; flash pt. (PMCC) 390 F; ref. index 1.449; surf. tens. 39.6 dynes/cm (100 ppm); sp. heat 0.452 cal/g/°C; nonionic
- Dow P4000** [Dow]
- Chem. Descrip.:* PPG-30  
CAS 25322-69-4
- Uses:* Provides solvency, low odor, low irritation, and low toxicity to personal care prods. and cosmetics; boiler water additive for prep. of steam that will contact food; defoamer for food-grade paper coatings
- Regulatory:* 21CFR §173.310, 176.200
- Properties:* Liq.; m.w. 4000; sp.gr. 1.005; dens. 8.36 lb/gal; visc. 800 cSt; pour pt. -26 C; flash pt. (PMCC) 365 F; ref. index 1.450; surf. tens. 39.6 dynes/cm (100 ppm); nonionic
- Dow Corning® 26 Additive** [Dow Corning]
- Chem. Descrip.:* Silicone fluid
- Uses:* Leveling agent, wetting agent, anticratering agent, mar resist. agent in solv.-based coatings and inks; defoamer in food-contact paper/paperboard; reduces orange peel; also helps prevent pigment floating
- Use Level:* 0.01-0.1% on total formulation wt.
- Regulatory:* FDA 21CFR §175.105, 176.200, 176.210
- Properties:* Colorless clear, low-visc. liq.; sp.gr. 0.958; visc. 7 cSt; flash pt. (CC) 55 C; 100% solids
- Storage:* 12 mos shelf life under normal laboratory conditions in tightly sealed bottles
- Dow Corning® 163 Additive** [Dow Corning]
- Chem. Descrip.:* Silicone antifoam compd.
- Uses:* Defoamer in inks and coatings, solventless, solv., waterborne, and energy-curable systems, food-contact inks and coatings; defoamer in food-contact paper coatings, paper/paperboard; food pkg. adhesives
- Use Level:* 0.001% (FDA use); 0.05-0.5% (non-FDA use)
- Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210
- Properties:* Opaque low-visc. liq.; sp.gr. 0.984; visc. 1000 cSt; flash pt. (CC) 101 C; 100% act.
- Storage:* 18 mos shelf life under normal laboratory conditions in tightly sealed bottles
- Dow Corning® 1430 Emulsion** [Dow Corning]
- Chem. Descrip.:* Silicone aq. emulsion
- Uses:* Foam control agent for distillation, glycol scrubbing, detergents, oil refining, gas-oil separation, wastewater treatment, heating/cooling water treatment, adhesives, glues, coatings, latexes, metal cleaning/degreasing, metal etching, paper coatings, textile latex backing, sizing, and starching; effective above 49 C
- Use Level:* 150 ppm
- Properties:* Med. wh. cream; 30% act.; nonionic
- Storage:* 6 mos shelf life
- Dow Corning® Antifoam 1520-US** [Dow Corning]
- Chem. Descrip.:* Silicone emulsion
- Uses:* Foam control agent for food, fermentation, beverage mfg., meat/poultry/seafood processing, pharmaceuticals, resin mfg., wastewater treatment, heating/cooling water treatment, adhesives/coatings, metalworking, and textile industries; food-contact paper/paperboard; effective for hot and cold systems
- Use Level:* 10 ppm (foods)
- Regulatory:* FDA 21CFR §173.340, 176.170, 176.180, EPA 40CFR §180.1001, USDA, kosher approved
- Properties:* Milky-wh. thin cream; water-dilutable; sp.gr. 1.0; visc. 6000 cp; pH 4.0; 20% act.; nonionic
- Toxicology:* May cause temporary eye discomfort
- Storage:* 12 mo shelf life when store @ 20-40 C
- Dow Corning® Antifoam A Compd.** [Dow Corning]
- Chem. Descrip.:* Simethicone  
CAS 8050-81-5
- Uses:* Foam control agent for distillation, resin sizes, textile latex backing, paper, asphalt, lubricants, detergents, pesticides, edible oils, soaps, shampoos; also avail. in food grade
- Properties:* Med. off-wh. to gray liq.; 100% act.; nonionic
- Dow Corning® Antifoam C Emulsion** [Dow Corning]
- Chem. Descrip.:* Aq. simethicone emulsion  
CAS 8050-81-5
- Uses:* Foam control agent for food industry, paper coatings, pesticides, herbicides, fertilizers, industrial detergents, cosmetic cleansers; food grade
- Use Level:* 30 ppm
- Regulatory:* FDA, EPA, kosher, USDA approved
- Properties:* Med. wh. cream; water dilutable; 30% act.; nonionic
- Dow Corning® Antifoam FG-10** [Dow Corning]
- Chem. Descrip.:* Aq. silicone emulsion
- Uses:* Foam control agent for food industry, fermentation, high sugar-content processes, paper coatings, wastewater treatment, heating/cooling water treatment
- Use Level:* 100 ppm
- Regulatory:* FDA, EPA, USDA, kosher approved
- Properties:* Thin wh. cream; 10% act.; nonionic
- Dow Corning® Antifoam H-10** [Dow Corning]
- Chem. Descrip.:* Silicone emulsion
- Uses:* Foam control agent for distillation, glycol scrubbing, detergents, wastewater treatment, adhesives/coatings, resin and textile sizes, metalworking, and paper/printing industries
- Properties:* Thin wh. cream; 10% act.; nonionic
- Dow Corning® Antifoam Y-30** [Dow Corning]
- Chem. Descrip.:* Silicone emulsion
- Uses:* Foam control agent for paper/printing industry for resin sizes and inks, textiles, antifreeze, ceramic mfg., dyes
- Properties:* Med. wh. cream; 30% act.; nonionic
- Dowicide® A** [Dow]
- Chem. Descrip.:* Sodium o-phenylphenate  
CAS 132-27-4; EINECS/ELINCS 205-055-6
- Uses:* Antimicrobial for use in adhesives, ceramics, chem. toilets, construction, disinfectants, household prods. (cleaners, detergents, floor care, etc.), inks, metalworking fluids, paper coatings, and textile spinning; effective against bacteria and fungi; not readily deactivated by soil load, effective against wide range of disease-causing organisms
- Use Level:* 0.05-0.5%
- Properties:* Wh. flakes and fines or powd.; readily sol. in water; 97% act.; 3% inert
- Dowicil® 75** [Dow; Dow Europe]
- Chem. Descrip.:* 1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride (act. ingred.) and sodium bicarbonate (stabilizer)
- Uses:* Antimicrobial; preservative for aq. end prods. such as adhesives, latex emulsions, paints, metal-cutting fluids, drilling muds, biodeg. detergents, paper coatings, PU resins, agric., textile and construction materials, inks, starch, polishes, waxes; indirect food additive; food pkg. adhesives, paper/paperboard, PU resins
- Use Level:* 0.07-0.66% (adhesives), 0.07-0.30% (construction materials), 0.05-0.3% (latexes), 0.015-0.25% (metalworking fluids), up to 0.2% (agric. prods.), 0.0025-0.05% (petrol.), 0.04-0.13% (biodeg. surfactants), 0.13-0.27% (paper, textiles)
- Regulatory:* FDA 21 CFR §175.105, 176.170, 176.180, 177.1680

*Properties:* Off-wh. powd., 100% thru #5 US sieve; sol. (act. ingred. g/100 g) in water (222.0 g), anhyd. IPA (39.5 g), propylene glycol USP (20.6 g); m.w. 251.2; sp.gr. 1.54 g/cc; dens. 43 lb/ft<sup>3</sup>; b.p. dec. > 60 C; 67.5% act.  
*Toxicology:* LD50 (oral, rat) 1190 mg/kg, (dermal, rabbit) 2000 mg/kg; sl. eye and skin irritant

**Dowicil® 150** [Dow]

*Uses:* Antimicrobial for use in adhesives, cosmetics, aq. agric. prods., construction, household prods. (cleaners, detergents, floor care, etc.), inks, latexes, metalworking fluids, oil drilling fluids, paints, paper coatings, and textile spinning emulsions; particularly effective against *Pseudomonas*; not inactivated by nonionic, anionic, or cationic formulation ingred., for prod. formulations where prolonged skin contact occurs

*Regulatory:* EPA compliant

*Properties:* Wh. powd.; sol. in water; low sol. in oil; 94% act.; 6% inert

**DPG** [Monsanto]

*Chem. Descrip.:* Diphenylguanidine

CAS 102-06-7; EINECS/ELINCS 203-002-1

*Uses:* Sec. accelerator for rubber industry; in differential ore flotation of copper/nickel deposits, security paper, and thermal print paper developing

*Properties:* 2 mm pellets or dust-suppressed powd.

**Drainaid GL-73** [Huntsman]

*Uses:* Drainage aid for acidified pulp in paper industry

*Properties:* Liq.; 40% act.; nonionic

**Drainaid PM-85** [Huntsman]

*Uses:* Pulp machine drainage aid

*Properties:* Liq.; 40% act.; anionic

**Drakeol® 9** [Penreco]

*Chem. Descrip.:* Lt. mineral oil NF

CAS 8042-47-5; EINECS/ELINCS 232-384-2

*Uses:* Base material, carrier for cosmetics; emulsified lubricant for laxatives, topical ointments; pigment dispersant, lubricant for plastics; plasticizer for PS; textile and paper lubricant; divider oil, mold release lubricant for food industry; coating for fruits and vegetables; food pkg. materials

*Regulatory:* FDA 21CFR §172.878, 178.3620, 573.680; DOT and OSHA nonhazardous

*Properties:* Sp.gr. 0.838-0.854; dens. 7.03-7.16 lb/gal; visc. 14.2-17.0 cSt (40 C); pour pt. 09 C; flash pt. 179 C; ref. index 1.4665

*Toxicology:* TSCA listed

**Drakeol® 19** [Penreco]

*Chem. Descrip.:* Wh. mineral oil USP

CAS 8042-47-5; EINECS/ELINCS 232-384-2

*Uses:* Primary plasticizer for ethyl cellulose; lubricant for textile/paper; ingred. in cosmetics (creams, lotions, sunscreens), pharmaceuticals (laxatives, topical ointments), foods (lubes/greases, food pkg., divider oils), plastics (catalyst carriers)

*Regulatory:* FDA 21CFR §172.878, 178.3620, 573.680; DOT and OSHA nonhazardous

*Properties:* Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. 0.88 (60/60 F); dens. 7.14-7.31 lb/gal; visc. 34.9-37.3 cSt (40 C); vapor pressure < 1 mm Hg (70 F); b.p. 590 F; pour pt. -12 C; flash pt. 188 C; ref. index 1.4725

*Toxicology:* Relatively nontoxic by ingestion unless aspiration occurs; laxative props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

*Precaution:* Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

*Storage:* Store in closed containers away from heat, sparks, open flame, oxidizers

**Drakeol® 35** [Penreco]

*Chem. Descrip.:* Wh. mineral oil USP

CAS 8042-47-5; EINECS/ELINCS 232-384-2

*Uses:* Ingred. in laxatives, cosmetic creams, lotions, sunscreens, foods (bakery pan oils, lubes/greases, food pkg.); plasticizer/lubricant for PS, ethyl cellulose, PVC, annealing, catalyst carriers, thermoplastic rubber; water repellent for paper; adhesives, household cleaners and polishes

*Regulatory:* FDA 21CFR §172.878, 178.3620, 573.680; DOT and OSHA nonhazardous

*Properties:* Water-wh. transparent liq., odorless; sol. in hydrocarbons; sp.gr. 0.882 (60/60 F); dens. 7.25-7.35 lb/gal; visc. 65.8-71.0 cSt (40 C); vapor pressure < 1 mm Hg (70 F); i.b.p. 650 f; pour pt. -15 C; flash pt. 216 C; ref. index 1.4785

*Toxicology:* Relatively nontoxic by ingestion unless aspiration occurs; laxa-

tive props. may result in abdominal cramps, diarrhea; minimally irritating to eyes on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

*Precaution:* Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

*Storage:* Store in closed containers away from heat, sparks, open flame, oxidizers

**Drew™ 6123** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Aq. sol'n. of sulfur-based reducing agents

*Uses:* Dechlorinating agent for pulp mills; destroys chlorine and chlorine dioxide in air, water, and pulp streams at lower cost than caustic soda or wh. liquor

*Properties:* PH near neutral

**Drew™ KPA 300** [Ashland/Drew Ind. Div.]

*Uses:* Pulping aid for paper incl. kraft, brown, bleached; inc. prod. rate and yield, improves washing, reduces alkali charge and recovery loading

**Drewchlor®** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Sodium chlorite sol'n.

CAS 7758-19-2; EINECS/ELINCS 231-836-6

*Uses:* Algicide and precursor for generation of chlorine dioxide for treating industrial recirculating cooling water systems incl. cooling towers, air washers, evaporator condensers, potable water disinfection and removal of sulfide; biocontrol in food processing flumes, recycled waters; disinfection of sewage and plant wastes; destruction of phenolics, simple cyanides and sulfides; bacterial slime control in paper mills; bacterial control in oil well and petrol. systems

*Properties:* Sl. yel. clear liq.; dens. 10.4lb/gal; f.p. -22 C; cryst. pt. -7 C; pH > 11

*Storage:* Avoid extreme heat and freezing

**Drewfax® 0007** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Sodium dioctyl sulfosuccinate

CAS 577-11-7; EINECS/ELINCS 209-406-4

*Uses:* Wetting agent, penetrant, surf. tens. reducer, dispersant for industrial coatings, adhesives, inks, pigments, textiles, cosmetics, paper, metal, paints, rubber, plastics, petrol. and agric. industries; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §178.3400

*Properties:* Colorless clear visc. liq.; sol. 6.8 g/100g water (30 C); sp.gr. 1.08; dens. 9.0 lb/gal; visc. 400 cps; pH 5-6 (1%); 75% solids; anionic

**Drewfax® 342** [Ashland/Drew Ind. Div.]

*Uses:* Deposit control agent, antiscalant for kraft digesters; inc. operating time between digester shutdown for scale removal; improves liquor circulation and pulp uniformity; reduces digester corrosion (due to acid cleaning)

**Drewfloc® 2270** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* High m.w. emulsion polymer

*Uses:* Flocculant and coagulant for dewatering industrial slurries, water clarification, and sludge conditioning, for enhancement of phosphorus and heavy metals removal, min. beneficiation, paper mill/air scrubber water clarification, inorg. sludge filtration, food processing industry, nonpotable water clarification, oily waste treatment

*Use Level:* 0.2-5.0 ppm (flocculant, coagulant), 1-20 lb/ton dry solids (sludge conditioning)

*Properties:* Pale gray opaque liq.; sp.gr. 1.00 ± 0.02; visc. 500-2500 cps; f.p. -18 C; flash pt. (CC) > 200 F; anionic

*Precaution:* Polymer spills are very slippery

*Storage:* Store @ 40-95 F; avoid freezing and direct sunlight; 6 mos max. storage life

**Drewplus® L-108** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oils, emulsifiers, silica derivs.

*Uses:* Defoamer for latex/rubber applics. esp. monomer stripping, acrylic, PVAc, NBR, SBR, PVC, adhesives, coatings, paper mfg.; food pkg. adhesives, paper, animal glue, cellophane

*Use Level:* 0.01-0.03% total wt. basis

*Regulatory:* FDA 21CFR §175.105, 176.210, 176.200, 177.1200, 178.3120

*Properties:* Straw-colored opaque liq.; emulsifiable in water; sp.gr. 0.89; dens. 7.58 lb/gal; visc. 800 cps; pour pt. 9 C; flash pt. (PMCC) 93 C; 100% act.

**Drewplus® L-131** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Proprietary blend of mineral oil, silica derivs. and surfactants

*Uses:* Defoamer for latex/rubber applics. (SBR, PVAc, PVA, NBR, acrylic), esp. for paper coating and carpet backing; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives

*Use Level:* 0.01-0.1% total wt. basis

- Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Yel. opaque liq.; disp. in water; sp.gr. 0.92; visc. 600 cps; pour pt. -4 C; flash pt. (PMCC) > 93 C
- Drewplus® L-139** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of mineral oil, silica deriv., surfactants  
*Uses:* Defoamer for latexes (SBR, NBR, PVC, PVAc, PVA, SAN, polybutadiene, vinyl acrylic), monomer stripping, degassing, adhesives, paper coatings; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, cellophane, animal glue  
*Use Level:* 100-1000 ppm dry wt. resin  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120  
*Properties:* Off-wh. translucent liq.; emulsifiable in water; sp.gr. 0.89; dens. 7.43 lb/gal; visc. 400 cps; pour pt. 8 C; flash pt. (PMCC) 94 C  
*Storage:* 1 yr storage stability @ R.T.; stir prior to use; freezing does not affect prod. performance
- Drewplus® L-140** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of minerals, silica derivs., and surfactants  
*Uses:* Defoamer for latex emulsions (SBR, NBR, PVC, PVA, vinyl-acrylic), adhesives, inks, paint and industrial coatings, paper coatings; food pkg. adhesives, coatings, paper, cellophane, animal glue; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 2-5 lb/100 gal paint; 0.01-0.1% (latex adhesives, water-based printing inks); 0.01-0.1% (industrial processes)  
*Regulatory:* FDA 21CFR §173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 178.3120; EPA 40CFR §180.1001  
*Properties:* Gray-wh. liq.; disp. in water; sp.gr. 0.88; dens. 7.34 lb/gal; visc. 1150 cps; flash pt. 150 F  
*Storage:* 1 yr storage stability @ R.T.; stir prior to use; freezing does not affect prod. performance
- Drewplus® L-175** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of mineral oils and silica derivs.  
*Uses:* Defoamer for paints/coatings, latexes (acrylic, PVAc, styrene acrylic, PVdC), food-contact adhesives/coatings/paper  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Off-wh. opaque liq.; disp. in surfactant systems; insol. in water; sp.gr. 0.91; dens. 7.59 lb/gal; visc. 950 cps; nonionic  
*Storage:* 1-2 mos storage stability under normal conditions; if settling occurs, use mild agitation before use; stored at or below freezing, visc. will increase and some phase separation may occur
- Drewplus® L-191** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of mineral oils, surfactants, silica derivs.  
*Uses:* Defoamer for latexes (SBR, NBR, acrylic, vinyl acrylic), food-contact adhesives/coatings/paper; food pkg. cellophane, animal glue  
*Use Level:* 0.01-0.1% total wt. basis  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120  
*Properties:* Straw-colored opaque liq.; disp. in water; sp.gr. 0.92; dens. 7.68 lb/gal; visc. 800 cps; pour pt. 0 C; flash pt. > 300 F  
*Storage:* Mix before using
- Drewplus® L-198** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of mineral oils, silica derivs., and esters  
*Uses:* Defoamer for polymerization, latex stripping (SBR, PVC, EPDM, PVdC), paper coatings, food-contact adhesives/coatings/paper/paperboard; food pkg. cellophane, animal glues  
*Use Level:* 0.01-0.1% total wt. basis  
*Regulatory:* FDA 21CFR §175.105, 176.120, 176.180, 176.200, 176.210, 177.1200, 178.3120  
*Properties:* Straw-colored opaque liq.; emulsifiable in water; sp.gr. 0.95; dens. 7.93 lb/gal; visc. 800 cps; pour pt. 10 C; flash pt. (PMCC) 148 C  
*Storage:* Store in warm place; stir prior to use; freezing does not affect prod. performance
- Drewplus® L-407** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Modified polysiloxane copolymer emulsion  
*Uses:* Foam control agent for architectural and maintenance paints and coatings (interior/exterior gloss and semigloss paints, waterborne industrial coatings, polymer emulsions, water-thinnable gravure and flexographic inks); defoamer in food-contact paper/paperboard; food pkg. adhesives, paper  
*Use Level:* 0.1-0.5% by total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210  
*Properties:* Milky wh. liq., mild odor; misc. with water; sp.gr. 1.0; dens. 8.32 lb/gal; visc. 200 cps; flash pt. > 300 F
- Drewplus® L-418** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of silica derivs., hydrocarbons, and silicones  
*Uses:* Defoamer for inks, adhesives, paints/coatings, aq. interior semigloss, eggshell or aq. exterior semigloss trade sales paints, food-contact adhesives/paper/animal glue/cellophane  
*Use Level:* 0.1-0.3% by total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120  
*Properties:* Off-wh. opaque liq.; disp. in water; sp.gr. 0.98; dens. 8.18 lb/gal; visc. 1250 cps; pour pt. 6 C
- Drewplus® L-419** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of silica derivs., hydrocarbons, and silicones  
*Uses:* Defoamer for latex paints, water-reducible coatings, inks, adhesives, aq. systems, food-contact adhesives/coatings/paper  
*Use Level:* 0.5-2 lb/100 gal paint; 0.2-0.5% (other aq. systems)  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Off-wh. opaque liq.; disp. in water; sp.gr. 0.96; dens. 8.01 lb/gal
- Drewplus® L-424** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of silica derivs., mineral oils, glycols, and esters  
*Uses:* Foam control agent for interior and exterior gloss and semigloss low-VOC enamels; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, cellophane, animal glue  
*Use Level:* 4-7 lb/100 gal  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.1200, 178.3120  
*Properties:* Off-wh. opaque liq.; readily emulsifiable in water; sp.gr. 0.921; visc. 230 cps; flash pt. > 200 F; ref. index 1.4601; nonionic
- Drewplus® L-435** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of silica derivs., mineral oils, glycols, and esters  
*Uses:* Foam control agent for interior and exterior gloss and semigloss low-VOC enamels; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Off-wh. opaque liq.; readily emulsifiable in water; sp.gr. 0.921; visc. 230 cps; flash pt. > 200 F; ref. index 1.4601
- Drewplus® L-466** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Proprietary blend of fatty acid derivatives, surfactants, and hydrocarbons  
*Uses:* Defoamer in aq. industrial coatings (aq. interior semigloss, eggshell, and flat wall paint, aq. exterior semigloss or flat trade sales paint), inks, food-contact adhesives/coatings/paper; used in the grind or letdown phase of paint production  
*Use Level:* 0.2-0.6% by total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Opaque off-wh. liq.; nondisp. in water; disp. in surfactant systems; sp.gr. 0.87-0.88; dens. 7.24-7.39 lb/gal; flash pt. (PMCC) > 300 F
- Drewplus® L-474** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of alcohols, silica derivs., surfactants  
*Uses:* Defoamer for latexes (PVC, PVAc, styrene acrylic, NR), adhesives, dyestuffs, paper coatings, paints, food-contact adhesives/paper/animal glues  
*Use Level:* 0.1-0.2% total wt. basis (latex stripping); 2-3 lb/100 gal paint; 0.1-0.5% (paper coatings)  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3120  
*Properties:* Yel. opaque liq.; disp. in water; sp.gr. 0.94; dens. 7.84 lb/gal; visc. 320 cps; pour pt. 0 C; flash pt. 200 F
- Drewplus® L-475** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of mineral oils and silica derivs.  
*Uses:* Defoamer for paints/coatings (aq. interior or exterior gloss, semigloss, or flat trade sales paints), latexes (acrylic, PVAc, styrene acrylic, PVdC), adhesives, paper coatings  
*Use Level:* 2-5 lb/100 gal latex paint; 0.01% on wet basis (polymer stripping), 0.01-1% vol. basis (water-reducible and resin emulsion coatings)  
*Properties:* Off-wh. opaque liq.; disp. in surfactant systems; insol. in water; sp.gr. 0.91; dens. 7.59 lb/gal; visc. 950 cps; flash pt. > 300 F; ref. index 1.4; nonionic  
*Storage:* 1-2 mos storage stability under normal conditions; if settling occurs, use mild agitation before use; stored at or below freezing, visc. will increase and some phase separation may occur
- Drewplus® L-477** [Ashland/Drew Ind. Div.]  
*Chem. Descrip.:* Blend of mineral oils and silica derivs.  
*Uses:* Defoamer for interior and exterior paints incl. gloss, semigloss, and flat paints; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives; all-purpose  
*Use Level:* 1-3 lb/100 gal latex paint  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 176.210

*Properties:* Lt. amber liq.; insol. in water; disp. in surfactant systems; sp.gr. 0.90; visc. 1100 cps; pour pt. 0 C

**Drewplus® L-493** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oils, silica derivs., emulsifiers

*Uses:* Defoamer for latex paints, water-reducible industrial coatings, inks, adhesives, for acrylic, vinyl acrylic, and PVAc emulsions; food pkg. adhesives, coatings, paper, cellophane, animal glues; defoamer in food-contact coatings, paper/board

*Use Level:* 1-3 lb/100 gal

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.1200, 178.3120

*Properties:* Off-wh. opaque liq.; emulsifiable in water; sp.gr. 0.90; dens. 7.51 lb/gal; visc. 1400 cps; pour pt. 0 C; flash pt. 149 C; ref. index 1.431

**Drewplus® L-496** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oil, silica derivs., and surfactants

*Uses:* Foam control agent for latex paints, emulsion and water-reducible coatings, aq. inks, for acrylic, vinyl acrylic and styrene acrylic emulsions; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, cellophane, animal glues

*Use Level:* 1-3 lb/100 gal

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120

*Properties:* Off-wh. opaque liq.; emulsifiable in water; sp.gr. 0.90; dens. 7.4-7.6 lb/gal; flash pt. > 300 F; ref. index 1.419

**Drewplus® L-523** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of fatty oils, surfactants, and silica derivs.

*Uses:* Defoamer for latexes (SBR, EVA), food/fermentation applics. incl. chewing gum and potato processing; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives

*Use Level:* 200-800 ppm (chewing gum), 0.1-1% (potato processing)

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.200, 176.210

*Properties:* Off-wh. opaque liq.; disp. in water; sp.gr. 0.99; dens. 8.26 lb/gal; visc. 800 cps; pour pt. 10 C

**Drewplus® L-768** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of silicone fluid, silica derivs. and surfactants

*Uses:* Defoamer for industrial/chemical processes, food/fermentation and agric. applics., pesticides, aq. and some nonaq. systems, adhesives, coatings; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, paper

*Use Level:* 10-100 ppm

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.170, 176.200, 176.210, and EPA compliance

*Properties:* Off-wh. opaque liq.; disp. in water; sp.gr. 1.02; dens. 8.51 lb/gal; visc. 1100 cps; pour pt. 5 C; flash pt. (COC) 93 C

**Drewplus® T-4202** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Foam control agent

*Uses:* Foam control agent for coatings, lacquers, emulsion polymerization, monomer stripping operations, adhesives, and inks; food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard; industrial grade

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Opaque, yel.-grayish liq.; emulsifiable in water; sp.gr. 0.88-0.92; flash pt. (PMCC) > 300 F; nonionic

*Storage:* Good stability under normal conditions; agitation may be necessary if sl. separation occurs on extended storage

**Drewplus® Y-125** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oils and fatty acid derivs.

*Uses:* Defoamer for controlling entrained air during latex stripping, paints/coatings mfg., for SBR, PVAc, PCA emulsions, ACN resin systems; food pkg. adhesives, cellophane, animal glue; defoamer in food-contact coatings, paper/paperboard

*Use Level:* 0.01-0.1% total wt. basis

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120

*Properties:* Tan opaque liq.; emulsifiable in water; sp.gr. 0.93; dens. 7.76 lb/gal; visc. 2200 cps; pour pt. 0 C; flash pt. (PMCC) 93 C

**Drewplus® Y-250** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oils, silica derivs., and esters

*Uses:* Defoamer for aq. industrial systems, paints/coatings (traffic, primers, enamels, gloss), latexes (SBR, acrylic, PVAc, PVA, styrene acrylic, PVdC, vinyl acrylic), inks, adhesives, cutting oils, food/fermentation applics.; food pkg. adhesives, paper; defoamer in food-contact coatings, paper/paperboard; rec. for aq. systems requiring quick foam knockdown, long lasting foam prevention

*Use Level:* 0.1-0.5% total wt. basis

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210

*Properties:* Off-wh. opaque liq.; disp. in water; sp.gr. 0.91; dens. 7.59 lb/gal; visc. 1800 cps; flash pt. 240 F; ref. index 1.420

**Drewplus® Y-281** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oils, silica derivs., and surfactants

*Uses:* Defoamer for paints, latex/rubber, industrial coatings, adhesives; food pkg. adhesives, cellophane, animal glue; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 178.3120

*Properties:* Off-wh. liq.; disp. in water; sp.gr. 0.93; dens. 7.76 lb/gal; visc. 1000 cps; pour pt. 0 C

**Drewplus® Y-601** [Ashland/Drew Ind. Div.]

*Chem. Descrip.:* Blend of mineral oils, org. solids, surfactants

*Uses:* Defoamer for latexes (SBR, PVC, B/S, PVAc), paints/coatings, adhesives, water-borne flexographic or gravure inks, paper coatings

*Use Level:* 0.01% total wt. basis; 0.1-0.3% (water-borne inks)

*Properties:* Off-wh. opaque liq.; disp. in water; sp.gr. 0.83; dens. 6.93 lb/gal; visc. 400 cps; pour pt. 0 C

*Storage:* Mild agitation may be necessary if sl. separation occurs

**Drymet® 59** [Crosfield]

*Chem. Descrip.:* Sodium metasilicate anhyd.

*Chem. Analysis:* Na<sub>2</sub>O (50.4-51.9%); silica (45.5%); CO<sub>2</sub> (2.0% max.); Al (0.03% max.); Fe (0.017% max.)

CAS 6834-92-0; EINECS/ELINCS 229-912-9

UN No. 3262

*Uses:* Buffer, corrosion inhibitor for formulating specialty detergents and cleaners (engine cleansers, brewery piping, dairy, food grill cleaners, concrete cleaners, ferrous metal/degreaser, paint stripper, oil, paper reclamation, pulp bleaching); soap builder and detergent ingred. in I&I cleaners; flocculant and dispersant in metallurgy, ore treatment; washing of clays (mining)

*Regulatory:* SARA immediate (acute) health hazard

*Properties:* Wh. free-flowing gran.; 3% on 18 mesh, 55% on 40 mesh; odorless; sol. 27 g/100g (30 C); m.w. 122.06; sp.gr. 2.4; bulk dens. 1.0 g/cm<sup>3</sup> (loose), 1.2 g/cm<sup>3</sup> (packed); vapor pressure negligible; m.p. 1088 C; pH 12.6 (1% aq.)

*Toxicology:* LD50 (oral, rat) 847 mg/kg; causes severe burns to skin, eyes, respiratory and digestive tract; ing. may cause GI irritation, nausea, vomiting, cramps, diarrhea; avoid breathing dust; TSCA listed

*Precaution:* Corrosive; mod. to strongly alkaline; may react to form deadly CO on contact with certain prods. or their residues

*Hazardous Decomp. Prods.:* None

HMIS: Health 3; Flammability 0; Reactivity 1

*Storage:* Hygroscopic; 2 yr shelf life when stored in cool, dry, well-ventilated area; keep containers closed when not in use

**Drymet® Fines** [Crosfield]

*Chem. Descrip.:* Sodium metasilicate anhyd.

*Chem. Analysis:* Na<sub>2</sub>O (50.4-51.9%); silica (45.5%); CO<sub>2</sub> (2.0% max.); Al (0.03% max.); Fe (0.017% max.)

CAS 6834-92-0; EINECS/ELINCS 229-912-9

UN No. 3262

*Uses:* Buffer, corrosion inhibitor for formulating specialty detergents and cleaners (engine cleansers, brewery piping, dairy, food grill cleaners, concrete cleaners, ferrous metal/degreaser, paint stripper, oil, paper reclamation, pulp bleaching); soap builder and detergent ingred. in I&I cleaners; flocculant and dispersant in metallurgy, ore treatment; washing of clays (mining)

*Regulatory:* SARA immediate (acute) health hazard

*Properties:* Wh. free-flowing powd.; 1% on 20 mesh; odorless; sol. 27 g/100g (30 C); m.w. 122.06; sp.gr. 2.4; bulk dens. 0.89 g/cm<sup>3</sup> (loose), 1.13 g/cm<sup>3</sup> (packed); vapor pressure negligible; m.p. 1088 C; pH 12.6 (1% aq.)

*Toxicology:* LD50 (oral, rat) 847 mg/kg; causes severe burns to skin, eyes, respiratory and digestive tract; ing. may cause GI irritation, nausea, vomiting, cramps, diarrhea; avoid breathing dust; TSCA listed

*Precaution:* Corrosive; mod. to strongly alkaline; may react to form deadly CO on contact with certain prods. or their residues

*Hazardous Decomp. Prods.:* None

HMIS: Health 3; Flammability 0; Reactivity 1

*Storage:* Hygroscopic; store in cool, dry, well-ventilated area; keep containers closed when not in use

**D® Sodium Silicate** [PQ]

*Chem. Descrip.:* Sodium silicate

CAS 1344-09-8; EINECS/ELINCS 215-687-4

*Uses:* Corrosion inhibitor for aq. systems, petrol., water treatment; cement

slurry thinner; detergents and cleaning compds.; ore flotation; slime control in mining; detergent, defloculant, bleaching enhancer, alkalinity agent in deinking paper stock; peroxide stabilizer in repulping and postbleaching

*Regulatory:* SARA nonreportable

*Properties:* Clear to opalescent visc. liq.; odorless; completely sol. in water; sp.gr. 1.3-1.5; dens. 12.8 lb/gal; visc. 400 cps (20 C); pH 11-12.5; noncombustible; 44.1% solids, 29.4% SiO<sub>2</sub>, 14.7% Na<sub>2</sub>O

*Toxicology:* CEL 5 mg/m<sup>3</sup>; skin and eye irritant; causes irritation to respiratory tract on inhalation, irritation to esophagus and stomach on ingestion

*Environmental:* High alkalinity of undiluted or unneutralized material is harmful to aquatic life

*Precaution:* Incompat. with gels when mixed with acid, metals, e.g., aluminum, tin, lead, and zinc (may produce flamm. hydrogen gas on prolonged contact); spills are very slippery; dries to glassy film which can cut skin, etch glass

*Hazardous Decomp. Prods.:* Hydrogen

#### DSP 15 [Dow]

*Chem. Descrip.:* Styrene acrylic copolymer aq. sol'n.

CAS 9010-92-8

*Uses:* Surf. sizing agent for acid, alkaline, neutral, or unsized paper; improves ink-jet printability, toner adhesion, and optical brightness; exc. flexibility; very high mech. stability

*Properties:* Ylsh.-wh. sl. turbid sol'n.; visc. 200 mPa·s; pH 9; 15% solids; anionic

#### DSP 70 [Dow]

*Chem. Descrip.:* Styrene acrylic copolymer aq. sol'n.

CAS 9010-92-8

*Uses:* Surf. sizing agent for acid, alkaline, neutral, or unsized paper; improves ink-jet printability, toner adhesion, and optical brightness; exc. flexibility; very high mech. stability

*Properties:* Sl. opaque sol'n.; visc. 200 mPa·s; pH 9; 15% solids; anionic

#### DSP 80 [Dow]

*Chem. Descrip.:* Styrene acrylic copolymer aq. sol'n.

CAS 9010-92-8

*Uses:* Surf. sizing agent for acid, alkaline, neutral, or unsized paper; improves ink-jet printability, toner adhesion, and optical brightness; exc. flexibility; very high mech. stability

*Properties:* Sl. opaque sol'n.; visc. 200 mPa·s; pH 9; 15% solids; anionic

#### DS-S1 [Songkang Ind. Co.]

*Chem. Descrip.:* Bromic mixt.

*Uses:* Biocide, slimeicide for papermaking; long-term efficiency in water circuit; good anaerobic bactericidal props.

*Use Level:* 10-30 ppm/m<sup>3</sup> of white water

*Properties:* Sp.gr. 1.1; visc. < 10 cps; pH 4 ± 1

#### Dualite® M6050AE [Pierce & Stevens]

*Chem. Descrip.:* Hollow composite microspheres (shell: acrylonitrile copolymer; coating: calcium carbonate)

*Chem. Analysis:* moisture (< 2%)

*Uses:* Extender for plastics, coatings, adhesives, sealants, patching compds., automotive underbody coatings, modeling clays, building materials, explosives, foams, textile printing inks, paper mfg., carpets, syn. wood, roof coatings, polymer concrete, wire and cable, cosmetics, pharmaceuticals; can reduce weight and lower volume costs; chem. resist. to most aliphatic and high esters; good resist. to aromatics and low esters; lowers VOC emissions

*Properties:* Sp.gr. 0.130 ± 0.02; dens. 1.08 lb/gal

#### Dualite® MS7000 [Pierce & Stevens]

*Chem. Descrip.:* Hollow composite microspheres (shell: acrylonitrile copolymer; coating: calcium carbonate)

*Chem. Analysis:* moisture (< 2%)

*Uses:* Extender for plastics, coatings, adhesives, sealants, patching compds., automotive underbody coatings, modeling clays, building materials, explosives, foams, textile printing inks, paper mfg., carpets, syn. wood, roof coatings, polymer concrete, wire and cable, cosmetics, pharmaceuticals; can reduce weight and lower volume costs; chem. resist. to most aliphatic and high esters; good resist. to aromatics and low esters; lowers VOC emissions

*Properties:* Sp.gr. 0.065 ± 0.005; dens. 0.54 lb/gal

#### Dualite® MS7020 [Pierce & Stevens]

*Chem. Descrip.:* Hollow composite microspheres (shell: acrylonitrile copolymer; coating: calcium carbonate)

*Chem. Analysis:* moisture (< 2%)

*Uses:* Extender for plastics, coatings, adhesives, sealants, patching compds., automotive underbody coatings, modeling clays, building materials, explosives, foams, textile printing inks, paper mfg., carpets, syn. wood, roof coatings, polymer concrete, wire and cable, cosmetics, pharmaceuticals; can reduce prod. weight and lower volume costs; chem. resist. to most aliphatic and high esters; very good resist. to aromatics and low esters; fair resist. to ketones; heat resist. to 150 C; lowers VOC emissions

#### Dumasperse 540 [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Sodium salts of polyacrylic acid

CAS 9003-04-7

*Uses:* Pigment dispersant for clays, paints, adhesives, paper, and latexes; replaces phosphates in detergents

*Properties:* Low m.w.; anionic

#### Dumasperse 543 [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Ammonium salt of polyacrylic acid

CAS 9003-03-6

*Uses:* Dispersant for elec. ceramics and specialized paper coatings; rec. where potassium salts are objectionable

*Properties:* Anionic

#### Duponol® LS Paste [Crompton/Witco]

*Chem. Descrip.:* Sodium oleyl sulfate tech.

CAS 1847-55-8; EINECS/ELINCS 217-430-1

*Uses:* Emulsifier, scouring agent in textile and leather industries; rewetting agent for paper

*Properties:* Lt. tan paste; m.w. 355; surf. tens. 37.8 dynes/cm (0.1%); 26% act.; anionic

#### Durad® 110B [Great Lakes]

*Chem. Descrip.:* t-Butylphenyl phosphate

*Uses:* Antiwear agent and mild EP agent for lubricants and functional fluids incl. engine oils, tractor fluids, roll oils, bearing lubricants, pump oils, paper machine oils, transmission fluids, greases, power steering fluids, refrigeration compressor oils; ashless; reduces wear and friction

*Use Level:* 0.5-3.0%

*Properties:* Clear liq.; odorless; sol. in min. oil and syn. base fluids; sp.gr. 1.180 (20 C); visc. 60 cSt (20 C); acid no. < 0.1; pour pt. -26 C; flash pt. (COC) 255 C; 8.5% P

*Toxicology:* Low skin irritant

#### Durad® 150B [Great Lakes]

*Chem. Descrip.:* t-Butylphenyl phosphate

*Uses:* Antiwear agent and mild EP agent for lubricants and functional fluids incl. engine oils, tractor fluids, roll oils, bearing lubricants, pump oils, paper machine oils, transmission fluids, greases, power steering fluids, refrigeration compressor oils; ashless; reduces wear and friction

*Use Level:* 0.5-3.0%

*Properties:* Clear liq.; odorless; sol. in min. oil and syn. base fluids; sp.gr. 1.165 (20 C); visc. 90 cSt (20 C); acid no. < 0.1; pour pt. -26 C; flash pt. (COC) 255 C; 8.1% P

*Toxicology:* Low skin irritant

#### Durad® 220B [Great Lakes]

*Chem. Descrip.:* Triaryl phosphate

*Uses:* Antiwear agent and mild EP agent for lubricants and functional fluids incl. engine oils, tractor fluids, roll oils, bearing lubricants, pump oils, paper machine oils, transmission fluids, greases; ashless; reduces wear and friction

*Properties:* Clear liq.; odorless; sol. in min. oil and syn. base fluids; sp.gr. 1.155 (20/20 C); visc. 160 cSt (20 C); acid no. < 0.1; pour pt. -21 C; flash pt. (COC) 255 C; 7.9% P

#### Durad® 620B [Great Lakes]

*Chem. Descrip.:* t-Butylphenyl phosphate

*Uses:* Antiwear and mild EP agent for lubricants and functional fluids incl. engine oils, tractor fluids, roll oils, bearing lubricants, pump oils, paper machine oils, transmission fluids, greases, power steering fluids, refrigeration compressor oils; ashless; reduces wear and friction

*Use Level:* 0.5-3.0%

*Properties:* Clear liq.; odorless; sol. in min. oil and syn. base fluids; sp.gr. 1.125 (20 C); visc. 700 cSt (20 C); acid no. < 0.1; pour pt. -4 C; flash pt. (COC) 255 C; 7.1% P

*Toxicology:* Low skin irritant

#### Dur-O-Set® E-623 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking ethylene-vinyl acetate emulsion

CAS 24937-78-8

*Uses:* Dry and wet str. agent for paper saturation (filtration, tag and label



stock); component of paper/paperboard in contact with aq./fatty/dry foods; in resin-bonded filters for food contact; features toughness, flexibility, exc. formulation, size press, and spray stability; exc. adhesion to wide variety of substrates; high str., durability, solv. resist.; requires acid catalyst to optimize crosslinking and performance

*Regulatory:* FDA 21CFR §176.170, 176.180, 177.2260

*Properties:* 0.4 µ particle size; dens. 8.8 lb/gal; visc. 200 cps; pH 5.5; 52% solids; anionic

#### Dur-O-Set® E-646 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking ethylene-vinyl acetate emulsion  
CAS 24937-78-8

*Uses:* Dry and wet str. agent for paper saturation (wallcovering, tag and label stock); component of paper/paperboard in contact with aq./fatty/dry foods; in resin-bonded filters for food contact; exc. adhesion to wide variety of substrates; delamination resist.; features softness and toughness, exc. formulation stability, exc. size press and spray stability; requires acid catalyst to optimize crosslinking and performance

*Regulatory:* FDA 21CFR §176.170, 176.180, 177.2260

*Properties:* 0.4 µ particle size; dens. 8.8 lb/gal; visc. 100 cps; pH 5.5; 52% solids; anionic

#### Dur-O-Set® Elite 22 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking ethylene-vinyl acetate emulsion  
CAS 24937-78-8

*Uses:* Dry and wet str. agent for paper saturation (wallcovering, filtration, tag and label stock); imparts soft hand with toughness, flexibility, and abrasion resist.; exc. dry, wet and solv. str.; exc. adhesion to wide variety of fibers; exc. size press and spray stability; ultra low formaldehyde; alkyl phenol ethoxylate-free

*Properties:* 0.4 µ particle size; low odor; dens. 8.8 lb/gal; visc. 300 cps; pH 5; 52% solids; anionic

#### Dur-O-Set® Elite 33 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking ethylene-vinyl acetate emulsion  
CAS 24937-78-8

*Uses:* Dry and wet str. agent for paper saturation (wallcovering, filtration, tag and label stock); imparts toughness, flexibility, and abrasion resist.; yields highly absorbent fabrics; exc. dry, wet and solv. str.; exc. adhesion to wide variety of fibers; exc. size press and spray stability; ultra low formaldehyde; alkyl phenol ethoxylate-free

*Properties:* 0.4 µ particle size; low odor; dens. 8.8 lb/gal; visc. 300 cps; pH 5; 52% solids; anionic

#### Dykor® 204 [Whitford]

*Chem. Descrip.:* Polyvinylidene fluoride  
CAS 24937-79-9

*Uses:* Primer coating containing mica to enhance adhesion at metal/coating interface; protective coating for lining chem. processing vessels, acid etching in mfg. of electronic components, bleaching operations in pulp/paper mills, corrosion protection

#### DymSol® 2031 [Cognis/Chems. Group; Cognis/Coatings & Inks; Sidobre-Sinnova SA]

*Chem. Descrip.:* Sulfated oleic acid, sodium salt  
CAS 68331-91-9

*Uses:* Primary or sec. emulsifier for emulsion polymerization, SBR, PVC; latex stabilizer; food pkg. adhesives; defoamer in food-contact coatings; defoamer in food-contact paper coatings; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200; SARA non-reportable

*Properties:* Dk. amber liq.; mild odor; 10% sol. in water; sp.gr. 1.09; dens. 9.1 lb/gal; flash pt. (PMCC) 93 C; pH 5.3 (2%); 60% act. in water; anionic

*Toxicology:* May cause skin and eye irritation; ing. may cause nausea, vomiting, and diarrhea; TSCA listed

*Environmental:* Biodeg.

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well

#### DymSol® B [Cognis/Chems. Group]

*Chem. Descrip.:* Zinc stearate/zinc palmitate aq. disp.

*Uses:* Lubricant; stabilizer in elastomeric polymers; rubber strip stock antitackifier; food pkg. adhesives, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 176.210, 177.1210; SARA §311/312/313 reportable

*Properties:* Wh. visc. liq.; fatty odor; disp. in water; sp.gr. 0.98; dens. 8.2 lb/gal; visc. 3000 cP; flash pt. (PMCC) > 93 C; pH 10 (10%); VOC 54%; 45% act.

*Toxicology:* May cause sl. skin and possibly severe eye irritation; ing. may cause GI irritation, nausea, vomiting, diarrhea; zinc stearate may cause pulmonary fibrosis; TSCA listed

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* Carbon dioxide, carbon monoxide, and oxides of zinc

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* Store above 10 C; protect from freezing; mix well before using

#### DynaCoat™ XA [Plasmine Tech.]

*Chem. Descrip.:* Modified rosin-based aq. emulsion

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Surf. sizing agent imparting exc. hydrophobicity and surf. str. to paper grades at the size press; component of paper/paperboard in contact with aq./fatty/dry foods; compat. with size press formulations contg. clay, CaCO<sub>3</sub>, or other pigments; nonfoaming; exc. size press runnability; imparts exc. ink jet printability and toner adhesion to base sheet; exc. stability

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Milky wh. emulsion; odorless; disp. in water; sp.gr. 1.05; dens. 8.7 lb/gal; visc. < 100 cps; b.p. 212 F; flash pt. nonflamm.; pH 6-7; 40% total solids; anionic

*Toxicology:* No health hazards known; avoid skin and eye contact

*Precaution:* Keep away from heat, strong alkali, and strong acid

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 6 mos shelf life; store @ 40-90 F; avoid freeze/thaw storage conditions

#### DynaCoat™ XC [Plasmine Tech.]

*Chem. Descrip.:* Modified rosin-based emulsion

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Surf. sizing agent improving ink jet printability and surf. str. of highly filled alkaline papers at the size press; component of paper/paperboard in contact with aq./fatty/dry foods; compat. with size press formulations contg. optical brighteners and other additives; nonfoaming; exc. size press runnability; imparts exc. toner adhesion to base sheet; exc. stability

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Milky wh. emulsion; sl. odor; disp. in water; sp.gr. 1.04; dens. 8.67 lb/gal; visc. 295 cps; m.p. 32 F; b.p. 212 F; flash pt. nonflamm.; pH 3.3; 35% total solids; cationic

*Toxicology:* May cause eye irritation, reddening, itching, inflamm. of skin/eyes; inh. may cause respiratory tract irritation, coughing; ing. may cause digestive tract irritation; prolonged skin contact may cause irritation and dermatitis

*Precaution:* Avoid contact with strong oxidizers

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 6 mos shelf life; store @ ambient temps.; keep from freezing; if accidentally frozen, mix thoroughly

#### DynaCoat XL [Plasmine Tech.]

*Chem. Descrip.:* Styrene-acrylic aq. emulsion

CAS 9010-92-8

*Uses:* Surf. sizing agent imparting exc. hydrophobicity and surf. str. to variety of paper grades; improves printing chars. and toner adhesion; exc. stability; low foaming

*Properties:* Milky translucent disp.; sl. odor; disp. in water; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 1700 cps; b.p. 100 C; flash pt. nonflamm.; pH 8.6; 50% total solids

*Toxicology:* May cause eye irritation, reddening, itching, inflamm. of skin/eyes; inh. may cause respiratory tract irritation, coughing; ing. may cause digestive tract irritation; prolonged skin contact may cause irritation and dermatitis

*Precaution:* Avoid contact with strong oxidizers; spilled liq. may be slippery

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 1+ yr shelf life; store @ ambient temps. in closed containers; keep from freezing

#### Dynakoll [Akzo Nobel]

*Chem. Descrip.:* Rosin size

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Water repellent for paper prods.

*Properties:* Liq.

#### Dynol™ 604 [Air Prods./Perf. Chems.]

*Chem. Descrip.:* Acetylenic glycol-based surfactant

*Uses:* Surfactant, wetting agent for high-performance aq. systems, e.g., metal and wood coatings, paper coatings, flexographic and gravure inks, adhesives, concrete sealers, floor polishes, leather coatings, architectural paints, etc.; exc. for difficult-to-wet substrates requiring good flow and leveling; reduces equilibrium and dynamic surf. tensions; ideal for low-VOC, low-foam applics.

*Use Level:* 0.2-1% (metal coatings), 0.5-1% (wood coatings)

*Properties:* Amber liq.; sp.gr. 0.974; flash pt. 327 F; surf. tens. 25.8 dynes/cm (equilibrium, 0.1% aq.), 28.4 dynes/cm (dynamic, 0.1% aq.); < 1.5% VOC; 100% act.; nonionic

**Dyqex®** [Georgia-Pacific Resins]

*Chem. Descrip.:* Sodium lignosulfonate  
CAS 8061-51-6

*Uses:* Dye dispersant extender; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170

*Properties:* Brn. powd., no appreciable odor; sol. in water; sp.gr. ≈ 0.5; m.p. dec.; pH ≈ 7; anionic

*Toxicology:* Nontoxic orally; nonirritating to eyes, skin; prolonged exposure to dust may cause sneezing, coughing, or other nuisance symptoms

*Environmental:* Biodeg.

*Precaution:* Finely divided particles mixed with air in presence of an ignition source may present an explosion hazard; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* SO<sub>2</sub>

*Storage:* Store in dry place and keep sealed until ready to use to prevent caking from moisture pickup

# E

## Eastacoat 808P [Eastman]

*Chem. Descrip.:* LDPE

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Used for inj. molding, extrusion coating, and laminating foil to paper-board (e.g., soft-drink syrup packages), heat seal coating for boil-in-bag food pouches

*Properties:* Sp.gr. 0.917; melt index 7.0 g/10 min; tens. str. 10 MPa (yield, 500 mm/min), 10 MPa (break, 500 mm/min); elong. 400% (break, 500 mm/min); Vicat soften. pt. 88 C

## Eastek 1200 [Eastman]

*Chem. Descrip.:* Sulfopolyester polymer

*Uses:* Preprint primer for aluminum foil, metalized paper, and other types of film; gravure slipcoat or processing aid for cigarette inner liner pkg. applic.; water and alcohol resist., fast drying

*Properties:* Low odor; visc. 100 cps; pH 5-7; 30% solids

## Eastek 2140 [Eastman]

*Chem. Descrip.:* Sulfopolyester hybrid

*Uses:* Gravure ink vehicle for printing on paper and board applics.; low foaming

*Properties:* Emulsion; low odor; visc. 18 cps; pH 5-7; 2% n-propanol; 40% solids

## Eastman® TXIB [Eastman]

*Chem. Descrip.:* 2,2,4-Trimethyl-1,3-pentanediol diisobutyrate

CAS 6846-50-0; EINECS/ELINCS 229-934-9

*Uses:* Primary plasticizer in surf. coatings, vinyl floorings, floor polishes, moldings, and vinyl prods.; compatible with film-forming vehicles used in lacquers for wood, paper, and metals; primary plasticizer for PVC plastisols for rotocasting and slush molding; used in PVC organosols processed by extrusion and inj. molding; also for adhesives, cosmetics and personal care prods.

*Properties:* Colorless clear liq.; sl. fruity odor; sol. 1.5 mg/l in water; m.w. 286.4; sp.gr. 0.945 (20 C); dens. 7.86 lb/gal (20 C); visc. 9 cP; vapor pressure 0.0007 mm Hg (20 C); f.p. -70 C; b.p. 280 C; ref. index 1.4300; flash pt. (PMCC) 128 C; fire pt. 152 C (COC); ref. index 1.4300; dissip. factor  $0.13 \times 10^{-2}$  (1 MHz); dielec. const. 4.5 (1 MHz); vol. resist.  $1.5 \times 10^{11}$  ohm-cm; 98% min. assay

*Toxicology:* LD50 (oral, rat) > 3.2 g/kg, (dermal, guinea pig) > 20 ml/kg; low hazard by inh., ingestion, eye or skin contact; TSCA listed

*Environmental:* Low BOD; little potential to cause oxygen depletion in aq. systems; low potential to affect aquatic organisms or sec. waste treatment microbial respiration; expected to biodegrade

*Precaution:* Incompat. with strong oxidizing materials; explosive limits 0.48% vol. (172 C) to 3.1% vol. (230 C)

*Hazardous Decomp. Prods.:* Hazardous combustion prods.: CO, CO<sub>2</sub>

*Storage:* Store in closed containers

## Eastone™ 147 Wax [Eastman]

*Chem. Descrip.:* Polypropylene homopolymer wax

CAS 9003-07-0

*Uses:* Processing aid for rubber and plastic; softening pt. improver for hot-melt adhesives; additive in paper coatings and printing inks

*Regulatory:* DOT nonregulated; SARA nonreportable

*Properties:* Gardner 1 pastilles or powd.; odorless; negligible sol. in water; m.w. 8300; sp.gr. 0.86; visc. 125 mPa·s (190 C); vapor pressure negligible; soften. pt. (R&B) 150 C; flash pt. (COC) 277 C; 100% act.

*Toxicology:* TSCA listed

*Precaution:* Powd. material may form explosive dust-air mixts.; molten material will produce thermal burns; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Combustion produces CO<sub>2</sub>, CO

HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Keep container closed

## Ebecryl® 350 [UCB Radcure]

*Chem. Descrip.:* Acrylated silicone

*Uses:* Slip agent for overprint varnishes and coatings on wood, paper, and plastics; good substrate wetting and slip with no migration

*Properties:* Gardner 8 color; visc. 400 cps; acid no. 5

## Ebecryl® 585 [UCB Radcure]

*Chem. Descrip.:* Chlorinated polyester diluted 40% with tripropylene glycol diacrylate

*Uses:* Used in UV cured lithographic and screen inks for metals, plastics, and paper, laminating adhesives, clear coatings; fast UV cure, good adhesion

*Properties:* Gardner 3 color; visc. 4700 cps; acid no. 15; tens. str. 1300; tens. elong. 45%

## Ebecryl® 586 [UCB Radcure]

*Chem. Descrip.:* Chlorinated polyester diluted 40% with trimethylolpropane triacrylate

*Uses:* Used in UV cured dry lithographic inks for metals, plastics, and paper, laminating adhesives, clear coatings; fast UV cure, good adhesion

*Properties:* Gardner 3 color; visc. 45,000 cps; acid no. 15; tens. str. 7000; tens. elong. 1%

## Ebecryl® 588 [UCB Radcure]

*Chem. Descrip.:* Chlorinated polyester diluted 40% with OTA-480

*Uses:* Used in UV cured dry lithographic inks for metals, plastics, and paper, laminating adhesives, clear coatings; fast UV cure, good adhesion to plastics

*Properties:* Gardner 3 color; visc. 40,000 cps; acid no. 15; tens. str. 3700; tens. elong. 22%

## Ebecryl® 600 [UCB Radcure]

*Chem. Descrip.:* Bisphenol A epoxy diacrylate

*Uses:* For overprint varnishes, lithographic and screen inks, coatings for paper, paperboard, wood chipboard, and rigid plastics, laminating adhesives, paper upgrading; low color grade featuring very fast cure, high gloss, exc. solv. resist.

*Properties:* Gardner 1 color; m.w. 525; visc. 3600 cps (60 C); acid no. 2; tens. str. 13,900 psi; tens. elong. 7%

## Ebecryl® 1360 [UCB Radcure]

*Chem. Descrip.:* Silicone hexaacrylate

*Uses:* Slip agent, substrate wetting agent, and flow control agent in overprint varnishes, clear coatings on paper, plastics and metals

*Properties:* Gardner 7 color; visc. 2000 cps; acid no. 14

*Toxicology:* TSCA listed

## Ebecryl® 2047 [UCB Radcure]

*Chem. Descrip.:* Trifunctional polyester acrylate oligomer

*Uses:* Diluent for UV/EB-cured prods., flexographic and screen inks, coatings (paper, wood, plastics), paper upgrading, high visc. systems, EB-cured paper-foil laminating adhesives, solventless spray and flow coater applics.; high surf. hardness, solv. resist., toughness

*Properties:* Gardner 3 max. color; low odor; dens. 9.1 lb/gal; visc. 400 cps; acid no. 15 max.; 100% solids

*Storage:* 6 mos shelf life in stainless steel tanks, amber glass, amber polyethylene, or baked phenolic lined containers; do not expose to temps. > 100 F

- for prolonged periods, or to direct sunlight
- Ebecryl® 3500** [UCB Radcure]  
*Chem. Descr.:* Bisphenol A epoxy acrylate  
*Uses:* For use in screen ink vehicles, clear coatings for paper, wood and metal decorating, and laminating adhesives; improved flexibility, good chem. resist., toughness, high gloss  
*Properties:* Gardner 4 color; m.w. 750; visc. 60,000 cps; acid no. 4; tens. str. 6500 psi; tens. elong. 43%
- Ebecryl® 3502** [UCB Radcure]  
*Chem. Descr.:* Bisphenol A epoxy diacrylate diluted with 20% OTA-480  
*Uses:* For use in clear coatings for paper, laminates, adhesives, metal decorating, and screen inks; fast cure response, hardness, chem. resist. and high gloss  
*Properties:* Gardner 2 color; m.w. 525; visc. 70,000 cps; acid no. 1; tens. str. 9000 psi; tens. elong. 4%
- Ebecryl® 3701** [UCB Radcure]  
*Chem. Descr.:* Bisphenol A epoxy acrylate  
*Uses:* For use in overprint varnishes, clear coatings for paper, wood, metal decorating, laminating adhesives; offers abrasion and chem. resist., high gloss, flexibility and toughness  
*Properties:* Gardner 4 color; m.w. 820; visc. 4100 cps (65 C); acid no. 2.5; tens. str. 11,400 psi; tens. elong. 7%
- Ebecryl® 3701-20T** [UCB Radcure]  
*Chem. Descr.:* Bisphenol A epoxy acrylate diluted 20% with trimethylolpropane triacrylate  
*Uses:* For use in clear coatings for paper, wood, metal decorating, laminating adhesives; offers good cure response  
*Properties:* Gardner 4 color; low odor; m.w. 820; visc. 78,000 cps; acid no. 2.5; tens. str. 14,200 psi; tens. elong. 7%
- Ebecryl® 3702** [UCB Radcure]  
*Chem. Descr.:* Fatty acid-modified epoxy acrylate  
*Uses:* Wetting agent, flow control agent, and leveling agent for use in clear coatings for paper, wood, metal decorating, laminating adhesives  
*Properties:* Gardner 4 color; low odor; m.w. 600; visc. 2300 cps (65 C); acid no. 2; tens. str. 9500 psi; tens. elong. 10%
- Ebecryl® 3720-HD20** [UCB Radcure]  
*Chem. Descr.:* Bisphenol A epoxy diacrylate diluted 20% with hexanediol diacrylate  
*Uses:* For use in adhesives, screen ink vehicles, paper coatings, and wood fillers  
*Properties:* Gardner 2 color; low odor; m.w. 525; visc. 11,200 cps; acid no. 1; tens. str. 17,700 psi; tens. elong. 3%
- Ebecryl® 3720-TH20** [UCB Radcure]  
*Chem. Descr.:* Bisphenol A epoxy diacrylate diluted 20% with trimethylolpropane triacrylate  
*Uses:* For use in clear coatings for paper, laminates, adhesives, metal decorating, screen inks; fast cure response, hardness, chem. resist., and high gloss  
*Properties:* Gardner 2 color; low odor; m.w. 525; visc. 70,000 cps; acid no. 1; tens. str. 14,900 psi; tens. elong. 4%
- Ebecryl® 4830** [UCB Radcure]  
*Chem. Descr.:* Aliphatic urethane acrylate diluted 10% with tetraethylene glycol diacrylate  
*Uses:* For use in silkscreen inks for plastics, laminating adhesives, clear coating for paper, plastics, and wood; good exterior durability, flexibility, toughness and adhesion, particularly on plastic  
*Properties:* Gardner 1 color; m.w. 1200; visc. 3500 cps (60 C); tens. str. 5200 psi; tens. elong. 83%
- Ebecryl® 4849** [UCB Radcure]  
*Chem. Descr.:* Aromatic urethane diacrylate diluted 15% with hexanediol diacrylate  
*Uses:* Used in clear coatings for paper and wood laminates, adhesives, metal decorating, plastics; exc. flexibility, toughness, abrasion resist.  
*Properties:* Gardner 1 color; m.w. 1600; visc. 2800 cps (60 C); tens. str. 2700 psi; tens. elong. 51%
- Ebecryl® 6700** [UCB Radcure]  
*Chem. Descr.:* Aromatic urethane acrylate  
*Uses:* Used for screen ink vehicles, clear coatings for paper, rigid and flexible plastics and wood, metal decorating, laminating adhesives  
*Properties:* Gardner 1 color; m.w. 1600; visc. 6000 cps (65 C); tens. str. 2000 psi; tens. elong. 62%
- Ebonex SC-5** [Ebonex]  
*Chem. Descr.:* Bone black  
CAS 8021-99-6  
*Uses:* Pigment for coated paper and board, linoleum, printing ink dye stamping, pulp colors, silk-screen process inks, stains, concrete and cement  
*Properties:* Blk. powd.; readily disp. in aq. and oil-based vehicles; insol. in water; sp.gr. 2.60; oil absorp. 0.055 g linseed oil/g pigment  
*Toxicology:* TSCA listed
- Ecco Aluminum Formate** [Eastern Color & Chem.]  
*Chem. Descr.:* Dibasic/aluminum formate sol'n.  
CAS 7360-53-4; EINECS/ELINCS 230-898-1  
*Uses:* Prep. of water repellents; waterproofing textiles; mordant in dyeing; temporary nondurable dye fixative; water repellent and wet str. agent for paper; component of antiperspirant deodorants; in tanning operations to set tanning sol'ns. prior to dyeing; to improve water shedding props. of some suedes  
*Properties:* Clear, colorless water liq.; dens. 9.6 lb/gal; pH 4.3 ± 0.2 (undiluted); 7.6% Al<sub>2</sub>O<sub>3</sub>  
*Storage:* 6 mos. shelf life @ R.T.; prod. will freeze to solid; on thawing, separation will occur
- Eccobond Adhesive 201 (Joyco Adhesive M1616)** [Eastern Color & Chem.]  
*Chem. Descr.:* Syn. resin  
*Uses:* Adhesive for use in attaching paper labels to metal cans, spools; emulsion with high degree of green tack; provides durability to scuffing and moisture
- Eccobond Adhesive Special #2** [Eastern Color & Chem.]  
*Chem. Descr.:* Resin/solv. adhesive  
*Uses:* Adhesive for textiles and paperboard industries; compounded to supply satisfactory initial tack; solv. system has been carefully selected for somewhat rapid evap., thereby requiring min. temp. and ventilation
- Eccopuff** [Eastern Color & Chem.]  
*Uses:* Printing system providing a raised, three-dimensional type of print for novelty printing applicable to paper, textiles, nonwoven, and decorative tiles in building applics.
- Ecco Rez U-8** [Eastern Color & Chem.]  
*Chem. Descr.:* Waterborne aliphatic urethane polymer disp.  
*Uses:* Produces exc. chem., water, and abrasion resist. in pad dyeing of nylon, polyester, rayon, cotton, and blends; binder for pigment printing; low crock finish; vehicle for clear and pigmented coatings for leather, paper, metals, and wood where tough flexible coating is desired; low VOC; cures @ R.T., but 250-300 F will accelerate cured hardness  
*Properties:* Wh. low-visc. disp.; dens. 8.75 lb/gal; pH 8.0; 35% solids
- Ecco Rez U-21** [Eastern Color & Chem.]  
*Chem. Descr.:* Waterborne polyurethane emulsion  
*Uses:* Softener, hand modifier providing high flexibility in pad dyeing of nylon, polyester, rayon, cotton, and blends; provides shrinkage control to wool, rayon, silks, dry-clean-only fabric; flexible binder for pigment printing, plastics, paper, leather, films; clear coat for leather, metals, and wood; modifier for other polymers; thermosetting resin; retains softness after multiple launderings/dry cleanings; low crock finish; isocyanate-free  
*Regulatory:* DOT nonregulated; SARA §312/313 nonreportable  
*Properties:* Wh. low-visc. emulsion; mild amine odor; reducible in water; sp.gr. 1.05; dens. 8.4 lb/gal; visc. 100 cps; b.p. 212 F; flash pt. none; pH 8.0; VOC 5 g/l; 50% solids  
*Toxicology:* Causes eye irritation and possible tearing; may cause mild skin irritation on repeated contact; may be harmful if swallowed; excessive inh. of vapors may cause nasal/respiratory irritations, headache, nausea  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* Combustion prods.: CO, CO<sub>2</sub>, possibly NO<sub>x</sub>  
*Storage:* Store indoors away from high temps. and flames; emptied containers may retain hazards; do not cut, puncture, or weld near containers
- Eco-Brite™** [Vinings Ind.]  
*Uses:* Brightener to improve pulp bleaching efficiency, primarily in hydrogen peroxide and hydrosulfite bleaching stages; cost-effective replacement for traditional chelants
- EkaZeolite BMH** [Eka Chems.]  
*Uses:* Neutralizer, taste improver in cardboard and pulp; adsorbs substances producing unwanted taste in prepacked provisions and other sensitive prods.
- Ekoflock™** [Eka Chems.]  
*Chem. Descr.:* Polyaluminum hydroxychloride  
CAS 1327-41-9; EINECS/ELINCS 215-477-2  
*Uses:* Sizing agent used to set and retain rosin-based size, particularly in neutral pH range; trash catcher controlling barium sulfate deposition in paper-

making

**Eldorado ALK-6000** [Eldorado]*Chem. Descrip.:* Highly alkaline water-based cleaner*Uses:* Cleaner for rapid cleaning of plastic wires, dandy rolls, suction, rolls, paper machine systems, wet felts, and dryer felts; contains caustic; phosphate-free; dissolves soils such as hard water salts, clays, dyes, pigments, resins, most org. soils found in paper mills*Use Level:* 3-5% (batch cleaning), 5-20% (general-purpose cleaner)*Properties:* Dk. brn. clear liq.; mild odor; flash pt. none; pH 13+ (1%)*Toxicology:* Highly alkaline; contains caustic; avoid contact with skin and eyes*Environmental:* Biodeg.**Eldorado ALK-6031** [Eldorado]*Chem. Descrip.:* Highly alkaline water-based cleaner*Uses:* Cleaner for rapid cleaning of plastic wires, dandy rolls, suction, rolls, paper machine systems, wet felts, and dryer felts; contains caustic; phosphate-free; dissolves soils such as hard water salts, clays, dyes, pigments, resins, most org. soils found in paper mills*Use Level:* 3-5% (batch cleaning), 5-20% (general-purpose cleaner)*Properties:* Dk. brn. clear liq.; mild odor; flash pt. none; pH 13+ (1%)*Toxicology:* Highly alkaline; contains caustic; avoid contact with skin and eyes*Environmental:* Biodeg.**Eldorado ALK-6100** [Eldorado]*Chem. Descrip.:* Highly alkaline water-based cleaner*Uses:* Cleaner, sequestrant, buffer, penetrant for steam cleaning and felt cleaning in paper machines; boilout or purge chem. giving max. tank life where high soil loads are encountered; rec. for use where small nozzles can easily become plugged; outstanding soil-carrying capacity; good rinsing; contains no phenols, cresols, or cresyls; not safe on aluminum, zinc, or wh. metals*Use Level:* 3-5% (batch cleaning)*Properties:* Dk. brn. liq.; mild odor; flash pt. none; pH 13+ (1%)*Toxicology:* Highly alkaline; contains caustic; avoid contact with skin, eyes, clothing**Eldorado ALK-6156** [Eldorado]*Chem. Descrip.:* Highly alkaline water-based cleaner*Uses:* Cleaner, sequestrant, buffer, penetrant for steam cleaning and felt cleaning in paper machines; boilout or purge chem. giving max. tank life where high soil loads are encountered; rec. for use where small nozzles can easily become plugged; outstanding soil-carrying capacity; good rinsing; contains no phenols, cresols, or cresyls; not safe on aluminum, zinc, or wh. metals*Use Level:* 3-5% (batch cleaning)*Properties:* Dk. brn. liq.; mild odor; flash pt. none; pH 13+ (1%)*Toxicology:* Highly alkaline; contains caustic; avoid contact with skin, eyes, clothing**Eldorado Boilout No. 1** [Eldorado]*Uses:* Cleaner for paper mill stock systems; readily attacks calcium/barium sulfates, calcium oxalate, TiO<sub>2</sub>, starch, alum, rosin, sizes, pitch, latex, etc.; for use with mill caustic; high soil-suspending capacity; no noxious fumes*Properties:* Dk. brn. liq.; mild odor; dens. ≈ 9.5 lb/gal; VOC 0%*Toxicology:* Avoid contact with skin, eyes, clothing**Eldorado DEF-710** [Eldorado]*Chem. Descrip.:* Conc. surfactant blend*Uses:* Rewetting agent for papermaking; effective over broad pH range; compensates for sheets that exhibit self-sizing tendencies*Properties:* Clear visc. sol'n.; sol. in water; dens. 8.6 lb/gal; nonionic/anionic*Toxicology:* Severe eye irritant*Environmental:* Low aquatic toxicity*Storage:* Avoid freezing; if frozen, thaw slowly and agitate before use**Eldorado DEF-731** [Eldorado]*Uses:* Defoamer for deaeration applics. on paper machines, suitable for food-pkg. paper; does not contain silicones or petrol. distillates*Regulatory:* FDA compliant*Properties:* Amber translucent liq.; mild odor; neutral pH*Environmental:* Biodeg.; LD50 > 500 ppm—nontoxic to fish**Eldorado DEF-741** [Eldorado]*Uses:* Defoamer, rewetting agent for toweling and tissue machines and for other types of paper incl. food-contact papers; water-based*Regulatory:* FDA compliant*Properties:* Colorless translucent liq.; mild odor; flash pt. none; neutral pH*Environmental:* Biodeg.; LD50 > 1000 ppm—nontoxic to fish**Eldorado DEF-795** [Eldorado]*Uses:* Defoamer, deaerator, drainage aid for paper stocks, incl. alkaline papermaking and food-contact paper; rec. for all types of paper stocks and pH ranges; water-based; low VOC; efficient drainage of forming wires; improved web formation; does not modify sizing; freely pourable in wide temp. range*Regulatory:* FDA compliant*Properties:* Aq. emulsion; misc. with water**Eldorado DIC-100** [Eldorado]*Chem. Descrip.:* Solventized deinking compd.*Uses:* Deinking agent, emulsifier for papermaking; penetrates and accelerates defibering of stock, dissolves inks, varnishes, and coatings, and emulsifies them into the pulping liquor; effective at 120-190 F, but developed for optimum pulping temps. of 150-160 F; no chlorinated solvs.*Use Level:* 0.5-1 gal/ton of dry furnish*Properties:* Colorless clear liq.; mild odor; dens. ≈ 7.5 lb/gal; flash pt. > 150 F; nonionic*Toxicology:* May burn skin and eyes; harmful if swallowed*Environmental:* Biodeg.*Precaution:* Combustible; avoid ignition sources**Eldorado DIC-107** [Eldorado]*Uses:* Deinking agent, stickies control agent, dispersant for paper stock; prevents stickies from agglomerating; reduces picking and one-sidedness of paper; controlled foam*Use Level:* 0.5 gal/ton of dry furnish*Properties:* Dk. brn. liq.; mild pleasant odor; neutral pH; anionic*Environmental:* Biodeg.**Eldorado ED-550** [Eldorado]*Uses:* Solventized, caustic hard surf. cleaner, dye solubilizer for deinking pulp/paper, cleaning dried metallic pigments and oil-sol. dyes from metal surfs.; degreaser; high alkalinity; contains no phenols, chlorinated solvs., or other EPA hazardous materials; low foaming*Properties:* Amber liq.; mild odor; nonflamm.; pH > 13*Toxicology:* Strong caustic; avoid contact with eyes and skin**Eldorado FCA-810** [Eldorado]*Chem. Descrip.:* Conc. citric acid

CAS 77-92-9; EINECS/ELINCS 201-069-1

*Uses:* Paper stock system cleaner for two-step boilout; acidic; inhibited*Properties:* Liq.; mild odor; nonflamm.*Toxicology:* No toxic vapors; no noxious fumes; avoid skin contact*Environmental:* Biodeg.**Eldorado FCD-141** [Eldorado]*Chem. Descrip.:* Alkaline, solventized low-foaming detergent*Uses:* Detergent for cleaning forming fabrics and press felts of pitch, stickies, fines, and other paper contaminants*Use Level:* 200-500 ppm (continuous applic.), 5-10% (on dryer fabrics)*Properties:* Clear liq.; mild solvent odor; completely rinsable with water; flash pt. 210 F; pH 12.0-12.5*Environmental:* Biodeg.**Eldorado FCD-142** [Eldorado]*Chem. Descrip.:* Alkaline, solventized cleaner*Uses:* Felt cleaner for removal of pitch, resins, and org. materials in papermaking; emulsifier; solubilizer; esp. effective when alum is used in papermaking; contains strong corrosion inhibitors for metal safety*Use Level:* 3-5 gal/10,000 gal shower water (continuous cleaning)*Properties:* Amber clear liq.; pH 11 (1%)*Toxicology:* Avoid eye contact and prolonged skin contact**Eldorado FCD-5050** [Eldorado]*Uses:* Boilout and wire cleaner for rapid cleaning of plastic wires, dandy rolls, suction rolls, paper machine systems, wet felts, and dryer felts, incl. food-contact paper prod.; carbonate scale remover in paper stock systems; stain remover for syn. fabrics; dissolves soils such as hard water salts, clays, dyes, pigments, resins, and most org. soils found in paper mills; water-based*Regulatory:* FDA compliant*Properties:* Amber clear liq.; mild odor; flash pt. none; pH neutral*Toxicology:* Contains peroxides; avoid skin contact*Environmental:* Biodeg.**Eldorado PA-300** [Eldorado]*Chem. Descrip.:* Polyethylene-based*Uses:* Coating lubricant enhancing printability and calendered sheet gloss and



providing superior high-shear stability in high-speed papermaking machines; eliminates calcinization and scratches; calcium stearate replacement  
*Use Level:* 0.85-1.6% (on dry pigment)

*Properties:* Creamy smooth emulsion; sol. in water in all proportions; dens. 8.73 lb/gal; visc. 150 cps; pH  $9.6 \pm 0.3$ ;  $60 \pm 1\%$  solids

*Storage:* 6 mos shelf life; store @ 38-95 F; freezing or prolonged storage over 100 F will destroy the prod.

#### Eldorado PA-500 [Eldorado]

*Chem. Descrip.:* Modified buffered glyoxal-based sol'n.

*Uses:* Crosslinking agent, insolubilizer, visc. stabilizer for paper and paperboard coating systems esp. high-solids pigmented coatings, and in pigmented size press applics. and specialty calender stack water box treatments; formaldehyde-free; highly reactive; compat. with soy polymers, casein, latex, starch, gums, etc.; replacement for melamine formaldehyde and urea formaldehyde

*Use Level:* 3-10% (wet basis on wt. of binder)

*Properties:* Clear to sl. amber sol'n.; completely sol. in water in all proportions; sp.gr.  $1.3 \pm 0.05$ ; visc. 19-20 cps; pH  $6.8 \pm 0.3$ ;  $50 \pm 0.5\%$  solids

*Storage:* 6 mos shelf life; store @ 34-95 F; freezing or prolonged storage over 100 F will destroy the prod.

#### Eldorado PA-650 [Eldorado]

*Chem. Descrip.:* Polymer/surfactant blend

*Uses:* Dry str. agent, stiffener for paper and paperboard, esp. for short fiber, recycled furnishes; does not adversely affect plybond or smoothness; no hazardous materials or toxic fumes in formulation

*Use Level:* 15-25 lb/ton

*Properties:* Yel. opaque sl. visc. liq.; sol. in water; sp.gr. 1.16; f.p. 32 F; pH 11

*Storage:* 6 mos min. shelf life; store @ 50-90 F; if frozen, gradually warm to 80-100 F and agitate before use

#### Eldorado PA-700 [Eldorado]

*Chem. Descrip.:* Sol'n. polymer blend

*Uses:* Deposit control agent for contaminants on wet felts in papermaking; efficient at broad pH range; readily mixes and pumps easily; no hazardous materials; no vapor toxicity

*Use Level:* 0.5-5.0 ml/ft of felt width

*Properties:* Hazy low visc. liq.; sp.gr. 1.05-1.1; visc. 10-50 cps; 24% solids; cationic

*Storage:* Store at 40-100 F; avoid freezing; if material appears frozen, thaw slowly and thoroughly mix before use

#### Eldorado PA-742 [Eldorado]

*Chem. Descrip.:* Polymer sol'n. with wetting agents

*Uses:* Fabric passivator, deposit control agent for contaminants on forming fabrics and wet felts in acid and alkaline papermaking

*Use Level:* 0.5-5.0 ml/ft of felt width

*Regulatory:* Nonregulated, nonhazardous material

*Properties:* Clear to sl. hazy liq.; visc. 10-50 cps; 20% polymer conc.; cationic

*Storage:* Store at 40-100 F; avoid freezing; if material appears frozen, thaw slowly and thoroughly mix before use

#### Eldorado PA-755 [Eldorado]

*Chem. Descrip.:* Low m.w. polyacrylamide

CAS 9003-05-8

*Uses:* Anionic trash collector in thermomechanical pulps and coated broke for improved save-all operation; with an anionic polymer, aids board drainage and formation; as cationic donor, enhances performance of internal sizes; enhances cationic starch fixation

*Regulatory:* Nonhazardous

*Properties:* Straw-colored liq.; infinitely sol. in water; pH 4-5; VOC 0%; 40% solids; cationic

*Precaution:* Spills are slippery and absorbent should be used

*Storage:* 2 yrs shelf life; avoid freezing

#### Eldorado PA-780 [Eldorado]

*Chem. Descrip.:* Polymeric

*Uses:* Stickies control agent, neutralizer of anionic surfs., fabric conditioner, film-former on stock and clothing fiber surfs., and deposit control agent for org. soils on fabrics in papermaking; defoamer for stock

*Use Level:*  $\frac{1}{4}$  -  $\frac{1}{2}$  gal/1000 gal of water in thin stock

*Properties:* Clear liq.; pH neutral (1%); cationic

*Toxicology:* Avoid eye contact and prolonged skin contact

*Environmental:* Biodeg.

#### Eldorado Peroxide Stabilizer [Eldorado]

*Uses:* Stabilizer for peroxide bleaching of pulps, increasing brightness and tear str.; stable at pH and temps. used in peroxide bleaching; reduces problems of silicate scale residues

*Use Level:* 6-10 lb/ton of pulp

*Properties:* Dk. amber clear sol'n.; completely sol. in water; dens.  $\approx 11.7$  lb/gal; pH < 2 (1%)

*Toxicology:* Acidic; avoid skin and eye contact; harmful if swallowed

*Environmental:* Pract. nontoxic to fish

#### Eldorado WT-30 [Eldorado]

*Uses:* Threshold scale inhibitor, crystal growth modifier, deflocculant, dispersant, corrosion inhibitor for scale control in papermaking; food-contact paper/paperboard (dry and aq./fatty foods); effective for control of barium sulfate, calcium carbonate, calcium sulfate, magnesium and iron salts deposits; good hydrolytic and thermal stability which allows use in aq. systems over prolonged periods at elevated temps. and wide pH range

*Use Level:* 5-20 ppm (threshold treatment or deposit control)

*Regulatory:* FDA 21CFR §176.170, 176.180, 121.2520, 121.2526, 121.2571, 212.2519

*Properties:* Amber clear sol'n.; mild odor; VOC nil

*Toxicology:* Nontoxic; avoid skin and eye contact

*Environmental:* BOC<sub>s</sub> nil; COD - 0.10 mg O<sub>2</sub>/mg

#### Eldorado WT-50 [Eldorado]

*Chem. Descrip.:* High m.w. cationic polymer in min. oil disp.

*Uses:* Flocculant for municipal and industrial dewatering applics., incl. primary water clarification, in pulp and waste treatment

*Properties:* Milky disp.; completely sol. in water; visc. 1000-1500 cps; 50% NV; cationic

*Toxicology:* Avoid contact with eyes and skin

*Precaution:* Spills present slip hazard

#### Eldorado Lube-20 [Eldorado]

*Chem. Descrip.:* Polymeric

*Uses:* Stickies control agent, neutralizer of anionic surfs., fabric conditioner, film-former on stock and clothing fiber surfs., and deposit control agent for org. soils on fabrics in papermaking; defoamer for stock

*Use Level:*  $\frac{1}{4}$  -  $\frac{1}{2}$  gal/1000 gal of water in thin stock

*Properties:* Clear liq.; pH neutral (1%); cationic

*Toxicology:* Avoid eye contact and prolonged skin contact

*Environmental:* Biodeg.

#### Electra® 7458 [Tate & Lyle N. Am.]

*Chem. Descrip.:* Visc. modified waxy corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Retention aid for papermaking size press; designed where inc. starch retention during repulping is required to improve BOD and COD levels in mill effluents

*Properties:* Cationic

#### Elfugin® AKT Liq. [Clariant UK]

*Chem. Descrip.:* Phosphate ester

*Uses:* Antistat, corrosion inhibitor for surf. treatment of highly technical specialized papers such as punch tape paper, high speed copier paper, paper for noncontact printing, etc.; very good stability to hard water, acids, alkalis; compat. with anionics, nonionics

*Use Level:* 1-8% (size press starch basis), 0.05-0.5% (dry paper basis)

*Properties:* Colorless clear liq.; alcoholic odor; unlimited dilutability with cold water; dens. 1.063 kg/l; pH  $\approx 7$  (1%); anionic

*Storage:* Good storage stability @ 0-50 C; freezes below -5 C, but is fully effective on thawing

#### Elvace® 731 [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* VAE copolymer emulsion

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, and cotton cloth substrates; multipurpose; for adhesives requiring a low VOC content; low residual vinyl acetate monomer (< 0.1%)

*Properties:* 0.2-2.0  $\mu$  particle size; dens. 8.8-9.1 lb/gal; visc. 2000-3000 cps; surf. tens. 52-55 dynes/cm; pH 4.0-5.5; 54.5% min. solids

*Storage:* > 180 day shelf life @ 72 F; protect from freezing

#### Elvace® 733 [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* VAE copolymer

CAS 24937-78-8

*Uses:* Adhesive base for coated and uncoated paper, corrugated board, syn. and cotton cloth, mylar film, PVC, and steel substrates; multipurpose; for adhesives requiring a low VOC content; low residual vinyl acetate monomer (< 0.1%)

*Properties:* 0.2-2.0 µ particle size; dens. 8.8-9.0 lb/gal; visc. 700-1300 cps; surf. tens. 48-51 dynes/cm; pH 4.0-5.5; 54.5% min. solids

*Storage:* > 180 day shelf life @ 72 F; protect from freezing

**Elvace® 734** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE copolymer emulsion

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, cotton cloth, and PVC, decorative paper to particle board lamination, heat-sealable coatings, microwavable pkg., urethane foam lamination; multipurpose; fast speed of set; inc. water resist.; for adhesives requiring low VOC content; low residual vinyl acetate monomer (< 0.1%)

*Regulatory:* FDA approved

*Properties:* 0.2-2.0 µ particle size; dens. 8.8-9.2 lb/gal; visc. 1500-2500 cps; surf. tens. 52-55 dynes/cm; pH 4.5-5.5; 54.5% min. solids

**Elvace® 735** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE copolymer

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, syn. and cotton cloth, mylar film, cellulose acetate, steel, mastic, and PVC, for vinyl lamination, microwave pkg.; multipurpose; for adhesives requiring a low VOC content; low residual vinyl acetate monomer (< 0.1%)

*Properties:* 0.2-2.0 µ particle size; dens. 8.7-9.0 lb/gal; visc. 1900-2800 cps; surf. tens. 52-55 dynes/cm; pH 4.0-5.5; 54.5% min. solids

*Storage:* > 180 day shelf life @ 72 F; protect from freezing

**Elvace® 736** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE copolymer emulsion

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, syn. and cotton cloth, mylar film, cellulose acetate, steel, mastic, and PVC, for microwave pkg. adhesives; multipurpose; for adhesives requiring a low VOC content; low residual vinyl acetate monomer (< 0.1%)

*Properties:* 0.2-2.0 µ particle size; dens. 8.7-9.0 lb/gal; visc. 3000-4200 cps; surf. tens. 52-55 dynes/cm; pH 4.0-5.5; 54% min. solids

*Storage:* > 180 day shelf life @ 72 F; protect from freezing

**Elvace® 739** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE copolymer emulsion

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, syn. and cotton cloth, mylar film, steel, and PVC; multipurpose; for adhesives requiring a low VOC content; low residual vinyl acetate monomer (< 0.1%); improved water resist.; compat. with fully hydrolyzed PVOH

*Properties:* 0.2-2.0 µ particle size; dens. 8.6-9.0 lb/gal; visc. 2700-3700 cps; surf. tens. 52-55 dynes/cm; pH 4.0-5.5; 54-56% min. solids

*Storage:* > 180 day shelf life @ 72 F; protect from freezing

**Elvace® 40713-00** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE emulsion copolymer

CAS 24937-78-8

*Uses:* Adhesive base for vinyl laminating, coated and uncoated paper, corrugated board, cotton and syn. cloth, Mylar film, and steel substrates; multipurpose; good adhesion to difficult substrates

*Properties:* 1.1 µ particle size; dens. 8.9 lb/gal; visc. 1100 cps; surf. tens. 49.5 dynes/cm; pH 5.0; 54% solids; nonionic

**Elvace® 40722-00** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE emulsion copolymer

CAS 24937-78-8

*Uses:* Multipurpose adhesive base for vinyl film lamination, foil and urethane foam lamination, microwavable pkg., heat sealable coatings, high speed case and carton mfg., film lamination, and bottle labeling; food pkg. adhesives, paper, crosslinkable; fast speed of set; improved formulating latitude; good adhesion to metals; self-thickening; very low VOC, free of formaldehyde-containing or generating compds.

*Regulatory:* FDA 21CFR §175.105, 176.180 compliant

*Properties:* Wh. milky liq.; 1.2 µ particle size; dens. 8.8 lb/gal; visc. 1100 cps; surf. tens. 48.5 dynes/cm; pH 4.75; 56% solids

**Elvace® 40724-00** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE emulsion copolymer

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, cotton cloth, and PVC substrates; multipurpose; fast speed of set; increased water resist.

*Properties:* 1.2 µ particle size; dens. 8.8 lb/gal; visc. 2100 cps; surf. tens. 55 dynes/cm; pH 4.75; 54.5% solids; nonionic

**Elvace® 97955-00** [Reichhold/Emulsion Polymers]

*Chem. Descr.:* VAE copolymer emulsion

CAS 24937-78-8

*Uses:* Adhesive base for uncoated paper, corrugated board, cotton cloth, syn. cloth, mylar film, cellulose acetate, PVC, steel, and mastic, remoistenable films; multipurpose; easy clean-up

*Properties:* 0.2-2.0 µ particle size; dens. 8.8-9.0 lb/gal; visc. 1500-2500 cps; surf. tens. 52-55 dynes/cm; pH 4-6; 55-60% solids

*Storage:* > 3 mos shelf life @ 72 F; protect from freezing

**Elvacite® 2008, 2009, 2010, 2021, 2041, 6010** [Ineos Acrylics]

*Chem. Descr.:* Acrylic resin with high methyl methacrylate content

*Uses:* Used for solv.-applied coatings for wood, metal, and plastics, aerosol paints, inks/toners, adhesives, specialty coatings for masonry, and reproduction papers and films, temporary binders

**Elvacite® 2013, 2014, 2016, 2028, 2614, 2550, 2552, 6016** [Ineos Acrylics]

*Chem. Descr.:* Methacrylate copolymer

CAS 25133-97-5

*Uses:* Used for solv.-applied coatings for wood, metal, and plastics, aerosol paints, inks/toners, adhesives, specialty coatings for masonry, and reproduction papers and films, temporary binders

**Elvacite® 2042, 2043** [Ineos Acrylics]

*Chem. Descr.:* Ethyl methacrylate-based resin

*Uses:* Used for solv.-applied coatings for wood, metal, and plastics, aerosol paints, inks/toners, adhesives, specialty coatings for masonry, and reproduction papers and films, temporary binders

**Elvacite® 2044, 2045, 2046** [Ineos Acrylics]

*Chem. Descr.:* Butyl methacrylate-based resin

*Uses:* Used for solv.-applied coatings for wood, metal, and plastics, aerosol paints, inks/toners, adhesives, specialty coatings for masonry, and reproduction papers and films, temporary binders

**Elvanol® 50-42** [DuPont; DuPont Canada]

*Chem. Descr.:* Partially hydrolyzed PVAL, 87-89% hydrolysis

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Stabilizer for vinyl acetate and PS emulsions, PVC resins; paper adhesives; cold-water-sol. films; binder for ceramics, joint compds., texture coatings, particleboard, pigmented paper coatings, nonwoven fabrics; photosensitive coatings; carrier for optical brighteners; carrier, extender for fluorochemicals; protective colloid; temporary protective coatings; soil anti-redeposition agent; food pkg. adhesives, coatings, paper, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800

*Properties:* Visc. 44-50 cP (4% aq., 20 C); pH 5-7 (sol'n.); 5% max. volatiles

*Toxicology:* Nontoxic; under certain conditions of use, nuisance dust may be formed

**Elvanol® 51-05** [DuPont; DuPont Canada]

*Chem. Descr.:* Partially hydrolyzed PVAL, 87-89% hydrolysis

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Stabilizer for vinyl acetate and PS emulsions, PVC resins; paper adhesives; cold-water-sol. films; binder for ceramics, joint compds., texture coatings, particleboard, pigmented paper coatings, nonwoven fabrics; photosensitive coatings; carrier for optical brighteners; carrier, extender for fluorochemicals; protective colloid; temporary protective coatings; soil anti-redeposition agent; food pkg. adhesives, coatings, paper, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800

*Properties:* Visc. 5-6 cP (4% aq., 20 C); pH 5-7 (sol'n.); 5% max. volatiles

*Toxicology:* Nontoxic; under certain conditions of use, nuisance dust may be formed

**Elvanol® 52-22** [DuPont; DuPont Canada]

*Chem. Descr.:* Partially hydrolyzed PVAL, 87-89% hydrolysis

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Stabilizer for vinyl acetate and PS emulsions, PVC resins; paper adhesives; cold-water-sol. films; binder for ceramics, joint compds., texture coatings, particleboard, pigmented paper coatings, nonwoven fabrics; photosensitive coatings; carrier for optical brighteners; carrier, extender for fluorochemicals; protective colloid; temporary protective coatings; soil anti-redeposition agent; food pkg. adhesives, coatings, paper, textiles; oil/grease resist.

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800

*Properties:* Visc. 21-26 cP (4% aq., 20 C); pH 5-7 (sol'n.); 5% max. volatiles

*Toxicology:* Nontoxic; under certain conditions of use, nuisance dust may be formed

**Elvanol® 70-06** [DuPont]

*Chem. Descrip.:* Fully hydrolyzed PVAL, 98.5-99.2% hydrolysis  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Binder providing film str. in paper sizing, paper coatings, adhesives for porous substrates incl. paper/paperboard, hot-water-sol. film, and specialty applics.; binder for pigments; carrier for fluorochems. and optical brighteners; food pkg. adhesives, coatings, paper, textiles; oil/grease/solv. resist.; compat. with starch and CMC

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800

*Properties:* Resist. to cold water but dissolves readily on heating to 90 C with good agitation; visc. 6-7 cP (4% aq., 20 C); pH 5-7 (sol'n.); 5% max. volatiles

*Toxicology:* Nontoxic; under certain conditions of use, nuisance dust may be formed

**Elvanol® 71-30** [DuPont; DuPont Canada]

*Chem. Descrip.:* Fully hydrolyzed PVAL, 99-99.8% hydrolysis  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Film-forming binder used in adhesives, paper, paperboard sizing and coatings, textiles, films, building prods.; strength additive for concrete, cement; binder for pigments, ceramics, cements, plastics, particleboard; oil/solv. barrier props. in hoses, gaskets, pipes; carrier for optical brighteners; cosmetic and personal care incl. face masks; emulsifier in emulsions and latexes; compat. with starch and CMC

*Properties:* Wh. gran.; sol. in hot water, ethanol; insol. in cold water; sp.gr. 1.30; dens. 400-432 kg/m<sup>3</sup>; visc. 28-32 cps (4% aq.); sapon. no. 3-12; ref. index 1.54; pH 5.0-7.0; tens. str. 117 MPa; tens. elong. 10% (break) to 400%; hardness > 100

*Toxicology:* Nontoxic; under certain conditions of use, nuisance dust may be formed

*Environmental:* Biodeg.

**Elvanol® 75-15** [DuPont; DuPont Canada]

*Chem. Descrip.:* Fully hydrolyzed PVAL  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Visc. stabilizer imparting gel resist. to aq. sol'ns., cosmetic and personal care incl. face masks, adhesives, films, paper; binder in cement and ceramic powd.; emulsifier; food pkg. adhesives

*Properties:* Wh. gran.; slurries easily in cold water; visc. 13-15 cps (4% aq.); pH 5.0-7.0; tens. str. 55.2-138 MPa

*Environmental:* Biodeg.

**Elvanol® 85-30** [DuPont; DuPont Canada]

*Chem. Descrip.:* PVAL  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Film-former; binder for building prods., ceramics, ceiling tiles, floor coatings, particleboard, pigmented paper coatings, nonwoven fabrics; adhesive for paper, wood, textiles, leather; emulsifier and protective colloid in emulsion polymerization; sizing agent in paper/paperboard mfg.; as water-sol. films for pkg. and release applics.; as photosensitive coatings; in specialty molded prods.; in textile sizing and finishing; oil/grease/solv. resist.; high oxygen barrier

**Elvanol® 85-82** [DuPont; DuPont Canada]

*Chem. Descrip.:* Fully hydrolyzed PVAL  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Film-former; binder for building prods., ceramics, ceiling tiles, floor coatings, particleboard, pigmented paper coatings, nonwoven fabrics; adhesive for paper, wood, textiles, leather; emulsifier and protective colloid in emulsion polymerization; sizing agent in paper/paperboard mfg.; as water-sol. films for pkg. and release applics.; as photosensitive coatings; in specialty molded prods.; in textile sizing and finishing; oil/grease/solv. resist.; high oxygen barrier

*Properties:* Visc. 25-31 cps (4% aq.); pH 5.0-7.0

**Elvanol® 90-50** [DuPont; DuPont Canada]

*Chem. Descrip.:* Fully hydrolyzed PVAL, 99-99.8% hydrolysis  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Binder providing high film strength in paper and paperboard coating and sizing, adhesive for porous substances incl. paper/paperboard, hot-water-sol. films; binder for pigments, esp. for ceiling tile primers; carrier for optical brighteners; cosmetic and personal care incl. face masks; food pkg. adhesives, coatings, paper, textiles; water/oil/grease/solv. resist.; exc. high shear rheology; compat. with modified starches

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800

*Properties:* Resist. to cold water, but dissolves readily on heating to 90 C with good agitation; visc. 12-15 cps (4% aq.); pH 5.0-7.0 (sol'n.); 5% max. volatiles

*Toxicology:* Nontoxic; under certain conditions of use, nuisance dust may be formed

**Elvanol® HV** [DuPont; DuPont Canada]

*Chem. Descrip.:* Fully hydrolyzed PVAL  
CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Used in adhesive, textile, and paper applics.; cosmetic and personal care incl. face masks; high-visc. grade, high tensile and adhesive strength, strong resistance to grease and hydrocarbons

*Properties:* Wh. gran.; sol. in hot water; Hoeppler falling ball visc. 55-65 cps (4% aq.); pH 5-7 (sol'n.)

**Elvax® 310** [DuPont; DuPont Canada]

*Chem. Descrip.:* EVA copolymer resin  
CAS 24937-78-8

*Uses:* Used in heat-sealable barrier coatings and hot melt adhesives; blending agent for waxes; resin modifier for formulations; gives fiber- or film-tearing bonds between paper substrates and nonporous pkg. materials (e.g., aluminum foil, PP and Mylar polyester films, K cellophane); wax-compatible resin; enhances properties of hot melt blends containing microcryst. waxes

*Properties:* Translucent pellets; slight odor; melt index 400 g/10 min; dens. 0.948 g/cm<sup>3</sup>; inherent visc. 0.54 (30 C); soften. pt. (R&B) 88 C; ref. index 1.486; tens. str. 3.3 MPa; tens. elong. 800-1000% (break); Shore hardness A-2 70; 25% VA

**Elvax® 350** [DuPont; DuPont Canada]

*Chem. Descrip.:* EVA copolymer resins  
CAS 24937-78-8

*Uses:* Used in heat-sealable barrier coatings and hot melt adhesives; blending agent for waxes; resin modifier for formulations; gives fiber- or film-tearing bonds between paper substrates and nonporous pkg. materials (e.g., aluminum foil, PP and Mylar polyester films, K cellophane); footwear applics.; wax-compatible resin; enhances properties of hot melt blends containing microcryst. waxes

*Properties:* Translucent pellets; slight odor; melt index 19 g/10 min; dens. 0.948 g/cm<sup>3</sup>; inherent visc. 0.84; soften. pt. (R&B) 132 C; ref. index 1.489; tens. str. 14 MPa; tens. elong. 800-1000% (break); Shore hardness A83; 25% VA

**Elvax® 360** [DuPont; DuPont Canada]

*Chem. Descrip.:* EVA copolymer resins  
CAS 24937-78-8

*Uses:* Used in heat-sealable barrier coatings and hot melt adhesives; blending agent for waxes; resin modifier for formulations; gives fiber- or film-tearing bonds between paper substrates and nonporous pkg. materials (e.g., aluminum foil, PP and Mylar polyester films, K cellophane); footwear applics.; wax-compatible resin; enhances properties of hot melt blends containing microcryst. waxes

*Properties:* Translucent pellets; slight odor; melt index 2 g/10 min; dens. 0.950 g/cm<sup>3</sup>; inherent visc. 1.05; soften. pt. (R&B) 188 C; ref. index 1.491; tens. str. 26 MPa; tens. elong. 800-1000% (break); Shore hardness A87; 25% VA

**Elvax® 550, 560** [DuPont; DuPont Canada]

*Chem. Descrip.:* EVA copolymer resin  
CAS 24937-78-8

*Uses:* Used in paper roll wrap and carpet seaming tape; high m.w. and high melt visc. grades

*Properties:* Pellets; melt index 8.0 and 2.5 dg/min resp.; dens. 935 kg/m<sup>3</sup>; tens. str. 14 and 20 MPa resp.; tens. elong. 700% and 750% resp.; Shore hardness D 41 and 43 resp.; 15% VA

**Emerest® 2640** [Cognis/Chems. Group; Cognis/Textiles]

*Chem. Descrip.:* PEG-8 stearate  
CAS 9004-99-3

*Uses:* Emulsifier for oils and fats in mfg. of industrial lubricants, agric., consumer prods., textile lubricants and softeners; thickener and stabilizer for starch coatings on paper; paper size; lubricant for channeling wire through conduit; lipophilic

*Regulatory:* EPA exempt

*Properties:* Gardner 1 soft, waxy solid; sol. 5% in xylene; water-disp.; dens. 8.5 lb/gal; visc. 57 cSt (100 F); HLB 12.0; m.p. 32 C; flash pt. 425 F;

cloud pt. < 25 C; 100% act.; nonionic

**Emersol® 869** [Cognis]

*Chem. Descrip.:* Isostearic acid

*Uses:* For applics. incl. coatings, inks, greases, lubricants, paper coatings, rubber and plastic, textile chems., cosmetics, cleaners, and detergents; used where color and odor are not critical

*Properties:* M.w. 284; visc. 48 cps; acid no. 191-194; iodine no. 10 max.

*Toxicology:* LD50 (oral, rat) > 32.0 cc/kg; low toxicity, irritation, and sensitization potential

**Emersol® 872** [Cognis]

*Chem. Descrip.:* Vegetable-derived isostearic acid

*Uses:* For applics. incl. coatings, inks, greases, lubricants, paper coatings, rubber and plastic, textile chems., cosmetics, cleaners, and detergents; industrial grade

*Properties:* M.w. 284; visc. 48 cps; acid no. 175-205; iodine no. 12 max.

*Toxicology:* LD50 (oral, rat) > 32.0 cc/kg; low toxicity, irritation, and sensitization potential

**Emery® Methyl Oleate** [Cognis/Chems. Group]

*Chem. Descrip.:* Methyl oleate

CAS 112-62-9; EINECS/ELINCS 203-992-5

*Uses:* Solvent-carrier for agric. spray prods.; defoaming component in metalworking, paper deinking, pharmaceutical fermentation; prep. of lubricants for automotive, textile, metal rolling operations.

*Properties:* Acid no. 4 max.; iodine no. 85-91; sapon. no. 190-200

**Emka® Defoam BC** [Emkay]

*Chem. Descrip.:* Nonsilicone defoamer

*Uses:* Defoamer for foam and froth control for industrial wastes, textile and paper processing, dyeing and printing; not affected by acid or alkali

*Properties:* Lt. amber liq.; negligible odor; disp. in water; sp.gr. 0.8; dens. 6.8 lb/gal; pH 6.0 (1%); nonionic

*Toxicology:* Extremely low toxicity

*Storage:* Indefinite storage stability

**Empilan® KA3** [Albright & Wilson UK]

*Chem. Descrip.:* C10-12 alcohol ethoxylate

*Uses:* Scouring agent and wetting agent for textiles; emulsifier; dye leveling agent and dispersant; detergent; in metal processing, cutting oils, paper industry, paints, insecticides and pesticides; mortar plasticizer

*Properties:* Pale straw clear liq.; sol. in min. oils and other org. solvs.; HLB 8.9; 100% act.; nonionic

*Environmental:* Biodeg.

**Empilan® KA5** [Albright & Wilson UK]

*Chem. Descrip.:* C10-12 alcohol ethoxylate

*Uses:* Scouring agent and wetting agent for textiles; emulsifier; dye leveling agent and dispersant; detergent; in metal processing, cutting oils, paper industry, paints, insecticides and pesticides

*Properties:* Pale straw clear liq.; HLB 11.5; cloud pt. 37 C; 100% act.; nonionic

*Environmental:* Biodeg.

**Empilan® KA5/90** [Albright & Wilson UK]

*Chem. Descrip.:* C10-12 alcohol ethoxylate

CAS 68439-45-2

*Uses:* Scouring agent and wetting agent for textiles; emulsifier; dye leveling agent and dispersant; detergent; in metal processing, cutting oils, paper industry, paints, insecticides and pesticides

*Properties:* Water wh. clear liq.; dens. 9.8 lb/gal; HLB 11.4; pour pt. 12 F; cloud pt. 95 F; 90% act.; nonionic

*Environmental:* Biodeg.

**Empilan® KA8/80** [Albright & Wilson UK]

*Chem. Descrip.:* C10-12 alcohol ethoxylate

CAS 68439-45-2

*Uses:* Scouring agent and wetting agent for textiles; emulsifier; dye leveling agent and dispersant; detergent; in metal processing, cutting oils, paper industry, paints, insecticides and pesticides

*Properties:* Liq.; HLB 13.6; cloud pt. 81 C; 80% act.; nonionic

*Environmental:* Biodeg.

**Empilan® KA10/80** [Albright & Wilson UK]

*Chem. Descrip.:* C10-12 alcohol ethoxylate

CAS 68439-45-2

*Uses:* Scouring agent and wetting agent for textiles; emulsifier; dye leveling agent and dispersant; detergent; in metal processing, cutting oils, paper industry, paints, insecticides and pesticides

*Properties:* Liq.; HLB 14.6; cloud pt. 95 C; 80% act.; nonionic

*Environmental:* Biodeg.

**Empiphos STP** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. anhyd.

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwash, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing powd.; 93% thru 100 mesh; poured dens. 0.85 g/ml; pH 9.8 (1%); 95% act.

*Toxicology:* TSCA listed

**Empiphos STP/1L** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. hydrated

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwash, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing gran.; 40% thru 16 on 60 mesh; poured dens. 0.7 g/ml; pH 9.6 (1%); 95% act.

**Empiphos STP/1P** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, heavy dens. gran.

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwash, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. heavy-dens. gran.; 60% max. > 0.71 mm; poured dens. 1.05 g/ml; pH 9.8 (1%)

**Empiphos STP/2P** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, heavy dens. gran.

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwash, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. heavy-dens. gran.; 50% min. > 0.5 mm; poured dens. 1.0 g/ml; pH 9.8 (1%)

**Empiphos STP/D** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate anhyd.

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwash, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing powd.; 93% thru 100 mesh; poured dens. 0.85 g/ml; pH 9.8 (1%); 95% act.

**Empiphos STP/D16** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate anhyd.

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwash, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing powd.; poured dens. 0.85 g/ml; pH 9.8 (1%); 95% act.

**Empiphos STP/DMST** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. moisturized

CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay

and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing powd.; 90% thru 100 mesh; poured dens. 0.85 g/ml; pH 9.8 (1%); 94% act.

**Empiphos STP/E** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. moisturized  
CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing powd.; 85% thru 100 mesh; poured dens. 0.85 g/ml; pH 9.8 (1%); 94% act.

**Empiphos STP/L16** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. hydrated  
CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing gran.; 35% thru 16 on 60 mesh; poured dens. 0.55 g/ml; pH 9.8 (1%); 95% act.

**Empiphos STP/M** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate  
CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing gran.; 50% thru 16 on 60 mesh; poured dens. 0.60 g/ml; pH 9.8 (1%); 95% act.

**Empiphos STP/MST** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. moisturized  
CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing powd.; 90% thru 100 mesh; poured dens. 0.85 g/ml; pH 9.8 (1%); 94% act.

**Empiphos STP/N** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, tech. anhyd.  
CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. free-flowing gran.; 60% thru 16 on 60 mesh; poured dens. 0.80 g/ml; pH 9.8 (1%); 95% act.

**Empiphos STP/P** [Albright & Wilson UK]

*Chem. Descrip.:* Pentasodium triphosphate, heavy dens. gran.  
CAS 7758-29-4; EINECS/ELINCS 213-837-7

*Uses:* Water softener; sequestrant; peptizer; deflocculant; dispersant for clay and other mins. and insol. salts; scale inhibitor for CaCO<sub>3</sub> and other scales; corrosion inhibitor of ferrous metal corrosion; used in laundry, dishwasher, and industrial detergents, tile mfg., textile processing, paper mfg., cement mfg.; pigment dispersant in paints; scale/corrosion inhibitor, sequestrant for water treatment

*Properties:* Wh. heavy-dens. gran.; 50% min. > 0.5 mm; poured dens. 1.1

g/ml; pH 9.8 (1%); 95% act.

**Empol® 1004** [Cognis]

*Chem. Descrip.:* Dimer acid, hydrogenated  
CAS 68783-41-5

*Uses:* Surfactant for industrial applics., thermographic resins, hot-melt adhesives, lt.-colored epoxy curing agents and ester derivs. for lubricant applics.; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 2 max. color; sp.gr. 0.940 (25/20 C); visc. 50 poise; acid no. 190 min.; iodine no. 10 max.; sapon. no. 195; pour pt. 5 F; flash pt. 555 F; fire pt. 650 F; 79% dibasic, 5% monobasic, 16% polybasic

**Empol® 1007** [Cognis]

*Chem. Descrip.:* Dilinoleic acid  
CAS 6144-28-1

*Uses:* Surfactant for industrial applics., lubricants; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 5 max. color; acid no. 190 min.

**Empol® 1008** [Cognis/Chems. Group]

*Chem. Descrip.:* Dilinoleic acid  
CAS 6144-28-1

*Uses:* Reactant in high polymers of the polyamide, polyester, and urethane types; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers; polymer grade; exc. oxidation stability, color stability

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 1 max. color; sp.gr. 0.940 (25/20 C); visc. 47 poise; acid no. 194; iodine no. 7; sapon. no. 197; pour pt. 5 F; flash pt. 575 F; fire pt. 630 F; 94% dibasic, 3% polybasic, 3% monobasic

**Empol® 1016** [Cognis/Chems. Group]

*Chem. Descrip.:* Dilinoleic acid  
CAS 6144-28-1

*Uses:* Surfactant for industrial applics., lubricants; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers; offers good control of reactions and little chain-stopping effect in polymer systems

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 6 max. color; sp.gr. 0.945 (25/20 C); visc. 50 poise; acid no. 194; sapon. no. 200; pour pt. 5 F; flash pt. 530 F; fire pt. 600 F; 80% dibasic, 16% polybasic, 4% monobasic

**Empol® 1018** [Cognis/Chems. Group]

*Chem. Descrip.:* Dilinoleic acid  
CAS 6144-28-1

*Uses:* Surfactant for industrial applics., lubricants; in prod. of solid and liq. reactive polyamide resin compositions; for crosslinking polyesters to enhance toughness and flexibility; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 8 max. color; sp.gr. 0.956 (25/20 C); visc. 92 poise; acid no. 192; sapon. no. 200; pour pt. 15 F; flash pt. 530 F; fire pt. 600 F; 79% dibasic, 17% polybasic, 4% monobasic

**Empol® 1020** [Cognis]

*Chem. Descrip.:* Dilinoleic acid  
CAS 6144-28-1

*Uses:* Surfactant for industrial applics., lubricants; used in liq. and solid polyamides and polymers for chain termination; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 7 max. color; sp.gr. 0.949 (25/20 C); visc. 45 poise; acid no. 190; sapon. no. 194; pour pt. 15 F; flash pt. 500 F; fire pt. 545 F; 77% dibasic, 12% monobasic, 11% polybasic

**Empol® 1022** [Cognis/Chems. Group]

*Chem. Descrip.:* Dilinoleic acid



CAS 6144-28-1

*Uses:* Surfactant for industrial applics., lubricants; used for liq. and solid polyamide applics.; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 8 max. color; sp.gr. 0.953 (25/20 C); visc. 75 poise; acid no. 192; sapon. no. 195; pour pt. 15 F; flash pt. 530 F; fire pt. 600 F; 78% dibasic, 15% polybasic, 7% monobasic

**Empol® 1024** [Cognis/Chems. Group]

*Chem. Descrip.:* Dilinoleic acid

CAS 6144-28-1

*Uses:* Defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

**Empol® 1026** [Cognis]

*Chem. Descrip.:* Dilinoleic acid

CAS 6144-28-1

*Uses:* Surfactant for industrial applics., lubricants; used in resin applics. where lt. color is not necessary; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2420, 178.3910

*Properties:* Gardner 8 max. color; sp.gr. 0.951 (25/20 C); visc. 65 poise; acid no. 191; sapon. no. 195; pour pt. 25 F; flash pt. 555 F; fire pt. 605 F; 82% dibasic, 11% polybasic, 7% monobasic

**Emsorb® 2505** [Cognis/Chems. Group]

*Chem. Descrip.:* Sorbitan stearate

CAS 1338-41-6; EINECS/ELINCS 215-664-9

*Uses:* Coupling agent, emulsifier; coemulsifier for industrial oils, household prods., agric., and cosmetics; textile lubricant; paper and textile processing; hydrophobic

*Regulatory:* EPA exempt

*Properties:* Gardner 4 solid; disp. in butyl stearate, perchloroethylene; insol. in water; HLB 5.2; m.p. 50 C; flash pt. 480 F; 100% conc.; nonionic

**Emulgator E 30** [Rhodia HPCII]

*Chem. Descrip.:* Alkane sulfonate

*Uses:* Surfactant, emulsifier in latex, emulsion PVC, vinyl acetate, acrylic, and S/B systems; surfactant in PVC alone or with primary emulsifiers; antifogging agent; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; APE-free

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; BGA XIV compliance

*Properties:* Flake; surf. tens. 31.2 dynes/cm; 100% solids

**Emulsan™ LV** [BASF]

*Uses:* Acid boilout cleaning chem. for paper processing

**Emulsan™ MP-24** [BASF]

*Uses:* Acid cleaning agent for colorants in papermaking

**Emulsan™ MR** [BASF]

*Uses:* Felt cleaning chem. for batch and continuous press paper processing

**Emulsifier K 30 40%** [Bayer AG; Bayer/Fiber, Addits., Rubber]

*Chem. Descrip.:* Sodium alkane sulfonates based on n-paraffin

*Uses:* Emulsifier for emulsion polymerization, esp. acrylic acid esters, VC, VA, vinylidene chloride, butadiene, styrene, processing natural and syn. latexes, plastic dispersions; antistat; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; effective over wide pH range

*Regulatory:* FDA 21CFR §176.170, 176.180, 178.3400

*Properties:* Clear sol'n., virtually odorless; sol. in water; low sol. in alcohols; m.w. 330; visc. 5 mPa·s (25%); HLB 11-12; cloud pt. < 20 C (40%); pH alkaline; surf. tens. 34.9 dynes/cm (0.1%); 40% act.; anionic

*Toxicology:* LD50 (oral, rats) 2 g/kg

*Environmental:* Up to 99% biodeg.

*Storage:* To prevent cloudiness and separation of sol'n. at temps. below 20 C, it should be warmed and homogenized

**Emulsifier K 30 68%** [Bayer/Fiber, Addits., Rubber]

*Chem. Descrip.:* Sodium alkane sulfonates based on n-paraffin

*Uses:* Emulsifier for emulsion polymerization, esp. acrylic acid esters, VC, VA, vinylidene chloride, butadiene, styrene, processing natural and syn. latexes, plastic dispersions; antistat; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; effective over wide pH range

*Regulatory:* FDA 21CFR §176.170, 176.180, 178.3400

*Properties:* Colorless to ysh. pumpable paste, virtually odorless; sol. in water; low sol. in alcohols; m.w. 330; visc. 5 mPa·s (25%); HLB 11-12; cloud pt. < 20 C (40%); pH alkaline; surf. tens. 34.9 dynes/cm (0.1%); 68% act.; anionic

*Toxicology:* LD50 (oral, rats) 2 g/kg

*Environmental:* Up to 99% biodeg.

*Storage:* Separates on storage; stir before use to homogenize

**Emulsifier K 30 76%** [Bayer/Fiber, Addits., Rubber]

*Chem. Descrip.:* Sodium alkane sulfonates based on n-paraffin

*Uses:* Emulsifier for emulsion polymerization, esp. acrylic acid esters, VC, VA, vinylidene chloride, butadiene, styrene, processing natural and syn. latexes, plastic dispersions; antistat; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; effective over wide pH range

*Regulatory:* FDA 21CFR §176.170, 176.180, 178.3400

*Properties:* Wh.-ylsh. stiff paste, virtually odorless; sol. in water; low sol. in alcohols; m.w. 330; visc. 5 mPa·s (25%); HLB 11-12; cloud pt. < 20 C (40%); pH alkaline; surf. tens. 34.9 dynes/cm (0.1%); 76% act.; anionic

*Toxicology:* LD50 (oral, rats) 2 g/kg

*Environmental:* Up to 99% biodeg.

**Emulsifier K 30 95%** [Bayer/Fiber, Addits., Rubber]

*Chem. Descrip.:* Sodium alkane sulfonates based on n-paraffin

*Uses:* Emulsifier for emulsion polymerization, esp. acrylic acid esters, VC, VA, vinylidene chloride, butadiene, styrene, processing natural and syn. latexes, plastic dispersions; antistat; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; effective over wide pH range

*Regulatory:* FDA 21CFR §176.170, 176.180, 178.3400

*Properties:* Wh.-ylsh. flakes, virtually odorless; sol. in water; low sol. in alcohols; m.w. 330; visc. 5 mPa·s (25%); HLB 11-12; cloud pt. < 20 C (40%); pH alkaline; surf. tens. 34.9 dynes/cm (0.1%); 95% act.; anionic

*Toxicology:* LD50 (oral, rats) 2 g/kg

*Environmental:* Up to 99% biodeg.

*Storage:* Hygroscopic; use up completely when opened

**Enathene® EA 720-009** [Equistar]

*Chem. Descrip.:* Ethylene n-butyl acrylate copolymer

CAS 25750-84-9

*Uses:* Resin for extrusion coatings and laminations with oriented PP, PET, papers, clay-coated board and nylon substrates for specialty pkg.; food pkg. adhesives; exc. heat seal response at low temps.; good thermal stability at high processing temps.

*Regulatory:* FDA 21CFR §175.105

*Properties:* Pellets; melt index 6 g/10 min; dens. 0.925 g/cc; m.p. 500-620 F; tens. str. 1300 psi; elong. 900%; soften. pt. (Vicat) 62 C; hardness (Shore D) 34

**Epiol NPG-100** [NOF]

*Chem. Descrip.:* Neopentyl glycol diglycidyl ether

CAS 17557-23-2; EINECS/ELINCS 241-536-7

*Uses:* Reactive diluent for epoxy resin; modifier for fiber, paper, powd.; crosslinking agent; adhesives; paints

**Epiol TMP-100** [NOF]

*Chem. Descrip.:* Trimethylolpropane triglycidyl ether

CAS 30499-70-8

*Uses:* Reactive diluent for epoxy resin; modifier for fiber, paper, powd.; crosslinking agent; adhesives; paints

**Epolene® C-10** [Eastman]

*Chem. Descrip.:* Highly branched, med. m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax used in hot-melt adhesives and coatings for papers and pkg. materials; paraffin modifiers in slush and cast molding, candles, inks; processing aid for rubber compounding; dispersant for color concs.; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; nonemulsifiable; low density

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850

*Properties:* Gardner 1 pellet, sl. odor; negligible sol. in water; m.w. 35,000; dens. 0.906 g/cc; visc. 7800 cps (150 C); soften. pt. (R&B) 104 C; acid no. < 0.05; cloud pt. 77 C (2% in 130 F paraffin); flash pt. (COC) 316 C

*Toxicology:* Molten material may produce thermal burns

*Precaution:* Incompat. with oxidizers

**Epolene® C-13** [Eastman]

*Chem. Descrip.:* Highly branched, med. m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Paraffin wax modifier, e.g., for paper coatings; additive for inks, hot-melt adhesives; base polymer for color concs.; processing aid, mold release agent, dispersant, coupling agent for plastics; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; designed for use with Epolene waxes or blends containing lower m.w. materials

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850

*Properties:* Gardner 1 pellet; m.w. 76,000; melt index 200 (190 C); dens. 0.913 g/cc; soften. pt. (R&B) 110 C; acid no. < 0.05; cloud pt. 81 C (2%)

*Toxicology:* Molten material may produce thermal burns

#### Epolene® C-14 [Eastman]

*Chem. Descrip.:* Highly branched, med. m.w. polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Paraffin wax modifier, e.g., for paper coatings; additive for inks, hot-melt adhesives; base polymer for color concs.; processing aid, mold release agent, dispersant, coupling agent for plastics; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; designed for use with Epolene waxes or blends containing lower m.w. materials

*Regulatory:* FDA 21CFR §172.615, 173.20, 175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellet; melt index 1.6 (190 C); m.w. 143,000; dens. 0.918 g/cc; acid no. < 0.05; cloud pt. 84 C

*Toxicology:* Molten material may produce thermal burns

#### Epolene® C-15 [Eastman]

*Chem. Descrip.:* Highly branched, med. m.w. polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax used in hot-melt adhesives and coatings for papers and packaging materials; paraffin modifier in slush and cast molding, candles, inks; processing aid for rubber compounding; dispersant for color concs.; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; nonemulsifiable; low density

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850

*Properties:* Gardner 1 pellet; m.w. 17,000; dens. 0.906 g/cc; visc. 3900 cps (150 C); soften. pt. (R&B) 102 C; acid no. < 0.05; cloud pt. 75 C

*Toxicology:* Molten material may produce thermal burns

#### Epolene® C-15P [Eastman]

*Chem. Descrip.:* Highly branched, med. m.w. polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax used in hot-melt adhesives and coatings for papers and packaging materials, as paraffin modifiers in slush and cast molding, candles, inks; processing aid for rubber compounding; dispersant for color concs.; nonemulsifiable; low density

*Properties:* Powd.

*Precaution:* Incompat. with oxidizers; powd. material may form explosive dust-air mixts.

#### Epolene® C-16 [Eastman]

*Chem. Descrip.:* Maleated polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* As hot melt coatings for paper (glossy barrier coatings, readily heat sealable to paper prods., metal foils, and plastic films); in paraffin wax coatings and in paraffin-copolymer coatings; compatibilizer; coupling agent for filled polyolefins; wetting/dispersing props. for highly filled compositions; dispersant and processing aid for plastics; food pkg. adhesives, paper/paperboard; nonemulsifiable wax

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Gardner 1 pellet; m.w. 26,000; dens. 0.908 g/cc; visc. 8500 cps (150 C); soften. pt. (R&B) 106 C; sapon. no. 5; cloud pt. 78 C (2% in 130 F paraffin)

#### Epolene® C-17 [Eastman]

*Chem. Descrip.:* Highly branched, med. m.w. polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Paraffin wax modifier, e.g., for paper coatings; additive for inks, hot-melt adhesives; base polymer for color concs.; processing aid, mold release agent, dispersant, coupling agent for plastics; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; designed for use with Epolene waxes or blends containing

lower m.w. materials

*Regulatory:* FDA 21CFR §172.615, 173.20, 175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellet; m.w. 100,000; melt index 20 (190 C); dens. 0.917 g/cc; acid no. < 0.05; cloud pt. 81 C (2% in 130 F paraffin)

*Toxicology:* Molten material may produce thermal burns

#### Epolene® C-18 [Eastman]

*Chem. Descrip.:* Maleated polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* As hot melt coatings for paper (glossy barrier coatings, readily heat sealable to paper prods., metal foils, and plastic films); in paraffin wax coatings and in paraffin-copolymer coatings; adhesion promoter; coupling agent for filled polyolefins; compatibilizer; good wetting and dispersing props. for highly filled compositions; dispersing and processing aid for plastics; food pkg. adhesives, paper; nonemulsifiable; tolerates high levels of inorganic fillers without drastic increases in melt visc.

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Gardner 1 pellet; m.w. 15,000; dens. 0.905 g/cc; visc.: 4000 cps (150 C); sapon. no. 5; soften. pt. (R&B) 102 C

#### Epolene® E-10 [Eastman]

*Chem. Descrip.:* Oxidized low m.w. polyethylene homopolymer resin

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax for water-emulsion for floor polishes, imparting excellent slip resistance, toughness, and durability to polish films; finishing agent for cotton and rayon fabrics; textile softener; processing aid, mold release agent, dispersant, coupling agent for plastics; lubricant in clay coatings for paper to reduce dusting during calendaring; emulsifiable

*Properties:* Gardner 2 pellet, odorless; negligible sol. in water; m.w. 3000; sp.gr. 0.942; visc. 800 cps (125 C); soften. pt. (R&B) 106 C; acid no. 15; flash pt. (COC) > 204 C

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; sl. skin irritant; molten material may produce thermal burns

*Precaution:* Incompat. with oxidizers

#### Epolene® E-15 [Eastman]

*Chem. Descrip.:* Low m.w. oxidized polyethylene homopolymer resin

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Imparts slip resistance to floor polish films; processing aid, mold release agent, dispersant, coupling agent for plastics; lubricant in clay coatings for paper to reduce dusting during calendaring; low density; low soften. pt.; emulsifiable

*Properties:* Gardner 2 pellet; m.w. 4200; dens. 0.925 g/cc; visc. 350 cps (125 C); soften. pt. (R&B) 100 C; acid no. 16

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; sl. skin irritant; molten material may produce thermal burns

*Precaution:* Incompat. with oxidizers

#### Epolene® E-20 [Eastman]

*Chem. Descrip.:* Low m.w. oxidized polyethylene wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Emulsifier; in high-speed, buffable floor polish; textile lubricant/softener; fruit coating applics.; processing aid, mold release agent, dispersant, coupling agent for plastics; lubricant in clay coatings for paper to reduce dusting during calendaring; offers emulsification props. of a med.-dens. wax

*Properties:* Gardner 2 pellet; m.w. 7500; dens. 0.960 g/cc; visc. 1500 cP (125 C); soften. pt. (R&B) 111 C; acid no. 17

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; sl. skin irritant; molten material may produce thermal burns

*Precaution:* Incompat. with oxidizers

#### Epolene® N-10 [Eastman]

*Chem. Descrip.:* Low m.w. polyethylene homopolymer resin

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* For paper-coating applics., printing inks; processing aid and pigment dispersant for polyolefin color concs.; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; nonemulsifiable; easily blended with waxes to improve tens. str., abrasion resistance, and adhesion to fibrous substrates

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellet, odorless; negligible sol. in water; m.w. 10,000; dens. 0.925 g/cc; visc. 1500 cps (125 C); soften. pt. (R&B) 111 C; acid no. < 0.05; cloud pt. 85 C (2% in 130 F paraffin)

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; molten material will produce thermal burns

*Precaution:* Incompat. with oxidizers

**Epolene® N-10P [Eastman]**

*Chem. Descrip.:* Low m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* For paper-coating applics., printing inks; processing aid and pigment dispersant for polyolefin color concs.; nonemulsifiable wax; easily blended with waxes to improve tens. str., abrasion resistance, and adhesion to fibrous substrates; powd. version of Epolene N-10

*Properties:* Powd.

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg

*Precaution:* Incompat. with oxidizers; powd. material may form explosive dust-air mixts.

**Epolene® N-11 [Eastman]**

*Chem. Descrip.:* Low m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Processing aid, mold release agent, lubricant, antiblocking agent for rubber; extrusion and calendaring aid for vinyl; helps mold flow; antitackifier in grn. rubber; solid lubricant in corrugated board mfg.; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellet, odorless; negligbl sol. in water; m.w. 6000; dens. 0.921 g/cc; visc. 350 cps (125 C); soften. pt. (R&B) 108 C; acid no. < 0.05; cloud pt. 79 C (2% in 130 F paraffin)

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; molten material will produce thermal burns

*Precaution:* Incompat. with oxidizers

**Epolene® N-14 [Eastman]**

*Chem. Descrip.:* Low m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Processing aid, mold release agent, lubricant, antiblocking agent for rubber; extrusion and calendaring aid for vinyl; helps mold flow; antitackifier in grn. rubber; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellets, odorless; negligible sol. in water; m.w. 4000; dens. 0.920 g/cc; visc. 150 cps (125 C); soften. pt. (R&B) 106 C; acid no. < 0.05; cloud pt. 77 C (2% in 130 F paraffin)

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; molten material will produce thermal burns

*Precaution:* Incompat. with oxidizers

**Epolene® N-20 [Eastman]**

*Chem. Descrip.:* Low m.w. polyethylene homopolymer wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax used in cosmetics, hot-melt adhesives; dispersant for color concs., cable filling compositions; slip agent for printing inks; modifier for hot-melt highway marking; processing aid, mold release agent, dispersant for plastics; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard; nonemulsifiable; improved resist. to solvs. and oils, and good hardness

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellets, odorless; negligible sol. in water; m.w. 15,000; dens. 0.930 g/cc; visc. 3725 cps (150 C); soften. pt. (R&B) 119 C; acid no. < 0.05; cloud pt. 86 C

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; molten material will produce thermal burns

*Precaution:* Incompat. with oxidizers

**Epolene® N-21 [Eastman]**

*Chem. Descrip.:* Low m.w. polyethylene homopolymer wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax used in cosmetics, hot-melt adhesives; dispersant for color concs., cable filling compositions; slip agent for printing inks; modifier for hot-melt highway marking; processing aid, mold release agent, dispersant for plastics; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer

in food-contact coatings, paper/paperboard; nonemulsifiable; improved resist. to solvs. and oils, and good hardness

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellets, odorless; negligible sol. in water; m.w. 6500; dens. 0.950 g/cc; visc. 350 cps (150 C); soften. pt. (R&B) 120 C; acid no. < 0.05; cloud pt. 87 C

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; molten material will produce thermal burns

*Precaution:* Incompat. with oxidizers

**Epolene® N-34 [Eastman]**

*Chem. Descrip.:* Low m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion lubricant for polyolefins; mold release agent and lubricant in rubber processing; extrusion and calendaring aid for vinyl; food pkg. adhesives, coatings, paper, cellophane, rubber; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1320, 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Gardner 1 pellets, odorless; negligible sol. in water; m.w. 6200; dens. 0.910 g/cc; visc. 450 cps (125 C); soften. pt. (R&B) 103 C; acid no. < 0.05; cloud pt. 69 C (2% in 130 F paraffin)

*Toxicology:* LD50 (oral, rat) > 6400 mg/kg, (dermal, rabbit) > 2000 mg/kg; molten material will produce thermal burns

*Precaution:* Incompat. with oxidizers

**EPON® Resin 825 [Shell]**

*Chem. Descrip.:* Bisphenol A-epichlorohydrin epoxy resin

*Uses:* Resin for elec. castings and encapsulation, low-VOC coatings, aerospace and specialty adhesives, specialized tooling; also in blends with high performance multifunctional epoxy resins to reduce visc.; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; produces systems with greater clarity, chem. resist., higher heat distort. temp., and lower elec. conduct.

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

*Properties:* Gardner 1 max. liq.; dens. 9.7-9.8 lb/gal (20 C); visc. 50-65 poise; EEW 175-180

*Storage:* May crystallize on standing or in storage; reliquefy by heating to 45-50 C

**EPON® Resin 826 [Shell]**

*Chem. Descrip.:* Epoxy resin (diglycidyl ether of bisphenol A)

*Uses:* Used for laminating binders, castings, encapsulations, functional and decorative flooring, filament winding, patching compds., high-build coatings, fiber-reinforced composites and pipe, tooling and molding compds., construction/elec./aerospace adhesives, grouting compds.; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; for applics. requiring low visc. without visc. reducing modifiers or reactive diluents

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

*Properties:* Gardner 2 max. liq.; dens. 9.7 lb/gal; visc. 8500 cps; flash pt. (COC) 243 C; EEW 178-186

**EPON® Resin 828 [Shell]**

*Chem. Descrip.:* Bisphenol A-epichlorohydrin-based epoxy resin without visc. reducing modifiers or reactive diluents

*Uses:* Used in construction/elec./aerospace adhesives, laminating binders, castings, encapsulations, functional and decorative flooring, filament winding, potting compds., grouts, solv.-borne, high-build, or low-VOC maintenance and marine coatings; base resin for epoxy fusion tech.; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; used as sole resin where visc. is not a critical factor

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2280

*Properties:* Gardner 1 max. clear liq.; dens. 9.7 lb/gal; visc. 12,000 cps; vapor pressure 0.03 mm Hg (77 C); flash pt. no flash @ 249 C; ref. index 1.573; EEW 185-192; sp. heat 0.5 cal/gC

*Storage:* Can be stored at 49-60 C for ease of handling

**EPON® Resin 1001F [Shell]**

*Chem. Descrip.:* Bisphenol A-based epoxy resin

*Uses:* Used as the base resin in structural applics. (laminates, filament

winding, transfer molding compds.), surf. coatings (maintenance, marine, wire, powd. coatings), adhesives, and prepreg formulations, elec. encapsulation; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; upgrades thermosetting acrylic resins into coatings with greatly improved adhesion, toughness, and detergent resist.

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

**Properties:** Gardner 2 max. flake; negligible sol. in water; dens. 10.2 lb/gal; bulk dens. 36-40 lb/ft<sup>3</sup>; visc. 7-9.6 cps (40% in MEK); vapor pressure negligible; m.p. 73 C; flash pt. (Seta) > 200 F; EEW 525-550

**Storage:** Store below 60 F to avoid or minimize handling problems; sl. prone to blocking or sintering

#### EPON® Resin 1004F [Shell]

**Chem. Descr.:** Bisphenol A-epichlorohydrin-based epoxy resin

**Uses:** Used in adhesives, molding compds., prepreg laminates, wire coatings, powd. coatings, R.T. cure or force-dried chemically resist. coatings, and to prepare epoxy esters used as vehicles in appliance or automotive primers, maintenance coatings; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

**Properties:** Gardner 3 max. flakes; negligible sol. in water; dens. 10.2 lb/gal; bulk dens. 36-40 lb/ft<sup>3</sup>; visc. 15-25 cps (40% in MEK); vapor pressure negligible; m.p. 100 C; flash pt. (Seta) > 200 F; EEW 800-950

**Storage:** Store in covered area protected against moisture

#### EPON® Resin 1007F [Shell]

**Chem. Descr.:** Bisphenol A-based epoxy resin

**Uses:** Used in adhesives, molding compds., prepreg laminations, wire coatings, powd. coatings, prod. finishes, baking primers where adhesion, flexibility, and corrosion resist. are required, and to prepare epoxy esters; vehicle in high-performance industrial baking finishes, appliance primers, metal furniture finishes; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

**Properties:** Gardner 3 max. flakes; negligible sol. in water; dens. 10.3 lb/gal (20 C); bulk dens. 36-40 lb/ft<sup>3</sup>; visc. 50-100 cps (40% in MEK); vapor pressure negligible; flash pt. (Seta) > 200 F; EEW 1700-2300

**Storage:** Store in covered area protected against moisture

#### EPON® Resin 1009F [Shell]

**Chem. Descr.:** Bisphenol A-based epoxy resin

**Uses:** Vehicle or binder in high-performance industrial baking surf. coatings, appliance primers, metal furniture finishes, wire coatings, powd. coatings; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; produces coatings with high flexibility, adhesion, and resist. to chems. and solvs.

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

**Properties:** Pt-Co 200 max. flakes; negligible sol. in water; dens. 1.19 g/ml; bulk dens. 36-40 lb/ft<sup>3</sup>; melt visc. > 500 poise (150 C); vapor pressure negligible; m.p. 130-140 C; flash pt. (Seta) > 200 F; EEW 2300-3800

**Storage:** Store in covered area protected against moisture

#### EPON® Resin 2002-FC-10 [Shell]

**Chem. Descr.:** Bisphenol A-based epoxy resin contg. 10% Modaflow® (flow control, anticratering agent)

**Uses:** Used for powd. coatings and molding; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2280

**Properties:** Flake; dens. 1.19 g/cc; bulk dens. 36.42 lb/ft<sup>3</sup>; EEW 760-875

#### Epotaf® 181 D [BASF AG]

**Chem. Descr.:** Ethylene polymer dispersion

**Uses:** Additive for other dispersions; increases blocking resist. of adhesives; improves slip in paper finishing

#### Epotuf® 3000 [Reichhold]

**Chem. Descr.:** Acrylate ester of bisphenol-A epoxy resin

**Uses:** For lt. industrial/architectural coatings, adhesives for metal, plastic, wood, paper, and paperboard prods.; binder for glass and nonwoven fabrics; dispersion vehicle for pigments in inks; UV/EB curable

**Properties:** Gardner 1 color; sp.gr. 1.16; dens. 9.7 lb/gal; visc. 2500 cps; acid no. 1; 100% solids

#### Epotuf® 3020-20 HDDA [Reichhold]

**Chem. Descr.:** Acrylate ester of bisphenol-A epoxy resin

**Uses:** For lt. industrial/architectural coatings, adhesives for metal, plastic, wood, paper, and paperboard prods.; binder for glass and nonwoven fabrics; disp. vehicle for pigments in inks; UV/EB curable; improved flow and wetting; high gloss; rapid cure

**Properties:** Gardner 1 color; sp.gr. 1.15; dens. 9.6 lb/gal; visc. 12,000 cps (65 C); acid no. 1; 100% solids

#### Epotuf® 3020-25 TPGDA [Reichhold]

**Chem. Descr.:** Acrylate ester of bisphenol-A epoxy resin

**Uses:** For lt. industrial/architectural coatings, adhesives for metal, plastic, wood, paper, and paperboard prods.; binder for glass and nonwoven fabrics; disp. vehicle for pigments in inks; UV/EB-curable; good flow; high gloss; rapid cure

**Properties:** Gardner 1 color; sp.gr. 1.15; dens. 9.6 lb/gal; visc. 13,000 cps (65 C); acid no. 1; 100% solids

**Toxicology:** Low skin irritation

#### Epotuf® 3210 [Reichhold]

**Chem. Descr.:** Acrylate ester of bisphenol-A epoxy resin

**Uses:** For lt. industrial/architectural coatings requiring flexibility, adhesives for metal/plastic/wood/paper and paperboard prods., inks; binder for glass and nonwoven fabrics; UV/EB-curable

**Properties:** Gardner 1 color; sp.gr. 1.16; dens. 9.7 lb/gal; visc. 2500 cps; acid no. 1; 100% solids

#### Epotuf® 3230 [Reichhold]

**Chem. Descr.:** Acrylate ester of bisphenol-A epoxy resin

**Uses:** For lt. industrial/architectural coatings requiring flexibility, adhesives for metal/plastic/wood/paper and paperboard prods., inks; binder for glass and nonwoven fabrics; UV/EB-curable

**Properties:** Gardner 1 color; sp.gr. 1.16; dens. 9.7 lb/gal; visc. 2000 cps; acid no. 1; 100% solids

#### Esacure® EDB [Sartomer]

**Chem. Descr.:** Ethyl 4-(dimethylamino) benzoate

CAS 10287-53-3; EINECS/ELINCS 233-634-3

**Uses:** Free radical initiator for UV curing for use in adhesives, coatings (metal, paper, wood), electronics (solder masks), inks (flexo and gravure, litho, offset, screen); coinitiator; good sol.

**Properties:** Wh. crystals; odorless; m.w. 193; m.p. 63 C; 98% reactive esters

**Storage:** Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F; use within six months

#### Esacure® KB1 [Sartomer]

**Chem. Descr.:** Benzylidimethyl ketal with 100 ppm MEHQ

CAS 24650-42-8; EINECS/ELINCS 246-386-6

**Uses:** Photoinitiator for UV-cured adhesives (pressure sensitive, structural), coatings (metal, optical, paper, plastic, PVC floor, textile, wood), photopolymers, electronics (photoresists, conformal, encapsulants, solder masks), inks (flexo, gravure, litho, offset, screen); optimum absorp. 250-350 nm; fast cure response; good through-cure

**Properties:** Wh. cryst. powd.; faint, characteristic odor; insol. in water; sol. (g/100 ml): 116 g ethyl acetate, 115 g toluene, 113 g styrene, 80 g acetone; m.w. 256; sp.gr. 1.176 (20 C); m.p. 63-66 C

**Storage:** Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F; use within six months

#### Esacure® KIP100F [Sartomer]

**Chem. Descr.:**  $\alpha$ -Hydroxy ketone and 2-hydroxy-2-methyl-1-phenyl 1-propanone

**Uses:** Free radical initiator for photopolymerization of UV curable systems for adhesives, coatings (glass, metal, optical, paper, PVC floor, wood), electronics (conformal, solder masks), inks (flexo and gravure, litho, screen); high reactivity, nonyellowing (cured film), low odor (cured film)

**Properties:** Clear sl. yel. visc. liq.; faint, char. odor; insol. in water; sol. in most common org. solvs., monomers, prepolymers; sp.gr. 1.100 (20 C); visc. 15-30 MPa·s (20 C); flash pt. (PMCC) 110 C

**Storage:** Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F; use within six months

#### Esacure® KT37 [Sartomer]

**Chem. Descr.:** Blend of Esacure TZT (2,4,6-trimethylbenzophenone and 4-methylbenzophenone) and Esacure KIP 100F ( $\alpha$ -hydroxyketone)

**Uses:** Free radical initiator for UV curing for use in adhesives, coatings

(glass, metal, paper, optical, PVC floor, wood), electronics (conformal, solder masks), inks (flexo and gravure, litho, offset, screen); fast cure response

*Properties:* Clear lt. yel. liq.; faint, characteristic odor; insol. in water; sp.gr. 1.070 (20 C); visc. 1.5-3.5 MPa·s (20 C); b.p. 135 C; pour pt. - 5 C; flash pt. (PMCC) 140 C

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F; use within six months

**Esacure® TZT** [Sartomer]

*Chem. Descrip.:* 2,4,6-Trimethylbenzophenone and 4-methylbenzophenone blend

*Uses:* Free radical initiator for UV curing for use in structural adhesives, coatings (glass, metal, paper, plastic, PVC floor, wood), electronics (conformal, encapsulants, photoresists, solder masks), inks (flexo and gravure, litho, offset, screen); high reactivity, highly soluble, low odor and color (cured film), good surf. cure

*Properties:* Colorless to lt. straw clear liq.; very faint, char. odor; pract. insol. in water; completely sol. in most org. solvs., monomers, oligomers, and resins; sp.gr. 1.053 (20 C); visc. 55 MPa·s (20 C); b.p. 310-330 C; pour pt. - 7 C; flash pt. (PMCC) 140 C; ref. index 1.5822

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F; use within six months

**Escor® AT-310** [Exxon]

*Chem. Descrip.:* Ethylene-methyl acrylate-acrylic acid terpolymer  
CAS 41525-41-1

*Uses:* Impact modifier for engineering thermoplastics; compatibilizer for polar and nonpolar polymers; adhesive film for industrial laminations or bonding elastomers to fabrics and metals; for extrusion coating/laminating; in heat-activated adhesive sealant; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Melt index 6.0 g/10 min; dens. 0.941 g/cc; m.p. 89 C; acid no. 45; tens. str. 3.3 MPa (yield, 14 MPa (break); tens. elong. > 800% (break); flex. mod. 66 MPa; tens. impact 530 kJ/m<sup>2</sup>; hardness (Shore A) 90; soften. pt. (Vicat) 86 C

**Escor® AT-320** [Exxon]

*Chem. Descrip.:* Ethylene-methyl acrylate-acrylic acid terpolymer  
CAS 41525-41-1

*Uses:* Adhesion modifier for rubber compds., TPOs, adhesive sealants; improves adhesion to metals, syn. yarns, paints; impact modifier for engineering thermoplastics; compatibilizer for dissimilar polymers; extrusion laminates; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Melt index 5.0 g/10 min; dens. 0.950 g/cc; m.p. 69 C; acid no. 45; tens. str. 12 MPa (yield, 12 MPa (break); tens. elong. > 800% (break); flex. mod. 25 MPa; tens. impact 760 kJ/m<sup>2</sup>; hardness (Shore A) 83; soften. pt. (Vicat) 66 C

**Escor® AT-325** [Exxon]

*Chem. Descrip.:* Ethylene-methyl acrylate-acrylic acid terpolymer  
CAS 41525-41-1

*Uses:* Impact modifier for engineering thermoplastics; compatibilizer for dissimilar polymers; adhesion promoter for molded polyolefin parts; food pkg. adhesives, paper/paperboard; improves toughness, flexibility, adhesion chars.

*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Melt index 20 g/10 min; dens. 0.950 g/cc; m.p. 67 C; acid no. 45; tens. str. 7.8 MPa (yield, 7.8 MPa (break); tens. elong. > 800% (break); flex. mod. 21 MPa; tens. impact 590 kJ/m<sup>2</sup>; hardness (Shore A) 80; soften. pt. (Vicat) 60 C

**Esi-Cryl™ 316N** [Cook Composites & Polymers]

*Chem. Descrip.:* Wax emulsion based on A-C® 316 (oxidized HDPE homopolymer)

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Used in floor finishes, general coatings, inks, lubricants, textiles, graphic arts, and adhesives; food-contact paper/paperboard; improves slip and abrasion resist. in inks and overprint varnishes

*Regulatory:* FDA 21CFR §176.180

*Properties:* Dens. 8.30 lb/gal; acid no. 16 (of base PE); pH 9-10; hardness < 0.5; 29.5-30.5% solids; nonionic

**Esi-Cryl™ 847** [Cook Composites & Polymers]

*Chem. Descrip.:* Hydrosol emulsion polymer

*Uses:* Grinding and extending vehicle, thickener for flexographic/gravure

inks and coatings for corrugated, paper, board, and newsprint; exc. transfer  
*Use Level:* 2-3% (ink thickeners)

*Properties:* Opaque emulsion; m.w. 97,500; dens. 8.8 lb/gal; visc. < 100 cps; acid no. 123; pH 4.0; 35% solids

**Esi-Cryl™ 865** [Cook Composites & Polymers]

*Chem. Descrip.:* Hydrosol emulsion polymer

*Uses:* Grinding and extending vehicle, thickener for flexographic/gravure inks and coatings for corrugated, paper, board, and newsprint; exc. transfer  
*Use Level:* 2-3% (ink thickeners)

*Properties:* Opaque emulsion; m.w. 70,000; dens. 8.8 lb/gal; visc. < 50 cps; acid no. 115; pH 6.0; 40% solids

**Esi-Cryl™ 1047** [Cook Composites & Polymers]

*Uses:* Thickener for formulation of flexographic inks and coatings for corrugated, paper, board, and newsprint

*Use Level:* 2-3% (ink thickeners)

*Properties:* Liq.; dens. 8.8 lb/gal; visc. 5000 cps; pH 8.8; 20% solids

**Esi-Cryl™ 1055** [Cook Composites & Polymers]

*Chem. Descrip.:* Colloidal sol'n. polymer

*Uses:* Grinding and letdown vehicle, thickener for flexographic/gravure inks and coatings for corrugated, paper, board, and newsprint; exc. adhesion to PE/PP film and foil; nonpinholing; surfactant-free

*Use Level:* 2-3% (ink thickeners)

*Properties:* Translucent liq.; m.w. 32,000; dens. 8.8 lb/gal; visc. 100 cps; acid no. 67; pH 8.3; 30% solids

**Esi-Cryl™ 1056** [Cook Composites & Polymers]

*Chem. Descrip.:* Colloidal sol'n. polymer

*Uses:* Letdown vehicle, TiO<sub>2</sub>/clay/CaCO<sub>3</sub>, dispersant, thickener for flexographic inks and coatings for corrugated, paper, board, and newsprint; exc. adhesion to PE/PP film and foil; nonpinholing; surfactant- and ammonia-free

*Use Level:* 2-3% (ink thickeners)

*Properties:* Translucent liq.; m.w. 32,000; dens. 8.6 lb/gal; visc. 150 cps; acid no. 67; pH 8.3; 30% solids

**Esi-Cryl™ 1065** [Cook Composites & Polymers]

*Uses:* Thickener for formulation of flexographic inks and coatings for corrugated, paper, board, and newsprint

*Use Level:* 2-3% (ink thickeners)

*Properties:* Liq.; dens. 8.6 lb/gal; visc. 2200 cps; pH 9.0; 20.5% solids

**Esi-Cryl™ 1066** [Cook Composites & Polymers]

*Uses:* Thickener for formulation of flexographic inks and coatings for corrugated, paper, board, and newsprint

*Use Level:* 2-3% (ink thickeners)

*Properties:* Liq.; dens. 8.8 lb/gal; visc. 5500 cps; pH 8.7; 20.5% solids

**Esi-Cryl™ 1099** [Cook Composites & Polymers]

*Uses:* Thickener for formulation of flexographic inks and coatings for corrugated, paper, board, and newsprint

*Use Level:* 2-3% (ink thickeners)

*Properties:* Liq.; dens. 8.6 lb/gal; visc. 2000 cps; pH 9.0; 35% solids

**Esi-Rez™ 50** [Cook Composites & Polymers]

*Chem. Descrip.:* Solid acrylic resin

*Uses:* High gloss pigment dispersant, extending resin for water, alcohol, or glycol-based flexo/gravure inks, coatings, and overprint varnishes; grinding of org. pigments; resinous/polymeric food-contact coatings; component of paper/paperboard in contact with aq./fatty/dry foods; high holdout and transfer; exc. printability and resolubility; easy solubilization; high m.w.

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170, 176.180

*Properties:* Colorless clear bead; m.w. 9500; sp.gr. 1.05; soften. pt. (B&R) 130 C; acid no. 200; > 97% solids, < 3% cosolv.

**Esi-Rez™ 53** [Cognis/Coatings & Inks]

*Chem. Descrip.:* Solid acrylic resin

*Uses:* High gloss extending resin for waterborne flexo/gravure inks, coatings, overprint varnishes; resinous/polymeric food-contact coatings; component of paper/paperboard in contact with aq./fatty/dry foods; exc. pigment wetting, transfer, printability, resolubility; high holdout; easy solubilization

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170, 176.180

*Properties:* Colorless clear bead; m.w. 5900; sp.gr. 1.05; soften. pt. (B&R) 125 C; acid no. 215; > 97% solids, < 3% cosolv.

**Esi-Rez™ 60** [Cook Composites & Polymers]

*Chem. Descrip.:* Solid acrylic resin

*Uses:* High gloss pigment grinding/extending resin for flexo/gravure inks, coatings, overprint varnishes; food pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; high holdout and transfer; easy solubilization; exc. printability; ultra low VOC



- Regulatory:* FDA 21CFR §175.105, 176.170, 176.180  
*Properties:* Colorless clear bead; m.w. 7800; soften. pt. 162 C; acid no. 245; 100% solids
- Esi-Rez™ 65** [Cook Composites & Polymers]  
*Chem. Descrip.:* Solid acrylic resin  
*Uses:* High gloss extending resin for flexo/gravure inks, coatings, overprint varnishes; food pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; high holdout and transfer; easy solubilization; exc. printability; ultra low VOC  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180  
*Properties:* Colorless clear bead; m.w. 2300; soften. pt. 142 C; acid no. 300; 100% solids
- Estalol®** [Aceto]  
*Chem. Descrip.:* Dibasic ester  
*Uses:* For paper, foundry, electronics, textile industries
- Estane® 5715** [BFGoodrich]  
*Chem. Descrip.:* Polyester-urethane polymer, calcium stearate-dusted  
*Uses:* Used in binders, leather dressing, commercial, paper and foil coatings; thermoplastic polymer; produces hard, flexible, abrasion-resistant coating  
*Properties:* Pale amber granular; readily sol. in MEK; visc. 100-200 cps (20% in MEK); Shore hardness 63D.
- Etadurin 31** [Akzo Nobel]  
*Chem. Descrip.:* Amine copolymer aq. sol'n.  
*Uses:* Wet str. resin for paper mfg.; thermosetting  
*Properties:* 35% solids in water; cationic
- Ethoduomeen® T/20** [Akzo Nobel; Akzo Nobel bv]  
*Chem. Descrip.:* PEG-10 tallow aminopropylamine  
 CAS 61790-85-0  
*Uses:* Emulsifier, dispersant, wetting agent used in coating preparation on paperboard; corrosion inhibitor; also for cosmetics  
*Properties:* Gardner 18 max. liq.; sp.gr. 0.99; f.p. < 25 C; b.p. 150 C; amine no. 144; flash pt. (PMCC) 90 C; surf. tens. 38.2 dynes/cm (0.1%); 95% min. act.; cationic  
*Toxicology:* Severe eye irritant
- Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Hydroxyethylated dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Viscosifier, penetrant, film-former for papermaking size press and paper coatings, adhesives, textile warp sizing; improves printing and surf. str. of paper
- Etingal® A** [BASF AG]  
*Chem. Descrip.:* Phosphoric acid ester  
*Uses:* Antifoam for papermaking and paper finishing; defoamer for coating colors; effective in aq. media
- Etingal® L** [BASF AG]  
*Chem. Descrip.:* Ethyl ether deriv. of fatty acid  
*Uses:* Defoamer, deaerator for pigment slurries, coating colors, and surf. sizing preps.; defoamer, stock deaerator in papermaking; long-acting; easy to emulsify; contains no diluent; does not release any volatile components of flammable vapors (below 100 C)  
*Properties:* Liq.; 100% act.
- Etingal® S** [BASF AG]  
*Chem. Descrip.:* Phosphoric acid ester  
*Uses:* Defoamer for papermaking, leather, furs, coating colors; emulsifiable version of Etingal® A
- Etopol 31-L** [Christianson SA de CV]  
*Chem. Descrip.:* Polyoxypropylene (90%), polyoxyethylene (10%) block copolymer  
 CAS 9003-11-6  
*Uses:* Hydrophobic agent for stabilization of w/o emulsions; wetting agent for agric. wettable powds. and in paper applics.; defoamer for antifreeze, gas-treating units, drilling muds, glue, cutting/grinding fluids, and in pulp/paper industry  
*Properties:* APHA 100 max. liq.; polyol char. odor; sol. > 10 g/100 ml of water; m.w. 1100; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 165 cps; vapor pressure < 0.01 mm Hg; m.p. ≈ -30 C; b.p. > 250 C; HLB 4.5; pour pt. -32 C; cloud pt. 37 C (1% aq.); flash pt. > 220 C; surf. tens. 50.4 dynes/cm (0.01% conc.); 0.3% water; nonionic  
*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness  
*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids
- Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide
- Etopol 61-L** [Christianson SA de CV]  
*Chem. Descrip.:* Polyoxypropylene (90%), polyoxyethylene (10%) block copolymer  
 CAS 9003-11-6  
*Uses:* Hydrophobic agent for stabilization of w/o emulsions; defoamer for spray-on bandages and submerged aerobic fermentation processes; defoamer, additive for latex coating colors, sulfite pulp bleaching; pulp drainage agent in paper industry; also used in water treatment, for canning industry during peeling and washing of vegetables and fruits in dilute lye sol'ns., and in food processing, baking, brewing, and bottle washing  
*Properties:* APHA 100 max. liq.; polyol char. odor; sol. < 1 g/100 ml of water; m.w. 2000; sp.gr. 1.01; dens. 8.4 lb/gal; visc. 285 cps; vapor pressure < 0.01 mm Hg; m.p. ≈ -30 C; b.p. > 250 C; HLB 3; pour pt. -29 C; cloud pt. ≈ 24 C (1% aq.); flash pt. (COC) > 230 C; surf. tens. 43.5 dynes/cm (0.01% conc.); 0.3% water; nonionic  
*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness  
*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids
- Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide
- Etopol 62DX-L** [Christianson SA de CV]  
*Chem. Descrip.:* Polyoxypropylene, polyoxyethylene block copolymer  
*Uses:* Visc. control agent in cosmetics (hair bleaches, dyes and tints, hair sets, liq. ointments, emollients or soaps), water treatment; good detergency for textile industry  
*Properties:* APHA 100 max. liq.; sol. > 1 g/100 ml of water; m.w. 2350; sp.gr. 1.04; dens. 8.7 lb/gal; visc. 385 cps; pour pt. -1 C; cloud pt. ≈ 35 C (1% aq.); surf. tens. 46.6 dynes/cm (0.01% conc.); 0.3% water; nonionic  
*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness  
*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids
- Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide
- Etopol 62-L** [Christianson SA de CV]  
*Chem. Descrip.:* Polyoxypropylene (80%), polyoxyethylene (20%) block copolymer  
 CAS 9003-11-6  
*Uses:* Solubilizer for fluorescein, tyrothricin, perfume, iodine, DDT, hexachlorophene, etc.; used in printing industry; as component of crude oil demulsifiers; additive for machine dishwashing detergents, preventing spotting; also for latex coating colors, special paper coating, and for cooking rag stocks in paper industry  
*Properties:* APHA 100 max. liq.; polyol char. odor; sol. > 10 g/100 ml of water; m.w. 2500; sp.gr. 1.03; dens. 8.6 lb/gal; visc. 400 cps; vapor pressure < 0.01 mm Hg; m.p. ≈ -5 C; b.p. > 250 C; HLB 7; pour pt. -4 C; cloud pt. ≈ 32 C (1% aq.); flash pt. (COC) > 240 C; surf. tens. 45.3 dynes/cm (0.01% conc.); 0.3% water; nonionic  
*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness  
*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids
- Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide
- Etopol 62LF-L** [Christianson SA de CV]  
*Chem. Descrip.:* Polyoxypropylene, polyoxyethylene block copolymer  
 CAS 9003-11-6  
*Uses:* Visc. control agent in cosmetics (hair bleaches, dyes and tints, hair sets, liq. ointments, emollients or soaps), water treatment; good detergency for textile industry  
*Properties:* APHA 100 max. liq.; polyol char. odor; sol. > 10 g/100 ml of water; m.w. 2450; sp.gr. 1.03; dens. 8.6 lb/gal; visc. 400 cps; vapor pressure < 0.01 mm Hg; m.p. ≈ -10 C; b.p. > 250 C; pour pt. -10 C; cloud pt. ≈ 28 C (1% aq.); surf. tens. 41.9 dynes/cm (0.01% conc.); 0.3% water; nonionic  
*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness  
*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids

acids

*Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide

**Etopol 63-L** [Christianson SA de CV]

*Chem. Descrip.:* Polyoxypropylene (70%), polyoxyethylene (30%) block copolymer

CAS 9003-11-6

*Uses:* Solubilizer for fluorescein, tyrothricin, perfume, iodine, DDT, hexachlorophene, etc.; used in printing industry; as component of crude oil demulsifiers; additive for machine dishwashing detergents, preventing spotting; also for latex coating colors, special paper coating, and for cooking rag stocks in paper industry

*Properties:* APHA 100 max. liq.; polyol char. odor; sol. > 10 g/100 ml of water; m.w. 2650; sp.gr. 1.04; dens. 8.7 lb/gal; visc. 490 cps; vapor pressure < 0.01 mm Hg; m.p. ≈ 10 C; b.p. > 250 C; HLB 11; pour pt. 10 C; cloud pt. ≈ 34 C (1% aq.); flash pt. (COC) > 200 C; surf. tens. 45.9 dynes/cm (0.01% conc.); 0.3% water; nonionic

*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness

*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids

*Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide

**Etopol 81-L** [Christianson SA de CV]

*Chem. Descrip.:* Polyoxypropylene (90%), polyoxyethylene (10%) block copolymer

CAS 9003-11-6

*Uses:* As component of crude oil demulsifiers; wetting agent and rewetting agent for agric. wettable powds. and in paper applics.; defoamer for spray-on bandages and submerged aerobic fermentation processes

*Properties:* APHA 100 max. liq.; polyol char. odor; sol. < 1 g/100 ml of water; m.w. 2750; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 475 cps; vapor pressure < 0.01 mm Hg; m.p. ≈ -35 C; b.p. > 250 C; HLB 2; pour pt. -37 C; cloud pt. ≈ 20 C (1% aq.); flash pt. (COC) > 200 C; surf. tens. 43.7 dynes/cm (0.01% conc.); 0.3% water; nonionic

*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness

*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids

*Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide

**Etopol 101-L** [Christianson SA de CV]

*Chem. Descrip.:* Polyoxypropylene (90%), polyoxyethylene (10%) block copolymer

CAS 9003-11-6

*Uses:* Hydrophobic agent for stabilization of w/o emulsions; wetting agent for paints, starch, paper, agric., and petroleum processes; defoamer for anti-freeze, gas-treating units, drilling muds, glue, cutting/grinding fluids, and pulp/paper industry; for food canning industry for washing and peeling of vegetables and fruits in dilute lye sol'ns.; also used in food processing, baking, brewing, and bottle washing; safe processing agent for fumaric acid

*Properties:* APHA 100 max. liq.; polyol char. odor; insol. in water; m.w. 3800; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 800 cps; vapor pressure < 0.01 mm Hg (20 C); m.p. ≈ -25 C; HLB 1; hyd. no. 69-73; pour pt. -23 C; cloud pt. 15 C (1% aq.); flash pt. (COC) > 200 C; surf. tens. 34.9 dynes/cm (0.01% conc.); 0.3% water; nonionic

*Toxicology:* Repeated contact with skin can cause dermatitis; eye irritant; ing. of lg. amts. will result in diarrhea and weakness

*Precaution:* Avoid strong oxidants, strong alkali @ high temps., and strong acids

*Hazardous Decomp. Prods.:* Combustion produces carbon monoxide and carbon dioxide

**Everflex® GT** [W.R. Grace]

*Chem. Descrip.:* Polyvinyl acetate latex

CAS 9003-20-7

*Uses:* Emulsion for high solids mastics, caulks, sealants, joint cements, fire-retardant coatings, paper and felt saturation; chemical and mechanical stability; produces highly loaded formulations with rheological chars.; produces films that are clear, transparent, and odorless

*Properties:* Wh. emulsion, sl. char. odor; 1.0 μ particle size; dens. 9.76 lb/gal; visc. 1500-3000 cps; pH 4.0-6.5; 54-56% total solids

**Everflex® MA** [W.R. Grace]

*Chem. Descrip.:* Vinyl acrylic copolymer emulsion

*Uses:* Vehicle for trade sales paints, factory finishes (wood, composition board), and in coatings and impregnation of paper and textiles; colloid-free microparticle size emulsion; chemical and mechanical stability; produces films that are clear, transparent, and odorless

*Properties:* Wh. emulsion, sl. char. odor; 0.1 μ particle size; dens. 9.76 lb/gal; visc. 200-800 cps; pH 4.0-6.5; 50-52% total solids

**EW-POL 7902 NaC 12** [Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Sodium laurate

CAS 629-25-4; EINECS/ELINCS 211-082-4

*Uses:* Emulsifier for E-PVC mfg.; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170; BGA approved

*Properties:* Liq.; 9.5-10.5% act.

**EW-POL 9110** [Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* NH<sub>4</sub> oleate

CAS 544-60-5; EINECS/ELINCS 208-873-1

*Uses:* Emulsifier for SB/SBR mfg.; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170

*Properties:* Liq.; 49-50% act.

**EXP-24-LS Silicone Wax Emulsion** [Genesee Polymers]

*Chem. Descrip.:* Silicone wax copolymer aq. emulsion

*Uses:* Release, lubricant, detackifier for rubber industry; release, internal lubricant for plastics; antiblocking for paper, carbon paper, typewriter ribbons; release, water repellent, thread/fiber lubricant for textiles; release, water repellent, antiblocking for printing inks; also for candles, glass bottle molding, aluminum prod., machine shop use; dries to continuous wax film, acts as rust protective coating

*Properties:* Wh. to tan opaque liq., mild odor; disp. in water; sp.gr. 0.98; dens. 8.0 lb/gal; b.p. 212 F; pH 6.0; 13.5% silicone wax, 15% total solids; nonionic

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, silica

*Storage:* Protect from freezing; store below 100 F

**EXP-58 Silicone Wax** [Genesee Polymers]

*Chem. Descrip.:* Silicone wax copolymer

*Uses:* Paintable lubricant, mold release agent and internal lubricant for plastics; release, lubricant, detackifier for rubber; forms dry, colorless film on substrates, providing rust protection; antiblocking agent for paper, printing inks; release, water repellent, thread/fiber lubricant for textiles; also for aluminum prod., glass bottle molding, candles, machine shop use

*Properties:* Wh. hard wax, odorless; sol. in aliphatic hydrocarbons; insol. in water; m.w. 12,000; sp.gr. 0.85; dens. 7.1 lb/gal; m.p. 43 C; b.p. > 200 C; flash pt. (PMCC) > 200 F; 100% act.

*Hazardous Decomp. Prods.:* Hydrocarbon decomp. prods., silica

*Storage:* Indefinite storage stability

**EXP-61 Amine Functional Silicone Wax** [Genesee Polymers]

*Chem. Descrip.:* Stearyl/aminopropyl methicone copolymer

CAS 110720-64-4

*Uses:* Lubricant, water repellent, antiblocking agent, internal processing aid; forms dry, colorless film on substrates providing rust protection, good bonding; lubricant, detackifier for rubber; plastics release; antiblocking for paper; fiber/thread lubricant for textiles; also for printing inks, candles, glass bottle molding, aluminum prod., machine shop use

*Properties:* Wh. waxy solid; m.w. 12,000; sp.gr. 0.88; dens. 7.4 lb/gal; m.p. 44 C; flash pt. > 300 F; 100% act.

**EXP-77 Mercapto Functional Silicone Wax** [Genesee Polymers]

*Chem. Descrip.:* Mercapto functional silicone wax

*Uses:* Lubricant and release agent for molded metal, plastic, and rubber parts; release, lubricant, detackifier, internal processing aid for rubber; water repellent, release, thread/fiber lubricant for textiles; antiblocking for printing inks, paper; also for candles, glass bottle molding, machine shop use, aluminum prod.; good high temp. stability

*Properties:* Wh. waxy soli, sulfur odor; sol. in aliphatic and aromatic hydrocarbons; m.w. 12,000; sp.gr. 0.88; dens. 7.4 lb/gal; m.p. 44 C; flash pt. > 300 F; 100% act.

**Expancel® 091 DE** [Expance]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Unexpanded microspheres as blowing agent in printing inks, PU, PVC plastisols, fabrics, paper; expanded microspheres as ultra-low density fillers for use in engineered prods. in which other fillers would not be suitable, e.g., syn. marble and wood, coatings, sealants, explosives, auto, marine fillers, molding compds., composites, paint and crack fillers, cable

fillings, elastomers

**Expancel® 091 DE 80** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Unexpanded microspheres as blowing agent in printing inks, PU, PVC plastisols, fabrics, paper; expanded microspheres as ultra-low density fillers for use in engineered prods. in which other fillers would not be suitable, e.g., syn. marble and wood, coatings, sealants, explosives, auto, marine fillers, molding compds., composites, paint and crack fillers, cable fillings, elastomers

**Expancel® 091 WU** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Wet, unexpanded microspheres used as blowing agents in PU (footwear, sporting goods), PVC plastisols (automotive undercoatings), printing ink, fabrics, paper and board, nonwovens; exc. solv. resist.

*Properties:* Wh.; 8-11 µm avg. particle size; dens. < 17 kg/m<sup>3</sup>; 65% solids

**Expancel® 461 DE** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Unexpanded microspheres as blowing agent in printing inks, PU, PVC plastisols, fabrics, paper; expanded microspheres as ultra-low density fillers for use in engineered prods. in which other fillers would not be suitable, e.g., syn. marble and wood, coatings, sealants, explosives, auto, marine fillers, molding compds., composites, paint and crack fillers, cable fillings, elastomers

**Expancel® 461 DE 20** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Unexpanded microspheres as blowing agent in printing inks, PU, PVC plastisols, fabrics, paper; expanded microspheres as ultra-low density fillers for use in engineered prods. in which other fillers would not be suitable, e.g., syn. marble and wood, coatings, sealants, explosives, auto, marine fillers, molding compds., composites, paint and crack fillers, cable fillings, elastomers

**Expancel® 551 DE 20** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Unexpanded microspheres as blowing agent in printing inks, PU, PVC plastisols, fabrics, paper; expanded microspheres as ultra-low density fillers for use in engineered prods. in which other fillers would not be suitable, e.g., syn. marble and wood, coatings, sealants, explosives, auto, marine fillers, molding compds., composites, paint and crack fillers, cable fillings, elastomers

**Expancel® 551 WE 20** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Unexpanded microspheres as blowing agent in printing inks, PU, PVC plastisols, fabrics, paper; expanded microspheres as ultra-low density fillers for use in engineered prods. in which other fillers would not be suitable, e.g., syn. marble and wood, coatings, sealants, explosives, auto, marine fillers, molding compds., composites, paint and crack fillers, cable fillings, elastomers

**Expancel® 551 WU** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Wet, unexpanded microspheres used as blowing agents in PU (footwear, sporting goods), PVC plastisols (automotive undercoatings), printing ink, fabrics, paper and board, nonwovens; good solv. resist.

*Properties:* Wh.; 5-8 µm avg. particle size; dens. < 17 kg/m<sup>3</sup>; 65% solids

**Expancel® 642 WU** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Wet, unexpanded microspheres used as blowing agents in PU (footwear, sporting goods), PVC plastisols (automotive undercoatings), printing ink, fabrics, paper and board, nonwovens; good solv. resist.

*Properties:* Wh.; 5-8 µm avg. particle size; dens. < 25 kg/m<sup>3</sup>; 65% solids

**Expancel® 820 DU** [Expancel]

*Chem. Descrip.:* Spherically formed particles with a thermoplastic shell encapsulating a gas

*Uses:* Dry, unexpanded microspheres used as blowing agents in PU (footwear, sporting goods), PVC plastisols (automotive undercoatings), printing

ink, fabrics, paper and board, nonwovens

*Properties:* Wh.; 5-8 µm avg. particle size; dens. < 17 kg/m<sup>3</sup>; > 99% solids  
Custom prod.

**Exxsol® D 40** [Exxon]

*Chem. Descrip.:* Dearomatized aliphatic hydrocarbon

CAS 64742-47-8; EINECS/ELINCS 232-298-5

*Uses:* Solvent for coatings, printing inks, cleaning and degreasing formulations; diluent; food-contact paper/paperboard, rubber articles; cost-effective; no SARA reportables; < 100 ppm HAPs; improved solvency

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b); SARA nonreportable

*Properties:* Mild pleasant odor; sp.gr. 0.78 (15.6/15.6 C); dens. 6.49 lb/gal (60 F); visc. 1.0 cP; vapor pressure 1.8 mm Hg (20 C); b.p. 159-204 C; flash pt. 38 C; surf. tens. 26 dynes/cm; KB value 34; 42% paraffin, 57% cycloparaffin, 0.4% aromatics

*Toxicology:* OEL 300 ppm

**Exxsol® D 60** [Exxon]

*Chem. Descrip.:* Dearomatized aliphatic hydrocarbon

CAS 64742-47-8; EINECS/ELINCS 232-298-5

*Uses:* Solvent for coatings, printing inks, agrochems., cleaning and degreasing formulations; diluent; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; cost-effective; < 100 ppm HAPs; improved solvency

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b), 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Mild pleasant odor; sp.gr. 0.79 (15.6 C); dens. 6.59 lb/gal (60 F); visc. 1.2 cP; vapor pressure 1.1 mm Hg (20 C); b.p. 187-210 C; flash pt. 146 F; surf. tens. 27.3 dynes/cm; KB value 32; 49% paraffin, 51% cycloparaffin, 0.4% aromatics

*Toxicology:* OEL 300 ppm

**Exxsol® D 80** [Exxon]

*Chem. Descrip.:* Dearomatized aliphatic hydrocarbon

CAS 64742-47-8; EINECS/ELINCS 232-298-5

*Uses:* Solvent for coatings, cleaners, engine degreasers, agrochems., car dewaxing; diluent; food pkg. paper, rubber articles; defoamer in food-contact paper/paperboard; cost-effective; 50% compliance with criteria for LVP solvent; < 100 ppm HAPs; improved solvency; good solvency for greases

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b), 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Mild pleasant odor; sp.gr. 0.79 (15.6/15.6 C); dens. 6.65 lb/gal (60 F); visc. 1.7 cP; vapor pressure 0.2 mm Hg (20 C); b.p. 207-234 C; flash pt. 180 F; surf. tens. 27.6 dynes/cm; KB value 28; 53% paraffin, 47% cycloparaffin

*Toxicology:* OEL 300 ppm

**Exxsol® D 110** [Exxon]

*Chem. Descrip.:* Dearomatized aliphatic hydrocarbon

CAS 64742-47-8; EINECS/ELINCS 232-298-5

*Uses:* Solvent for coatings, carburetor cleaners, brake cleaners, degreasers, insecticides; diluent; food pkg. paper, rubber articles; defoamer in food-contact paper/paperboard; cost-effective; complies with criteria for LVP solvent; < 100 ppm HAPs; improved solvency

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b), 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Mild pleasant odor; m.w. 195; sp.gr. 0.81 (15.6/15.6 C); dens. 6.77 lb/gal (60 F); visc. 2.8 cP; vapor pressure < 0.1 mm Hg (20 C); b.p. 251-269 C; flash pt. 105 C; surf. tens. 28.6 dynes/cm; KB value 26; 59% paraffin, 41% cycloparaffin

*Toxicology:* OEL 300 ppm

**Exxsol® D 130** [Exxon]

*Chem. Descrip.:* Dearomatized aliphatic hydrocarbon

CAS 64742-47-8; EINECS/ELINCS 232-298-5

*Uses:* Solvent for agric. pesticides, architectural coatings, OEM and auto refinish coatings, industrial metal and wood coatings, maintenance and marine coatings, cleaning and degreasing formulations; food pkg. paper, rubber articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b), 40CFR §180.1001(c)(e)

*Properties:* M.w. 200; sp.gr. 0.84 (15.6/15.6 C); dens. 6.97 lb/gal (60 F); vapor pressure < 0.1 mm Hg (20 C); b.p. 276-316 C; flash pt. 129 C; surf. tens. 29.7 dynes/cm; KB value 24

*Toxicology:* OEL 300 ppm

**EZA®** [Albemarle]

*Chem. Descrip.:* Zeolite A, a hydrated sodium aluminosilicate  
CAS 1344-00-9; EINECS/ELINCS 215-684-8

*Uses:* Cryst. molecular sieve which selectively adsorbs molecules and exchange ions; detergent builder; solvent; anticaking agent for detergents

and desiccants; gas separation; wh. pigment in paper, paint, and plastics; also in carpet cleaners, dentifrices, flame retardants

*Properties:* Wh. cryst. powd.; 3  $\mu$  mean particle size; pH 10-12 (1% slurry); 100% act., 18.5% moisture

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**Fabrisan™ 1596** [BASF]

*Uses:* Felt cleaning chem. for dryer fabric cleaners in paper processing

**Fabrisan™ LW** [BASF]

*Uses:* Felt cleaning chem. for batch and continuous press paper processing

**Fascat® 9100** [Atofina; Atofina SA]

*Uses:* Esterification, transesterification, and polycondensation catalyst for prep. of polyesters, unsat. polyesters, alkyds; suitable for food and pharmaceutical contact applics., such as coatings, epoxies, hybrid resins; food pkg. adhesives, closures with sealing gaskets for food containers; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2420

*Properties:* Amorphous wh. powd.; insol. in water and org. solvs.; dissolves in acids with reaction; sp.gr. 1.46; bulk dens. 0.84 g/cc; m.p. 300 C (dec.); 57% tin

*Toxicology:* Minimally irritating to eyes and skin

**Fascat® 9102** [Atofina; Atofina SA]

*Uses:* Esterification, transesterification, and polycondensation catalyst for prep. of polyesters, unsat. polyesters, alkyds; suitable for food and pharmaceutical contact applics., such as coatings, epoxies, hybrid resins; food pkg. adhesives, closures with sealing gaskets for food containers; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2420

*Properties:* Pale yel. liq.; sol. in toluene, hydrocarbons, halocarbons, esters, etc.; insol. in water; sp.gr. 1.13; m.p. -18 C; 20% tin

*Toxicology:* May cause eye and skin irritation

**Fascat® 9201** [Atofina; Atofina SA]

*Chem. Descrip.:* Organotin compd.

*Uses:* Esterification, transesterification, and polycondensation catalyst for prep. of polyesters, unsat. polyesters, alkyds; suitable for food and pharmaceutical contact applics., such as coatings, epoxies, hybrid resins; food pkg. adhesives, closures with sealing gaskets for food containers; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2420

*Properties:* Wh. powd.; insol. in water, org. solvs.; will dissolve in acids, alcohols, esters with reaction; sp.gr. 1.62; bulk dens. 0.70 g/cc; m.p. >290 C (dec.); 48% tin

*Toxicology:* Moderately toxic; may cause eye and skin burns on contact

**Fastusol®** [BASF; BASF AG]

*Uses:* Direct dyes for coloring wood-free papers (printing and writing papers, pkg. papers, tissue, specialty papers)

*Properties:* Anionic

**Fastusol® C** [BASF; BASF AG]

*Uses:* Direct dyes for coloring wood-free papers (printing and writing papers, pkg. papers, tissue, specialty papers)

*Properties:* Cationic

**Fastusol® P** [BASF AG]

*Uses:* Pigment disp. for colorations which must meet stringent requirements as to color fastness and for toning of bleached wood pulp

**FC-520** [3M/Perf. Materials]

*Chem. Descrip.:* Trifluoromethanesulfonic acid amine salt and diethylene glycol monoethyl ether

*Uses:* Catalyst for condensation and ring-opening polymerizations; coatings utilizing such resins as epoxides, aminoplasts, phenolics, and acrylics; coatings for wood, paper, and plastic

*Properties:* Lemon-yel. clear liq.; f.p. cryst. at 40 F; misc. in water; sp.gr. 1.2;

dens. 10.0 lb/gal; visc. 13 cps; pH 4.5-6.0; flash pt. (PMCC) > 230 F; 60% sol'n.

**Felt Cleaner P-70155** [Huntsman]

*Chem. Descrip.:* Proprietary (65-80%), sodium hydroxide (3-9.99%)

UN No. 3266

*Uses:* Alkaline felt cleaner and conditioner; fed through shower pipe at 1-2 lb/ton for maintenance cleaning or to clean felt during down time

*Regulatory:* OSHA hazardous; SARA §302/304 extremely hazardous, §311 acute hazard; CERCLA 102(A) reportable

*Properties:* Lt. amber liq.; mild odor; sol. > 10% in water; sp.gr. 1.06; visc. < 20 cSt (40 C); b.p. 100 C; pH 13

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 2 g/kg; corrosive; causes eye and skin burns; severe eye damage may cause blindness; harmful or fatal if swallowed; aspiration hazard if swallowed; can enter lungs and cause damage; TSCA listed

*Precaution:* DOT corrosive liq., basic, inorg., N.O.S.; reacts violently with acids

*Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones

NFPA: Health 3; Flammability 1; Reactivity 0

**FeltECCel™ 905** [IMERYS]

*Uses:* Felt conditioner and cleaner; prevents filling of paper mill felts caused by additives or contaminants; may also be used for off-machine batch washing; removes pitch and sizing, and inorg. deposits (iron, aluminum, calcium, and magnesium compds.)

*Use Level:* 3-5% (batch wash)

*Regulatory:* FDA approved

*Properties:* Clear liq.; dens. 9.7 lbs/gal; flash pt. (TCC) > 200 F; pH 2 (1% sol'n.)

**Feltsan™ Batch HF** [BASF]

*Uses:* Felt cleaning chem. for batch and continuous press paper processing

**Feltsan™ JW** [BASF]

*Uses:* Felt cleaning chem. for dryer fabric cleaners in paper processing

**Fiberex®** [Huber Engineered Materials]

*Uses:* Fiber extender for linerboard; economical

*Properties:* Slurry; 0.05-0.08% 325 mesh residue; sp.gr. 2.60; brightness (TAPPI) 68-73%; ref. index 1.57; pH 9.5-10.8 (28% solids); 36-52% slurry solids

**Fiberfloc™** [Alluvia]

*Chem. Descrip.:* Polymers

*Uses:* Flocculant for water treatment for pulp/paper industry, mining operations, oil field water clarification, drilling fluids, and refinery waste treatment; avail. as oil external emulsions or dry powds.

*Use Level:* 0.5-1.0%

*Regulatory:* FDA compliance

*Properties:* Emulsions: creamy wh. to translucent opaque liq.; sl. hydrocarbon odor; sol. in water; very high m.w.; sp.gr. 1.01-1.12; dens. 8.4-9.3 lb/gal; visc. 750-1500 cps (emulsion, 1% aq. sol'n.); f.p. < 20 F; flash pt. > 200 F; 25-35% act. (emulsions), 95-100% act. (powds.); anionic, cationic, nonionic

*Environmental:* Biodeg.

*Precaution:* Avoid aluminum, brass, galvanized metals, and nat. or syn. rubbers

*Storage:* 6 mos shelf life @ 40-120 F; avoid freezing since reduced temps. inc. prod. visc.



**Fibrox 030-E** [Industrial Fibers]

*Chem. Descrip.:* Shot free mineral wool fiber

*Chem. Analysis:* SiO<sub>2</sub> (38-46%), CaO (20-40%), Al<sub>2</sub>O<sub>3</sub> (6-14%), MgO (5-10%)

*Uses:* Filler, reinforcing agent for bitumen, paper, gaskets, paints, friction prods., plastics, nylon 6.6, PP, phenolics, PBT, BMC, SMC, rubber, coatings, caulks and other applics., incl. high temp. thermal barriers

*Properties:* Off-wh. fibers, low odor; 5-6 μ avg. diam., 6 mm avg. length; negligible sol. in water; dens. 2.7-2.9 g/cc; m.p. ≈ 2200 F; ref. index 1.62-1.64; hardness (Moh) 6.0

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup>; nuisance particulate, may cause transitory skin irritation, possible irritation of eyes, upper respiratory tract

**Fibrox 030-ES** [Industrial Fibers]

*Chem. Descrip.:* Mineral wool fiber, silane coated

*Chem. Analysis:* SiO<sub>2</sub> (38-46%), CaO (20-40%), Al<sub>2</sub>O<sub>3</sub> (6-14%), MgO (5-10%)

*Uses:* Filler, reinforcing agent for bitumen, paper, gaskets, paints, friction prods., plastics, rubber, coatings, caulks and other applics.

*Properties:* Off-wh. fibers, low odor; 5-6 μ avg. diam., 6 mm avg. length; negligible sol. in water; dens. 2.7-2.9 g/cc; m.p. ≈ 2200 F; ref. index 1.62-1.64; hardness (Moh) 6.0

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup>; nuisance particulate, may cause transitory skin irritation, possible irritation of eyes, upper respiratory tract

**Fibrox 300** [Industrial Fibers]

*Chem. Descrip.:* Mineral wool fiber

*Chem. Analysis:* SiO<sub>2</sub> (38-46%), CaO (20-40%), Al<sub>2</sub>O<sub>3</sub> (6-14%), MgO (5-10%)

*Uses:* Filler, reinforcing agent for bitumen, paper, gaskets, paints, friction prods., plastics, rubber, coatings, caulks and other applics. incl. high temp. thermal barriers

*Properties:* Off-wh. fibers, low odor; 5-6 μ avg. diam., 16-19 mm avg. length; negligible sol. in water; dens. 2.7-2.9 g/cc; m.p. ≈ 2200 F; ref. index 1.62-1.64; hardness (Moh) 6.0

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup>; nuisance particulate, may cause transitory skin irritation, possible irritation of eyes, upper respiratory tract

**FireShield® H** [Laurel Ind.]

*Chem. Descrip.:* Antimony trioxide

CAS 1309-64-4; EINECS/ELINCS 215-175-0

*Uses:* Flame-retardant synergist for plastics, rubber, paper and paint; polymerization catalyst for PET resins and fibers; also for electronics, glass, ceramics, petrol. refining, and chem. mfg.; general purpose

*Properties:* Wh. fine cryst. powd., odorless; 1.0-1.8 μ avg. particle size; very sl. sol. in water; dissolves in conc. HCl, sulfuric acid, strong alkalis; m.w. 291.52; sp.gr. 5.3; bulk dens. 60 lb/ft<sup>3</sup>; m.p. 656 C; b.p. 1425 C; ref. index 2.1; pH 3-7 (10% aq.); 99.3-99.9% Sb<sub>2</sub>O<sub>3</sub>

*Toxicology:* LD50 (skin, rabbits) > 2g/kg, (ingestion, rats) > 34.6 g/kg; ACGIH TLV 0.5 mg/m<sup>3</sup> as Sb; moderately irritating to skin and eyes; not significantly toxic by ingestion; TSCA listed

*Storage:* Store in dry, well-ventilated area

**FireShield® HPM** [Laurel Ind.]

*Chem. Descrip.:* Antimony trioxide

CAS 1309-64-4; EINECS/ELINCS 215-175-0

*Uses:* Polymerization catalyst for PET resins and fibers, chem. intermediate, flame retardant synergist for plastics, rubber, paint, paper; suitable for sensitive electronic applics.

*Properties:* Wh. fine cryst. powd., odorless; very sl. sol. in water; dissolves in conc. HCl, sulfuric acid, strong alkalis; m.w. 291.52; sp.gr. 5.3; bulk dens. 60 lb/ft<sup>3</sup>; surf. area 2.5 m<sup>2</sup>/g; m.p. 656 C; b.p. 1425 C; ref. index 2.1; 99.3-99.9% Sb<sub>2</sub>O<sub>3</sub>

*Toxicology:* LD50 (skin, rabbits) > 2g/kg, (ingestion, rats) > 34.6 g/kg; avoid skin or eye contact, inhalation; use only with adequate ventilation

*Storage:* Store in dry, well-ventilated area

**FireShield® L** [Laurel Ind.]

*Chem. Descrip.:* Antimony trioxide

CAS 1309-64-4; EINECS/ELINCS 215-175-0

*Uses:* Flame-retardant synergist for plastics, rubber, paper and paint; polymerization catalyst for PET resins and fibers; also for electronics, glass, ceramics, petrol. refining, and chem. mfg.; general purpose

*Properties:* Wh. fine cryst. powd., odorless; 2.5-3.5 μ avg. particle size; very sl. sol. in water; dissolves in conc. HCl, sulfuric acid, strong alkalis; m.w. 291.52; sp.gr. 5.3; bulk dens. 90 lb/ft<sup>3</sup>; m.p. 656 C; b.p. 1425 C; ref. index 2.1; pH 3-7 (10% aq.); 99.3-99.9% Sb<sub>2</sub>O<sub>3</sub>

*Toxicology:* LD50 (skin, rabbits) > 2g/kg, (ingestion, rats) > 34.6 g/kg; ACGIH TLV 0.5 mg/m<sup>3</sup> as Sb; moderately irritating to skin and eyes; not significantly toxic by ingestion

*Storage:* Store in dry, well-ventilated area

**Firet Q** [NOF]

*Chem. Descrip.:* Coco-alkyl isoquinolinium bromide

*Uses:* Germicide (duckweed killer) for water treatment; germicide for textiles and pulp/paper industries; cosmetics hair rinse; germicide, insecticide in agric.

*Properties:* Brn. liq.; 73-77% act.

**FL 112A** [Process Chems. LLC]

*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing, for brownstock washing, screenroom, and bleach plant applics.; water-extended; does not contribute to deposit formation; suitable whether batch or continuous generated pulp is employed

*Properties:* Cream-colored visc. liq.; visc. 1050-1950 cps; Hegman 4-6

*Toxicology:* TSCA listed

*Storage:* Store in dry area

**FL 413** [Process Chems. LLC]

*Uses:* Defoamer for kraft mills for use in screenroom, bleach plant applics., waste treatment, and paper machine applics.; water-based; does not contribute to deposit formation

*Properties:* Off-wh. liq.; disp. in water; dens. 8-9 lb/gal; visc. 200-1000 cps

*Toxicology:* TSCA listed

*Storage:* Store in dry area

**FL 1124DD** [Process Chems. LLC]

*Uses:* Defoamer, drainage aid for kraft pulp/paper applics., for brownstock washing, screenroom, bleach plant applics., on the paper machine, and in the effluent; water-based; does not contain EBS, min. oil, or dioxin precursors; does not contribute to deposit formation; suitable whether batch or continuous generated pulp is employed

*Properties:* Opaque wh. liq.; sp.gr. 1.005-1.030; dens. 8.38-8.58 lb/gal; visc. 750-1250 cps; pH 5.5-6.5

*Toxicology:* TSCA listed

*Storage:* Store in dry area

**FL 1124XD** [Process Chems. LLC]

*Uses:* Defoamer, drainage aid for kraft pulp/paper applics., for brownstock washing, screenroom, bleach plant applics., on the paper machine, and in the effluent; water-based; does not contain EBS, min. oil, or dioxin precursors; does not contribute to deposit formation; suitable whether batch or continuous generated pulp is employed

*Properties:* Opaque wh. liq.; sp.gr. 1.005-1.030; dens. 8.38-8.58 lb/gal; visc. 750-1250 cps; pH 5.5-6.5

*Toxicology:* TSCA listed

*Storage:* Store in dry area

**Fleetcol** [Vinings Ind.]

*Uses:* Defoamer for pulp/paper

**Fleetquest 8009** [Vinings Ind.]

*Uses:* Digester additive, chip penetrant promoting improved utilization of pulping chems.; inc. pulp uniformity; reduces the H-factor, K number, alkali charge, and rejects

**Fleetquest 8800** [Vinings Ind.]

*Chem. Descrip.:* Anthraquinone disp.

CAS 84-65-1; EINECS/ELINCS 201-549-0

*Uses:* Digester additive for improving pulp yield and reducing alkali consumption

**Fleetquest QH-37** [Vinings Ind.]

*Chem. Descrip.:* Blend of surfactants and anthraquinone

*Uses:* Digester additive, surfactant catalyst for papermaking; improves pulp yield, str., and uniformity; reduces the K number, the rejects, and the usage rate of pulping chems.

**Flexbond® 149** [Air Prods./Polymers]

*Chem. Descrip.:* Polyvinyl acetate copolymer emulsions

CAS 9003-20-7

*Uses:* Pressure-sensitive emulsion for adhesive prods. suitable for paper, mylar, cellulose acetate, and PVC film substrates

*Properties:* Visc. 200-900 cps; pH 4.5-6.0; 55% min. solids

**Flexbond® 150** [Air Prods./Polymers]

*Chem. Descrip.:* Polyvinyl acetate copolymer emulsions

CAS 9003-20-7

*Uses:* Pressure-sensitive emulsion for adhesive prods. suitable for paper, mylar, cellulose acetate, and PVC film substrates

- Properties:* Visc. 350-850 cps; pH 4.5-6.0; 55% min. solids
- Flexbond® 153** [Air Prods./Polymers]  
*Chem. Descr.:* Polyvinyl acetate copolymer emulsions  
 CAS 9003-20-7  
*Uses:* Pressure-sensitive emulsion for adhesive prods. suitable for paper, mylar, cellulose acetate, PVC film, aluminum, and SS substrates  
*Properties:* Visc. 2000-3000 cps; pH 4.5-5.0; 55% min. solids
- Flexbond® 165** [Air Prods./Polymers]  
*Chem. Descr.:* Polyvinyl acetate copolymer emulsion  
 CAS 9003-20-7  
*Uses:* Pressure-sensitive adhesive emulsion suitable for paper, cloth, film, and metal substrates; high-solids; very high tack, good shear performance chars., exc. water resist.; surfactant protection  
*Properties:* Visc. 4000-9000 cps; pH 3.5-4.0; 68% min. solids
- Flexbond® 185** [Air Prods./Polymers]  
*Uses:* Pressure-sensitive emulsion for adhesive prods. suitable for paper, cloth, film (mylar, cellulose acetate), and metal (Al, SS) substrates; very high shear and exc. heat and aging resist.; surfactant protection  
*Properties:* Visc. 100-600 cps; pH 2.5-3.5; 55% solids
- Flexcryl® 1625** [Air Prods.]  
*Chem. Descr.:* Acrylic emulsion  
*Uses:* Pressure-sensitive emulsion for adhesive applics. suitable for wood, paper, cloth, mylar, cellulose acetate, and PVC film, aluminum, and SS substrates; high-solids; very high tack; good shear performance; exc. water resist.  
*Properties:* Visc. 4000-9000 cps; pH 4-5; 69% solids; anionic
- Flexcryl® 1685** [Air Prods.]  
*Chem. Descr.:* Acrylic emulsion  
*Uses:* Pressure-sensitive emulsion for adhesive applics. suitable for wood, paper, cloth, mylar, cellulose acetate, and PVC film, aluminum, and SS substrates; very high shear; exc. heat and water resist.  
*Properties:* Visc. 100-600 cps; pH 2-3; 55% solids
- Floatsan™ 209** [BASF]  
*Uses:* Flotation deinking surfactant for wood-free and newsprint paper; dispersant-collector for flotation deinking of waste paper  
*Properties:* Nonionic
- Floatsan™ 210** [BASF]  
*Uses:* Flotation deinking surfactant for paper; rec. for systems requiring a reduced level of foam generation
- Floclair® DA-7** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, sludge draining and static conc. of inorg. sludges and process water treatment; combination with low molecular polymers  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lt. dull emulsion; sp.gr. 1.05; visc. med.; pH 6.0 (0.5%); anionic  
*Storage:* 6 mos shelf life in closed package @ 15-20 C; not sensitive to freezing until -10 C
- Floclair® DA-15** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, sludge draining and static conc. of inorg. sludges and process water treatment; combination with low molecular polymers  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lt. dull emulsion; sp.gr. 1.06; visc. med.; pH 6.5 (0.5%); anionic  
*Storage:* 6 mos shelf life in closed package @ 15-20 C; not sensitive to freezing until -10 C
- Floclair® DA-30** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, sludge draining and static conc. of inorg. sludges and process water treatment; combination with low molecular polymers  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lt. dull emulsion; sp.gr. 1.08; visc. med.; pH 7.5 (0.5%); anionic  
*Storage:* 6 mos shelf life in closed package @ 15-20 C; not sensitive to freezing until -10 C
- Floclair® DK-20** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, sludge draining, esp. of static sludge conc.  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Wh. milky emulsion; sp.gr. 1.05 (20 C); visc. med.; pH 4.5 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15-20 C
- Floclair® DK-40** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, for dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Wh. milky emulsion; sp.gr. 1.06 (20 C); visc. med.; pH 4.5 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15-20 C
- Floclair® DK-65** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, for dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lightly dull emulsion; sp.gr. 1.04 (20 C); visc. med.; pH 5 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15-20 C; not sensitive to freezing until -10 C
- Floclair® DK-65 H** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, for dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lightly dull emulsion; sp.gr. 1.05 (20 C); visc. 1000 mPa·s; pH 3 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15 C; not sensitive to freezing until -10 C
- Floclair® DK-65 L** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, for dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lightly dull emulsion; sp.gr. 1.05 (20 C); visc. 1500 mPa·s; pH 3 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15 C; not sensitive to freezing until -10 C
- Floclair® DK-65 S** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, for dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lightly dull emulsion; sp.gr. 1.05 (20 C); visc. 1500 mPa·s; pH 3 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15 C; not sensitive to freezing until -10 C
- Floclair® DK-90** [Münzing Chemie GmbH]  
*Chem. Descr.:* High molecular polyacrylamide  
 CAS 9003-05-8  
*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, esp. for flotation and dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses  
*Use Level:* 0.1-0.5% sol'n.  
*Properties:* Lightly dull emulsion; sp.gr. 1.04 (20 C); visc. med.; pH 4.5 (0.5%); cationic  
*Storage:* 6 mos shelf life in closed package @ 15 C; not sensitive to freezing until -10 C

**Floclair® DMR** [Münzing Chemie GmbH]

*Chem. Descrip.:* Copolymer methacrylate

*Uses:* Flocculant, retention agent, dehydration accelerator, and agent for recovery of fibrous material

*Use Level:* 0.1-0.3%

*Properties:* Brn. clear liq.; very sol. in water; sp.gr. 1.05 (20 C); visc. med.; pH 12; amphoteric

*Storage:* 1 yr shelf life @ 15-20 C; sensitive to freezing

**Floclair® HKL** [Münzing Chemie GmbH]

*Chem. Descrip.:* Dicyandiamide condensation

*Uses:* Flocculant for water processing and industrial wastewater treatment as well as for emulsion splitting and decolorizing; sludge conditioning; flocculation of anionic stable suspensions

*Properties:* Lt. opaque liq.; sp.gr. 1.19 (20 C); visc. low; pH 4.0; cationic

*Storage:* 6 mos shelf life @ 15 C min.; sensitive to freezing

**Floclair® LP 15** [Münzing Chemie GmbH]

*Chem. Descrip.:* Polyquat. amine in water

*Uses:* Flocculant for solid/liq. separation in wastewater field as well as for emulsion splitting; sludge conditioner; flocculant for anionic stable suspensions

*Properties:* Lt. yel. liq.; sp.gr. 1.15 (20 C); visc. 35 mPa·s; pH 8.0 (0.5%); cationic

*Storage:* 6 mos shelf life @ 15 C min.; sensitive to freezing

**Floclair® LP 25** [Münzing Chemie GmbH]

*Chem. Descrip.:* Dicyandiamide condensation

*Uses:* Flocculant for solid/liq. separation in wastewater field as well as for emulsion splitting and decolorizing; sludge conditioner; flocculant for anionic stable suspensions

*Properties:* Lt. opaque liq.; sp.gr. 1.19 (20 C); visc. low; pH 4.0 (0.5%); cationic

*Storage:* 6 mos shelf life @ 15 C min.; sensitive to freezing

**Floclair® PAR** [Münzing Chemie GmbH]

*Chem. Descrip.:* Polyetheramine aq. sol'n.

*Uses:* Flocculant, retention agent, dehydration accelerator, and agent for recovery of fibrous material

*Use Level:* 0.5-0.6%

*Properties:* Yel.-brn. liq.; very good sol. in water; sp.gr. 1.08 (20 C); visc. low; pH 7; cationic

*Storage:* 6 mos shelf life @ 15-20 C min.; sensitive to freezing

**Floclair® VP 3678** [Münzing Chemie GmbH]

*Chem. Descrip.:* High molecular polyacrylamide

CAS 9003-05-8

*Uses:* Flocculant for separation of suspended materials in all fields of water and wastewater treatment, for dewatering of sludges with high amt. of inorg. contents on centrifuges, belt presses, and chamber filter presses

*Use Level:* 0.1-0.5% sol'n.

*Properties:* Lightly dull emulsion; sp.gr. 1.05 (20 C); visc. 1500 mPa·s; pH 4.5 (0.5%); cationic

*Storage:* 6 mos shelf life in closed package @ 15 C; not sensitive to freezing until -10 C

**Fluorad® FX-8** [3M/Perf. Materials]

*Chem. Descrip.:* Perfluorooctanesulfonyl fluoride

CAS 307-35-7; EINECS/ELINCS 206-200-6

*Uses:* Intermediate for prep. of monomers and surfactants for textile treatment, paper sizes, inert fluids

*Properties:* Colorless clear liq.; sol. in 1,1,2-trichlorotrifluoroethane, benzotrifluoride; m.w. 502; dens. 1.81 g/cc; visc. 6 cps; b.p. 154 C; f.p. -18 to -30 C; flash pt. (Seta) > 200 F; ref. index 1.299

**Fluorad® FX-13** [3M/Perf. Materials]

*Chem. Descrip.:* 2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate

*Uses:* Monomer for polymerization reactions to provide oil and water repellency, lubricity and release to polymers in mfg. textile treating resins, paper sizes, surfactants, and inert fluids

**Foamaster® 111** [Cognis/Chems. Group; Cognis/Coatings & Inks; Cognis KGaA/Coatings]

*Chem. Descrip.:* Petrol. derivs. and other additives

*Uses:* Defoamer for waterborne architectural and industrial coatings (PVAc, acrylics, S/B, PU), monomer stripping/degassing, printing inks, adhesives, latex, food-contact coatings, paper/paperboard; food pkg. adhesives; totally silicone-free, non-phase separating, good persistency; for low surfactant-contg. systems

*Use Level:* 0.2-1.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; SARA §311/312 reportable

*Properties:* Yel. opaque liq.; hydrocarbon odor; readily disp. in aq. systems; sp.gr. 0.90; dens. 7.5 lb/gal; visc. 700 cps; flash pt. (PMCC) > 93 C; pH 6.4 (2%); VOC 5.6% (EPA Method 24); 100% act.

*Toxicology:* May cause mild eye and skin irritation; vapors or mist may cause respiratory irritation; harmful if swallowed or inhaled; ing. may cause GI irritation, nausea, vomiting (aspiration hazard), diarrhea; TSCA listed

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decom. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well

**Foamaster® 333** [Cognis/Coatings & Inks]

*Chem. Descrip.:* Proprietary hydrophobe blend

*Uses:* Defoamer for waterborne architectural coatings, adhesives, food-pkg. adhesives, food-contact paper coatings; totally silicone-free, non-phase separating, high persistency

*Use Level:* 0.2-1.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 176.200

*Properties:* Yel. opaque liq.; insol. in water; disp. in aq. systems containing surfactants; sp.gr. 0.90; dens. 7.4 lb/gal; visc. 200 cps; VOC 11.1% (EPA Method 24); 100% act.

**Foamaster® 1320** [Cognis]

*Chem. Descrip.:* Petrol. deriv. and other additives

*Uses:* Defoamer for use in monomer stripping and degassing operations, food-contact coatings/paper, SBR, EVAC, and EVCI; food pkg. adhesives, cellophane

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200; SARA §311/312 reportable; BGA approved

*Properties:* Opaque yel. liq.; hydrocarbon odor; disp. in water; sp.gr. 0.95; dens. 7.95 lb/gal; visc. 650 cP; flash pt. (PMCC) > 93 C; pH 6.5 (10%); 100% act.

*Toxicology:* LD50 (oral, rat) 3800 mg/kg; may cause mild skin and eye irritation; vapors or mist may cause respiratory irritation; harmful if swallowed or inhaled; ing. may cause GI irritation, nausea, vomiting (aspiration hazard), diarrhea; TSCA listed

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decom. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if subject to freezing temps.; store in dry place @ 4-27 C away from direct heat

**Foamaster® A-7** [Cognis/Coatings & Inks]

*Chem. Descrip.:* Proprietary organic

*Uses:* Defoamer for printing inks, waterborne architectural coatings, food-contact paper coatings; food pkg. adhesives; non-plate swelling

*Use Level:* 0.2-1.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 176.200

*Properties:* Dens. 8.2 lb/gal; visc. 300 cps; VOC 6.0% (EPA Method 24); 100% act.

**Foamaster® AP** [Cognis/Chems. Group; Cognis/Coatings & Inks]

*Chem. Descrip.:* Proprietary blend of oil and silica derivs.

*Uses:* Defoamer for high gloss, waterborne architectural and industrial paints without detracting from gloss; defoamer for adhesives, latex applics., printing inks, food-contact coatings/paper, PVAc, S/B, styrene-acrylics, PVC/PVdC; food pkg. adhesives, cellophane

*Use Level:* 0.2-1.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200; SARA §311/312 reportable

*Properties:* Pale yel. opaque liq.; hydrocarbon odor; insol. in water; sp.gr. 0.92; dens. 7.7 lb/gal; visc. 400 cps; flash pt. (PMCC) > 93 C; VOC 2.9% (EPA Method 24); 100% act.

*Toxicology:* May cause mild skin and eye irritation; vapors or mist may cause respiratory irritation; harmful if swallowed or inhaled; ing. may cause GI irritation, nausea, vomiting (aspiration hazard); TSCA listed

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decom. Prods.:* CO<sub>2</sub>, CO, NO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Stratifies @ ambient temps.; mix well

**Foamaster® DS** [Cognis/Coatings & Inks]

*Chem. Descrip.:* Proprietary blend of dimethylpolysiloxane, organics, and silica derivs.

*Uses:* Defoamer for waterborne architectural coatings, printing inks, latex

- applics., food-contact paper coatings; food pkg. adhesives; high silicone, high potency, and improved compatibility  
*Use Level:* 0.1-0.5% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Yel. opaque liq.; water-disp.; sp.gr. 0.91; dens. 7.6 lb/gal; visc. 350 cps; VOC 30.7% (EPA Method 24); 100% act.
- Foamaster® G** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary blend of oils and silica derivs.  
*Uses:* Disp. latex stripping defoamer for waterborne architectural paints, semigloss formulations, food-contact paper coatings; food pkg. adhesives; for low surfactant-contg. systems  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Liq.; insol. in water; sp.gr. 0.91; dens. 7.5 lb/gal; visc. 1200 cps; VOC 4.3% (EPA Method 24); 100% act.
- Foamaster® JMY** [Cognis/Chems. Group; Cognis/Coatings & Inks]  
*Chem. Descrip.:* Petrol. derivs. and other additives  
*Uses:* Defoamer for PVAc, acrylic paint, latex, and adhesive systems, food-contact coatings/paper; food pkg. adhesives, cellophane; effective in animal glues; nonsilicone, oil-based, high compatibility  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200; SARA §311/312 reportable  
*Properties:* Lt. amber liq.; hydrocarbon odor; very water-disp.; forms milky emulsion in water; sp.gr. 0.88; dens. 7.3 lb/gal; visc. 25 cps; f.p. -3.3 C; pH 6.5 (2%); flash pt. (PMCC) > 93 C; VOC 56.5% (EPA Method 24); 100% act.; nonionic  
*Toxicology:* Harmful if swallowed; may cause skin and eye irritation; vapors or mist may cause respiratory irritation; ing. may cause GI irritation, nausea, vomiting (aspiration hazard), diarrhea; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO  
 NFPA: Health 1; Flammability 1; Reactivity 0  
*Storage:* May congeal or stratify if cold; warm to 50 C, mix well
- Foamaster® NS-1** [Cognis/Chems. Group; Cognis/Coatings & Inks; Cognis KGaA/Coatings]  
*Chem. Descrip.:* Petrol. derivs. and other additives  
*Uses:* Defoamer for waterborne architectural paints, printing inks, adhesives, latex applics., monomer stripping and degassing, food-contact coatings/paper; food pkg. adhesives, cellophane, closures with sealing gaskets for food containers; min. oil-based, silicone-free  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 177.1210; SARA §311/312 reportable  
*Properties:* Amber liq.; hydrocarbon odor; disp. in water; sp.gr. 0.91; dens. 7.6 lb/gal; visc. 1100 cps; flash pt. (PMCC) > 93 C; pH 7.0 (2%); VOC 29.9% (EPA Method 24); 100% act.  
*Toxicology:* May cause mild skin and eye irritation; vapor or mist may cause respiratory tract irritation; harmful if swallowed or inhaled; ing. may cause GI irritation, nausea, vomiting (aspiration hazard), diarrhea; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO  
 NFPA: Health 1; Flammability 1; Reactivity 0  
*Storage:* Stratifies @ ambient temps., mix well
- Foamaster® O** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary multi-hydrophobe blend  
*Uses:* Defoamer for adhesives, latex, waterborne architectural coatings, printing inks, food-contact paper coatings; food pkg. adhesives  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Disp. in water; sp.gr. 0.90; dens. 7.4 lb/gal; visc. 500 cps; VOC 11.3% (EPA Method 24); 100% act.
- Foamaster® PD-1 Powd.** [Cognis/Coatings & Inks; Cognis KGaA/Coatings]  
*Chem. Descrip.:* Silicone-free org./inorg.  
*Uses:* Defoamer for dry mixes, coatings, adhesives and cement screeds, joint cements, spackles, food-contact paper coatings; food pkg. adhesives  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Powd.; wettable in water; dens. 3.10 lb/gal; 65% act.; nonionic
- Foamaster® PL** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary multi-hydrophobe blend  
*Uses:* Defoamer for coatings which use synthetic rheology modifiers; de-
- foamer for waterborne architectural paints, printing inks, food-contact paper coatings; food pkg. adhesives; broad spectrum  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Dens. 7.1 lb/gal; visc. 1000 cps; VOC 7.4% (EPA Method 24); 100% act.
- Foamaster® R** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary blend of oils and silica derivs.  
*Uses:* Defoamer for grind and letdown used in waterborne architectural paints, semigloss formulations, printing inks, food-contact paper coatings; for food pkg. adhesives; high persistency  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Off-wh. opaque liq.; insol. in water; sp.gr. 0.91; dens. 7.5 lb/gal; VOC 5.1% (EPA Method 24); 100% act.
- Foamaster® RD** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary blend of oils and silica derivs.  
*Uses:* Defoamer for grind and letdown used in waterborne architectural and industrial paints, acrylics, printing inks, food-contact paper coatings; food pkg. adhesives; high persistency  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Off-wh. opaque liq.; dens. 7.5 lb/gal; visc. 700 cps; VOC 5.1% (EPA Method 24); 100% act.
- Foamaster® S** [Cognis/Chems. Group; Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary blend of oil and silica derivs.  
*Uses:* Defoamer for latex, adhesives, waterborne architectural coatings, printing inks, monomer stripping and degassing, food-contact coatings/paper; food pkg. adhesives, cellophane; high compatibility  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.1200; SARA §311/312 reportable  
*Properties:* Opaque yel. liq.; hydrocarbon odor; disp. in water; sp.gr. 0.91; dens. 7.6 lb/gal; visc. 500 cps; flash pt. (PMCC) > 93 C; VOC 2.8% (EPA Method 24); 100% act.  
*Toxicology:* May cause mild skin and eye irritation; vapors or mist may cause respiratory irritation; harmful if swallowed or inhaled; ing. may cause GI irritation, nausea, vomiting (aspiration hazard), diarrhea; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, NO<sub>x</sub>  
 NFPA: Health 1; Flammability 1; Reactivity 0  
*Storage:* Stratifies @ ambient temps., mix well
- Foamaster® SA-5** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary multi-hydrophobe  
*Uses:* Defoamer for adhesives, latex, waterborne architectural coatings, printing inks, food-contact paper coatings; food pkg. adhesives; high compatibility, cost effective  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Dens. 7.5 lb/gal; visc. 1000 cps; VOC 26.2% (EPA Method 24); 100% act.
- Foamaster® V** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Proprietary blend of oils and silica derivs.  
*Uses:* Defoamer esp. effective in printing inks and PVAL; defoamer for disp. latex stripping, waterborne architectural coatings, adhesives, latex applics., food-contact paper coatings; food pkg. adhesives  
*Use Level:* 0.2-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Liq.; dens. 7.8 lb/gal; visc. 150 cps; VOC 1.5% (EPA Method 24); 100% act.; nonionic
- Foamaster® VC** [Cognis/Chems. Group]  
*Chem. Descrip.:* Low silicone hydrophobic silica  
*Uses:* Defoamer for use in degassing and monomer stripping operations involving syn. latexes, food-contact coatings/paper; food pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210; SARA §311/312 reportable  
*Properties:* Yel. liq.; hydrocarbon odor; disp. in water; sp.gr. 0.92; dens. 7.7 lb/gal; visc. 550 cps; flash pt. (PMCC) > 93 C; pH 8 (2%); 100% act.  
*Toxicology:* May cause mild skin and eye irritation; vapor or mist may cause respiratory irritation; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

Storage: May congeal or stratify if cold; warm to 50 C, mix well

**Foamaster® VF** [Cognis/Chems. Group; Cognis/Coatings & Inks]

*Chem. Descrip.:* Proprietary blend of esters, oils, and silica derivs.

*Uses:* Defoamer for waterborne architectural coatings, industrial coatings, latex, adhesives, printing inks, food-contact paper coatings, SBR, EVAC, PVAc, acrylics, S/B, styrene-acrylics, PVC/PVdC; food pkg. adhesives; high compatibility, potency, and color acceptance; good as post-add defoamer

*Use Level:* 0.2-1.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 176.200; SARA §311/312 reportable

*Properties:* Opaque yel. liq.; hydrocarbon odor; disp. in water; sp.gr. 0.94; dens. 7.7 lb/gal; visc. 300 cps; flash pt. (PMCC) 171 C; pH 6.5 (10%); VOC 10% (EPA Method 24); 100% act.

*Toxicology:* LD50 (oral, rat) > 5.0 g/kg; may cause skin and eye irritation; vapors or mist may cause respiratory tract irritation; TSCA listed

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

Storage: May congeal or stratify if cold; store in dry place @ 4-27 C away from direct heat

**Foamaster® WBA** [Cognis/Coatings & Inks]

*Chem. Descrip.:* Proprietary multi-hydrophobe blend

*Uses:* Defoamer for adhesives, waterborne industrial coatings, epoxy coatings, latex, acrylics, food-contact paper coatings; food pkg. adhesives

*Use Level:* 0.2-1.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 176.200

*Properties:* Dens. 7.4 lb/gal; visc. 500 cps; VOC 11.3% (EPA method 24); 100% act., 88.7% solids

**Foam Blast 102** [ROSS Chem]

*Chem. Descrip.:* Polydimethylsiloxane emulsion

CAS 9016-00-6

*Uses:* Defoamer for starch and proteinaceous systems requiring an acid or alkaline tolerant defoamer; defoamer for hot and cold processes, yeast fermentations, sugar beet processing, caustic potato peeling, starch, protein, adhesives, coatings, animal feeds, cutting oils, paper coatings, monomer stripping, aq. inks, latex paints, nonwoven binders, soaps and detergents; food-grade

*Use Level:* 0.01-0.1% based on foaming system; 10-100 ppm (foods)

*Regulatory:* FDA 21CFR §173.340, 100 ppm max.

*Properties:* Wh. emulsion; dens. 8.35 lb/gal; visc. 1500-2500 cps; flash pt. (PMCC) none; pH 7.2; 10% silicone; nonionic

**Foam Blast 106** [ROSS Chem]

*Chem. Descrip.:* Polydimethylsiloxane emulsion

CAS 9016-00-6

*Uses:* Antifoam for water-sol. lubricants and inks, starch coatings, heavy-duty detergents, paper coatings, antifreeze, machine carpet cleaning, drug fermentations, textile scouring/desizing/finishing, waste treatment, adhesives, food-contact coatings/paper; food pkg. adhesives, coatings, paper; effective in hot and cold systems, in wide pH range

*Use Level:* 0.1-0.5%

*Regulatory:* FDA 21CFR §175.105, 175.210, 175.300, 176.170, 176.180, 176.200, 176.210, 178.3120; SARA nonreportable

*Properties:* Milky wh. liq.; mild odor; disp. in water; sp.gr. 1.005-1.015; visc. 3200 cps; m.p. 32 F; b.p. 212 F; flash pt. (PMCC) none; pH 7.6; 10% act.; nonionic

*Toxicology:* May cause mild skin irritation, mild transient eye irritation associated with excess blinking and tearing; not expected to be acutely toxic by ing.; may cause GI discomfort; TSCA listed

*Precaution:* Spills may be slippery

HMS: Health 1; Flammability 0; Reactivity 0

Storage: Store at 60-90 F; exc. freeze/thaw stability; > 1 yr shelf life; prevent freezing

**Foam Blast 240** [ROSS Chem]

*Chem. Descrip.:* Silicone-based

*Uses:* Defoamer for water and waste treatment systems, aeration basins, cooling towers, herbicides/pesticides, mining, cutting oils and drawing compds., starch coatings, plastic recovery, textile prep., dyeing, finishing, water-based inks, coatings, and coolants, soaps and detergents; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, paper

*Use Level:* 0.002-0.20%; 2-20 ppm (treated water); 0.1-0.25% (inks, coatings); 0.25% (soaps, detergents)

*Regulatory:* FDA 21CFR §175.105, 175.210, 176.170, 176.180, 176.200, 176.210

*Properties:* Off-wh. emulsion; dens. 8.20 lb/gal; visc. 1250 cps; flash pt. none; pH 6.9; 18% solids, 10% act.; nonionic

Storage: 1 yr shelf life; store in heated area to prevent freezing; if frozen, thaw and stir to insure uniformity

**Foam Blast 433C** [ROSS Chem]

*Chem. Descrip.:* Blend of petrol. derivs., fatty esters, and proprietary additives

*Uses:* Effluent system defoamer for foam control in textile, paper, and municipal effluent systems in aeration ponds, flumes, and at river outfall; paper machine defoamer esp. for recycled fiber furnish; foam control agent for coatings based on starch, casein, and waxes; general purpose; exc. dispersing props.

*Use Level:* 2-20 ppm

*Regulatory:* SARA nonreportable

*Properties:* Amber opaque liq.; mild odor; readily disp. in water; sp.gr. 0.892; dens. 7.4 lb/gal; visc. 975 cps; vapor pressure < 20 mm Hg (20 C); pour pt. 38 F; b.p. 450-600 F; flash pt. (PMCC) 85 F; pH 5 (1% aq.); VOC 200 g/l; 100% org.; nonionic

*Toxicology:* May cause mild skin irritation, mild transient eye irritation; not expected to be acutely toxic by ingestion; TSCA listed

HMS: Health 2; Flammability 3; Reactivity 1

Storage: Good shelf life; can be stored outside; if prod. freezes, thaw and mix; may stratify during prolonged storage; mix before using

**Foam Blast 433FW** [ROSS Chem]

*Uses:* Effluent system defoamer for foam control in textile, paper, and municipal effluent systems in aeration ponds, flumes, and at river outfall; paper machine defoamer esp. for recycled fiber furnish; foam control agent in coatings based on starch, casein, and waxes; defoamer in food-contact coatings/paper; general purpose; exc. dispersing props.

*Use Level:* 2-20 ppm

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200

*Properties:* Lt. tan liq.; readily disp. in water; sp.gr. 0.845; dens. 7.0 lb/gal; visc. 750 cps; pour pt. 38 F; flash pt. (PMCC) 245 F; 100% org.; nonionic

Storage: Good shelf life; can be stored outside; if prod. freezes, thaw and mix; may stratify during prolonged storage; mix before using

**Foam Blast 441** [ROSS Chem]

*Chem. Descrip.:* Organic

*Uses:* Defoamer/antifoam; effective syn. paper machine defoamer; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings; contains no min. oils; high act. and low contamination potential where chem. deposits are a problem

*Use Level:* 0.5-2.0 lb/ton of air dried paper

*Regulatory:* FDA 21CFR §175.105, 175.210, 175.300, 176.170, 176.180, 176.200, 176.210; SARA nonreportable

*Properties:* Med. to dk. amber clear to hazy liq.; mild odor; disp. in water; sp.gr. 0.943; dens. 7.86 lb/gal; visc. 80 cps; pour pt. 35 F; f.p. 31 F; i.b.p. 500 F; flash pt. (PMCC) > 350 F; pH 6.5 (2%); 100% org.; nonionic

*Toxicology:* LD50 (oral) > 30 g/kg; not expected to be toxic by ingestion; may cause mild skin irritation, mild transient eye irritation; TSCA listed

*Precaution:* Will ignite if exposed to ignition source at or above its flash pt.; avoid strong oxidizing agents; spills may be slippery

HMS: Health 0; Flammability 1; Reactivity 0

Storage: 1 yr shelf life; can be stored inside or outside; if prod. freezes, thaw and mix before use; mixing rec. after prolonged storage

**Foam Blast 443** [ROSS Chem]

*Uses:* Defoamer for effluent systems and systems with high levels of protein, starch, polysaccharides, syn. sol. polymers; defoamer for textile, paper, and municipal effluent systems in aeration ponds, flumes, and at river outfall; defoamer for food-contact adhesives, coatings, paperboard; good cold props.

*Use Level:* 2-20 ppm

*Regulatory:* FDA 21CFR §175.105, 175.210, 176.170, 176.180, 176.200, 176.210

*Properties:* Amber opaque liq.; emulsifiable; sp.gr. 0.970; dens. 8.08 lb/gal; visc. 200 cps; pour pt. -15 F; flash pt. (PMCC) 320 F; 100% org.; nonionic

Storage: Good shelf life; can be stored outside; may stratify on prolonged storage; mix before use

**Foam Blast 445** [ROSS Chem]

*Uses:* Paper machine defoamer; defoamer for food-contact adhesives, coatings, paper; syn.

*Regulatory:* FDA 21CFR §175.105, 175.210, 175.300, 176.170, 176.200,



178.3120

*Properties:* Amber opaque liq.; disp. in water; sp.gr. 0.950; dens. 7.92 lb/gal; visc. 1500 cps; pour pt. 35 F; flash pt. (PMCC) > 350 F; pH 6.5 (2%); 100% act.; nonionic

*Toxicology:* Nontoxic; does not normally cause skin irritation; may cause transient eye irritation

*Storage:* Good shelf life; can be stored inside or outside; if prod. freezes, thaw and mix before use; mixing rec. after prolonged storage

**Foam Blast 448** [ROSS Chem]

*Chem. Descrip.:* Blend of org. derivs. and proprietary additives

*Uses:* Paper machine or effluent defoamer; defoamer for food-contact adhesives, coatings, paper; high act. and low contamination potential where chem. deposits are a problem; no liq. hydrocarbons; incapable of forming a rainbow on surf. of water

*Use Level:* 0.5-4.0 lb/ton (paper); 3-15 ppm (effluent)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 178.3120; SARA nonreportable

*Properties:* Wh. opaque liq.; mild odor; disp. in water; sp.gr. 0.998; dens. 8.32 lb/gal; visc. 500 cps; vapor pressure 24 mm Hg (20 C); f.p. 31 F; b.p. 212 F; flash pt. none; pH 6.0-6.5; VOC 4 g/l; 86-88% volatiles; nonionic

*Toxicology:* OSHA PEL 5 mg/m<sup>3</sup> (mist); may cause mild skin irritation, mild transient eye irritation; not expected to be toxic by ingestion; TSCA listed

*Precaution:* Spills may be slippery

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Protect from freezing; if prod. freezes, thaw and mix before use

**Foam Blast 469** [ROSS Chem]

*Chem. Descrip.:* Blend of petroleum derivs. and proprietary additives

*Uses:* Paper machine or effluent defoamer; esp. effective in systems contg. cooked or modified starches; defoamer for food-contact adhesives, coatings, paper; high act. with low contamination potential (low total BOD)

*Use Level:* 0.5-4.0 lb/ton (paper)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.200, 178.3120; SARA nonreportable

*Properties:* Wh. opaque liq.; mild odor; disp. in water; sp.gr. 0.996; dens. 8.30 lb/gal; visc. 50 cps; vapor pressure 18 mm Hg (20 C); f.p. 31 F; i.b.p. 212 F; flash pt. none; pH 6.5-7.5 (1% aq.); VOC < 20 g/l; 74-76% volatiles; nonionic

*Toxicology:* OSHA PEL 5 mg/m<sup>3</sup> (mist); LD50 (oral) > 30 g/kg; not expected to be toxic by ingestion; may cause mild skin irritation, mild transient eye irritation; TSCA listed

*Precaution:* Spills may be slippery

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Protect from freezing; if prod. should freeze, thaw and mix before use

**Foam Blast 476** [ROSS Chem]

*Chem. Descrip.:* Alkoxyate of fatty esters

*Uses:* Effluent system defoamer for foam control in industrial and municipal effluent systems in aeration ponds, flumes, and at river outfall; defoamer for adhesives, food-contact coatings/paper; general purpose; exc. dispersing props.

*Use Level:* 2-20 ppm

*Regulatory:* FDA 21CFR §176.170, 176.180, 176.200, 176.210; SARA non-reportable

*Properties:* Lt. amber clear liq.; mild fatty odor; disp. in water; sp.gr. 0.965; dens. 8.0 lb/gal; visc. 150 cps; vapor pressure < 1 mm Hg (20 C); pour pt. < -5 F; flash pt. (PMCC) > 350 F; VOC 1 g/l; 100% org., < 1% volatiles by vol.; nonionic

*Toxicology:* May cause mild skin irritation, mild transient eye irritation; not expected to be toxic by ingestion; may cause transient vomiting and/or diarrhea; TSCA listed

*Precaution:* Will ignite if exposed to ignition source while at or above its flash pt.; spills may be slippery

HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Good shelf life; no separation on prolonged storage; can be stored outside in unheated areas; remains fluid and pumpable down to -10 F; sl. haze may develop below 0 F

**FoamBrake™ 1697** [BASF]

*Chem. Descrip.:* Conc. polymeric surfactant

*Uses:* Defoamer for wet-end, size press, coating applics., alkaline paper machine systems; provides foam control at significantly lower dose rates than many conventional water-based defoamers, without the negative impact of oil

**FoamBrake™ JF-2** [BASF]

*Chem. Descrip.:* Aq. emulsion

*Uses:* Defoamer for wet-end applics., pulp mill screen rooms, and waste treatment plants; stable; functions at broad pH and temp. range

*Properties:* Liq.

*Storage:* Protect from freezing

**FoamBrake™ SW-54 M 50** [BASF]

*Chem. Descrip.:* Water-based

*Uses:* Defoamer for deinking, effluent treatment, pulp mill screen rooms, wastewater treatment; stable; functions over broad pH and temp. range

*Properties:* Liq.

*Storage:* Protect from freezing

**FoamBrake™ WB-40** [BASF]

*Chem. Descrip.:* Aq. emulsion

*Uses:* Defoamer for wet-end applics., sec. fiber processing, pulp mill screen rooms, and waste treatment plants; easy to use; functions at broad pH and temp. range

*Storage:* Protect from freezing

**Foambreaker** [United-Guardian]

*Chem. Descrip.:* Dimethicone, 2-ethyl-1-hexanol, octoxynol-9, and carbomer

*Uses:* Antifoam for use in cleaning metals prior to coating or plating; defoamer for latex, papermaking, textile processing, detergent mfg., and in sol. cutting oils

*Regulatory:* DOT nonregulated

*Properties:* Wh. to off-wh. pourable cream; sl. odor; somewhat sol. in ethyl alcohol; very sl. sol. in aromatic and aliphatic solvs., petroleum oils, and vegetable oils; disp. in water; sp.gr. 0.989; visc. 4150 cps; flash pt. (OC) > 400 F; pH 7.0; 98.5% solids

*Toxicology:* May irritate respiratory tract, eyes and skin; harmful if ing.

*Precaution:* Incompat. with strong oxidizers

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, NO<sub>x</sub>

HMIS: Health 2; Flammability 0; Reactivity 0

*Storage:* Avoid freezing temps.

**Foamgard® 1332** [Rhodia]

*Chem. Descrip.:* Nonionic surfactants-based

*Uses:* Foam suppressant and defoamer for aq. and semiaq. systems, for laundry detergents, industrial cleaners, paper/pulp systems, metalworking fluids, resin emulsification, wastewater treatment, circuit board cleaning; solv. and silicone-free for lower VOC

*Properties:* Gardner < 1 clear to hazy liq.; insol. in water; sp.gr. 0.95; neutral. no. 0.4 mg KOH/g; flash pt. 315 F; pH ≈ 7 (5%); 100% act.

**Foamkill® 400A** [Crucible]

*Chem. Descrip.:* Organo-silicone emulsion

*Uses:* Defoamer for pulp/paper applics. incl. adhesives backings, latex paints and coatings, water-reducible inks, floor and ceiling coatings

**Foamkill® 608** [Crucible]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for paper coatings and adhesives and formulations sensitive to fish-eyeing, janitorial supply houses; readily emulsifiable

*Use Level:* 0.5-1.0%

**Foamkill® 618** [Crucible]

*Chem. Descrip.:* Org. and organo-silicone conc.

*Uses:* Defoamer for food/pharmaceutical applics. incl. paper coatings and adhesives in contact with food

*Regulatory:* FDA §175.105, 176.210, 178.3120

*Properties:* Pale yel.; hydrocarbon odor; disp. in water; sp.gr. 0.930; visc. 1000 cps; flash pt. (TOC) 250 F; 100% act.; nonionic

*Storage:* 1 yr min. shelf stability

**Foamkill® 639** [Crucible]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for aq. systems, pulp/paper applics., acrylic, PVC, PVA, PVPC, and other coatings, paints, inks, antifoam formulating

*Use Level:* 0.5-1.0%

**Foamkill® 639J-F** [Crucible]

*Chem. Descrip.:* Organo-silicone

*Uses:* Defoamer for latex monomer stripping formulations, food and cosmetic applics., warm starch and protein systems, soya slurries, sugar beet refining, caustic potato peeling, yeast fermentations, canning, paper coatings; alkaline and acid-stable

*Use Level:* 333 ppm max.

*Regulatory:* FDA §172.340, 172.315

*Properties:* Wh. semitransparent liq., bland odor; disp. in water; sp.gr. 0.895;

- dens. 7.45 lb/gal; b.p. 390 F; flash pt. (TOC) 160 F; pH 6.6 (2%); 100% act.; nonionic  
*Toxicology:* Skin and eye irritant; may cause harmful effects on ingestion
- Foamkill® 649** [Crucible]  
*Chem. Descrip.:* Nonsilicone  
*Uses:* Defoamer for aq. systems, adhesives, coatings, esp. acrylic systems, paints, inks, drawing and cutting fluids, paper applics.; highly compat.; very little tendency to cause fish-eyeing  
*Use Level:* 0.5-1.0%
- Foamkill® 660F** [Crucible]  
*Chem. Descrip.:* Org.  
*Uses:* Defoamer for pulp/paper applics., water cooling towers, evaporators
- Foamkill® 679** [Crucible]  
*Chem. Descrip.:* Organo-silicone emulsion  
*Uses:* Defoamer for pulp/paper applics. incl. adhesives backings, latex paints and coatings, water-reducible inks, floor and ceiling coatings
- Foamkill® 810F** [Crucible]  
*Chem. Descrip.:* Dimethicone emulsion  
 CAS 9006-65-9  
*Uses:* Defoamer for food/pharmaceutical/cosmetic applics. incl. general aq. systems, paper coatings and adhesives in contact with food, egg washing, cleaning/sanitizing sol'ns., pulp/paper applics., soft drink and wine making, vegetable processing, yeast processing, jam/jellies, starch sol'ns., protein processing, water-based inks, detergents  
*Use Level:* 100 ppm max.  
*Regulatory:* FDA §173.340, 175.105, 175.320, 176.200, 176.210  
*Properties:* Wh. pourable visc. liq., bland odor; disp. in water; sp.gr. 1.000; dens. 8.3 lb/gal; visc. 300 cps; b.p. 212 F; flash pt. (TOC) > 212 F; pH 7.0; 10% act.; nonionic  
*Toxicology:* May cause eye irritation, mild skin irritation on prolonged/repeated contact
- Foamkill® 830** [Crucible]  
*Chem. Descrip.:* Organo-silicone emulsion  
*Uses:* Defoamer for food/pharmaceutical applics. incl. paper coatings and adhesives in contact with food, cosmetics, pulp/paper applics.  
*Use Level:* 0.1-0.4%  
*Properties:* Emulsion; very small particle size
- Foamkill® 830F** [Crucible]  
*Chem. Descrip.:* Dimethicone  
 CAS 9006-65-9  
*Uses:* Defoamer for food/pharmaceutical/cosmetic applics. incl. general aq. systems, paper coatings and adhesives in contact with food, soft drink mfg., cleaning/sanitizing sol'ns., cosmetics, fermentation, bottle filling operations, vegetable washing, sugar beet processing, jams/jellies, coatings, starch and protein processing  
*Use Level:* To 33 ppm  
*Regulatory:* FDA §172.340, 173.340, 175.105, 175.300, 176.200, 176.210  
*Properties:* Wh. pourable visc. liq., bland odor; disp. in water; sp.gr. 0.993; dens. 8.3 lb/gal; visc. 3500 cps; b.p. 212 F; flash pt. (TOC) > 212 F; pH 7.0; 30% act.; nonionic  
*Toxicology:* May cause eye irritation, mild skin irritation on prolonged/repeated contact  
*Hazardous Decomp. Prods.:* Produces SiO<sub>2</sub> upon burning  
*Storage:* Avoid freezing
- Foamkill® 836A** [Crucible]  
*Chem. Descrip.:* Silicone emulsions  
*Uses:* Defoamer for food/pharmaceutical applics. incl. paper coatings and adhesives in contact with food, cosmetics, antifreeze, water-based inks, leather finishing, industrial detergents, cutting oils  
*Regulatory:* FDA §175.105, 175.300, 176.200, 176.210  
*Properties:* Wh. pourable viscous liq.; sp.gr. 1.00; visc. 3000 cps; pH 8.0; nonionic
- Foamkill® 836B** [Crucible]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Defoamer for chemical compounding, syn. or water-based metalworking lubricants, aq. systems, inks, janitorial applics., paints, coatings, paper industry, waste treatment, severe foaming applics.; highly compat.; dilutable with water
- Foamkill® 852** [Crucible]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Defoamer for pulp/paper applics., inks, and other applics.; rec. where foaming is a serious problem

- Foamkill® CMP** [Crucible]  
*Chem. Descrip.:* Bis-stearamide  
*Uses:* Defoamer for paper reclaiming, caustic treatment, waste treatment, textile jet or atmospheric dyeing  
*Use Level:* 0.1-1.0%  
*Properties:* Nonionic
- Foamkill® D-1** [Crucible]  
*Chem. Descrip.:* Org. nonsilicone conc.  
*Uses:* Defoamer for textiles or pulp  
*Properties:* Dilutable with min. oil
- Foamkill® MS-1** [Crucible]  
*Chem. Descrip.:* Organo-silicone emulsion  
*Uses:* Defoamer for pulp/paper applics. incl. adhesives backings, latex paints and coatings, water-reducible inks, floor and ceiling coatings; flow control agent
- Foamkill® MSF Conc.** [Crucible]  
*Chem. Descrip.:* Organo-silicone  
*Uses:* Conc. for formulating defoamers for wide variety of high and low temp. applics., esp. food applics. (fruit and veg. washing, egg washing, soft drinks, wine making, yeast processing, jam/jellies, sugar refining), water-based inks and coatings, detergents, rendering of oils and fats, cosmetics, starch sol'ns., adhesives; defoamer in food-contact coatings, paper/paper-board; food pkg. adhesives, coatings  
*Use Level:* 66 ppm max.  
*Regulatory:* FDA §173.340, 175.105, 175.300, 176.200, 176.210  
*Properties:* Wh. visc. liq., mild pleasant odor; readily disp. in water; sp.gr. 1.084; dens. 9.02 lb/gal; visc. 20,000 cps; b.p. 212 F; flash pt. > 212 F; pH 9.02 (1%); 15% dimethylpolysiloxane; nonionic  
*Toxicology:* May cause eye irritation, mild skin irritation on prolonged/repeated skin contact
- Foamkill® NSP-1, NSP-3, NSP-4, NSP-5** [Crucible]  
*Chem. Descrip.:* Org.  
*Uses:* Defoamer for pulp/paper applics.
- Foamlex 372** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Higher alcohol derivatives  
*Uses:* Defoamer for papermaking, when applied to pulp, wood free papers, liner, or Japanese paper  
*Properties:* Milky wh. emulsion; pH 7.5; nonionic
- Foamlex 400** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Fatty acid ester  
*Uses:* Defoamer for papermaking, esp. wood free papers and thin papers  
*Properties:* Milky wh. emulsion; pH 6.0 (5%); nonionic
- Foamlex 711** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Defoamer for papermaking and wastewaters; dispersive type; demonstrates stable defoaming effects under wide range of pH and at mid and low temps.  
*Properties:* Colorless transparent liq.; pH 5.5 (5%); nonionic
- Foamlex 747** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Defoamer for papermaking; self-emulsifying type; superior defoaming and foam-suppressing effects obtained at low add-on levels  
*Properties:* Straw-colored limpid visc. liq.; pH 4.0 (5%); nonionic
- Foamlex 760** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Defoamer for papermaking, esp. for use in thin papers such as tissues and toilet rolls; self-emulsifying type; exc. defoaming and foam-suppressing effects obtained at low add-on levels  
*Properties:* Straw-colored transparent liq.; pH 7.0 (5%); nonionic
- Foamlex 770** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Defoamer for papermaking, esp. for use in thin papers such as tissues and toilet rolls; self-emulsifying type; exc. defoaming and foam-suppressing effects obtained at low add-on levels, while effects on sizing remain low  
*Properties:* Straw-colored opaque liq.; pH 7.5 (5%); nonionic
- Foamlex 797** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Defoamer for papermaking; self-emulsifying type; superior defoaming and foam-suppressing effects are obtained at low add-on levels  
*Properties:* Straw-colored transparent liq.; pH 4.0 (5%); nonionic
- Foamlex E-585K** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Silicone compd., refined oil, activator, and water mixt.

- Uses:* Defoamer for papermaking; outstanding performance in high temps., strong alkali environments at low add-on levels; does not contain substances which may generate pitch or hazardous materials like dioxins  
*Properties:* Wh. emulsion; pH 7.0
- Foamlex W-315** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Amide compd., silica, dispersing agent, water and mineral oil mixt.  
*Uses:* Defoamer for papermaking; outstanding performance in high temps., strong alkali environments at low add-on levels  
*Properties:* Lt. yellowish wh. opaque liq.; insol. in water
- Foamlex W-320** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Amide compd., dispersing agent, water and mineral oil mixt.  
*Uses:* Defoamer for papermaking; outstanding performance in high temps., strong alkali environments at low add-on levels  
*Properties:* Lt. yellowish wh. opaque liq.; insol. in water
- FoamTrol™** [Hercules]  
*Uses:* Antifoam in cooling and wastewater systems in the pulp/paper industry
- Foraperle® 225** [Atofina]  
*Uses:* Protective agent/surfactant for building applics. such as concrete, interlocking paving blocks, terra cotta pavement, and sandstone terra cotta pavement; water repellent treatment for paper and paperboard, leather  
*Properties:* Amber clear liq.; sp.gr. 0.97; f.p. < - 18 C; flash pt. (CC) 26 C; 25% act.
- Foraperle® 321** [Atofina]  
*Chem. Descrip.:* Fluorinated acrylic copolymer  
*Uses:* Protective agent/surfactant for building applics. such as concrete, interlocking paving blocks, terra cotta pavement, and sandstone terra cotta pavement; water and oil repellent treatment for paper and paperboard used for food pkg.  
*Regulatory:* BgVV compliant  
*Properties:* Amber liq.; water-sol.; sp.gr. 1.1-1.2; flash pt. none; pH 4-5; 25% act.; cationic
- Foraperle® 325** [Atofina]  
*Uses:* Protective agent/surfactant for water repellent treatment for paper and paperboard used for food pkg. (fast food, pkg. for butter/margarine/meat/poultry/coffee/frozen prods.) and pet food pkg.  
*Regulatory:* BgVV compliant  
*Properties:* Amber liq.; water-sol.; sp.gr. 1.1-1.2; flash pt. none; pH 4-5; 25% act.; cationic
- Formasil® 45** [Crompton/Witco]  
*Chem. Descrip.:* Dimethylsiloxane emulsion  
CAS 63148-62-9  
*Uses:* Release agent in mfg. of medical devices and appliances, food pkg. materials; in resinous/polymeric food-contact coatings; in food-contact paper/paperboard; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 177.2800  
*Properties:* Water-disp.
- Formula 37** [Garratt Callahan]  
*Chem. Descrip.:* Organo-sulfur compds.  
*Uses:* Biocide, slimicide in industrial water systems, cooling towers, evaporative condensers, air washers, spray ponds, paper mills, beet and cane sugar mills, and other circulating systems; mild corrosion inhibiting prop., particularly against copper or brass system components; nonfoaming and nonoxidizing; not for potable water systems  
*Use Level:* 3-13 fl oz/1000 gal  
*Regulatory:* EPA reg. no. 31910-2-8540  
*Properties:* Yel.-grn. to amber clear liq.; water-sol.; sp.gr. 1.12-1.22; dens. 9.3-10.2 lb/gal; pH 10.5-12.5  
*Toxicology:* Toxicant; may cause skin/eye irritation  
*Storage:* 1 yr shelf life; store @ 10-40 C; avoid freezing or high temps.
- Formula 44** [Garratt Callahan]  
*Chem. Descrip.:* Neutralizing amines  
*Uses:* Condensate corrosion inhibitor for steam pressure systems used in lg. industrial plants, commercial bldgs., paper mills, schools, food processing; rec. where difficult corrosion problems have been experienced in differential steam pressure systems; effective in lower pressure areas of steam system and also in ends of condensate system laterals  
*Regulatory:* FDA and USDA approved for use in boilers where steam contacts food  
*Properties:* Water wh. to lt. yel. clear liq.; sp.gr. 0.92-1.02; dens. 7.6-8.5 lb/gal; pH 11.5-13.5  
*Storage:* 6 mos shelf life
- Formula 315** [Garratt Callahan]  
*Chem. Descrip.:* Isothiazolone compds.  
*Uses:* Biocide for industrial water systems, cooling towers, evaporative condensers, spray ponds, paper mills, and air washers; nonfoaming and nonoxidizing; unaffected by hardness; compat. with most other water treatment chems. at use levels; suggest system be manually cleaned prior to treatment; not for potable water  
*Use Level:* 4.5-113 fl.oz./1000 gal  
*Regulatory:* EPA reg. no. 8540-23  
*Properties:* Lt. green to yel.-grn. clear liq.; odorless; sp.gr. 0.95-1.1; dens. 7.9-9.2 lb/gal; pH 3.0-6.5  
*Toxicology:* Toxicant; may cause skin/eye irritation  
*Storage:* 6 mos shelf life; store @ 10-40 C; avoid freezing or high temps.
- Formula 435** [Garratt Callahan]  
*Uses:* Corrosion inhibitor in steam condensate systems for use in lg. industrial plants, commercial bldgs., paper mills, hospitals, and schools; rec. where difficult corrosion problems exist in differential steam pressure systems, high vapor to liq. distribution ratio for low pressure systems and complex and extensive condensate systems  
*Regulatory:* FDA and USDA approved  
*Properties:* Clear liq.; sp.gr. 1.0; dens. 8.3 lb/gal  
*Storage:* 6 mos shelf life
- FR-11** [AmeriBrom; Dead Sea Bromine]  
*Chem. Descrip.:* Ammonium bromide  
CAS 12124-97-9; EINECS/ELINCS 235-183-8  
*Uses:* Flame retardant for paper, chipboard and nonwashable textiles  
*Properties:* Wh. cryst. solid; sol. 97 g/100 g water; m.w. 97.94; sp.gr. 2.43; m.p. 452 C (subl.); nonflamm., nonexplosive; 98.5% act.; 81.6% Br  
*Toxicology:* LD50 (oral, rat) 2714 mg/kg; irritating to eyes, mucous membranes, and upper respiratory tract; nonirritating to intact skin; active poisoning affects CNS  
*Storage:* Store in cool, dry, well ventilated area
- FRCROS 334** [Budenheim Ibérica]  
*Chem. Descrip.:* Treated sol'n. of ammonium pyrophosphate  
*Chem. Analysis:* P<sub>2</sub>O<sub>5</sub> (16%); N (5%)  
*Uses:* Flame retardant for cellulosic materials, wood/boards, paper, textiles, and carpets; halogen-free; noncorrosive  
*Use Level:* 30-40%  
*Properties:* Sl. grn. transparent liq.; odorless; sp.gr. 1.20; pH 6-6.5  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; nontoxic  
*Environmental:* LC50 (zebra fish, 96 h) > 500 mg/l; can be considered as a fertilizer  
*Hazardous Decomp. Prods.:* When heated may produce ammonia, phosphoric acid, and steam water  
*Storage:* Reseal opened drums
- FRCROS 349** [Budenheim Ibérica]  
*Chem. Descrip.:* Treated sol'n. of ammonium pyrophosphate and bromide  
*Chem. Analysis:* P<sub>2</sub>O<sub>5</sub> (15%); N (6%)  
*Uses:* Flame retardant for cellulosic materials, plywood, paper, wood/boards, and textiles  
*Use Level:* 25-35%  
*Properties:* Sl. grn. opalescent liq.; odorless; sp.gr. 1.25; visc. 40-50 cps; pH 5-6  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; nontoxic  
*Environmental:* LC50 (96 h, zebra fish) > 500 mg/l  
*Hazardous Decomp. Prods.:* When heated may produce ammonia, phosphoric acid, and steam water  
*Storage:* Reseal opened drums
- FRCROS 481** [Budenheim Ibérica]  
*Chem. Descrip.:* Long chain ammonium polyphosphate  
*Chem. Analysis:* P<sub>2</sub>O<sub>5</sub> (63%); N (15.5%)  
CAS 68333-79-9  
*Uses:* Flame retardant for epoxies, elastomers, textiles, cellulose, intumescent, paper, wood/boards; catalyst in solv.-based intumescent coatings; afterglow suppressant in elastomers; halogen-free; noncorrosive  
*Use Level:* 20-30% (automotive textiles); 15-25% (coatings); 2-5% (afterglow suppressant)  
*Properties:* Wh. fine, crystalline powd.; odorless; sol. 4.5 max. g/100 cm<sup>3</sup> in water; insol. in org. solvs.; sp.gr. 1.70-1.80; bulk dens. 700 g/l; pH 5.5 (10%)  
*Toxicology:* TLV > 10 mg/m<sup>3</sup> (nuisance dust); LD50 (oral, rat) > 5000 mg/kg; nontoxic

- Environmental:* LC50 (zebra fish, 96 h) > 500 mg/l; can be considered as slow-release fertilizer
- Hazardous Decomp. Prods.:* When heated above 275 C, may produce ammonia and phosphoric acid
- Storage:* Reseal opened drums; keep dry
- FRCROS 484** [Budenheim Ibérica]
- Chem. Descrip.:* Long chain ammonium polyphosphate
- Chem. Analysis:* P<sub>2</sub>O<sub>5</sub> (71%); N (14-15%)
- CAS 68333-79-9
- Uses:* Flame retardant for plastics (polyolefins, polyester, epoxies, PU), pigmented coatings, intumescent, adhesives, carpets, paper and chip-board, textiles; catalyst for water-based intumescent coatings; halogen-free
- Properties:* Wh. fine, crystalline powd.; odorless; nearly insol. in org. solvs. and water; sp.gr. 1.9; bulk dens. 700 g/l; pH 5.5 (10%); 0.05% moisture
- Toxicology:* TLV > 10 mg/m<sup>3</sup> (nuisance dust); LD50 (oral, rat) > 5000 mg/kg; nontoxic
- Environmental:* LC50 (zebra fish, 96 h) > 500 mg/l; can be considered as slow-release fertilizer
- Hazardous Decomp. Prods.:* When heated above 275 C, may produce ammonia and phosphoric acid
- Storage:* Reseal opened drums; keep dry
- Freedom SBO-65** [BFGoodrich/Textile]
- Chem. Descrip.:* Sulfated butyl oleate, sodium salt
- Uses:* Textile dye assistant; lubricant, wetter/rewetter, penetrant in textile dyeing, leather dyeing, fat liquors, metal cutting oils, paper mfg.; leveling agent for acid dyes; paper rewetter
- Properties:* 65% act.; anionic
- Environmental:* Biodeg.
- Freedom SBT-65** [BFGoodrich/Textile]
- Chem. Descrip.:* Sulfated butyl tallate, sodium salt
- Uses:* Textile dye assistant; lubricant, wetter/rewetter, penetrant in textile dyeing, leather dyeing, fat liquors, metal cutting oils, paper mfg.; leveling agent for acid dyes; paper rewetter
- Properties:* 65% act.
- Environmental:* Biodeg.
- Freedom SCO-50** [BFGoodrich/Textile]
- Chem. Descrip.:* Sulfated castor oil
- CAS 8002-33-3; EINECS/ELINCS 232-306-7
- Uses:* Kier boiling agent, emulsifier, bleaching assistant, dispersant in dyeing and bleaching; cloth lubricant in dyebath; finishing oil; milling assistant, dispersant for paper formulations; milling aid, leveling agent, wetting agent for paints and stains; stable in acidic and alkaline formulations
- Properties:* Amber clear liq.; pH 8-9; 50% act.; 18-26% free fatty acid; anionic
- Environmental:* Biodeg.
- Freedom SCO-70** [BFGoodrich/Textile]
- Chem. Descrip.:* Sulfated castor oil
- CAS 8002-33-3; EINECS/ELINCS 232-306-7
- Uses:* Kier boiling agent, emulsifier, bleaching assistant, dispersant in dyeing and bleaching; cloth lubricant in dyebath; finishing oil; milling assistant, dispersant for paper formulations; milling aid, leveling agent, wetting agent for paints and stains; stable in acidic and alkaline formulations
- Properties:* Amber clear liq.; pH 7-8 (5%); 70% act.; 10-20% free fatty acid; anionic
- Environmental:* Biodeg.
- Freedom SCO-75** [BFGoodrich/Textile]
- Chem. Descrip.:* Sulfated castor oil
- CAS 8002-33-3; EINECS/ELINCS 232-306-7
- Uses:* Lubricant, surfactant, dispersant for personal care prods.; kier boiling agent, emulsifier, bleaching assistant, dispersant in dyeing and bleaching; cloth lubricant in dyebath; finishing oil; milling assistant, dispersant for paper formulations; milling aid, leveling agent, wetting agent for paints and stains; very high foaming; stable in acidic and alkaline formulations
- Properties:* Amber clear liq.; pH 7-8 (5%); 75% act.; 10-20% free fatty acid; anionic
- Environmental:* Biodeg.
- Freedom SCO-75K** [BFGoodrich/Textile]
- Chem. Descrip.:* Sulfated castor oil, potassium salt
- Uses:* Lubricant, surfactant, dispersant for personal care prods.; kier boiling agent, emulsifier, bleaching assistant, dispersant in dyeing and bleaching; cloth lubricant in dyebath; finishing oil; milling assistant, dispersant for paper formulations; milling aid, leveling agent, wetting agent for paints and stains; very high foaming; stable in acidic and alkaline formulations
- Properties:* Amber clear liq.; pH 7-8 (5%); 75% act.; 10-20% free fatty acid; anionic
- Environmental:* Biodeg.
- FX-704** [Songkang Ind. Co.]
- Chem. Descrip.:* Polquaternary amine
- Uses:* Fixing agent for rosin size in wet end of papermaking; white pitch control agent for fixing anionic substances; stickies control agent in the wet-end; wastewater treatment; reduces dosage of alum; interacts with all anionic charged particles and contaminants
- Properties:* Visc. < 2000 cps; pH 5.5± 1.5
- FX-706** [Songkang Ind. Co.]
- Chem. Descrip.:* Polquaternary amine
- Uses:* Fixing agent for rosin size in wet end of papermaking; white pitch control agent for fixing anionic substances; stickies control agent in the wet-end; wastewater treatment; reduces dosage of alum; interacts with all anionic charged particles and contaminants
- Properties:* Sp.gr. 1.25; visc. < 1500 cps; pH 4.0 ± 1
- Fyrol® 51** [Akzo Nobel]
- Chem. Descrip.:* Oligomeric phosphate
- CAS 70715-06-9
- Uses:* Flame retardant for aq. systems that are used as binders for cellulosic prods., e.g., automotive and industrial air filters, upholstery fabrics, thermo-set papers, particle and chip boards
- Properties:* Lt. straw liq.; misc. with water; sp.gr. 1.37; dens. 11.4 lb/gal; visc. 5600 cps; vapor pressure 2.5 torr (65 C); acid no. 1.8; 20.5% P, 0% Cl

# G

**Gamaco®** [Georgia Marble]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (95% min.)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender pigment for paints, enamels, epoxy-based coatings, paper coatings, adhesives, caulks, sealants, plastics (polyolefin, PU, epoxy, plastisols, compr. and inj. molded compds), foam and rubber compds., glass fiber-reinforced polyester (BMC/SMC/TMC where paintable parts are required), pultrusion

*Properties:* Powd.; 3.8 μ median particle size; 0.006% on 325 mesh; fineness (Hegman) 6; oil absorp. 16; brightness (Hunter) 94

**Gama-Sperse® 80** [Georgia Marble]

*Chem. Descrip.:* Calcium carbonate, natural ground

*Chem. Analysis:* CaCO<sub>3</sub> (95% min.)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for paints, enamels, plastisols esp. slush molded parts requiring high gloss, polyolefin compds. for sheet stock, thin films, paper coatings, rubber prods., upholstery fabrics, credit card stock, pigment extenders, caulks, sealants, and adhesives; general purpose

*Properties:* Powd.; 2.5 μ median particle size; 0.006% on 325 mesh; fineness (Hegman) 7; sp.gr. 2.71; bulking value 0.443 gal/lb; oil absorp. 19 lb oil/100 lb pigment; brightness 94; pH 9.0-9.5; hardness (Moh) 3

**Gama-Sperse® 255** [Georgia Marble]

*Chem. Descrip.:* Calcium carbonate, natural ground

*Chem. Analysis:* total carbonates (95% min.)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for paints, plastics, paper coatings, and rubber prods.; general-use

*Properties:* 12.0 μ median particle size; 0.02% on 325 mesh; fineness (Hegman) 4; sp.gr. 2.71; bulking value 0.443 gal/lb; oil absorp. 9 lb oil/100 lb pigment; brightness 94; pH 9.0-9.5; hardness (Moh) 3

**Genapol® 26-L-5** [Clariant/Surf.]

*Chem. Descrip.:* C12-16 pareth-5

CAS 68551-12-2

*Uses:* Detergent intermediate for phosphation or sulfation for use in cosmetics, shampoos, lt. duty detergents, household and I&I cleaners, textile wet processing, paper processing, emulsions and dispersions, agric. adjuvants

*Regulatory:* FDA compliance

*Properties:* APHA 10 liq.; oil-sol.; m.w. 419; sp.gr. 0.97; visc. 29 cst; HLB 10.6; hyd. no. 134; pour pt. 8 C; flash pt. (COC) 160 C; pH 6.6 (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Genapol® 26-L-23** [Clariant/Surf.]

*Chem. Descrip.:* Laureth-23

CAS 9002-92-0

*Uses:* Detergent intermediate for carboxylation or phosphation for use in household and I&I cleaners, textile wet processing, emulsions and dispersions, paper processing, agric. adjuvants

*Properties:* Solid; HLB 16.9; 100% act.; nonionic

*Environmental:* Biodeg.

**Genapol® 26-L-45** [Clariant/Surf.]

*Chem. Descrip.:* C12-16 pareth-6

CAS 68551-12-2

*Uses:* Detergent intermediate for phosphation or sulfation for use in cosmetics, shampoos, lt. duty detergents, household and I&I cleaners, textile wet

processing, paper processing, emulsions and dispersions, agric. adjuvants  
*Properties:* APHA 20 liq.; oil-sol.; m.w. 479; sp.gr. 0.96; visc. 49.5 cst; HLB 11.6; hyd. no. 117; pour pt. 6 C; cloud pt. 45 C (1% aq.); flash pt. (COC) 216 C; pH 7.0 (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Genapol® 26-L-50** [Clariant/Surf.]

*Chem. Descrip.:* C12-16 pareth-7

CAS 68551-12-2

*Uses:* Detergent intermediate for phosphation or sulfation for use in cosmetics, shampoos, lt. duty detergents, household and I&I cleaners, textile wet processing, paper processing, emulsions and dispersions, agric. adjuvants

*Properties:* APHA 20 color; m.w. 505; sp.gr. 0.96; visc. 48.1 cst; HLB 12.2; hyd. no. 111; pour pt. 5 C; cloud pt. 50 C (1% aq.); flash pt. (COC) 216 C; pH 6.1 (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Genapol® 26-L-60** [Clariant/Surf.]

*Chem. Descrip.:* C12-16 pareth-7.3

CAS 68551-12-2

*Uses:* Detergent intermediate for phosphation or carboxylation for use in household and I&I cleaners, textile wet processing, paper processing, emulsions and dispersions, agric. adjuvants

*Properties:* APHA 20 liq.; m.w. 519; sp.gr. 0.98; visc. 53 cst; HLB 12.4; hyd. no. 108; pour pt. 18 C; cloud pt. 60 C (1% aq.); flash pt. (COC) 171 C; pH 6.2 (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Genapol® 26-L-80** [Clariant/Surf.]

*Chem. Descrip.:* C12-16 pareth-9

CAS 68551-12-2

*Uses:* Detergent intermediate for carboxylation or phosphation for use in household and I&I cleaners, textile wet processing, emulsions and dispersions, paper processing, agric. adjuvants

*Properties:* Hazy liq.; HLB 13.4; 100% act.; nonionic

*Environmental:* Biodeg.

**Genapol® C-050** [Clariant/Surf.]

*Chem. Descrip.:* Coceth-5

CAS 61791-13-7

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.

*Properties:* Turbid liq.; sol. in min. oil, benzene, turbid in water; sp. gr. 0.952 (50 C); visc. 17.6 cps (50 C); flash pt. 201 C (Marcusson); surf. tens. 32 dynes/cm; 100% act.; nonionic

**Genapol® C-080** [Clariant/Surf.]

*Chem. Descrip.:* Coceth-8

CAS 61791-13-7

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.

*Properties:* Paste; sol. in water, benzene, turbid in min. oil; sp. gr. 0.979 (50 C); visc. 25.4 cps (50 C); flash pt. 246 C (Marcusson); surf. tens. 36 dynes/cm; 100% act.; nonionic

**Genapol® C-100** [Clariant/Surf.]

*Chem. Descrip.:* Coceth-10

CAS 61791-13-7

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.

*Properties:* Paste; sol. in water, benzene, turbid in min. oil; sp. gr. 0.990 (50



- C); visc. 30.4 cps (50 C); flash pt. 251 C (Marcusson); surf. tens. 38 dynes/cm; 100% act.; nonionic
- Genapol® C-150** [Clariant/Surf.]  
*Chem. Descrip.:* Coceth-15  
 CAS 61791-13-7  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Wax; sol. in water, benzene; sp. gr. 1.027 (50 C); visc. 45.8 cps (50 C); flash pt. 260 C (Marcusson); surf. tens. 43 dynes/cm; 100% act.; nonionic
- Genapol® C-200** [Clariant/Surf.]  
*Chem. Descrip.:* Coceth-20  
 CAS 61791-13-7  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Wax; sol. in water, benzene; sp. gr. 1.032 (50 C); visc. 61.5 cps (50 C); flash pt. 264 C (Marcusson); surf. tens. 44 dynes/cm; 100% act.; nonionic
- Genapol® O-020** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-2  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Clear liq.; sol. in min. oil, benzene, turbid in water; sp. gr. 0.894 (50 C); visc. 12.4 cps (50 C); flash pt. 186 C (Marcusson); 100% act.; nonionic
- Genapol® O-050** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-5  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Turbid liq.; sol. in benzene, turbid in water, min. oil; sp. gr. 0.936 (50 C); visc. 18.4 cps (50 C); flash pt. 225 C (Marcusson); surf. tens. 54 dynes/cm; 100% act.; nonionic
- Genapol® O-080** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-8  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Turbid liq.; sol. in water, benzene, turbid in min. oil; sp. gr. 0.960 (50 C); visc. 25.1 cps (50 C); flash pt. 246 C (Marcusson); surf. tens. 44 dynes/cm; 100% act.; nonionic
- Genapol® O-090** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-9  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Yel. liq.; visc. 45 cps; hyd. no. 90; pH 7 (1% aq.); 99% conc.; nonionic
- Genapol® O-100** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-10  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Paste; sol. in water, benzene, turbid in min. oil; sp. gr. 0.989 (50 C); visc. 33 cps (50 C); flash pt. 260 C (Marcusson); surf. tens. 41 dynes/cm; 100% act.; nonionic
- Genapol® O-120** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-12  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Paste; sol. in water, benzene, turbid in min. oil; sp. gr. 1.0 (50 C); visc. 42.5 cps (50 C); flash pt. 265 C (Marcusson); surf. tens. 42 dynes/cm; 100% act.; nonionic
- Genapol® O-150** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-15  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Wax; sol. in water, benzene, turbid in min. oil; sp. gr. 1.02 (50 C); visc. 49.1 cps (50 C); flash pt. 271 C (Marcusson); surf. tens. 45 dynes/cm; 100% act.; nonionic
- Genapol® O-200** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-20  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Wh. waxy solid; sol. in water, benzene, turbid in min. oil; sp. gr. 1.037 (50 C); visc. 65.9 cps (50 C); hyd. no. 50; flash pt. 278 C (Marcusson); pH 7 (1% aq.); surf. tens. 47 dynes/cm; 100% act.; nonionic
- Genapol® O-230** [Clariant/Surf.]  
*Chem. Descrip.:* Oleth-23  
 CAS 9004-98-2  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics, agric.  
*Properties:* Wh. waxy solid; sol. in water, benzene, turbid in min. oil; sp. gr. 1.042 (50 C); visc. 79.5 cps (50 C); hyd. no. 44; flash pt. 279 C (Marcusson); pH 7 (1% aq.); surf. tens. 47 dynes/cm; 100% act.; nonionic
- Genapol® S-020** [Clariant/Surf.]  
*Chem. Descrip.:* Stearyl alcohol polyglycol ether  
 CAS 9005-00-9  
*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics  
*Properties:* Wax; sol. in min. oil, benzene, turbid in water; sp. gr. 0.890 (50 C); visc. 15.2 cps (50 C); flash pt. 198 C (Marcusson); surf. tens. 50 dynes/cm; 100% act.; nonionic
- Genapol® UD-070** [Clariant/Surf.]  
*Chem. Descrip.:* C11 oxo alcohol ethoxylate (7 EO)  
 CAS 127036-24-2  
*Uses:* Surfactant for household cleaners, textile wet processing, paper processing, metal cleaning, detergent formulation, metalworking fluids and lubricants; alternative to nonylphenol ethoxylates  
*Properties:* Hazy liq.; HLB 13.0; 100% act.; nonionic  
*Environmental:* > 80% biodeg.
- Genapol® UD-079** [Clariant/Surf.]  
*Chem. Descrip.:* C11 oxo alcohol ethoxylate (7 EO)  
 CAS 127036-24-2  
*Uses:* Surfactant for household cleaners, textile wet processing, paper processing, metal cleaning, detergent formulation, hand dishwash, all-purpose household cleaners, hard-surf. cleaners, metalworking fluids and lubricants; alternative to nonylphenol ethoxylates  
*Properties:* Almost colorless liq.; sp. gr. 0.97; HLB 13.0; iodine no. 1; pour pt. 0 C; cloud pt. 52-55 C; flash pt. 180 C; 90% act. in water; nonionic  
*Environmental:* > 80% biodeg.
- Genapol® UD-080** [Clariant/Surf.]  
*Chem. Descrip.:* C11 oxo alcohol ethoxylate (8 EO)  
 CAS 127036-24-2  
*Uses:* Surfactant for household cleaners, textile wet processing, paper processing, metal cleaning, detergent formulation, hand dishwash, all-purpose household cleaners, hard-surf. cleaners, metalworking fluids and lubricants; alternative to nonylphenol ethoxylates  
*Properties:* Wh. hazy liq.; sp. gr. 0.96; HLB 14.0; iodine no. 1; pour pt. 25 C; cloud pt. 62-65 C; flash pt. 190 C; 90% act.; nonionic  
*Environmental:* > 80% biodeg.
- Genapol® UD-110** [Clariant/Surf.]  
*Chem. Descrip.:* C11 oxo alcohol ethoxylate (11 EO)  
 CAS 127036-24-2  
*Uses:* Surfactant for household cleaners, textile wet processing, paper processing, metal cleaning, detergent formulation, all-purpose household cleaners, hard-surf. cleaners, metalworking fluids and lubricants; alternative to nonylphenol ethoxylates  
*Properties:* Wh. soft paste; sp. gr. 0.99; HLB 15.0; iodine no. 1; pour pt. 30 C; cloud pt. 62-65 C; flash pt. 210 C; 100% act.; nonionic  
*Environmental:* > 80% biodeg.
- Genapol® X Grades** [Clariant/Surf.]  
*Chem. Descrip.:* Isotridecanol polyglycol ether (3-15 EO)  
*Uses:* Basic material for mfg. of detergents, cleaning and rinsing agents; mfg. of leather and paper auxs., agric. formulations  
*Properties:* 100% conc.; nonionic
- GenCryl® 9705** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Carboxylated styrene-butadiene acrylonitrile latex  
*Uses:* Binder for offset and rotogravure printing papers; provides controlled offset ink interaction; inc. coating str.; improves ink holdout and print mottle

*Properties:* Lg. particle size; visc. 150 cps; pH 7.0; 50% total solids  
**GenCryl® 9715** [OMNOVA Sol'ns./Paper]

*Chem. Descrip.:* Carboxylated styrene-butadiene acrylonitrile latex  
*Uses:* Binder for offset and rotogravure printing papers; provides controlled offset ink interaction; inc. coating str.; improves ink holdout; low mottle tendency for high print quality

*Properties:* Med. particle size; visc. 150 cps; pH 7.0; 50% total solids

**GenFlo® 557** [OMNOVA Sol'ns./Paper]

*Chem. Descrip.:* Carboxylated styrene-butadiene latex  
*Uses:* Gloss aid, binder for publication papers, coated paperboard; component of paper/paperboard in contact with aq./fatty/dry foods; inc. ink holdout and str.; contributes to glueability, print mottle, folding chars. and offset water/ink absorp. balance

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Lg. particle size; visc. 118 cps; pH 6.3; 50.3% total solids

**GenFlo® 559** [OMNOVA Sol'ns./Paper]

*Chem. Descrip.:* Carboxylated styrene-butadiene latex  
*Uses:* Binder for coated paperboard; component of paper/paperboard in contact with aq./fatty/dry foods; exc. glueability; protein compat.; inc. ink hold-out and str.; contributes to print mottle, folding chars. and offset water/ink absorp. balance

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Lg. particle size; visc. 150 cps; pH 8.7; 50% total solids

**GenFlo® 576** [OMNOVA Sol'ns./Paper]

*Chem. Descrip.:* Carboxylated styrene-butadiene latex  
*Uses:* Binder for sheet and web offset, publication paper, and coated paperboard; exc. glossing

*Properties:* Lg. particle size; visc. 100 cps; pH 5.7; 50.4% total solids

**Geo FM® 1220** [Geo Spec. Chems./Paper]

*Uses:* Antifoam for pigmented paper coatings and size press sol'ns., esp. for applics. contg. high foaming syn. binders such as acrylic polymers; defoamer in food-contact paper coatings, paper/paperboard; min. oil-free; silical/silicone-free; alkyl phenol ethoxylate-free; remains stable in conc. form or as dil. aq. emulsion

*Use Level:* 0.05-0.15% (pigmented coating colors), 0.05-0.1% (size press)

*Regulatory:* FDA 21CFR §176.200, 176.210

*Properties:* Clear liq.; water-disp.; dens. 8.3 lb/gal; visc. 400-1000 cps; pH 5-7 (10% aq.); 100% act.

*Storage:* Store @ 4-27 C away from direct heat; freezing has no effect; if prod. solidifies due to cold, warm to R.T. and mix well before use

**Geo FM® 1224** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Silica/silicone-contg.  
*Uses:* Antifoam for pigmented paper coatings and size press sol'ns., esp. for applics. contg. high foaming syn. binders such as acrylic polymers; defoamer in food-contact paper coatings, paper/paperboard; min. oil-free; alkyl phenol ethoxylate-free; remains stable in conc. form or as dil. aq. emulsion

*Use Level:* 0.05-0.15% (pigmented coating colors), 0.05-0.1% (size press)

*Regulatory:* FDA 21CFR §176.200, 176.210

*Properties:* Clear liq.; water-disp.; dens. 8.3 lb/gal; visc. 400-1000 cps; pH 5-7 (10% aq.); 100% act.

*Storage:* Store @ 4-27 C away from direct heat; freezing has no effect; if prod. solidifies due to cold, warm to 50 C and mix well before use

**Geo FM® 1425** [Geo Spec. Chems./Paper]

*Uses:* Defoamer for pigmented paper coatings and size press sol'ns., esp. for applics. contg. high foaming syn. binders such as acrylic polymers; defoamer in food-contact paper/paperboard; water-based; suitable for use in surf. sizing at operating temps. above 140 F; can be applied as received or as a 5-10% emulsion; not affected by water hardness; effective @ pH 4-10

*Regulatory:* FDA 21CFR §176.210

*Properties:* Wh. emulsion; dens. 8.2 lb/gal; visc. 1200-2000 cps; pH 8.5-9.5; 22.5-24.5% solids

*Storage:* Store @ 4-27 C away from direct heat; if prod. freezes, warm to R.T. and mix well before use

**Geo FM® DF-122** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Oil-based, silica-containing  
*Uses:* Antifoam, defoamer for pigmented paper coatings and size press sol'ns., esp. for applics. contg. high foaming syn. binders such as acrylic and polyvinyl acetate latexes; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

*Use Level:* 0.1-0.3% (antifoam for pigmented coating colors), 5-10% (defoamer for pigmented coating colors), 0.05-0.1% (size press)

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Amber hazy liq.; water-disp.; dens. 7.6 lb/gal; visc. 600-1600 cps; pH 6-8 (2% aq.); 100% act.

*Storage:* Store @ 4-27 C away from direct heat; freezing has no effect; if prod. solidifies due to cold, warm to R.T. and mix well before use

**Geo FM® DF-122-NS** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Oil-based, non-silica/silicone-containing  
*Uses:* Antifoam, defoamer for pigmented paper coatings and size press sol'ns., esp. for applics. contg. high foaming syn. binders such as acrylic and polyvinyl acetate latexes; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

*Use Level:* 0.1-0.3% (antifoam for pigmented coating colors), 5-10% (defoamer for pigmented coating colors), 0.05-0.1% (size press)

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Amber hazy liq.; water-disp.; dens. 7.6 lb/gal; visc. 600-1600 cps; pH 6-8 (2% aq.); 100% act.

*Storage:* Store @ 4-27 C away from direct heat; freezing has no effect; if prod. solidifies due to cold, warm to R.T. and mix well before use

**Geo FM® VF** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Oil-based  
*Uses:* Antifoam, defoamer for aq. paper coating colors and size press sol'ns., esp. for applics. contg. high foaming syn. binders such as acrylic polymers; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

*Use Level:* 0.05-0.15% (antifoam for pigmented coating colors), 5-10% (defoamer for pigmented coating colors), 0.05-0.1% (size press)

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Yel. opaque liq.; water-disp.; dens. 7.95 lb/gal; visc. 500-800 cps; pH 6-7 (10% aq.); 100% act.; nonionic

*Storage:* Store @ 4-27 C away from direct heat; freezing has no effect; if prod. solidifies due to cold, warm to R.T. and mix well before use

**Geo FM® VFS** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Oil-based  
*Uses:* Antifoam, defoamer for pigmented paper coatings, and nonpigmented surf. applics. such as size presses and calender boxes, esp. for applics. contg. high foaming syn. binders such as acrylic polymers; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; low oil; minimal hydrocarbon content

*Use Level:* 0.05-0.15% (antifoam for pigmented coating colors), 5-10% (defoamer for pigmented coating colors), 0.05-0.1% (size press)

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Properties:* Yel. opaque liq.; water-disp.; dens. 7.95 lb/gal; visc. 500-800 cps; pH 6-7 (10% aq.); 100% act.; nonionic

*Storage:* Store @ 4-27 C away from direct heat; freezing has no effect; if prod. solidifies due to cold, warm to R.T. and mix well before use

**Geropon® 99** [Rhodia HPCII]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate and propylene glycol  
*Uses:* Detergent; textile scouring agent and dye dispersant; paper rewetting and felt washing surfactant; wetting agent in cosmetics; detergent additive in dry cleaning fluids; dishwashing compds.; wallpaper removers; agric. sprays; emulsion polymerization; water-based paint formulations; antifog

*Regulatory:* EPA compliance

*Properties:* Clear liq.; water-sol.; sp.gr. 1.08-1.13 (70 F); visc. 500-1000 cps (70 F); pour pt. 40 F; 75% act.; anionic

**Geropon® BIS/SODICO-2** [Rhodia HPCII]

*Chem. Descrip.:* Sodium bistridecyl sulfosuccinate  
 CAS 2673-22-5; EINECS/ELINCS 220-219-7  
*Uses:* Emulsifier and visc. depressant for emulsion polymerization of PVC; latex surf. tension stabilizer; dispersant for resins, pigments into plastics and organic media; base for rust inhibitors; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; BGA XIV compliance

*Properties:* Liq.; oil-sol., water-disp.; surf. tens. 26 dynes/cm; 60% conc.; anionic

**Geropon® CYA/DEP** [Rhodia HPCII]

*Chem. Descrip.:* Sodium diisooctyl sulfosuccinate  
 CAS 127-39-9; EINECS/ELINCS 204-839-5  
*Uses:* Wetting agent for textiles, pesticides, emulsion polymerization, printing inks, water paints; visc. depressant in emulsion PVC; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; stable in acid media

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 178.3400; BGA XIV compliance

- Properties:* Liq.; sol. in org. solvs.: 75% conc.; anionic
- Geropon® DOS** [Rhodia HPCII; Rhodia HPCII France]  
*Chem. Descip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, demulsifier for textile wet processing, specially cleaners; dewatering agent for flotation concs., oil spill clean-up blends; visc. depressant in emulsion PVC; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; limited stability in alkaline or acidic media  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 178.3400; BGA XIV compliance  
*Properties:* Liq.; limited water sol.; 65% conc.; anionic
- Geropon® SDS** [Rhodia HPCII]  
*Chem. Descip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Emulsifier; dispersant and wetting agent for pigments and dyes in plastics, paints, pesticide wettable powds.; wetting agent, penetrant for textile processing; dewatering agent for min. processing; used in dry cleaning, emulsion polymerization; wallpaper; battery separators; rewetting for paper towels and papermaking  
*Regulatory:* Exempt from tolerance under EPA 40CFR §180.1001(c)  
*Properties:* Spray-dried powd.; dissolves in water, partly sol. in org. solvs.; 85% act.; anionic
- Geropon® SS-O-70PG** [Rhodia HPCII]  
*Chem. Descip.:* Sodium dioctyl sulfosuccinate in propylene glycol  
*Uses:* Emulsifier, wetting agent for industrial applics., textile processing, dry cleaning, emulsion polymerization, wallpaper, battery separators, papermaking, paints and coatings; dewatering agent for min. processing; high flash  
*Properties:* Liq.; 70% act.; anionic
- Geropon® T-33** [Rhodia HPCII; Rhodia HPCII France]  
*Chem. Descip.:* Sodium N-methyl-N-oleoyl taurate  
 CAS 137-20-2; EINECS/ELINCS 205-285-7  
*Uses:* Detergent, dispersant, wetting agent for textile and general-purpose applics.; dye assistant; for kier boiling, bleaching, wetting, finishing of textiles; in industrial detergents, rug shampoos, bottle washing compds., metal cleaners, paper industry; suspending agent and wetting agent for crop protection formulations  
*Regulatory:* Exempt from tolerance under EPA 40CFR §180.1001(c)  
*Properties:* Pale yel. nearly clear liq., perfumed alcoholic odor; water-sol.; m.w. 425; pH 6.5-8.0 (10%); 32% act.; anionic
- Geropon® T/36DF** [Rhodia HPCII]  
*Chem. Descip.:* Sodium polycarboxylate  
 CAS 37199-81-8  
*Uses:* Dispersant for elastomers, suspension polymerization for use in solvent stripping phase; component of paper/paperboard in contact with dry food  
*Use Level:* 0.25% on wt. of polymer  
*Regulatory:* FDA 21CFR §175.105, 176.180  
*Properties:* Liq.; 25% solids in water
- Geropon® T-43** [Rhodia HPCII]  
*Chem. Descip.:* Sodium N-methyl-N-oleoyl taurate  
 CAS 137-20-2; EINECS/ELINCS 205-285-7  
*Uses:* Detergent, wetting agent, dispersant for textile and general-purpose applics.; dye assistant; for kier boiling, bleaching, wetting, finishing of textiles; in industrial detergents, rug shampoos, bottle washing compds., metal cleaners, paper industry  
*Properties:* Wh. visc. liq. slurry, fatty odor; m.w. 425; water sol.; pH 6.5-8.0 (5%); 33% act.; anionic
- Geropon® T-51** [Rhodia HPCII]  
*Chem. Descip.:* Sodium N-methyl-N-oleoyl taurate  
 CAS 137-20-2; EINECS/ELINCS 205-285-7  
*Uses:* Detergent, wetting agent, dispersant for textile and general-purpose applics.; dye assistant; for kier boiling, bleaching, wetting, finishing of textiles; in industrial detergents, rug shampoos, bottle washing compds., metal cleaners, paper industry; latex stabilizer  
*Properties:* Lt. amber gel, perfumed odor; m.w. 425; water sol.; pH 6.5-8.0 (10%); 13.9% act.; anionic
- Geropon® T-77** [Rhodia HPCII; Rhodia HPCII France]  
*Chem. Descip.:* Sodium N-methyl-N-oleoyl taurate  
 CAS 137-20-2; EINECS/ELINCS 205-285-7  
*Uses:* Foaming agent, wetting agent, emulsifier, dispersant for textile and general-purpose applics.; dye assistant; kier boiling; in industrial detergents,

- rug shampoos, bottle washing compds., metal cleaners, paper industry; foaming agent, conditioner, detergent, emulsifier, foam booster/stabilizer, visc. builder for shampoos, liq. soaps, facial cleansers, bath gels, and bubble baths; crop protection formulations  
*Regulatory:* Exempt from tolerance under EPA 40CFR §180.1001(c)(e) @ 1% max.  
*Properties:* Cream flakes, fatty odor; m.w. 425; water sol.; pH 6.5-8.0 (5%); 67% act.; anionic
- Geropon® TA/72/S** [Rhodia HPCII]  
*Chem. Descip.:* Sodium salt of polycarboxylic acid  
 CAS 37199-81-8  
*Uses:* Dispersant/suspending agent for pesticides and general purpose applics.; dispersant in elastomers, suspension polymerization for use in solvent stripping phase; component of paper/paperboard in contact with dry food  
*Use Level:* 0.25% on wt. of polymer  
*Regulatory:* FDA 21CFR §175.105, 176.180  
*Properties:* Powd.; water-sol.; 90% solids; anionic
- Geropon® WT-27** [Rhodia HPCII; Costec]  
*Chem. Descip.:* Sodium dioctyl sulfosuccinate in ethanol-water vehicle  
*Uses:* Wetting agent, rewetting agent, emulsifier, dispersant, penetrant used in dry cleaning detergents, emulsion polymerization, glass cleaners, wallpaper removers, battery separators, textiles, paper, metalworking, dyeing, firefighting; high foaming  
*Regulatory:* FDA compliance  
*Properties:* Water-wh. clear liq.; water sol. up to 1.2% solids and 5.5% @ 70 C; sol. in some polar and nonpolar solvs.; flash pt. > 200 C; pH 5-6 (1%); surf. tens. 28 dynes/cm (@ CMC); 70% act.; anionic
- Gilufloc®** [BK Giulini Chemie]  
*Chem. Descip.:* Modified polyaluminum chlorides of varying composition  
*Uses:* Flocculant, fixing agent for paper applics.; inorg.
- Giluton 1100/28 N** [BK Giulini Chemie]  
*Chem. Descip.:* Polyamideamine-epichlorohydrin resin  
*Uses:* Wet str. agent for neutrally mfg. paper and board  
*Use Level:* 0.5-6.0%; 0.2-0.6% (as retention or creping agent)  
*Regulatory:* BgVV compliant  
*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 1.03 (20 C); visc. < 100 mPa·s (20 C); pH 3; 14% act.; cationic  
*Storage:* 3 mos. shelf life @ 20 C
- Giluton HP** [BK Giulini Chemie]  
*Chem. Descip.:* Polyamideamine-epichlorohydrin resin  
*Uses:* Wet str. agent for neutrally mfg. paper and board  
*Use Level:* 1-8%; 0.2-0.6% (as retention or creping agent)  
*Regulatory:* BgVV compliant  
*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 1.03 (20 C); visc. < 100 mPa·s (20 C); pH 3; 14% act.; cationic  
*Storage:* 3 mos. shelf life @ 20 C
- Giluton NL 15** [BK Giulini Chemie]  
*Chem. Descip.:* Polyamideamine-epichlorohydrin resin  
*Uses:* Wet str. agent for neutrally mfg. paper and board  
*Regulatory:* BgVV compliant  
*Properties:* Ylsh. clear liq.; misc. with water; sp.gr. 1.03 (20 C); visc. < 100 mPa·s (20 C); pH 3; 14.5% act.; cationic  
*Storage:* 3 mos. shelf life @ 20 C
- Glo-Sperse™ EPX Fine Grind Disps.** [Day-Glo Color]  
*Chem. Descip.:* Fluorescent pigment aq. disp.  
*Uses:* Fluorescent pigment disps. for use in water-based coatings and inks incl. textile inks, latex paints, tempera paint, flexo ink, gravure ink, paper coatings, seed coatings  
*Properties:* Avail. in various colors; disp.; 0.25-0.50 μ particle size; sp.gr. 1.0-1.1; pH 6.5-8.0; 42-46% solids  
*Storage:* Protect from freezing
- Gluconal® GA-50** [Glucona Am.]  
*Uses:* Retarder and water reducer for concrete; sequestrant for metal ion and hardness control in textiles, leather, lithographic plate cleaning; stabilizer for sodium aluminate sol'ns. used in water treatment as precipitant/flocculant, paper industry as sizing improver, chem. industry as zeolite raw material
- Gluconal® NG-C** [Glucona Am.]  
*Chem. Descip.:* Sodium gluconate  
 CAS 527-07-1; EINECS/ELINCS 208-407-7  
*Uses:* Retarder and water reducer for concrete; sequestrant for metal ion and hardness control in metal treatment, textiles, leather, bottle washing, lithographic plate cleaning; stabilizer for sodium aluminate sol'ns. used in water

- treatment as precipitant/flocculant, paper industry as sizing improver, chem. industry as zeolite raw material; forms water-sol. chelates with polyvalent metal ions in highly alkaline media  
*Properties:* Wh. to off-wh. cryst.; ≈ 250 mm avg. particle size; sol. 600 g/l in water (20 C); bulk dens. 800-1000 kg/m<sup>3</sup>; pH 6.5-8.0 (30%); 99% assay  
*Environmental:* Completely biodeg.; COD = 760 mg/g  
*Storage:* Store in dry place in closed bags
- Glycowax® 765** [Lonza]  
*Chem. Descrip.:* N,N'-Ethylene bisstearamide  
 CAS 110-30-5; EINECS/ELINCS 203-755-6  
*Uses:* Defoamer for kraft brownstock pulp/paper, plastics processing, powd. metal lubrication, water treatment, textiles, other industrial applics.  
*Properties:* Gardner 4 powd.; 87% min. on 325 mesh; m.p. 143 C; acid no. 2; flash pt. 285 C
- Glypax 200** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 200  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Liq.; 99% act.
- Glypax 400** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 400  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Liq.; 99% act.
- Glypax 600** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 600  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Liq.; 99% act.
- Glypax 1000** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 1000  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Solid; 99% act.
- Glypax 3000** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 3000  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Solid; 99% act.
- Glypax 4000** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 4000  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Solid; 99% act.
- Glypax 6000** [Pax Group]  
*Chem. Descrip.:* PEG, m.w. 6000  
*Uses:* Solubilizer, lubricant, humectant, defoamer, binder, coupling agent, dyeing assistant, plasticizer in paper/pulp, other applics.  
*Properties:* Solid; 99% act.
- GMF-B** [Sam Shin]  
*Chem. Descrip.:* Melamine-formaldehyde resin  
 CAS 9003-08-1  
*Uses:* Water resist. aid, abrasion resist. aid for neutral and sl. alkaline paper coatings; improves printability; low formaldehyde  
*Properties:* Colorless transparent liq.; sol. in water; visc. < 20 cps; pH 10 ± 1; 44 ± 1% solids  
*Toxicology:* Avoid skin contact  
*Storage:* 3 mos shelf life below 25 C
- GOD-119** [Hansol]  
*Chem. Descrip.:* Fatty alcohol  
*Uses:* Deinking agent for newsprint; enhances collecting power of ink particles at flotation cell  
*Properties:* Opaque/transparent liq.; easily disp. in water; 90% min. conc.; nonionic  
*Storage:* Store in tightly closed container in cool, dry place away from incompat. substances, heat, flames
- Gohsenal** [Nippon Gohsei; British Traders & Shippers]  
*Chem. Descrip.:* Polyvinyl alcohol  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Paper sizing, coating, thermal paper, and release paper
- Gohsenol** [Nippon Gohsei; British Traders & Shippers]  
*Chem. Descrip.:* Polyvinyl alcohol  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Adhesive and sealant; protective colloid for PVC, PS, emulsions; binder emulsion stabilizer and binder for water-based inks, ceramic powds., pottery ware; textile and paper sizing agent; for thermal paper; additive for paints, caulks, tile adhesives, floor screeds, wood glues, gypsum wall boards; soil stabilizer; agric. seed coating; sticker or spreader
- Gohseran** [Nippon Gohsei; British Traders & Shippers]  
*Chem. Descrip.:* Polyvinyl alcohol  
 CAS 9002-89-5; EINECS/ELINCS 209-183-3  
*Uses:* Paper sizing, coating, thermal paper, and release paper; also for protective colloids; PVC, PS, emulsions; textile applics.
- Golden Isles® EF-100** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Slash pine fiber base  
*Uses:* Fluff pulp for disposable baby diapers, feminine hygiene prods., adult incontinence prods., air laid nonwovens, meat/poultry pkg.; gives prod. superior absorbency; coarse, bulky, long fiber with low percentage of fines
- Good-Rite® 2570X59** [BFGoodrich]  
*Chem. Descrip.:* Carboxy-modified S/B latex  
 CAS 9003-55-8  
*Uses:* Used for general purpose coatings, paper saturation, tie coats for tape, rug backing  
*Properties:* Sp.gr. 1.00; visc. 75 cps; pH 7.5; 51% solids
- Good-Rite® K-702 Polymer** [BFGoodrich]  
*Chem. Descrip.:* Polyacrylic acid aq. sol'n.  
 CAS 9003-01-4  
*Uses:* Detergent assistant; soap builder; particulate soil dispersant; scale inhibitor/deposit control agent in water treatment, soil removal, antiredeposition aids in detergents and cleaners; sequestrant for calcium, magnesium, iron for textile use; for laundry, dishwash, consumer/institutional cleaning prods.; food pkg. adhesives, coatings, paper  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.180; USDA approval; SARA nonreportable  
*Properties:* Amber clear to hazy sol'n., odorless; water-sol.; m.w. 240,000; sp.gr. 1.09; visc. 400-1200 cP; b.p. 100 C; pH 3.0 (1% aq.); 25% total solids; anionic  
*Toxicology:* May cause eye irritation, skin irritation on prolonged/repeated contact; inh. of mist may cause eye and respiratory tract irritation, nausea, headache  
*Environmental:* LC50 (rainbow trout, 96 h) 2716 mg/l; (daphnia, 48 h) 3467 mg/l; relatively nontoxic  
*Precaution:* Incompat. with strong bases, strong oxidizers, materials not compat. with water  
*Hazardous Decomp. Prods.:* Decomp. or combustion of the dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons  
*Storage:* Store @ 5-50 C in closed containers
- Good-Rite® K-732 Polymer** [BFGoodrich]  
*Chem. Descrip.:* Polyacrylic acid aq. sol'n.  
 CAS 9003-01-4  
*Uses:* Dispersant for pigments, fillers, clay, silt, other suspended matter in water; detergent assistant; soap builder; particulate soil dispersant; sequestrant for calcium, magnesium, iron for textile use; scale inhibitor, deposit control agent for water treatment, soil removal; for laundry, dishwash, consumer/institutional cleaning prods.; food pkg. adhesives, coatings, paper  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.180; USDA approval; SARA nonreportable  
*Properties:* Colorless to amber clear to hazy sol'n., odorless; water-sol.; m.w. 5100; sp.gr. 1.18 g/cc; visc. 250-500 cP; pH 3.0 (1% aq.); 50% solids; anionic  
*Toxicology:* LD50 (oral, rat) > 15,380 mg/kg; may cause eye irritation, skin irritation on prolonged/repeated contact; inh. vapors may cause eye and respiratory tract irritation, nausea, headache  
*Environmental:* LC50 (rainbow trout, 96 h) 1295 mg/l; (daphnia, 48 h) 1660 mg/l; relatively nontoxic  
*Precaution:* Incompat. with strong bases, strong oxidizers, materials not compat. with water  
*Hazardous Decomp. Prods.:* Decomp. or combustion of the dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons  
 HMIS: Health 1; Flammability 0; Reactivity 0  
*Storage:* Store @ 5-50 C in closed containers
- Good-Rite® K-739 Polymer** [BFGoodrich]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Soap builder; particulate soil dispersant; scale inhibitor/deposit control agent for water treatment, soil removal, antiredeposition aids and water conditioners in detergents and cleaners for laundry, dishwasher, consumer/institutional cleaning prods.; sequestrant for calcium, magnesium, iron; defoamer in food-contact coatings; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; USDA approval; SARA nonreportable

*Properties:* Wh. to cream free-flowing powd.; water-sol.; m.w. 5100; apparent gr. 0.55 g/cc; bulk dens. 37.6 lb/ft<sup>3</sup>; pH 6-9 (1% aq.); ≈ 89% conc., 11% moisture; anionic

*Toxicology:* Dust may cause eye irritation, coughing, mucous prod., shortness of breath; prolonged/repeated skin contact may cause dryness, irritation; processing fumes may cause eye, respiratory tract irritation, nausea, headache; TSCA listed

*Environmental:* LC50 (rainbow trout, 96 h) 901 mg/l; (daphnia, 48 h) 1156 mg/l; relatively nontoxic

*Precaution:* Fine dust may be explosion hazard; incompat. with strong oxidizers; contact with water may produce slippery film

*Hazardous Decomp. Prods.:* Decomp. or combustion may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Hygroscopic; store in dry place in tightly closed container

#### Good-Rite® K-752 Polymer [BFGoodrich]

*Chem. Descrip.:* Polyacrylic acid aq. sol'n.

CAS 9003-01-4

*Uses:* Detergent assistant; soap builder; particulate soil dispersant; scale inhibitor/deposit control agent in water treatment, soil removal, antiredeposition aids in detergents and cleaners for laundry, dishwasher, consumer/institutional cleaning prods.; sequestrant for calcium, magnesium, iron; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.180; USDA approval; SARA nonreportable

*Properties:* Colorless to amber clear to hazy sol'n., odorless; water-sol.; m.w. 2100; sp.gr. 1.23 g/cc; visc. 400-1400 cP; pH 3.0 (1% aq.); 63% solids; anionic

*Toxicology:* May cause eye irritation, skin irritation on prolonged/repeated contact; inh. vapors may cause eye and respiratory tract irritation, nausea, headache

*Environmental:* LC50 (rainbow trout, 96 h) 1030 mg/l; (daphnia, 48 h) 1321 mg/l; relatively nontoxic

*Precaution:* Incompat. with strong bases, strong oxidizers, materials not compat. with water

*Hazardous Decomp. Prods.:* Decomp. or combustion of the dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store @ 5-50 C in closed containers

#### Good-Rite® K-759 Polymer [BFGoodrich]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Detergent assistant; soap builder; scale inhibitor/deposit control agent in water treatment, soil removal, antiredeposition aids, water conditioners in detergents, cleaners for laundry, dishwasher, consumer/institutional cleaning prods.; particulate soil dispersant; sequestrant for calcium, magnesium, iron; defoamer in food-contact coatings; food pkg. adhesives, paper

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; USDA approval; SARA nonreportable

*Properties:* Wh. free-flowing powd., odorless; water-sol.; m.w. 2100; apparent gr. 0.55 g/cc; bulk dens. 38.2 lb/ft<sup>3</sup>; pH 6-9 (1% aq.); 89% conc., 11% moisture; anionic

*Toxicology:* Dust may cause eye irritation, coughing, mucous prod., shortness of breath; prolonged/repeated skin contact may cause dryness, irritation; processing fumes may cause eye, respiratory tract irritation, nausea, headache

*Environmental:* LC50 (rainbow trout, 96 h) 884 mg/l; (daphnia, 48 h) 1133 mg/l; relatively nontoxic

*Precaution:* Fine dust may be explosion hazard; incompat. with strong oxidizers; contact with water may produce slippery film

*Hazardous Decomp. Prods.:* Decomp. or combustion may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Hygroscopic; store in dry place in tightly closed container

#### Good-Rite® K-765 Polymer [BFGoodrich]

*Chem. Descrip.:* Sodium polymethacrylate aq. sol'n.

CAS 156559-16-9

*Uses:* Scale/deposit control agent used in water treatment applics.; USDA approved as ingredient in boiler water treatment formulations for federally inspected meat and poultry processing; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 176.170, 176.180; USDA approval; SARA nonreportable

*Properties:* Water wh. to amber sl. hazy liq.; sl. odor; water-sol.; m.w. 30,000; sp.gr. 1.25; visc. 225 cps; vapor pressure 17 mm Hg; b.p. 100 C; pH 9.9; 30% total solids; anionic

*Toxicology:* May cause eye and skin irritation on prolonged/repeated contact; inh. of vapors may cause eye and respiratory tract irritation, nausea, headache; TSCA listed

*Precaution:* Incompat. with strong bases, strong oxidizing agents, materials not compat. with water; spilled liq. and dried films are slippery

*Hazardous Decomp. Prods.:* Decomp. or combustion of the dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store @ 5-50 C in closed containers

#### Good-Rite® K-766 Polymer [BFGoodrich]

*Chem. Descrip.:* Sodium polymethacrylate aq. sol'n.

CAS 156559-16-9

*Uses:* Used in water treatment applics.; USDA approved as ingredient in boiler water treatment formulations for federally inspected meat and poultry processing; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 176.170, 176.180; USDA approval; SARA nonreportable

*Properties:* Water wh. to amber sl. hazy liq.; sl. odor; water-sol.; m.w. 5000; sp.gr. 1.25; visc. 550 cps; vapor pressure 17 mm Hg; b.p. 100 C; pH 8.5; 40% total solids; anionic

*Toxicology:* May cause eye and skin irritation on prolonged/repeated contact; inh. of vapors may cause eye and respiratory tract irritation, nausea, headache; TSCA listed

*Precaution:* Incompat. with strong bases, strong oxidizing agents, materials not compat. with water; spilled liq. and dried films are slippery

*Hazardous Decomp. Prods.:* Decomp. or combustion of dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store @ 5-50 C in closed containers

#### Good-Rite® K-776 Polymer [BFGoodrich]

*Chem. Descrip.:* Acrylic acid/sulfonic acid copolymer

CAS 97953-25-8

*Uses:* Dispersant and scale inhibitor for use in water treatment, food-contact paper/paperboard mfg.; USDA approved for boiler water treatments for use in federally inspected meat and poultry plants

*Regulatory:* FDA 21CFR §173.310, 176.170, 176.180; USDA approval; SARA nonreportable

*Properties:* Water wh. to amber sl. hazy liq.; water-dilutable; sp.gr. 1.2; visc. 130 cps; vapor pressure 17 mm Hg; b.p. 100 C; acid no. 240; pH 4.8; 37% total solids; anionic

*Toxicology:* May cause eye and skin irritation on prolonged/repeated contact; inh. of vapors may cause eye and respiratory tract irritation, nausea, headache; TSCA listed

*Environmental:* LC50 (rainbow trout, 96 h) 1060 mg/l; (daphnia, 48 h) 1501 mg/l; (algae, 96 h) > 1060 and < 2120 mg/l; relatively nontoxic

*Precaution:* Incompat. with strong bases, strong oxidizing agents, materials not compat. with water; spilled liq. and dried films are slippery

*Hazardous Decomp. Prods.:* Decomp. or combustion of dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store in orig. container @ 5-50 C

#### Good-Rite® K-7028 Polymer [BFGoodrich]

*Chem. Descrip.:* Sodium polyacrylate and polyacrylic acid in water

*Uses:* Scale/deposit control agent in water treatment applics.; soil removal and antiredeposition aid in detergents and cleaners; USDA approved as ingredient in boiler water treatment formulations for use in federally inspected meat and poultry processing establishments; food pkg. adhesives, coatings,



paper

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.180; USDA approval; SARA nonreportable

**Properties:** Water wh. to amber hazy liq.; sl. acidic odor; water sol.; m.w. 2800; sp.gr. 1.2; visc. 450 cps; vapor pressure 17 mm Hg; b.p. 100 C; pH 3.7; 51.7% act. solids; anionic

**Toxicology:** May cause eye irritation, skin irritation on prolonged/repeated contact; inh. of mist may cause eye and respiratory tract irritation, nausea, headache; TSCA listed

**Environmental:** LC50 (rainbow trout, 96 h) 1182 mg/l; (daphnia, 48 h) 1509 mg/l; relatively nontoxic

**Precaution:** Incompat. with strong bases and strong oxidizers and materials not compat. with water

**Hazardous Decomp. Prods.:** Decomp. or combustion of the dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

**Storage:** Store @ 5-50 C in closed containers

**Good-Rite® K-7028N Polymer** [BFGoodrich]

**Chem. Descrip.:** Sodium polyacrylate, polyacrylic acid in water

**Uses:** Scale/deposit control agent in water treatment applics.; soil removal and antiredeposition aid in detergents and cleaners; USDA approved as ingredient in boiler water treatment formulations for use in federally inspected meat and poultry processing establishments; defoamer in food-contact coatings; food pkg. adhesives, paper

**Regulatory:** FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; USDA approval; SARA nonreportable

**Properties:** Water wh. to amber sl. hazy liq.; sl. acidic odor; water-dilutable.; m.w. 2800; sp.gr. 1.1-1.3; visc. 330 cps; vapor pressure 17 mm Hg; b.p. 100 C; pH 7.5; 39.7% act. solids; anionic

**Toxicology:** May cause eye irritation, skin irritation on prolonged/repeated contact; inh. of mist may cause eye and respiratory tract irritation, nausea, headache; TSCA listed

**Environmental:** LC50 (rainbow trout, 96 h) 1539 mg/l; (daphnia, 48 h) 1965 mg/l; relatively nontoxic

**Precaution:** Incompat. with strong bases, strong oxidizers, materials not compat. with water; spilled liq. and dried films are slippery

**Hazardous Decomp. Prods.:** Decomp. or combustion of dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMS: Health 1; Flammability 0; Reactivity 0

**Storage:** Store @ 5-50 C in closed containers

**Good-Rite® K-7058 Polymer** [BFGoodrich]

**Chem. Descrip.:** Sodium polyacrylate, polyacrylic acid

**Uses:** Cobuilder in laundry, auto-dish, and misc. cleaners, providing detergency boosting, antisoil redeposition, antiscaling, antifilming/spotting; process and granulating aid in spray-dried detergents; chelating agent; water treatment polymer; food pkg. adhesives, coatings, paper

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.180; USDA approval; SARA nonreportable

**Properties:** Wh./amber sl. hazy sol'n., odorless; water-sol.; m.w. 5800; sp.gr. 1.23 g/cc; visc. 300-700 cP; pH 2.2-3.0; 50% solids; anionic

**Toxicology:** May cause eye irritation, skin irritation on prolonged/repeated contact; inh. of mist may cause eye and respiratory tract irritation, nausea, headache

**Environmental:** LC50 (rainbow trout, 96 h) 1242 mg/l; (daphnia, 48 h) 1585 mg/l; relatively nontoxic

**Precaution:** Incompat. with strong bases and strong oxidizers and materials not compat. with water

**Hazardous Decomp. Prods.:** Decomp. or combustion of the dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

**Storage:** Store @ 5-50 C in closed containers

**Good-Rite® K-7058D Polymer** [BFGoodrich]

**Chem. Descrip.:** Sodium polyacrylate

CAS 9003-04-7

**Uses:** Detergent assistant; soap builder; scale inhibitor/deposit control agent in water treatment, soil removal, antiredeposition aids and water conditioners in detergents, cleaners for laundry, dishwasher, consumer/institutional cleaning prods.; particulate soil dispersant; sequestant for calcium, magnesium, iron; defoamer in food-contact coatings; food pkg. adhesives, paper

**Regulatory:** FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; USDA approval; SARA nonreportable

**Properties:** Wh. to cream free-flowing powd., odorless; water-sol.; m.w.

5800; apparent gr. 0.6 g/cc; bulk dens. 32.8 lb/ft<sup>3</sup>; pH 6-9 (1% aq.); 89% conc., 11% moisture; anionic

**Toxicology:** Dust may cause eye irritation, coughing, mucous prod., shortness of breath; skin contact may cause drying; fumes may cause eye and respiratory tract irritation, nausea, headache; TSCA listed

**Environmental:** LC50 (rainbow trout, 96 h) 873 mg/l; (daphnia, 48 h) 1114 mg/l; relatively nontoxic

**Precaution:** Dust may present explosion hazard; incompat. with strong oxidizers; contact with water produces slippery films

**Hazardous Decomp. Prods.:** Decomp. or combustion may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMS: Health 1; Flammability 1; Reactivity 0

**Storage:** Hygroscopic; store in tightly closed containers in dry place

**Good-Rite® K-7058N Polymer** [BFGoodrich]

**Chem. Descrip.:** Sodium polyacrylate and polyacrylic acid aq. sol'n.

**Uses:** Detergent assistant; soap builder; scale inhibitor/deposit control agent in water treatment, soil removal, antiredeposition aids in detergents and cleaners for laundry, dishwasher, consumer/institutional cleaning prods.; particulate soil dispersant; sequestant for calcium, magnesium, iron; defoamer in food-contact coatings; food pkg. adhesives, paper

**Regulatory:** FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; USDA approval; SARA nonreportable

**Properties:** Water-wh. to amber sl. hazy liq., odorless; water-sol.; m.w. 5800; sp.gr. 1.3; visc. 500-750 cP; pH 7.0; 45% total solids

**Toxicology:** May cause eye irritation, skin irritation on prolonged/repeated contact; inh. of mist may cause eye and respiratory tract irritation, nausea, headache

**Environmental:** LC50 (rainbow trout, 96 h) 1712 mg/l; (daphnia, 48 h) 2185 mg/l; relatively nontoxic

**Precaution:** Incompat. with strong bases, strong oxidizers, materials not compat. with water; spilled liq. and dried films are slippery

**Hazardous Decomp. Prods.:** Decomp. or combustion of dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMS: Health 1; Flammability 0; Reactivity 0

**Good-Rite® K-7600N Polymer** [BFGoodrich]

**Chem. Descrip.:** Sodium polyacrylate and polyacrylic acid in water

**Uses:** Cobuilder in laundry, auto-dish and misc. cleaners, providing detergency boosting, antisoil redeposition, antiscaling, antifilming/spotting; anticaking agent; process and granulating aid in spray-dried detergents; water treatment polymer; defoamer in food-contact coatings; food pkg. adhesives, paper

**Regulatory:** FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; USDA approval; SARA nonreportable

**Properties:** Amber clear liq., odorless; water-sol.; m.w. 60,000; sp.gr. 1.24; visc. 920-2000 cP; pH 7.5-9.0; 33% total solids; anionic

**Toxicology:** May cause eye irritation, skin irritation on prolonged/repeated contact; inh. of mist may cause eye and respiratory tract irritation, nausea, headache

**Environmental:** LC50 (rainbow trout, 96 h) 2378 mg/l; (daphnia, 48 h) 3035 mg/l; relatively nontoxic

**Precaution:** Incompat. with strong bases, strong oxidizers, materials not compat. with water; spilled liq. and dried films are slippery

**Hazardous Decomp. Prods.:** Decomp. or combustion of dry polymer may generate irritating vapors, CO, CO<sub>2</sub>, acrylate monomers, hydrocarbons

HMS: Health 1; Flammability 0; Reactivity 0

**GP-210 Silicone Antifoam Emulsion** [Genesee Polymers]

**Chem. Descrip.:** Silicone emulsion in 10% odorless mineral spirits

**Uses:** Defoamer for hot and cold foaming systems, industrial applics., commercial cleaning compds., latex stripping, adhesives, cutting oils, leather treating, sewage treatment, chemical processing, paints/coatings, paper processing; effective over wide pH range

**Properties:** Wh. liq., mild odor; disp. in water; sp.gr. 0.99; dens. 8.0 lb/gal; b.p. 212 F; flash pt. (PMCC) > 93 C; 10% act.; nonionic

**Toxicology:** Prolonged/repeated contact with skin or eyes can cause irritation; excessive inh. may cause nasal/respiratory irritation, CNS effects, possible unconsciousness, death, reproductive damage; ing. of lg. amts. may cause serious injury; TSCA listed

**Precaution:** Incompat. with materials which react with water

**Hazardous Decomp. Prods.:** Hydrocarbon decomp. prods., silica

HMS: Health 1; Flammability 1; Reactivity 0

**Storage:** Store below 100 F; do not freeze; mix well before use

**GP-223** [Genesee Polymers]

*Chem. Descrip.:* Methyl silicone resin in water

CAS 9016-00-6

*Uses:* Waterproofing agent in leather, textile, paper, and masonry treatments; car polish ingredient; mold release agent; cures to soft, pliable film

*Properties:* Wh. opaque liq.; sp.gr. 1.04; dens. 8.7 lb/gal; pH 7; 50% act.; nonionic

*Storage:* Do not store above 100 F; do not freeze

**GP-262 Defoamer** [Genesee Polymers]

*Chem. Descrip.:* Organo-modified silicone defoamer in 85% aliphatic hydrocarbon (CAS 64742-46-7)

*Uses:* Defoamer for aq. systems, metalworking fluids, cleaner formulations, paints, coatings, paper/paperboard, wastewater treatment, textiles; alkali resistant

*Properties:* Tan liq., mild odor; sol. in aliphatic hydrocarbon solvs.; insol. in water; sp.gr. 0.85; dens. 7.0 lb/gal; low vapor pressure; b.p. 480 F; flash pt. (PMCC) > 93 C; 100% act.

*Toxicology:* May cause burning, redness, and tearing of eyes on direct contact; may cause skin irritation, dermatitis; overexposure to hot vapors may cause nausea, respiratory tract irritation, pneumonitis, pulmonary edema; mod. toxic by ing.; may cause GI upset; TSCA listed

*Precaution:* Avoid contact with open flame or sparks

*Hazardous Decomp. Prods.:* Hydrocarbon decomp. prods., silica

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Keep container tightly sealed; do not store above 100 F; mix before use

**GP-295 Defoamer** [Genesee Polymers]

*Chem. Descrip.:* Nonsilicone

*Uses:* Defoamer for aq. systems, metalworking fluids, cleaner formulations, paints, coatings, paper/paperboard, wastewater treatment, food-contact coatings; alkali resistant

*Regulatory:* FDA 21CFR §176.200; SARA nonreportable

*Properties:* Lt. tan liq., mild petrol. odor; disp. in water; sp.gr. 0.85; dens. 7.0 lb/gal; b.p. > 450 F; flash pt. (PMCC) > 149 C; 100% act.

*Toxicology:* May cause skin irritation, eye burning, redness, tearing on direct contact, defatting of skin and dermatitis on prolonged/repeated contact; vapors may irritate nose/throat/respiratory tract; high concs. may cause CNS depression; sl. toxic by ing.; TSCA listed

*Precaution:* Avoid open flame, sparks; incompat. with alkali and acidic materials, oxidizing agents

*Hazardous Decomp. Prods.:* Hydrocarbon decomp. prods., silica

HMS: Health 1; Flammability 2; Reactivity 0

*Storage:* Keep container tightly sealed; do not store above 100 F; use adequate ventilation; mix before use

**GP-300-I Antifoam Compd.** [Genesee Polymers]

*Chem. Descrip.:* Silicone compd.

*Uses:* Defoamer for hot and cold foaming systems, industrial applics., commercial cleaning, latex stripping, cutting oils, paper processing, paints/coatings, solv.-based coatings, metalworking fluids; not suitable for food applics.

*Properties:* Tan to brn. thick liq., mild odor; sol. in aliphatic, aromatic, and ester solvs.; insol. in water; sp.gr. 1.0; dens. 8.3 lb/gal; b.p. > 600 F; flash pt. (PMCC) > 149 C; 100% act.

*Toxicology:* May cause temporary eye discomfort, mild redness, dryness on direct contact; no injury likely from relatively short exposures by inh.; swallowing lg. amts. may cause digestive discomfort; TSCA listed

*Hazardous Decomp. Prods.:* Burning can produce CO<sub>2</sub>, CO, silica

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Store below 100 F in tightly sealed containers; mix before use

**GP-310-I Antifoam Emulsion** [Genesee Polymers]

*Chem. Descrip.:* Silicone aq. emulsion

*Uses:* Antifoam for industrial processing, chemical processing, cleaning prods., paints, paper and latex processing, textiles; dilutable; for use in hot, cold, alkaline or aq. systems

*Properties:* Wh. thixotropic liq., mild odor; disp. in water; sp.gr. 1.0; dens. 8.3 lb/gal; b.p. 212 F; 10% silicone; nonionic

*Toxicology:* May cause temporary eye discomfort, mild redness, dryness on direct contact; no injury likely from relatively short exposures by inh.; swallowing lg. amts. may cause digestive discomfort; TSCA listed

*Precaution:* Incompat. with materials which react with water

*Hazardous Decomp. Prods.:* Hydrocarbon decomp. prods., silica

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Store at 40-100 F; keep from freezing; mix well before use

**GPRI™ 4000** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in water/n-butanol/ethanol

*Uses:* Highly chemical resistant coatings for rigid surfaces; latex modifier to improve chemical resistance and adhesion; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; water-based resin; heat reactive; rec. for coatings exposed to severe operating environments; intended to replace current solvent-based phenolic resins where low VOCs required; good corrosion resist.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Disp.; sp.gr. 1.004-1.010; visc. 2000-9000 cps; 43-46% solids

*Storage:* Limited storage life, protect from high temps. and from freezing

**GPRI™ 7550** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in n-butanol

*Uses:* High solids, butylated thermosetting resin sol'n. useful in coatings requiring low VOC emissions, food pkg. applics.; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; exhibits low color and has low flavor characteristics; can be emulsified into typ. water-based epoxy resins to produce baked films with outstanding chem. resist.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Sol'n.; sp.gr. 1.08; visc. 2000-4000 cps; 68-72% solids

**GPRI™ 7590** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in n-butanol

*Uses:* Crosslinker for coil coating applics.; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; butylated thermosetting resin sol'n.; extremely fast cure; can significantly improve performance props. of epoxies, vinyls, or most other hydroxyl functional polymers without high baking temps. or long cycles required for typ. phenolic resins

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Sol'n.; sp.gr. 1.03; visc. 400-1200 cps; 58-62% solids

**GPRI™ 7597** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in n-butanol

*Uses:* Butylated thermosetting resin sol'n. used in food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; can significantly improve performance props. of epoxies, vinyls, or most other hydroxyl functional polymers without high baking temps. or long cycles required for typ. phenolic resins; high solids for low VOC applics.; sl. reduced storage stability due to lower solv. content

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Sol'n.; sp.gr. 1.06; visc. 2500-5500 cps; 68-72% solids

**GPRI™ BKS-2600** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in ethanol

*Uses:* Thermosetting resin sol'n. used in baked coatings, pipe coatings, drum and pail linings, and tank car linings; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; inc. chem. and solv. resist.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 7 max. sol'n.; sp.gr. 1.06; visc. 700-1000 cps; 52-56% solids

**GPRI™ BKS-2900** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in ethanol

*Uses:* Thermosetting resin sol'n. used for coatings that require low VOC emissions; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; exhibits exc. pigment wetting characteristics; applics. incl. interior drum and pail linings, coatings for chem. processing equip.; rail and tank car linings; general metal protection, coil coatings; high-solids version of GPRI BKS-2600

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Sol'n.; sp.gr. 1.14; visc. 900-2300 cps; 68-72% solids

*Storage:* Limited storage stability

**GPRI™ BKS-2901** [Georgia-Pacific Resins]

*Chem. Descrip.:* Phenolic resin in ethanol

*Uses:* Used for coatings that require low VOC emissions; applics. incl. interior drum and pail linings, coatings for chem. processing equip., rail and tank car linings; general metal protection, coil coatings; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; modified thermosetting version of GPRI™ BKS-2900 but with lower pH

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Sol'n.; sp.gr. 1.14; visc. 900-3500 cps; 68-72% solids

**Gradol 400** [Graden]

*Chem. Descrip.:* Sodium polyacrylate aq. sol'n.

CAS 9003-04-7

- Uses:* Dispersant for latex systems, clays, pigments, fillers, other insol. particles in water, in paper coating formulations, high solids oil well drilling muds; deflocculant, dispersant for high-solids, low-visc. clay slurries in pigment mfg.; antiredeposition agent in cleaning formulations; very low foaming
- Properties:* Lt.-colored liq.; misc. in water; sp.gr. 1.32; pH 10; 35% solids; anionic
- Storage:* Store above 40 F; protect from freezing
- Gradonic LFA Series** [Graden]  
*Chem. Descrip.:* Linear alcohol alkoxylates  
*Uses:* Surfactant for mech. dishwashing, metal cleaning, pulp/paper, textiles, etc.; low foaming  
*Properties:* Liq.; 100% conc.; nonionic
- Granular Gum Ghatti #1** [Fruitarom Meer]  
*Chem. Descrip.:* Gum ghatti  
 CAS 9000-28-6  
*Uses:* Stabilizer, binder, emulsifier forming o/w emulsions; emulsifier in beverage emulsions where it forms orange oil emulsions, in table syrup emulsions; tablet binder and thick mucilage coatings in pharmaceuticals; binder in paper industry; emulsifier for petroleum and nonpetroleum waxes used in coating and barrier applics.  
*Properties:* Water-sol.
- Graphsize®** [Vinings Ind.]  
*Chem. Descrip.:* PU disp.  
*Uses:* Surf. sizing agent for papers; provides improved ink jet and offset printability
- GT 122** [Process Chems. LLC]  
*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing, for brownstock washing, screenroom, and bleach plant applics.; non-amide; water-extended; does not contribute to deposit formation; suitable whether batch or continuous generated pulp is employed  
*Properties:* Opaque liq.; dens. 0.90 lb/gal; visc. 1200 ± 300 cps  
*Toxicology:* TSCA listed  
*Storage:* Store in dry area
- Gulftene® 4** [Chevron]  
*Chem. Descrip.:* 1-Butene (C4 alpha olefins)  
 CAS 106-98-9; EINECS/ELINCS 203-449-2  
 UN No. 1012  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Gas; sp.gr. 0.602 (60/60 F); dens. 5.01 lb/gal (60 F); 100% conc.  
*Precaution:* Flamm. gas
- Gulftene® 6** [Chevron]  
*Chem. Descrip.:* 1-Hexene (C6 alpha olefins)  
 CAS 592-41-6; EINECS/ELINCS 209-753-1  
 UN No. 2370  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; m.w. 84; sp.gr. 0.677 (60/60 F); dens. 5.64 lb/gal (60 F); b.p. 147 F; flash pt. (TOC) < 20 F  
*Toxicology:* LD50 (oral, rat) > 10 g/kg, (dermal, rat) > 10 g/kg (nontoxic); minimal skin and eye irritation  
*Environmental:* EC50 (daphnia magna, 48 h) 230 mg/l  
*Precaution:* Flamm. liq.
- Gulftene® 8** [Chevron]  
*Chem. Descrip.:* 1-Octene (C8 alpha olefins)  
 CAS 111-66-0; EINECS/ELINCS 203-893-7  
 UN No. 1993  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; sp.gr. 0.719 (60/60 F); dens. 6.00 lb/gal (60 F); b.p. 240 F; flash pt. (TCC) 55 F  
*Toxicology:* LD50 (oral, rat) > 10 g/kg, (dermal, rat) > 10 g/kg; minimal skin and eye irritation  
*Precaution:* Flamm. liq.
- Gulftene® 10** [Chevron]  
*Chem. Descrip.:* 1-Decene (C10 alpha olefins)  
 CAS 872-05-9; EINECS/ELINCS 212-819-2  
 UN No. 1993  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)
- specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)*  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; m.w. 140; sp.gr. 0.745 (60/60 F); dens. 6.21 lb/gal (60 F); b.p. 338 F; flash pt. (TOC) 128 F  
*Toxicology:* LD50 (oral, rat) > 10 g/kg, (dermal, rat) > 10 g/kg (nontoxic); minimal skin and eye irritation  
*Precaution:* Flamm. liq.
- Gulftene® 12** [Chevron]  
*Chem. Descrip.:* 1-Dodecene (C12 alpha olefins)  
 CAS 112-41-4; EINECS/ELINCS 203-968-4  
 UN No. 1993  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; sp.gr. 0.762 (60/60 F); dens. 6.36 lb/gal (60 F); f.p. -31 F; b.p. 400 F; pour pt. -33 F; flash pt. (TCC) 171 F  
*Toxicology:* LD50 (oral, rat) > 10 g/kg, (dermal, rat) > 10 g/kg; minimal skin and eye irritation  
*Precaution:* Combustible liq.
- Gulftene® 14** [Chevron]  
*Chem. Descrip.:* 1-Tetradecene (C14 alpha olefins)  
 CAS 1120-36-1; EINECS/ELINCS 272-493-2  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; sp.gr. 0.775 (60/60 F); dens. 6.46 lb/gal (60 F); f.p. 9 F; b.p. 440 F; pour pt. 10 F; flash pt. (PM) 225 F  
*Toxicology:* Minimal skin and eye irritation  
*Precaution:* Combustible liq.
- Gulftene® 16** [Chevron]  
*Chem. Descrip.:* 1-Hexadecene (C16 alpha olefins)  
 CAS 629-73-2; EINECS/ELINCS 211-105-8  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; m.w. 224; sp.gr. 0.785 (60/60 F); dens. 6.54 lb/gal (60 F); f.p. 39 F; b.p. 539 F; pour pt. 45 F; flash pt. (TOC) > 200 F  
*Toxicology:* LD50 (oral, rat) > 10 g/kg, (dermal, rat) > 10 g/kg (nontoxic); minimal skin and eye irritation  
*Environmental:* LC50 (rainbow trout, 96 h) > 1000 mg/l; EC50 (daphnia magna, 48 h) 530 mg/l  
*Precaution:* Combustible liq.
- Gulftene® 18** [Chevron]  
*Chem. Descrip.:* 1-Octadecene (C18 alpha olefins)  
 CAS 112-88-9; EINECS/ELINCS 204-012-9  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Water-wh. bright, clear liq., char. olefinic odor; sp.gr. 0.793 (60/60 F); dens. 6.60 lb/gal (60 F); f.p. 64 F; b.p. 165 F; pour pt. 65 F; flash pt. (PM) 310 F
- Gulftene® 20-24** [Chevron]  
*Chem. Descrip.:* C20-24 alpha olefins  
 CAS 64743-02-8  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)  
*Properties:* Wh. bright, clear waxy solid; sp.gr. 0.856 (60/60 F); dens. 6.67 lb/gal (60 F); visc. 2.1 cSt (99 C); m.p. 96 F; b.p. 146 F; flash pt. (PM) 362 F  
*Toxicology:* LD50 (oral, rat) > 5 g/kg  
*Environmental:* LC50 (rainbow trout, 96 h) > 1000 mg/l (water accommodated fraction); EC50 (daphnia magna, 48 h) 140 mg/l (water accommodated fraction)
- Gulftene® 24-28** [Chevron]  
*Chem. Descrip.:* C24-28 alpha olefins  
*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)

**Gulftene® 30+**

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*Properties:* Wh. bright, clear waxy solid; sp.gr. 0.891 (60/60 F); dens. 6.83 lb/gal (60 F); visc. 2.5 cSt (99 C); m.p. 143 F; congeal pt. 126 F; b.p. 190 F; flash pt. (PM) 425 F

**Gulftene® 30+** [Chevron]

*Chem. Descrip.:* C30 alpha olefin

*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)

*Properties:* Wh. bright, clear waxy solid; sp.gr. 0.919 (60/60 F); dens. 6.95 lb/gal (60 F); visc. 8.0 cSt (99 C); drop m.p. 163 F; congeal pt. 155 F; b.p. 204 F; flash pt. (PM) 485 F

*Toxicology:* LD50 (oral, rat) > 2 g/kg

**G-White** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (97.7%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Functional filler extender used in coatings, plastic and rubber fillers, building prods., ceramics flux, paper fillers, adhesives, cleaning compds., and polishing agents; easy disp. and low binder demand

*Properties:* Wh. irreg., uniaxial particles; particle size 5.5 μ, 99% thru 500 mesh; water-sol.; sp.gr. 2.71; dens. 22.6 lb/solid gal, 55 lb/ft<sup>3</sup>; oil absorp. 13.5 lb oil/100 lb; ref. index 1.6; hardness (Mohs) 3

# H

## Halocarbon Grease 19 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with silica  
*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives; hardest grease

*Properties:* Sol. in most org. liqs.; service temp. -25 to 175 C

## Halocarbon Grease 25-5S [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with silica  
*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives; lowest vapor pressure

*Properties:* Sol. in most org. liqs.; service temp. -20 to 175 C

## Halocarbon Grease 25-10M [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with PCTFE polymer  
 CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives; softest grease

*Properties:* Sol. in most org. liqs.; service temp. 0-135 C; m.p. 150 C

## Halocarbon Grease 25-20M [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with PCTFE polymer  
 CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives; hardest grease

*Properties:* Sol. in most org. liqs.; service temp. -5 to 150 C; m.p. 160 C

## Halocarbon Grease 28 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with silica  
*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; service temp. -25 to 175 C

## Halocarbon Grease 28LT [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with silica  
*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated

plastics; component of specialty greases and engine oil additives; for low-temp. use

*Properties:* Sol. in most org. liqs.; service temp. -45 to 95 C

## Halocarbon Grease 32 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with silica  
*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives; softest grease

*Properties:* Sol. in most org. liqs.; service temp. -25 to 175 C

## Halocarbon Grease X90-10M [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene grease thickened with PCTFE polymer  
 CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives; for low temp. use

*Properties:* Sol. in most org. liqs.; service temp. -40 to 95 C; m.p. 150 C

## Halocarbon Oil 0.8 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
 CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.71 g/ml (37.8 C); visc. 1.3 cps (37.8 C); pour pt. -129 C; cloud pt. < -129 C; flash pt. none; ref. index 1.383

## Halocarbon Oil 1.8 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
 CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.82 g/ml (37.8 C); visc. 3.5 cps (37.8 C); pour pt. -93 C; cloud pt. < -93 C; flash pt. none; ref. index 1.395

## Halocarbon Oil 4.2 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
 CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.85 g/ml (37.8 C); visc. 7.8 cps (37.8 C); pour pt. -73 C; cloud pt. < -87 C; flash pt. none; ref. index 1.401

## Halocarbon Oil 6.3 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.87 g/ml (37.8 C); visc. 12 cps (37.8 C); pour pt. -71 C; cloud pt. < -87 C; flash pt. none; ref. index 1.403

#### Halocarbon Oil 27 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.90g/ml (37.8 C); visc. 51 cps (37.8 C); pour pt. -40 C; cloud pt. < -71 C; flash pt. none; ref. index 1.407

#### Halocarbon Oil 56 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.92 g/ml (37.8 C); visc. 108 cps (37.8 C); pour pt. -34 C; cloud pt. -34 C; flash pt. none; ref. index 1.409

#### Halocarbon Oil 95 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.92 g/ml (37.8 C); visc. 182 cps (37.8 C); pour pt. -26 C; cloud pt. -21 C; flash pt. none; ref. index 1.411

#### Halocarbon Oil 200 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.95 g/ml (37.8 C); visc. 390 cps (37.8 C); pour pt. -12 C; cloud pt. 2 C; flash pt. none; ref. index 1.412

#### Halocarbon Oil 400 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.95 g/ml (37.8 C); visc. 780 cps (37.8 C); pour pt. -9 C; cloud pt. 10 C; flash pt. none; ref. index 1.412

#### Halocarbon Oil 700 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.95 g/ml (37.8 C); visc. 1365 cps (37.8 C); pour pt. 5 C; cloud pt. 13 C; flash pt. none; ref. index 1.414

#### Halocarbon Oil 1000N [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene oil  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; dens. 1.95 g/ml (37.8 C); visc. 1950 cps (37.8 C); pour pt. 10 C; cloud pt. 18 C; flash pt. none; ref. index 1.415

#### Halocarbon Wax 40 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene wax  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; visc. 190 cst (71.1 C)

#### Halocarbon Wax 600 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene wax  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; visc. 1000 cst (71.1 C); m.p. 57 C

#### Halocarbon Wax 1200 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene wax  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; m.p. 110 C

#### Halocarbon Wax 1500 [Halocarbon Prods.]

*Chem. Descrip.:* Polychlorotrifluoroethylene wax  
CAS 9002-83-9

*Uses:* Inert lubricant for chemical industry, aerospace, cryogenic gases, elec., hydraulic fluids, life support systems, low-temp. bath fluids, mech. seals, metalworking, nuclear, pulp/paper, spill control, steel, vacuum pump fluids; mold release agent for plastics and rubber; plasticizer for fluorinated plastics; component of specialty greases and engine oil additives

*Properties:* Sol. in most org. liqs.; m.p. 132 C

#### Halopont™ Blue RNM Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant red-shade blue pigment for tinting wh. papers to offset the sl. natural yellowness of bleached chem. pulps, rec. for sized, acid, alkaline papers; partially bleachable in hypochlorite; fair lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub>

*Properties:* Liq.; dens. 9.7 lb/gal; visc. < 100 cps; pH 4.5

#### Halopont™ Pink 2BM Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Red pigment for tinting and prod. of deeper shades for sized, acid, alkaline papers; high level of brilliance; partially bleachable in hypochlorite; fair lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub>

*Properties:* Liq.; dens. 10.0 lb/gal; visc. < 100 cps; pH 4.6

#### Halopont™ Tinting Blue RND Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant red-shade blue pigment for tinting wh. papers to offset the sl. natural yellowness of bleached chem. pulps, rec. for sized, acid, alkaline papers; partially bleachable in hypochlorite; fair lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub>

*Properties:* Liq.; dens. 9.0 lb/gal; visc. < 100 cps; pH 4.5

#### Halopont™ Violet NM Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Blue-shade violet pigment for tinting and prod. of deeper shades, rec. for sized, acid, alkaline papers; partially bleachable in hypochlorite; good lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub>

*Properties:* Liq.; dens. 9.7 lb/gal; visc. < 100 cps; pH 4.5

#### Hampshire® NTA 150 [Akzo Nobel]



- Chem. Descrip.:* Trisodium NTA  
CAS 5064-31-3; EINECS/ELINCS 225-768-6  
*Uses:* Chelating agent used in laundry detergents and specialty cleaning prods., water treatment, textiles, metal finishing, pulp/paper processing, and petrol. industry; nonphosphate detergent builder  
*Properties:* Pale straw clear liq.; m.w. 257.1; water-misc.; sp.gr. 1.30-1.33; dens. 11.0 lb/gal; chel. value 156 mg CaCO<sub>3</sub>/g min.; pH 11-12 (1%); 40.0% min. act.
- Hancap MC-40** [Hansol]  
*Uses:* Microcapsule for pressure-sensitive paper applics., bill paper, carbonless paper; works by emitting dyes within the capsule under pressure  
*Properties:* Milky liq., round particles; visc. 150 cps max.; pH 9.5-10.5 (0.5%); 40% min. total solids  
*Storage:* 6 mos min. storage at normal temps.
- Han-Floc 45®** [Handy Chems.]  
*Chem. Descrip.:* Stabilized sodium aluminate aq. sol'n., 45%  
CAS 1302-42-7; EINECS/ELINCS 215-100-1  
UN No. 1819  
*Uses:* Flocculant for water treatment, wastewater treatment for removal of phosphates, sludge conditioning, papermaking (newsprint, fine paper, and kraft paper); used to activate silica in potable water, to help in pin-floc formation or to raise pH while providing aluminum species  
*Regulatory:* FDA approved; SARA nonreportable  
*Properties:* Straw yel. clear liq.; char. odor; completely sol. in water; sp.gr. 1.52; visc. 135 cps (30 C); f.p. -32 C; b.p. 115 C; pH 12 (1%)  
*Toxicology:* Causes severe skin/eye burns; may cause damage to upper respiratory tract and lungs if inh.; ing. can cause severe burns to mucous membranes and digestive tract  
*Precaution:* Corrosive; strong alkaline liq.; do not mix with strong acids without preliminary dilution; can react explosively with aldehydes and many other org. chems.; hydrolyzes in water  
*Hazardous Decomp. Prods.:* Thermal decomp. produces toxic fumes of oxides of sodium  
*Storage:* Store in steel or plastic containers @ -20 to 35 C; keep closed; do not store in copper, zinc, aluminum, and their alloys
- Hanwet CA-1** [Hansol]  
*Chem. Descrip.:* Org. polyelectrolyte  
*Uses:* Chelating agent for paper deinking process; prevents loss of H<sub>2</sub>O<sub>2</sub> in pulp bleaching; scale inhibitor; noncombustible  
*Regulatory:* Not classified and restricted by shipping and storage regs.  
*Properties:* Colorless transparent liq.; completely sol. in water; sp.gr. 1.12 ± 0.01; visc. 3-5 cps; f.p. < -10 C; pH 7.5-9.5; 20 ± 1.5% total solids  
*Toxicology:* Avoid skin contact  
*Storage:* Store below 30 C; avoid freezing; if frozen, thaw gradually
- Hanwet HCD-31** [Hansol]  
*Uses:* Retention aid, drainage aid, dewatering aid for acidic or alkaline papermaking; effective over wide pH range and conditions of temp., filler, and recycled pulp; compat. with anionic, low m.w., org. or inorg. compds.  
*Properties:* Wh. opaque liq.; sol. 10% in water; sp.gr. 1.01 ± 0.01; bulk visc. 1000-1600 cps; visc. 700-1100 cps (1%); f.p. -10 C; pH 3-4.5 (0.5%); 37-39% solids; cationic  
*Toxicology:* Mild acidic prod.; can irritate skin and eyes  
*Storage:* 6 mos shelf life in unopened drums; if frozen, thaw gradually in heated area and stir well before use; keep away from fire, flamm. materials
- Hanwet HF-59** [Hansol]  
*Uses:* Fixing agent for sizes, starches, dyes, fillers, str. agents in acidic and neutral papermaking  
*Regulatory:* Not classified and restricted by shipping and storage regs.  
*Properties:* Yel. liq.; completely sol. in water; sp.gr. 1.15 ± 0.01; visc. 500 ± 200 cps; pH 6 ± 0.5; 50 ± 1% total solids; cationic  
*Toxicology:* Avoid skin contact  
*Storage:* 6 mos min. storage @ normal temps.; store below 30 C; if frozen, thaw gradually before use; SS, PP, and FRP storage rec.
- Hanwet HW-96E** [Hansol]  
*Uses:* Wet str. agent, dry str. agent, sizing promoter for papermaking, starch mfg.; useful @ pH 5-9  
*Regulatory:* Not classified and restricted by shipping and storage regs.  
*Properties:* Yel. liq.; completely sol. in water; sp.gr. 1.03 ± 0.01; visc. 20-80 cps; pH 3-5; 12.5 ± 0.5% total solids; cationic  
*Storage:* 3 mos min. storage @ normal temps.; store @ 4-32 C in PE or SS; if frozen, thaw gradually and dilute with water before use
- Hardener HY 3100** [Vantico AG]

- Chem. Descrip.:* MDA-exempt aromatic amine  
*Uses:* Hardener for ultra high solids coatings and floorings made with liq. bisphenol A, bisphenol F, novolac Araldite® resins, or their blends, for tank repair and lining, concrete structure finishes, marine and splash zone coatings, concrete pulp tanks in paper mills, concrete and metal fittings in sewers, repair of glass-lined vessels, condensers and oil coolers; rec. for applics. where hard films are required for aggressive environments  
*Use Level:* 30 pbw  
*Properties:* Lt. brn. color; dens. 8.7 lb/gal; visc. 700 cps; amine no. 640; flash pt. > 200 F; gel time 45 min. (with Araldite® GY 6010, 100 g); amino nitrogen (16%)  
*Toxicology:* Corrosive to eyes and skin; harmful if swallowed, inhaled, or absorbed thru skin; can cause sensitization and irritation  
*Storage:* 1 yr. min. shelf life in tightly closed containers in dry place @ R.T.
- Haricoat** [Harima Chems.]  
*Uses:* Paper coating agent
- Harifloc** [Harima Chems.]  
*Chem. Descrip.:* Fatty acid derivs.  
*Uses:* Flocculant for treatment of paper mill wastewater; minimizes polluting effects of wastewater
- Haritop** [Harima Chems.]  
*Chem. Descrip.:* Fatty acid derivs.  
*Uses:* Surfactant, deinking agent for papermaking, removing printing ink from recycled paper and enhance pulp brightness
- Harmide** [Harima Chems.]  
*Uses:* Dry str. agent for papermaking
- Haro® Chem ZPR-2** [Akcros bv]  
*Chem. Descrip.:* Zinc stearate  
CAS 557-05-1; EINECS/ELINCS 209-151-9  
*Uses:* Heat stabilizer for PVC, LDPE, MHDPE, PS, rubbers, thermosets, cosmetics, paper, pharmaceuticals, paint  
*Properties:* Solid
- Harol D** [Graden]  
*Chem. Descrip.:* Highly polymerized naphthalene sulfonate  
*Uses:* Stabilizer, visc. depressant; dispersant for carbon blk., clay disps., CaCO<sub>3</sub> disps.; paper coating compds.  
*Properties:* Powd.; dens. 47 lb/ft<sup>3</sup>; surf. tens. 71 dynes/cm (1%); pH 9 (1%); 83-85% act.; anionic
- Harol RG-71L** [Graden]  
*Chem. Descrip.:* Sodium polynaphthalene sulfonate  
CAS 9084-06-4  
*Uses:* Dye retardant, leveling agent; pitch dispersant for pulp/paper  
*Properties:* Liq.; 47.5% conc.; anionic
- Harsize** [Harima Chems.]  
*Uses:* Sizing agent for papermaking
- Hartafлот™ FA-5164** [Huntsman]  
*Chem. Descrip.:* Mainly C<sub>18</sub> acids  
*Uses:* Flotation deinking agent; pulp/paper surfactant; flotation collector at low water hardness; exc. runnability, enhanced coefficient of friction  
*Use Level:* 0.4-0.8%  
*Properties:* Solid
- Hartafлот™ FA-7451** [Huntsman]  
*Chem. Descrip.:* Tallow-based fatty acids  
*Uses:* Flotation deinking agent; pulp/paper surfactant; collector optimized for typ. fatty acid flotation conditions  
*Use Level:* 0.4-0.8%  
*Properties:* Liq. (40 C)
- Hartafлот™ G-5000** [Huntsman]  
*Uses:* Flotation deinking agent; pulp/paper surfactant, esp. for combination wash/flotation; works well over wide range of furnish types, pH, dosages, and temps.  
*Use Level:* 0.1-0.3%  
*Properties:* Liq.; nonionic
- Hartafлот™ P-621** [Huntsman]  
*Uses:* Flotation deinking agent esp. effective on flexographic ink; pulp/paper surfactant; post flotation collector for acid loops  
*Use Level:* 0.001-0.05%  
*Properties:* Liq.; water-sol.
- Hartafлот™ SE-6250** [Huntsman]  
*Chem. Descrip.:* Fatty acid nonionic blend  
*Uses:* Flotation deinking agent; pulp/paper surfactant; wash-flotation collector  
*Use Level:* 0.3-0.6%

- Properties:* Liq.; low visc.; nonionic
- Hartaflo™ SE-6400-1** [Huntsman]  
*Uses:* Flotation deinking agent; pulp/paper surfactant; effective for wash-flotation systems; performance benefits with ONP finish  
*Use Level:* 0.1-0.3%  
*Properties:* Liq.; nonionic
- Hartaflo™ SE-6405** [Huntsman]  
*Chem. Descrip.:* Fatty acid nonionic blend  
*Uses:* Flotation deinking agent; pulp/paper surfactant; enhanced particle collection; reduced collector carry-forward  
*Use Level:* 0.3-0.6%  
*Properties:* Liq. (40 C); nonionic
- Hartaflo™ SE-6500** [Huntsman]  
*Uses:* Flotation deinking agent; pulp/paper surfactant; removes ink during flotation even at high consistency  
*Use Level:* 0.1-0.3%  
*Properties:* Liq.; nonionic
- Hartaflo™ SE-6600** [Huntsman]  
*Uses:* Flotation deinking agent; pulp/paper surfactant; flotation collector; high brightness, low fiber loss; provides optimum ink removal at flotation stage  
*Use Level:* 0.1-0.3%  
*Properties:* Liq.; nonionic
- Hartaflo™ SE-6620** [Huntsman]  
*Chem. Descrip.:* Fatty acids, C-14-18, ethoxylated, propoxylated  
 CAS 68154-31-4  
*Uses:* Flotation deinking agent; pulp/paper surfactant; flotation collector; high brightness; low fiber loss; provides optimum ink removal at flotation stage  
*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §311 acute hazard  
*Properties:* Liq.; sol. < 10% in water; sp.gr. 1.05; visc. > 20 cSt (40 C); b.p. > 150 C; flash pt. (PMCC) > 150 C; pH 7; 100% act.  
*Toxicology:* May cause eye irritation, injury to cornea; may cause sl. skin irritation on brief contact, severe irritation on prolonged contact; may cause nose/throat irritation, headache, nausea, drowsiness on inh.; ing. may cause nausea, diarrhea; TSCA listed  
*Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones  
 HMIS: Health 2; Flammability 1; Reactivity 0
- Hartasperse™ DI-6** [Huntsman]  
*Uses:* Pulp/paper surfactant; deinking agent  
*Properties:* Liq.; 100% act.; nonionic
- Hartasperse™ DI-2609** [Huntsman]  
*Uses:* Pulp/paper surfactant; wash deinking agent; optimizes ink removal during initial wash stages  
*Use Level:* 0.4-0.8%  
*Properties:* Liq.; nonionic
- Hartasperse™ DI-2710** [Huntsman]  
*Uses:* Pulp/paper surfactant; wash deinking agent for ledger and wh. grades; low foam  
*Use Level:* 0.1-0.5%  
*Properties:* Liq.; nonionic
- Hartasperse™ DI-2805** [Huntsman]  
*Uses:* Pulp/paper surfactant; wash deinking agent; prevents ink deposition; low foam and low toxicity  
*Use Level:* 0.4-0.8%  
*Properties:* Liq.; nonionic
- Hartasperse™ DI-2915** [Huntsman]  
*Uses:* Pulp/paper surfactant; wash deinking agent; superior brightness; low foam; reduced residual surfactant carry-forward  
*Use Level:* 0.4-0.8%  
*Properties:* Liq.; nonionic
- Hartasperse™ DI-2920** [Huntsman]  
*Chem. Descrip.:* Ethoxylated C12-18 alcohols (60-74.99%), ethoxylated tall oil fatty acids (20-34.99%), water (10-19.99%)  
*Uses:* Pulp/paper surfactant; wash deinking agent; superior brightness; low foam; reduced residual surfactant carry-forward  
*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (0.001% residual EO), §311 acute hazard; CERCLA 102(a) hazard (EO)  
*Properties:* Liq.; sol. > 10% in water; sp.gr. 1.05; flash pt. (PMCC) > 100 C; pH 7  
*Toxicology:* May cause skin/eye irritation, possible injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause

- abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO; TSCA listed
- Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
 HMIS: Health 2; Flammability 1; Reactivity 0  
*Storage:* Avoid storage temps. below freezing (32 F)
- Hartasperse™ DI-2940** [Huntsman]  
*Chem. Descrip.:* Ethoxylated propoxylated C16-18 alcohols (35-49.99%), ethoxylated tall oil fatty acids (35-49.99%), EO/PO copolymer (3-9.99%), water (3-9.99%)  
*Uses:* Pulp/paper surfactant; wash deinking agent; superior brightness; low foam; reduced residual surfactant carry-forward  
*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (residual EO 0.001%, residual PO 0.001%), §311 acute hazard; CERCLA 102(a) hazard  
*Properties:* Liq.; sol. > 10% in water; sp.gr. 1.03; flash pt. (PMCC) > 100 C; pH 7  
*Toxicology:* May cause skin/eye irritation, possible injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO; TSCA listed
- Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
 HMIS: Health 2; Flammability 1; Reactivity 0  
*Storage:* Avoid storage temps. below freezing (32 F)
- Hartasperse™ DI-3670** [Huntsman]  
*Chem. Descrip.:* Proprietary  
*Uses:* Pulp/paper surfactant; wash deinking agent; superior brightness; low foam; reduced residual surfactant carry-forward  
*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (residual EO 0.001%), §311 acute hazard; CERCLA 102(a) hazard (residual EO 0.001%)  
*Properties:* Yel.-lt. brn. liq.; fatty acid odor; sol. 0.1-1% in water; sp.gr. 0.993-1.00; visc. 46 cSt (40 C); flash pt. (PMCC) > 106 C; pH 4-6  
*Toxicology:* May cause skin/eye irritation, possible injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO; TSCA listed
- Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
 HMIS: Health 2; Flammability 1; Reactivity 0
- Hartasperse™ DI-4670** [Huntsman]  
*Chem. Descrip.:* Proprietary  
 UN No. 3082  
*Uses:* Pulp/paper surfactant; wash deinking agent; superior brightness; low foam; reduced residual surfactant carry-forward  
*Regulatory:* OSHA hazardous; DOT environmentally hazardous; SARA §302/304 extreme hazard (residual EO 0.001%), §311 acute hazard; CERCLA 102(a) hazard (residual EO 0.001%)  
*Properties:* Clear to hazy liq.; ethoxylated alcohol odor; sol. > 10% in water; sp.gr. 0.988-1.00; visc. 50 cSt (40 C); b.p. > 100 C; flash pt. (PMCC) > 106 C; pH 4-6; VOC < 1%  
*Toxicology:* Causes eye irritation, cornea injury; may cause respiratory tract irritation, skin irritation; inh. may cause nose/throat discomfort, nasal discharge, coughing; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO; TSCA listed
- Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
 HMIS: Health 3; Flammability 1; Reactivity 0  
*Storage:* Minimize periods of exposure to high temps.; avoid water contamination
- Hartasperse™ DI-4900 Series** [Huntsman]  
*Uses:* Pulp/paper surfactant; wash deinking agent; increases pulp brightness  
*Properties:* Liq.; 100% act.; nonionic
- Hartasperse™ DI-6660** [Huntsman]  
*Chem. Descrip.:* Proprietary  
*Uses:* Pulp/paper surfactant; wash deinking agent; superior brightness; low foam; reduced residual surfactant carry-forward

- Regulatory:** OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (residual EO 0.001%), §311 acute hazard; CERCLA 102(a) hazard (residual EO 0.001%, glycol ethers 3-9.99%)
- Properties:** Wh. waxy solid; mild odor; sol. > 10% in water; sp.gr. 1.001-1.004 (65.5/25 C); visc. 75 cSt (37.8 C); m.p. 34 C; flash pt. (PMCC) 221 C; pH 5.5-8
- Toxicology:** Causes eye irritation, cornea injury; may cause respiratory tract irritation, skin irritation; inh. may cause nose/throat discomfort, nasal discharge, coughing; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO; TSCA listed
- Hazardous Decomp. Prods.:** Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones
- HMIS:** Health 3; Flammability 1; Reactivity 0
- Storage:** Minimize periods of exposure to high temps.; avoid water contamination
- Hartasperse™ SE 6412 [Huntsman]**  
**Uses:** Pulp/paper surfactant; deinking agent for flotation and combination systems  
**Properties:** Liq.; 100% act.; nonionic
- Hartasperse™ SE 6440 [Huntsman]**  
**Uses:** Pulp/paper surfactant; deinking agent  
**Properties:** Liq.; 100% act.; nonionic
- Hartasperse™ SE 7311 [Huntsman]**  
**Uses:** Pulp/paper surfactant; deinking agent for flotation and combination systems  
**Properties:** Liq.; 100% act.; nonionic
- Hartasperse™ T-502 [Huntsman]**  
**Chem. Descrip.:** Proprietary  
**Uses:** Wash deinking agent for making tissue from recycled mixed office waste  
**Regulatory:** OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (residual EO 0.001%, PO 0.001%), §311 acute hazard; CERCLA 102(a) hazard (glycol ethers 3-9.99%, EO 0.001%, PO 0.001%)  
**Properties:** Clear to hazy liq.; mild odor; sol. > 10% in water; sp.gr. 1.018; visc. 88 cSt (37.7 C); flash pt. (PMCC) 235 C; pH 6-8; nonionic  
**Toxicology:** May cause eye/skin irritation, possible injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO and/or PO; TSCA listed  
**Hazardous Decomp. Prods.:** Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
**HMIS:** Health 2; Flammability 1; Reactivity 0  
**Storage:** Minimize periods of exposure to high temps.; avoid water contamination
- Hartasperse™ T-503 [Huntsman]**  
**Chem. Descrip.:** Proprietary  
**Uses:** Wash deinking agent for making tissue from recycled mixed office waste  
**Regulatory:** OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (residual EO 0.001%, PO 0.001%), §311 acute hazard; CERCLA 102(a) hazard (glycol ethers 3-9.99%, EO 0.001%, PO 0.001%)  
**Properties:** Clear to hazy liq.; mild odor; sol. > 10% in water; sp.gr. 1.018; visc. 88 cSt (37.7 C); flash pt. (PMCC) 235 C; pH 6-8; nonionic  
**Toxicology:** May cause eye/skin irritation, possible injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO and/or PO; TSCA listed  
**Hazardous Decomp. Prods.:** Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
**HMIS:** Health 2; Flammability 1; Reactivity 0  
**Storage:** Minimize periods of exposure to high temps.; avoid water contamination
- Hartfloc® 207 [Huntsman]**  
**Uses:** Pulp/paper surfactant; coagulant for pulp/paper mill water treatment; strong coagulant for DAF clarifiers requiring 25% less than typ. coagulants  
**Use Level:** 40-80 ppm  
**Properties:** Liq.; water-sol.; high m.w.; cationic
- Hartfloc® 210 [Huntsman]**  
**Uses:** Pulp/paper surfactant; flocculant for pulp/paper mill water treatment; strong flocculant for DAF clarifiers, effective at third of dosage required by typ. flocculants; forms lg. flocs that rise quickly  
**Use Level:** 30-70 ppm  
**Properties:** Liq.; fully water-sol.; high m.w.; cationic
- Hartfloc® 401 [Huntsman]**  
**Chem. Descrip.:** Polydimethyldiallylammonium chloride (35-49.99%) in water CAS 26062-79-3  
**Uses:** Charge control agent used in wet end of stock feeding paper machine; high charge  
**Regulatory:** OSHA hazardous; DOT nonregulated; SARA §302/304/311/313 nonreportable; CERCLA 102(a) nonreportable  
**Properties:** Yel. liq.; sl. odor; sol. > 10% in water; sp.gr. 1.085; visc. 2765 cSt (40 C); flash pt. > 100 C; pH 6.5; cationic  
**Toxicology:** May cause eye/skin irritation, possible injury to cornea; inh. may cause nose/throat discomfort, nasal discharge, coughing, difficulty breathing; ing. may cause abdominal discomfort, nausea, diarrhea; may contain particulates, residual acrylamide; TSCA listed  
**Precaution:** Incompat. with strong oxidizing agents; aq. sol'ns. or powds. that become wet render surfs. extremely slippery  
**Hazardous Decomp. Prods.:** Hydrogen chloride, NO<sub>x</sub>, CO<sub>x</sub>  
**HMIS:** Health 0; Flammability 1; Reactivity 0  
**Storage:** Minimize periods of exposure to high temps.; avoid storage temps. below freezing (32 F)
- Hartfloc® 409 [Huntsman]**  
**Uses:** Pulp/paper surfactant; separates ink from fiber in pulp/paper mill water streams; act. froth flotation equip. is preferred  
**Use Level:** 80-120 ppm  
**Properties:** Liq.; high m.w.
- Hartfloc® 425 [Huntsman]**  
**Chem. Descrip.:** Poly (2-hydroxypropyl-N,N-dimethyl ammonium chloride) (40-59.99%) in water CAS 42751-79-1  
**Uses:** High charge polymer used in water clarification; retention aid; low m.w.  
**Regulatory:** OSHA nonhazardous; DOT nonregulated; SARA §302/304/311/313 nonreportable; CERCLA 102(a) nonreportable  
**Properties:** Yel. visc. liq.; mild odor; sol. > 10% in water; sp.gr. 1.16; visc. 300 cSt (40 C); b.p. 100 C; flash pt. (PMCC) > 100 C; pH 6; cationic  
**Toxicology:** Causes eye irritation; prolonged skin contact may cause defatting or irritation; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; TSCA listed  
**Precaution:** Incompat. with strong oxidizing agents  
**Hazardous Decomp. Prods.:** Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones on burning; heating in air may produce irritating aldehydes, acids, ketones  
**HMIS:** Health 1; Flammability 1; Reactivity 0  
**Storage:** Minimize periods of exposure to high temps.; avoid water contamination; do not use copper and alloys for storage/shipping containers
- Hartfloc® A-40 [Huntsman]**  
**Chem. Descrip.:** Acrylic polymer aq. sol'n.  
**Uses:** Prevents decomp. of hydrogen peroxide due to presence of metals, esp. iron and chromium; scale inhibitor in deink plant, caustic makeup systems, at paper machine and cooling water  
**Use Level:** 0.25 lb/ton  
**Regulatory:** OSHA hazardous; DOT nonregulated; SARA §302/304/ nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable  
**Properties:** Amber liq.; mild odor; sol. > 10% in water; sp.gr. 1.1-1.2; visc. 3-5 cSt; b.p. 100 C; flash pt. > 100 C; pH 7-9  
**Toxicology:** May cause eye/skin irritation, possibly injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; aspiration may cause lung damage; TSCA listed  
**Hazardous Decomp. Prods.:** Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones  
**HMIS:** Health 2; Flammability 1; Reactivity 0  
**Storage:** Minimize periods of exposure to high temps.
- Hartfloc® A-414 [Huntsman]**  
**Chem. Descrip.:** 2-Propenoic acid, polymer with 2-propenamide (CAS 9003-06-9, 20-35%), hydrotreated lt. petrol. distillate (CAS 64742-47-8, 3-10%), water  
**Uses:** In water clarification in dissolved air flotation clarifiers; high m.w.  
**Regulatory:** OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (acrylamide 0-0.0999%), §311/313 nonreportable; CERCLA 102(a)

hazard (acrylamide 0-0.0999%)

*Properties:* Opaque visc. liq.; sol. > 10% in water; sp.gr. 1.06; visc. 1130 cSt (40 C); flash pt. > 100 C; pH 7.5; anionic

*Toxicology:* May cause eye/skin irritation, possible injury to cornea; inh. may cause nose/throat discomfort, nasal discharge, coughing, difficulty breathing; ing. may cause abdominal discomfort, nausea, diarrhea; may contain particulates, < 1000 ppm acrylamide; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents; aq. sol'n.s. or powds. that become wet render surfs. extremely slippery

*Hazardous Decomp. Prods.:* Hydrogen chloride, NO<sub>x</sub>, CO<sub>x</sub>

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.

#### Hartfloc® C-470 [Huntsman]

*Chem. Descrip.:* Polyquaternium-5 (90-96.99%), adipic acid (3-9.99%)

*Uses:* Drainage aid in belt press operation; nonvolatile

*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (acrylamide 0-0.0999%), §311/313 nonreportable; CERCLA 102(a) hazard (adipic acid 3-9.99%, acrylamide 0-0.0999%)

*Properties:* Wh. powd.; sol. 1-10% in water; sp.gr. 0.75; flash pt. > 93.3 C; pH 4 (1% aq.); cationic

*Toxicology:* May cause eye/skin/nose/throat irritation; ing. may cause abdominal discomfort, nausea, diarrhea; overexposure to dust may cause respiratory irritation; chronic exposure may damage lungs; may contain particulates, < 1000 ppm acrylamide; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Hydrogen chloride, NO<sub>x</sub>, CO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.; avoid water contamination

#### Hartfloc® C-475 [Huntsman]

*Chem. Descrip.:* Ethanaminium, N,N,N-trimethyl-2-[(1-oxo-2-propenyl) oxy]-chloride, polymer with 2-propenamamide

CAS 69418-26-4

*Uses:* Low charge polymer used in dissolved air flotation clarifiers; high m.w.; nonvolatile

*Use Level:* 2 lb/ton

*Regulatory:* OSHA nonhazardous; DOT nonregulated; SARA §302/34 extreme hazard (acrylamide 0-0.0999%), §311/313 nonreportable; CERCLA 102(a) hazard (acrylamide 0-0.0999%)

*Properties:* Wh. powd.; sol. 1-10% in water; sp.gr. 0.85; flash pt. > 93.3 C; pH 3.5 (0.5% aq.); 100% act.; cationic

*Toxicology:* May cause eye/skin/nose/throat irritation; overexposure to dust may cause respiratory irritation; chronic exposure may damage lungs; ing. may cause abdominal discomfort, nausea, diarrhea; may contain particulates, < 1000 ppm acrylamide; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents; aq. sol'n.s. or powds. that become wet render surfs. extremely slippery

*Hazardous Decomp. Prods.:* Hydrogen chloride, NO<sub>x</sub>, CO<sub>x</sub>

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.; avoid water contamination

#### Hartfloc® Anionic Series [Huntsman]

*Uses:* Pulp/paper surfactant; flocculant for pulp/paper mill water treatment

*Use Level:* 15-40 ppm

*Properties:* Emulsion; m.w. over 20,000,000; anionic

#### Hartfloc® Cationic Series [Huntsman]

*Uses:* Pulp/paper surfactant; coagulant for pulp/paper mill water treatment; effective in high turbidity water across wide pH range

*Use Level:* 80-150 ppm

*Properties:* Liq.; m.w. up to 250,000; cationic

#### Hartomer™ N40V [Huntsman]

*Chem. Descrip.:* Acrylic polymer aq. sol'n.

*Uses:* Sludge drainage aid

*Use Level:* 2-4 lb/ton

*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable

*Properties:* Liq.; sol. > 10% in water; sp.gr. 1.0-1.4; visc. 10-30 cSt; b.p. 100 C; flash pt. > 100 C; pH 6-8

*Toxicology:* May cause eye/skin irritation, possible injury to cornea; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; aspiration may damage lungs; TSCA listed

*Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones

HMIS: Health 2; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.

#### Hartomer™ RB-25 [Huntsman]

*Chem. Descrip.:* Proprietary

*Uses:* Rebonder, dry str. resin for tissue paper; added at wet end of debonder

*Use Level:* 40 lb/ton

*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable

*Properties:* Liq.; starch-like odor; sol. > 10% in water; sp.gr. 1.08; visc. 900 cSt; f.p. 5 C; b.p. 100 C; pH 7; VOC 65-80%; 22% act.

*Toxicology:* May cause eye/skin irritation; inh. of high concs. may cause minimal irritation; ing. may cause abdominal discomfort, nausea, diarrhea; TSCA listed

HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.

#### Hartosoft™ 85S [Huntsman]

*Chem. Descrip.:* Quaternary salt

UN No. 2810

*Uses:* Debonder for paper applics.; provides debonding without undue loss in absorbency

*Use Level:* 8-14 lb/ton

*Regulatory:* OSHA hazardous; DOT toxic liq., org., N.O.S.; SARA §302/304 extreme hazard (residual EO 0.001%), §311 acute hazard, §313 nonreportable; CERCLA 102(a) hazard (residual EO 0.001%)

*Properties:* Dk. amber liq.; mild odor; sol. < 0.1% in water; sp.gr. 1.0; visc. 550-750 cSt; flash pt. > 107 C; pH 5.5-7.0

*Toxicology:* Toxic by ing.; causes abdominal discomfort, nausea, vomiting, diarrhea, collapse, possibly death; causes eye/skin irritation, possibly blindness; inh. may cause nose/throat irritation, nasal discharge, coughing; may contain < 10 ppm EO; TSCA listed

*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.

#### Hartosoft™ 333CP [Huntsman]

*Chem. Descrip.:* Imidazolium compds.

*Uses:* Softener, debonder for tissue paper; added in wet end

*Use Level:* 9-24 lb/ton

*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable

*Properties:* Amber brn. liq.; amine odor; sol. < 0.1% in water; sp.gr. 1.01; visc. 103 cSt (40 C); flash pt. (PMCC) > 107 C; pH 5.5-9

*Toxicology:* Causes eye/skin irritation, cornea injury; inh. may cause nose/throat irritation, nasal discharge, coughing; mod. toxic by ing.; may cause abdominal discomfort, nausea, vomiting, diarrhea; TSCA listed

*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.

#### Hartosoft™ 1500-78 [Huntsman]

*Chem. Descrip.:* Imidazolium compds.

UN No. 2810

*Uses:* Softener, lubricant for paper applics.; added at dry end during winding or in converting operations

*Use Level:* 10-12 lb/ton

*Regulatory:* OSHA hazardous; DOT toxic liq., org., N.O.S.; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable

*Properties:* Amber liq.; mild odor; sol. < 0.1% in water; sp.gr. 1.029; visc. 100 cSt (40 C); flash pt. (PMCC) 102.8 C; pH 6-9

*Toxicology:* Toxic by ing.; causes abdominal discomfort, nausea, vomiting, diarrhea, possibly death; causes eye/severe skin irritation; may cause blindness; inh. may cause nose/throat irritation, nasal discharge, coughing, difficulty breathing; TSCA R&D material

*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.

**Hartosoft™ 1540B1** [Huntsman]*Chem. Descrip.:* Imidazolium compds.*Uses:* Softener, lubricant for paper applics.; added in wet end*Use Level:* 12 lb/ton*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable*Properties:* Amber clear liq.; mild odor; sol. 1-10% in water; sp.gr. 1.01; visc. 125 cSt (40 C); f.p. 5 C; flash pt. (PMCC) > 93.3 C; pH 6-9*Toxicology:* Causes eye/skin irritation, cornea injury; mod. toxic by ing.; may cause abdominal discomfort, nausea, vomiting, diarrhea; inh. may cause nose/throat irritation, nasal discharge, coughing, difficulty breathing; TSCA R&D material*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.**Hartosoft™ ABS-6000** [Huntsman]*Chem. Descrip.:* Fatty acid ethoxylate*Uses:* Absorbency aid in mfg. of tissue paper; counteracts dec. in absorbency due to use of debonder*Use Level:* 1-2 lb/ton*Regulatory:* OSHA hazardous; DOT nonregulated; SARA §302/304 extreme hazard (residual EO 0.001%), §311 acute hazard, §313 nonreportable; CERCLA 102(a) hazard (residual EO 0.001%)*Properties:* Yel. clear liq.; odorless; sol. > 10% in water; sp.gr. 1.04; visc. > 20 cSt (40 C); flash pt. (PMCC) > 100 C; pH 5-7*Toxicology:* May cause eye/skin irritation, possibly cornea injury; inh. may cause nose/throat irritation, headache, nausea, drowsiness; ing. may cause abdominal discomfort, nausea, diarrhea; may contain < 100 ppm EO; TSCA listed*Hazardous Decomp. Prods.:* Toxic levels of CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning; heating in air may produce irritating aldehydes, acids, and ketones

HMIS: Health 2; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.; avoid water contamination**Hartosoft™ DBS-1527** [Huntsman]*Chem. Descrip.:* Quaternary salt

UN No. 1760

*Uses:* Surfactant for fiber debonding in mfg. of tissue paper; added in wet end*Use Level:* 5-15 lb/ton*Regulatory:* OSHA hazardous; DOT corrosive liqs., N.O.S.; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) hazard (diethyl sulfate 0-0.0999%)*Properties:* Orange to brn. visc. liq.; mild odor; sol. < 0.1% in water; sp.gr. 0.997-1.00; visc. 140-280 cSt (40 C); flash pt. 113 C; pH 5-7.5 (1% aq.); cationic*Toxicology:* Causes eye/skin irritation, possible blindness; inh. may cause nose/throat irritation, nasal discharge, coughing, difficulty breathing; ing. may cause abdominal discomfort, nausea, diarrhea; TSCA R&D material*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.**Hartosoft™ DBS-5080** [Huntsman]*Chem. Descrip.:* Quaternary salt

UN No. 1760

*Uses:* Surfactant for fiber debonding in mfg. of tissue paper; added in wet end*Use Level:* 5-15 lb/ton*Regulatory:* OSHA hazardous; DOT corrosive liqs., N.O.S.; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) hazard (diethyl sulfate 0-0.0999%)*Properties:* Orange to brn. visc. liq.; mild odor; sol. < 0.1% in water; sp.gr. 1.01; visc. 306 cSt (40 C); flash pt. 185 C; pH 5-7.5 (1% aq.); cationic*Toxicology:* Causes eye/skin irritation, possible blindness; inh. may cause nose/throat irritation, nasal discharge, coughing, difficulty breathing; ing. may cause abdominal discomfort, nausea, diarrhea; TSCA listed*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.**Hartosoft™ DBS-7374** [Huntsman]*Chem. Descrip.:* Quaternary salt

UN No. 2810

*Uses:* Surfactant for fiber debonding in mfg. of tissue paper; added in wet end*Use Level:* 5-15 lb/ton*Regulatory:* OSHA hazardous; DOT toxic liq., org., N.O.S.; SARA §302/304/313 nonreportable, §311 acute hazard; CERCLA 102(a) nonreportable*Properties:* Dk. visc. liq.; sol. < 0.1% in water; sp.gr. 0.98-1.02; visc. 550-750 cSt; flash pt. > 107 C; pH 5-7.5 (1% aq.); cationic*Toxicology:* Toxic by ing.; causes abdominal discomfort, nausea, diarrhea, collapse, possibly death; causes eye/skin irritation, possible blindness; inh. may cause nose/throat irritation, nasal discharge, coughing, difficulty breathing; TSCA listed*Hazardous Decomp. Prods.:* Toxic levels of ammonia, combustion prods. of N, CO, CO<sub>2</sub>, irritating aldehydes and ketones may be formed on burning in limited air supply

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Minimize periods of exposure to high temps.**HB-40®** [Monsanto]*Chem. Descrip.:* Partially hydrogenated terphenyl*Uses:* Plasticizer, extender, polymer modifier, resin solvator for vinyl sheeting, films, fabric or paper coatings, vinyl protective coatings, adhesives**Hercobond®** [Hercules]*Chem. Descrip.:* Polymer*Uses:* Dry str. agent and temporary wet str. agent for papermaking**Hercolite® 240** [Hercules/Resins]*Chem. Descrip.:* Aromatic hydrocarbon resin*Uses:* Resin for use in polymer modification, adhesives, overprint lacquers, coatings; modifies flow in PVC, ABS, and block copolymers; processing aid for vinyl incl. flooring; tackifier for neoprene in contact adhesives for shoes; good pigment and filler wetting for use in color additives and rubber and plastic compounding; provides glossy nonyel. hard film in coatings; for concrete curing compds., traffic paints; food pkg. adhesives, coatings, paper, polymers; superior heat and UV stability*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.170(b), 176.180, 177.1210*Properties:* Water-wh.; sol. in aromatic and chlorinated HC, ketones, ethers; insol. in aliphatic HC, alcohols, glycols; melt visc. 197 C (10 poise); soften. pt. (R&B) 122 C; 2% max. volatiles**Hercolite® 290** [Hercules/Resins]*Chem. Descrip.:* Aromatic hydrocarbon resin*Uses:* Resin for use in polymer modification, adhesives, overprint lacquers, coatings; modifies flow in PVC, ABS, and block copolymers; processing aid for vinyl incl. flooring; tackifier for neoprene in contact adhesives for shoes; good pigment and filler wetting for use in color additives and rubber and plastic compounding; provides glossy nonyel. hard film in coatings; for concrete curing compds., traffic paints; food pkg. adhesives, coatings, paper, polymers; superior heat stability*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.390, 176.170(b), 176.180, 177.1210*Properties:* Water-wh.; sol. in aromatic and chlorinated HC, ketones, ethers; insol. in aliphatic HC, alcohols, glycols; melt visc. 230 C (10 poise); soften. pt. (R&B) 142 C; 1% max. volatiles**Hercolyn® D** [Hercules/Resins; J.H. Calo]*Chem. Descrip.:* Methyl hydrogenated rosinate

CAS 8050-13-3; EINECS/ELINCS 232-476-2

*Uses:* Plasticizer, tackifier in finished prods. such as lacquers, inks, cements, adhesives, floor tiles, vinyl plastisols, artificial leather, and antifouling paints; fixative and carrier in perfumes and cosmetic preps.; plasticizer, softener, tackifier for CR, NR, SBR, reclaim rubber, latexes; processing aid and pigment dispersant in rubber; tackifier in cement; food pkg. adhesives, coatings, paper, polymers*Regulatory:* FDA 21CFR §73.1(b), 172.515, 172.615, 175.105, 175.125, 175.300, 175.320, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3120, 178.3800, 178.3850, 178.3870*Properties:* Lt. amber visc. liq.; low resinous odor; sol. in ester, ketones, alcohols, ethers, coal tar, petrol. hydrocarbons, and veg. and min. oils; insol. in water; dens. 1.02 kg/l; visc. (G-H) Z2-Z3; vapor pressure < 0.1 mm Hg (20 C); b.p. 360-364 C; acid no. 7; sapon. no. 155; flash pt. (Seta CC) 198 C; ref. index 1.52

*Toxicology:* May cause skin sensitization; TSCA listed  
*Hazardous Decomp. Prods.:* Combustion prods.: CO, CO<sub>2</sub>, smoke  
 HMIS: Health 0; Flammability 1; Reactivity 0

**Hercules® 4 Defoamer** [Hercules]

*Uses:* Defoamer for acid and alkaline papermaking systems, deinking systems; high-efficiency

*Regulatory:* FDA compliance

*Properties:* Brick, soapy odor; sp.gr. 0.96; m.p. 54 C; 100% conc.

**Hercules® 37M6-8** [Hercules]

*Chem. Descrip.:* Formaldehyde sol'n.

CAS 50-00-0; EINECS/ELINCS 200-001-8

*Uses:* For mfg. of syn. resins by reaction with phenols, urea, melamines for molded goods, elec. insulation, binders, plywood adhesives, varnishes, wet-str. resins for paper and textiles; chem. intermediate

**Hercules® 2043** [Hercules]

*Chem. Descrip.:* Polyamide/epichlorohydrin aq. sol'n.

*Uses:* Vehicle for water-based flexographic inks, dye- and pigment-based inks; provides bleedfastness and rub resist. to tissue and towel inks; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Liq.; water-sol.; sp.gr. 1.080; visc. 75-95 cps; f.p. 28 F; pH 2.5-3.0; 27% total solids, 12.8% N; cationic

*Precaution:* Incompat. with anionic resins, e.g., shellac

*Storage:* Undergoes some hydrolysis and self-crosslinking during storage; 3 mos shelf life when stored below 90 F

**Heucospere™ I** [Heucotech Ltd]

*Chem. Descrip.:* Organic pigment disps. in aq. acrylic resin sol'n.

*Uses:* Pigments for cost-effective coloring of kraft paper and corrugated board; some designed for improved adhesion

**Heveatex NR** [Heveatex]

*Chem. Descrip.:* Natural rubber latexes and compds.

CAS 9006-04-6

*Uses:* Used for adhesive dipping compds., foam compds., coatings for textiles, paper, etc.; pre vulcanized

**Hi-Mar DFC-21** [Hi-Mar Spec.; Thornley]

*Uses:* Defoamer for paper coatings, adhesives, and high gloss latex paints; promotes defect-free surf. films; compat. with most paper coatings containing latex, polyvinyl alcohol, starch, and clay

*Properties:* Water disp.; 100% act.; nonionic

**Hi-Mar DFC-26** [Hi-Mar Spec.; Thornley]

*Uses:* Defoamer for use in paper coatings; exc. clean-up props.

*Properties:* 100% act.

**Hi-Mar DFI-51** [Hi-Mar Spec.; Thornley]

*Uses:* Defoamer for paper coatings, adhesives, latex paints, flexo inks; rescue agent for wastewater systems; controls foam in latex stripping, incl. carboxylated SB latex; oil-free; promotes films free from surf. defects; environmentally safe; good color acceptance

*Properties:* 100% act.

**Hi-Mar DFI-51-S** [Hi-Mar Spec.; Thornley]

*Uses:* Defoamer for use in paper coatings; rescue agent for wastewater systems; controls foam in latex stripping, incl. carboxylated SB latex; stabilized version of Hi-Mar DFI-51; oil-free; promotes films free from surf. defects; environmentally safe

*Properties:* 100% act.

**Hi-Mar DFP-31** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil-based

*Uses:* Defoamer for pulp mill effluent systems; rescue agent for microbiological foam; silica-free

*Properties:* 100% act.

**Hi-Mar DFP-101** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Proprietary blend of fatty alcohols and surfactants

*Uses:* Effluent defoamer for kraft and sulfite screen room operations; reduces entrained air at surf. and potential for downstream deposits

**Hi-Mar DFP-153** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Defoamer, drainage aid for kraft mill screen room applics.; rapid bubblebreak

**Hi-Mar DFP-201** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Amide/silica brownstock defoamer for paper machine applics. with high temp. linerboard; defoamer in power and recovery systems; effective on hardwood and softwood

**Hi-Mar DFP-203** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Proprietary blend of surfactants, silicones in water

*Uses:* Defoamer, drainage aid for pulp mill effluent, kraft and sulfite screen room operations; brownstock defoamer; rapid knockdown of foam

**Hi-Mar DFP-205** [Hi-Mar Spec.; Thornley]

*Uses:* Defoamer, drainage aid for pulp mill effluent; provides drainage in kraft mill brownstock washer operations; fast knockdown with min. carryover to downstream operations; fast spreading; persistent

*Properties:* Nonionic

**Hi-Mar DFP-213** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Proprietary blend of surfactants in water-based formulation

*Uses:* Defoamer for pulp mill effluent and paper machine, screening, and bleaching operations; rec. where high temps. are not present; amide- and oil-free; fast spreading

**Hi-Mar DFP-301** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Proprietary

*Uses:* Defoamer, drainage aid for kraft mills; enhances drainage in softwood and hardwood; reduces amt. of downstream defoamer needed; oil-free; does not interfere with oxygen delignification processes; reduces salt cake losses and potential for pitch

*Properties:* 100% act.

**Hi-Mar DFP-401** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Brownstock defoamer effective on hardwood and softwood; defoamer on systems with oxygen delignification; low wax and silica

*Properties:* 100% act.; nonionic

**Hi-Mar DFP-403** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Brownstock defoamer effective on hardwood and softwood; low wax and amide content; rapid spreader

**Hi-Mar DFP-405** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Amide/silica brownstock defoamer effective on hardwood and softwood; exc. carry through to second and third stage washers

**Hi-Mar DFP-411** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Brownstock defoamer effective on hardwood and softwood, and deckers; amide-free; fast spreading; reduces pitch deposition and exc. carry through

**Hi-Mar DFP-413** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Oil base

*Uses:* Brownstock defoamer effective on hardwood and softwood; amide-free; rapid foam control and exc. carry through; reduces potential for pitch deposits

**Hi-Mar DFP-503** [Hi-Mar Spec.; Thornley]

*Chem. Descrip.:* Organo-metallic oil-based defoamer

*Uses:* Defoamer for pulp mill effluent; rescue agent; fast spreading; persistent

**Hi Selon** [Nippon Gohsei; British Traders & Shippers]

*Chem. Descrip.:* Polyvinyl alcohol film

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* For paper and pkg.

*Properties:* Hot and cold water sol.

**Hitex-S103** [Hansol]

*Chem. Descrip.:* Carboxylated styrene-butadiene copolymer latex

*Uses:* Binder for web offset printing coated paper and lightweight sheet-offset printing coated paper; high blistering resist.; exc. coater runnability; good chem./mech. stability; good high and low shear visc.; low screen residues

*Regulatory:* Nonhazardous by Int'l. transport regs.

*Properties:* Wh. opaque liq.; visc. 200 cps max.; pH 7.5-8.5; surf. tens. 48-68 dynes/cm; 49-51% solids

*Storage:* Store @ 5-35 C; protect from frost and direct sunlight; if frozen, thaw gradually and stir before use; avoid aluminum, copper and alloy storage vessels or pipework

**Hitex-S107** [Hansol]

*Chem. Descrip.:* Carboxylated styrene-butadiene copolymer latex

*Uses:* Binder for coated paper and board; exc. smoothness, gloss and ink transferability for offset printing, esp. rotogravure printing; high shear stability; exc. runnability

*Regulatory:* Nonhazardous by Int'l. transport regs.

*Properties:* Wh. opaque liq.; visc. 300 cps max.; pH 7-8; surf. tens. 48-68 dynes/cm; 49-51% solids

*Storage:* Store @ 5-35 C; protect from frost and direct sunlight; if frozen, thaw



gradually and stir before use; avoid aluminum, copper and alloy storage vessels or pipework

**Hitex-S108** [Hansol]

*Chem. Descrip.:* Carboxylated styrene-butadiene copolymer latex

*Uses:* Binder for coated paper and board; exc. smoothness, gloss and ink transferability for offset printing; exc. water resist.; high shear stability; exc. runnability; high dry and wet pick str.; exc. coating coverage; represses dust in coating and calendaring processes

*Regulatory:* Nonhazardous by Int'l. transport regs.

*Properties:* Wh. opaque liq.; visc. 400 cps max.; pH 7-8; surf. tens. 45-65 dynes/cm; 49-51% solids

*Storage:* Store @ 5-35 C; protect from frost and direct sunlight; if frozen, thaw gradually and stir before use; avoid aluminum, copper and alloy storage vessels or pipework

**Hitex-S301** [Hansol]

*Chem. Descrip.:* Carboxylated styrene-butadiene copolymer latex

*Uses:* Binder for coated paper and board; sm. particle size; high speed runnability; exc. fiber coverage; very high pick str.; good ink gloss

*Regulatory:* Nonhazardous by Int'l. transport regs.

*Properties:* Wh. opaque liq.; visc. 400 cps max.; pH 7-8; surf. tens. 48-68 dynes/cm; 49-51% solids

*Storage:* Store @ 5-35 C; protect from frost and direct sunlight; if frozen, thaw gradually and stir before use; avoid aluminum, copper and alloy storage vessels or pipework

**Hitox®** [TOR Mins.]

*Chem. Descrip.:* Rutile titanium dioxide

*Chem. Analysis:* TiO<sub>2</sub> (95%), Fe<sub>2</sub>O<sub>3</sub> (< 2%), SiO<sub>2</sub> (< 1%), moisture (< 0.5% @ 110 C)

CAS 1317-80-2; EINECS/ELINCS 236-675-5

*Uses:* Pigment used in coatings (alkyds, acrylic urethanes, high solids systems, water reducibles, water bases, powd. coatings), inks, adhesives, paper, foundry prods., building prods., caulks, sealants, floor tiles, in plastics for PVC pipe and conduit, color concs., vinyl siding; buff-colored, developed as alternative to wh. titanium dioxide

*Properties:* Beige fine powd., odorless; 1.5 µ avg. particle size; < 0.01% on 325 mesh; fineness (Hegman) 7; insol. in water; sp. gr. 4.1; dens. 34.22 lb/gal; bulk dens. 39.3 lb/ft<sup>3</sup> (pour), 65.5 lb/ft<sup>3</sup> (tapped); surf. area 1.124 m<sup>2</sup>/g; oil absorp. 24-25; m.p. ≈ 1840 C; b.p. 2500-3000 C; pH 6.5-7.5

*Toxicology:* ACGIH TLV 10 mg/m<sup>3</sup> (respirable); dust can cause lung irritation

*Precaution:* Nonflamm.

HMS: Health 0; Flammability 0; Reactivity 0

**HM-0814** [H.B. Fuller]

*Chem. Descrip.:* Polyamide hot-melt adhesive

*Uses:* Adhesive for fiber/foil tube winding operations with exc. adhesion to metals, foils, coated paper and other dense surfaces

**Hoechst Wax E** [Clariant]

*Chem. Descrip.:* Glycol/butylene glycol montanate

CAS 73138-45-1

*Uses:* Internal/external lubricant and release agent for PVC, polyolefins, polyamide, PS, linear polyester, TPU, thermosets; for sheet, film and bottle applics., esp. for tin stabilized systems; also for emulsion polishes, solv.-based paste polishes, carbon paper; binder for cosmetic powds.

*Regulatory:* Worldwide food approvals in plastics

*Properties:* Pale y/lsh. powd. (< 500 µm), fine powd. (< 125 µm), or flakes; insol. in water; dens. 1.01-1.03 g/cc (20 C); visc. ≈ 30 mm<sup>2</sup>/s (100 C); drop pt. 79-85 C; acid no. 15-20; sapon. no. 130-160

*Toxicology:* LD50 (oral, mouse) > 20,000 mg/kg

*Storage:* Store dry @ R.T.

**Hoechst Wax KSL** [Clariant]

*Chem. Descrip.:* Glycol/butylene glycol montanate

CAS 73138-45-1

*Uses:* Wax for polishes, esp. dry-bright emulsions, paper and film coating, emulsions for citrus fruit coating

**Hoechst Wax LP** [Clariant]

*Chem. Descrip.:* Montan acid wax

CAS 68476-03-9; EINECS/ELINCS 270-664-6

*Uses:* Lubricant for plastics; water repellent for textiles; emulsifier for paraffins in corrosion inhibitors; also for emulsion polishes, color bases, scouring waxes, industrial wax emulsions for textiles, paper, wood, etc.

*Properties:* Y/lsh. flakes; insol. in water; dens. 1.00-1.02 g/cc (20 C); visc. ≈ 30 mm<sup>2</sup>/s (100 C); drop pt. 82-89 C; acid no. 113-130; sapon. no. 140-160

**Hoechst Wax OP** [Clariant]

*Chem. Descrip.:* Butylene glycol montanate, calcium montanate

*Uses:* Internal/external lubricant and release agent for PVC, polyolefins, polyamide, PS, linear polyester, TPU, thermosets, etc.; protective, corrosion-inhibiting wax for metalworking; solv.-based polishes esp. pastes, carbon paper; maintains clarity of finished prod.; thickener for skin and hair creams

*Regulatory:* Worldwide food approvals for plastics

*Properties:* Y/lsh. flakes, powd. (< 500 µm) or fine powd. (< 125 µm); insol. in water; dens. 1.01-1.03 g/cc (20 C); visc. ≈ 300 mPa·s (120 C); drop pt. 98-104 C; acid no. 10-15; sapon. no. 100-120

*Toxicology:* LD50 (oral, mouse) > 20,000 mg/kg

*Storage:* Store dry @ R.T.

**Hoechst Wax PE 890** [Clariant]

*Chem. Descrip.:* Ethylene/VA copolymer

CAS 24937-78-8

*Uses:* Wax for paints and paper coatings; carrier for additive and pigment concentrates; modifier for hot-melt adhesives and coatings; food-contact adhesives/resinous/polymeric coatings

*Regulatory:* EC, FDA §175.105, 175.300, 177.1350 compliant

*Properties:* Almost wh. fine grain; insol. in water; sp. gr. 0.93-0.95; visc. ≈ 320 mPa·s; drop pt. 94-99 C

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg

*Environmental:* Nontoxic to fish

*Storage:* Keep in dry storage @ R.T.

**Hoechst Wax PED 121** [Clariant]

*Chem. Descrip.:* Oxidized polyethylene wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax for emulsions for citrus fruit coating and textiles; food-contact polymer; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §172.260, 175.300, 176.170, 177.1620, etc.; BgVV approved

*Properties:* Almost wh. flakes; dens. 0.97-0.99 g/cm<sup>3</sup> (20 C); visc. ≈ 200 mPa·s; drop pt. 113-118 C; acid no. 16-19

*Storage:* Store dry @ R.T.

**Hoechst Wax PED 153** [Clariant]

*Chem. Descrip.:* Oxidized PE wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* For textile, leather, paper, and polish dispersions; modifier for hot-melts; release agent for various applics.

*Regulatory:* EC, BgVV compliant

*Properties:* Almost wh. flakes; sp. gr. 0.97-0.99; visc. ≈ 1500 mPa·s; acid no. 22-27; drop pt. 117-122 C

*Toxicology:* LD50 (oral, mouse) > 2000 mg/kg

*Environmental:* LC50 > 500 mg/l (golden orfe)

*Storage:* Keep in dry storage @ R.T.

**Hoechst Wax PED 521** [Clariant]

*Chem. Descrip.:* Polyethylene wax, polar

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* External lubricant for plasticized and unplasticized PVC, PA, TPU, other thermoplastics; reduces sticking of tin-stabilized PVC melts to hot machine parts; emulsions for textiles, leather, paper, and polishes

*Regulatory:* BGA approval

*Properties:* Flakes, fine grains

**Hoechst Wax PED 522** [Clariant]

*Chem. Descrip.:* Oxidized polyethylene

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax for emulsions for textiles, leather, paper, and polishes

*Properties:* Flakes, gran.

**Hoechst Wax PED 821** [Clariant]

*Chem. Descrip.:* Oxidized PE wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* For textile, leather, paper, glass industry, and polish dispersions; rheology control agent for paints and coatings; modifier for hot-melts and coatings; release agent for various applics.

*Regulatory:* EC, BgVV compliant; FDA §172.260, 175.105, 177.1620 compliant

*Properties:* Almost wh. fine grain; sp. gr. 0.94-0.96; visc. ≈ 180 mPa·s; acid no. 14-18; drop pt. 102-108 C

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg

*Environmental:* Nontoxic to fish and bacteria

*Storage:* Keep in dry storage @ R.T.

**Hoechst Wax PED 822** [Clariant]*Chem. Descrip.:* Oxidized PE wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* For textile, leather, paper, glass industry, and polish dispersions; rheology control agent for paints and coatings; modifier for hot-melts and coatings; release agent for various applics.*Regulatory:* EC, BgVV compliant; FDA §175.105 compliant*Properties:* Almost wh. fine grain; sp.gr. 0.94-0.96; visc.  $\approx$  120 mPa·s; acid no. 25-29; drop pt. 100-104 C*Toxicology:* LD50 (oral, rat) > 2000 mg/kg*Environmental:* Nontoxic to fish and bacteria*Storage:* Keep in dry storage @ R.T.**Hoechst Wax S** [Clariant]*Chem. Descrip.:* Montan acid wax

CAS 68476-03-9; EINECS/ELINCS 270-664-6

*Uses:* Lubricant and internal release agent for PVC, polyolefins, polyamide, PS, linear polyesters, TPU, thermosets, etc.; also for emulsion polishes, color bases, scouring waxes, industrial wax emulsions for textiles, paper, wood, etc.*Regulatory:* Worldwide food approvals for use in plastics*Properties:* Pale y/wh. powd. (< 500  $\mu$ m), fine powd. (< 125  $\mu$ m), or flakes; insol. in water; dens. 1.00-1.02 g/cc; visc.  $\approx$  30 mm<sup>2</sup>/s (100 C); drop pt. 81-87 C; acid no. 130-150; sapon. no. 155-175*Toxicology:* LD50 (oral, rat) > 15,000 mg/kg*Storage:* Store dry @ R.T.**Hoechst Wax UL** [Clariant]*Chem. Descrip.:* Montan acid wax

CAS 68476-03-9; EINECS/ELINCS 270-664-6

*Uses:* Lubricant for plastics; also for emulsion polishes, color bases, scouring waxes, industrial wax emulsions for textiles, paper, wood, etc.*Properties:* Y/wh. flakes; insol. in water; dens. 1.00-1.02 g/cc (20 C); visc.  $\approx$  30 mm<sup>2</sup>/s (100 C); drop pt. 81-87 C; acid no. 100-115; sapon. no. 130-160**Hombitan® R 610 L** [Sachtleben Chemie GmbH]*Chem. Descrip.:* Titanium dioxide, stabilized, surf.-treated, micronized rutile

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Pigment for decorative papers, plastics, and printing inks*Properties:* Dens. 4.0 g/ml; pH 7**HP-95™** [Engelhard]*Chem. Descrip.:* Kaolin-based hybrid pigment*Uses:* Pigment, TiO<sub>2</sub> extender for papermaking**HT-Proteolytic® 200** [Genencor Int'l.]*Chem. Descrip.:* Bacterial protease

CAS 9014-01-1; EINECS/ELINCS 232-752-2

*Uses:* Enzyme for hydrolysis of proteins for baking (cracker/cookie gluten modification), brewing (malt supplementation), candy, fermentation, fish/soya processing, protein modification, animal feed supplements, laundry detergents, leather dehairing/bating, paper, photographic, textile desizing, waste treatment, and for cleaning protein processing equip.; food-grade; effective over neutral and alkaline pH range*Use Level:* 0.01-0.1% on substrate*Properties:* Wh. to lt. tan amorphous dry powd., free of offensive odor; readily water-sol.*Storage:* Activity loss < 10% in 1 yr stored in sealed containers under cool, dry conditions; 5 C storage extends life**Huber BC®** [Huber Engineered Materials]*Uses:* Structured pigment for paperboard coatings; reduces cost of paperboard coatings containing high levels of TiO<sub>2</sub>*Properties:* Slurry; 0.005% 325 mesh residue; sp.gr. 2.60; visc. 200-450 cps; brightness (TAPPI) 90-92%; ref. index 1.57; pH 6-8 (28% solids); 68-69.5% slurry solids**Huber PK 102®** [Huber Engineered Materials]*Chem. Descrip.:* Chemically modified clay*Uses:* Clay controlling natural and syn. pitch deposits in paper and paperboard*Properties:* Dry; 80-85% finer than 2  $\mu$ ; 0.5% 325 mesh residue; sp.gr. 2.60; brightness (TAPPI) 74-76%; ref. index 1.57; pH 4-5 (28% solids); 2-4% moisture**Hubercarb® Optifil** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), MgCO<sub>3</sub> (0.3%), cryst. silica (0.02%), moisture (0.01%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, ceramics, paper, cleansers, paints/coatings*Properties:* Powd.; 2  $\mu$  median particle size; 99% finer than 10  $\mu$ , 81% finer than 3  $\mu$ ; fineness (Hegman) 6.5; dens. 22.6 lb/solid gal; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 17; brightness 93**Hubercarb® Optifil T** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate, surf. modified*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), MgCO<sub>3</sub> (0.3%), cryst. silica (0.02%), moisture (0.01%)*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, ceramics, paper, cleansers, paints/coatings; provides better disp. in polymers, higher potential filler loadings, improved physical props.*Properties:* Powd.; 2  $\mu$  median particle size; 99% finer than 10  $\mu$ , 81% finer than 3  $\mu$ ; fineness (Hegman) 6.5; dens. 22.6 lb/solid gal; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 16; brightness 92**Hubercarb® Q 1** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.6%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber (NR, SR, latex), adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; inorg. color extender; hardens or stiffens rubber stocks; dusting agent; mold release; disperses readily*Properties:* Ultrafine powd.; 1  $\mu$  median particle size; 99.9% finer than 10  $\mu$ , 90% finer than 3  $\mu$ ; fineness (Hegman) 5.5; bulk dens. 30 lb/ft<sup>3</sup> (loose); oil absorp. 20; brightness 90**Hubercarb® Q 1T** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate, surface modified with 1% stearates*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%)*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; surf. modification provides more rapid and complete dispersion in polymers, higher potential filler loadings, reduced abrasion to equip., less sensitivity to moisture*Properties:* Oil absorp. 21**Hubercarb® Q 2** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.25%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup*Properties:* Fine powd.; 2  $\mu$  median particle size; 99.9% finer than 10  $\mu$ , 99% finer than 8  $\mu$ ; fineness (Hegman) 6.5; bulk dens. 44 lb/ft<sup>3</sup> (loose); oil absorp. 18; brightness 90**Hubercarb® Q 2T** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate, surface modified with 1% stearates*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%)*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; surf. modification provides more rapid and complete dispersion in polymers, higher potential filler loadings, reduced abrasion to equip., less sensitivity to moisture*Properties:* Oil absorp. 16**Hubercarb® Q 3** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.2%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber (NR, SR, latex), adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; inorg. color extender; hardens or stiffens rubber stocks; dusting agent; mold release; disperses readily*Properties:* Fine powd.; 3  $\mu$  median particle size; 99.99% finer than 20  $\mu$ , 97% finer than 10  $\mu$ ; fineness (Hegman) 6; bulk dens. 40 lb/ft<sup>3</sup> (loose); oil absorp. 18; brightness 89**Hubercarb® Q 3T** [Huber Engineered Materials]*Chem. Descrip.:* Calcium carbonate, surface modified with 1% stearates

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%)

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; surf. modification provides more rapid and complete dispersion in polymers, higher potential filler loadings, reduced abrasion to equip., less sensitivity to moisture

*Properties:* Oil absorp. 15

**Hubercarb® Q 4** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.2%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber (NR, SR, latex), adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; inorg. color extender; hardens or stiffens rubber stocks; dusting agent; mold release; disperses readily

*Properties:* Fine powd.; 4 μ median particle size; 99.99% thru 325 mesh, 95% finer than 10 μ; fineness (Hegman) 6; bulk dens. 40 lb/ft<sup>3</sup> (loose); oil absorp. 17; brightness 88

**Hubercarb® Q 6** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.15%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber (NR, SR, latex), adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; inorg. color extender; hardens or stiffens rubber stocks; dusting agent; mold release; disperses readily

*Properties:* Fine powd.; 6 μ median particle size; 99.99% thru 325 mesh, 95% finer than 20 μ; fineness (Hegman) 4; bulk dens. 45 lb/ft<sup>3</sup> (loose); oil absorp. 16; brightness 87

**Hubercarb® Q 6-20** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup

*Properties:* Gran.; 95% thru 8 mesh, 60% thru 12 mesh; bulk dens. 90 lb/ft<sup>3</sup> (loose)

**Hubercarb® Q 20-60** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup

*Properties:* Gran.; 100% thru 12 mesh, 98% thru 20 mesh; bulk dens. 85 lb/ft<sup>3</sup> (loose)

**Hubercarb® Q 40-200** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup

*Properties:* Gran.; 98% thru 40 mesh, 70% thru 60 mesh; bulk dens. 85 lb/ft<sup>3</sup> (loose)

**Hubercarb® Q 60** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup

*Properties:* Med. fine powd.; 20 μ median particle size; 99.5% thru 40 mesh,

97% thru 100 mesh; bulk dens. 55 lb/ft<sup>3</sup> (loose); oil absorp. 12; brightness 80

**Hubercarb® Q 100** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup

*Properties:* Med. fine powd.; 24 μ median particle size; 99% thru 60 mesh, 98% thru 100 mesh; bulk dens. 55 lb/ft<sup>3</sup> (loose); oil absorp. 12; brightness 83

**Hubercarb® Q 200** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup

*Properties:* Med. fine powd.; 19 μ median particle size; 99.9% thru 60 mesh, 99% thru 100 mesh; bulk dens. 55 lb/ft<sup>3</sup> (loose); oil absorp. 12; brightness 84

**Hubercarb® Q 200T** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate, surface modified with 1% stearates

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%)

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; dusting agent, mold release agent for rubber; surf. modification provides more rapid and complete dispersion in polymers, higher potential filler loadings, reduced abrasion to equip., less sensitivity to moisture

*Properties:* Oil absorp. 12

**Hubercarb® Q 325** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (96.5%), MgCO<sub>3</sub> (2%), SiO<sub>2</sub> (1.2%), moisture (0.1%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber (NR, SR, latex), plastics, adhesives, glass, ceramics, paper, cleansers, paints/coatings, pesticides, asphalt, drilling mud, rice polishing, environmental cleanup; dusting agent; mold release; inorg. color extender; hardens or stiffens rubber stocks; disperses readily

*Properties:* Wh. med. fine powd.; 13 μ median particle size; 99.7% thru 200 mesh, 99.5% thru 325 mesh; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 14; brightness 86

**Hubercarb® W 2** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), moisture (0.07%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler and extender for moisture-sensitive applics. such as SMC, BMC, TMC, polyethylene film and single-component urethane caulks, and for paints and coatings, rubber, adhesives, ceramics, paper, nonabrasive cleaners; low moisture pickup

*Properties:* Powd.; 2 μ median particle size; 100% finer than 10 μ; 89% finer than 5 μ; fineness (Hegman) 6.5; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 17; brightness 93

**Hubercarb® W 2T** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate, surface modified with 1% stearates

*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), moisture (0.07%)

*Uses:* Filler and extender for moisture-sensitive applics. such as SMC, BMC, TMC, polyethylene film and single-component urethane caulks, and for paints and coatings, rubber, adhesives, ceramics, paper, nonabrasive cleaners; low moisture pickup; surface modification provides better dispersion in polymers, higher potential filler loadings, reduced abrasion to equip., less sensitivity to moisture

*Properties:* Powd.; 2 μ median particle size; 100% finer than 10 μ, 89% finer than 5 μ; fineness (Hegman) 6.5; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 16; brightness 93

**Hubercarb® W 3** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), MgCO<sub>3</sub> (0.3%), cryst. silica (0.02%), moisture (0.07%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler and extender for moisture-sensitive applics. such as SMC, BMC, TMC, polyethylene film and single-component urethane caulks, and for paints and coatings, rubber, adhesives, ceramics, paper, nonabrasive cleaners; low moisture pickup

*Properties:* Powd.; 3 µ median particle size; 99.9% finer than 20 µ; 94% finer than 8 µ; fineness (Hegman) 6; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 15; brightness 93

**Hubercarb® W 3N** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), MgCO<sub>3</sub> (0.3%), cryst. silica (0.02%), moisture (0.07%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler/extender for plastics, caulks/sealants, rubber, adhesives, ceramics, paper, cleansers, paints/coatings

*Properties:* Powd.; 3 µ median particle size; 99% finer than 20 µ, 50% finer than 3 µ; fineness (Hegman) 6; dens. 22.6 lb/solid gal; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 15; brightness 92

**Hubercarb® W 3T** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate, surface modified with 1% stearates

*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), moisture (0.07%)

*Uses:* Filler and extender for moisture-sensitive applics. such as SMC, BMC, TMC, polyethylene film and single-component urethane caulks, and for paints and coatings, rubber, adhesives, ceramics, paper, nonabrasive cleaners; low moisture pickup; surface modification provides better dispersion in polymers, higher potential filler loadings, reduced abrasion to equip., less sensitivity to moisture

*Properties:* Powd.; 3 µ median particle size; 99.9% finer than 20 µ, 94% finer than 8 µ; fineness (Hegman) 6; bulk dens. 50 lb/ft<sup>3</sup> (loose); oil absorp. 15; brightness 93

**Hubercarb® W 4** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (99.3%), MgCO<sub>3</sub> (0.3%), cryst. silica (0.02%), moisture (0.05%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler and extender for moisture-sensitive applics. such as SMC, BMC, TMC, polyethylene film and single-component urethane caulks, and for paints and coatings, rubber, adhesives, ceramics, paper, nonabrasive cleaners; low moisture pickup

*Properties:* Powd.; 4 µ median particle size; 99.5% fthr4u 325 mesh; 92% finer than 20 µ; fineness (Hegman) 6; bulk dens. 55 lb/ft<sup>3</sup> (loose); oil absorp. 13; brightness 92

**Huberfil® 96** [J.M. Huber/Chems.]

*Chem. Descrip.:* Silicate

*Uses:* Paper filler

*Properties:* 4 µm avg. particle size; surf. area 60 m<sup>2</sup>/g; oil absorp. 120 cc/100 g; pH 10.5(20%)

**H-White** [Huber Engineered Materials]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (97.7%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Functional filler extender used in coatings, plastic and rubber fillers, building prods., ceramics flux, paper fillers, adhesives, cleaning compds., polishes

*Properties:* Wh. irreg., uniaxial particles; particle size 3.0 µ 99.99% thru 500 mesh; water-sol.; sp.gr. 2.71; dens. 22.6 lb/solid gal, 45 lb/ft<sup>3</sup>; oil absorp. 16 lb oil/100 lb; ref. index 1.6; hardness (Mohs) 3

**Hyamine® 3500 50%** [Lonza]

*Chem. Descrip.:* Benzalkonium chloride [n-Alkyl = 50% C14, 40% C12, 10% C16]

CAS 68424-85-1

*Uses:* Bactericide, disinfectant in restaurant and pharmaceutical uses, sanitizers for homes, farms, hospitals, dairies, food processing; antistat, bacteriostat on fabrics, sanitized paper; deodorant; preservative; germicide; algicide and slmicide for swimming pools, industrial water treatment, cooling towers; sanitizer for food processing equip.

*Regulatory:* EPA reg. no. 6836-94; FDA approved: sanitizer for food processing equip.

*Properties:* Pale yel. clear liq., mild odor; misc. with water, lower alcohols, ketones; m.w. 359.6; sp.gr. 0.96; dens. 8.0 lb/gal; visc. 42 cps; pour pt. 15 F; flash pt. (PM) 105 F; pH 7-9 (5%); surf. tens. 34 dynes/cm (0.1%); 50% act.; cationic

*Toxicology:* LD50 (oral, rat) 894 mg/kg; toxic to fish

*Precaution:* Do not mix with oxidizing/reducing agents

**Hycal®** [Huber Engineered Materials]

*Chem. Descrip.:* Calcined clay

*Uses:* Structured clay for filler, paper/paperboard, paper coating applics.

*Properties:* Dry; 86-96% finer than 2 µ; 0.01% max. 325 mesh residue; sp.gr. 2.60; brightness (TAPPI) 92-94%; ref. index 1.57; pH 5-7 (28% solids); 0.5% max. moisture

**Hycar® 1552** [BFGoodrich]

*Chem. Descrip.:* Nitrile latex

CAS 9003-18-3

*Uses:* Used for adhesives, carpet backcoating, paper coatings and saturation, pigment binding, textile coatings; exhibits fast penetration

*Properties:* Sp.gr. 0.99; visc. 35 cps; pH 10.8; med. ACN; 53% solids

**Hycar® 1561** [BFGoodrich]

*Chem. Descrip.:* Acrylonitrile copolymer latex with nonstaining antioxidant

CAS 9003-18-3

*Uses:* Latex with good binding for adhesives, abrasion-resist. coatings, leather and textile finishes, nonwoven fabric and pigment bindings, resin modification, paper coatings, saturation; exhibits fast penetration

*Properties:* Sp.gr. 1.0041; dens. 8.35 lb/gal; visc. 27 cps; pH 10.8; surf. tens. 50 dynes/cm; high ACN; 41% solids; anionic

**Hycar® 1562** [BFGoodrich]

*Chem. Descrip.:* Nitrile latex

CAS 9003-18-3

*Uses:* Used for adhesives, leather and textile finishes, paper coatings and saturation, pigment binding, resin modification; exhibits fast penetration

*Properties:* Sp.gr. 0.99; visc. 30 cps; pH 10.8; med. ACN; 41% solids

**Hycar® 1571** [BFGoodrich]

*Chem. Descrip.:* Carboxylic nitrile latex

CAS 9003-18-3

*Uses:* Used for adhesives, grease- and oil-resist. coatings, leather and textile finishes, pigment and nonwoven fabric bindings, paper saturation, resin modification

*Properties:* Sp.gr. 1.00; visc. 28 cps; pH 8.0; high ACN; 41% solids

**Hycar® 1572** [BFGoodrich]

*Chem. Descrip.:* Carboxylic nitrile latex, heat-reactive

CAS 9003-18-3

*Uses:* Used for adhesives, leather and textile finishes, nonwoven fabric and pigment bindings, paper coatings and saturation, resin modification, oil- and grease-resist. prods.

*Properties:* Sp.gr. 1.00; visc. 32 cps; pH 7.0; med. ACN; 50% solids

**Hycar® 1572X64** [BFGoodrich]

*Chem. Descrip.:* Nitrile latex, heat-reactive

CAS 9003-18-3

*Uses:* Used for adhesives, nonwoven fabric and pigment binding, leather finishes, paper coatings, oil- and grease-resist. materials

*Properties:* Sp.gr. 0.99; visc. 85 cps; pH 6.5; med. ACN; 47% solids

**Hycar® 1577** [BFGoodrich]

*Chem. Descrip.:* Butadiene-acrylonitrile-styrene terpolymer latex

CAS 9003-56-9

*Uses:* Used for waterproof and greaseproof coatings, leather finishes, paints, paper coatings, and nonwoven binders and saturation; food pkg. adhesives; in resin-bonded filters for food contact

*Regulatory:* FDA 21CFR §175.105, 177.2260

*Properties:* Sp.gr. 1.01; visc. 28 cps; pH 10.3-11.0; surf. tens. 48 dynes/cm (29 C); 39-42% solids

**Hycar® 1578X1** [BFGoodrich]

*Chem. Descrip.:* ABS latex, heat-reactive

CAS 9003-56-9

*Uses:* Used for water and grease-resist. coatings, leather and textile finishing, nonwoven binders, paper coatings

*Properties:* Sp.gr. 1.01; visc. 80 cps; pH 8.0; surf. tens. 42 dynes/cm; 50% solids

**Hycar® 2671** [BFGoodrich]

*Chem. Descrip.:* Acrylic latex, heat-reactive

*Uses:* Used for adhesives, flock adhesives, textile backcoatings, nonwoven fabric binding, paper saturation, leather finishes, coatings; produces med. films

*Properties:* Sp.gr. 1.07; visc. 170 cps; pH 5.1; 53% solids

**Hycar® 2679** [BFGoodrich]

*Chem. Descrip.:* Acrylic latex, heat-reactive

*Uses:* Used for laminating adhesives, flock adhesives, textile finishes, non-

- woven binding, paper saturation, and foam backcoatings for textiles; produces med. films  
*Properties:* Sp.gr. 1.06; visc. 100 cps; pH 3.7; 49% solids
- Hycar® 26084** [BF Goodrich]  
*Chem. Descrip.:* Acrylic latex, heat-reactive  
*Uses:* Used for paper coatings, textile backcoatings, nonwoven saturation, leather finishes, paper saturation, adhesives; produces firm films  
*Properties:* Sp.gr. 1.07; visc. 110 cps; pH 6.1; 48% solids
- Hycar® 26092** [BF Goodrich]  
*Chem. Descrip.:* Acrylic latex, heat-reactive  
*Uses:* Used for adhesives, nonwoven fabric binding, textile finishes, pigmented coatings, paper saturation, foam backcoatings for textiles; produces med. films  
*Properties:* Sp.gr. 1.07; visc. 170 cps; pH 5.1; 53% solids
- Hycar® 26106** [BF Goodrich]  
*Chem. Descrip.:* Acrylic latex, heat-reactive  
*Uses:* Used for protective coatings, paper saturation, adhesives, nonwoven fabric bindings; produces stiff films  
*Properties:* Sp.gr. 1.05; visc. 80 cps; pH 5.0; 50% solids
- Hycar® 26138** [BF Goodrich]  
*Chem. Descrip.:* Acrylic latex, heat-reactive  
*Uses:* Self-crosslinking latex used for textile laminating adhesives, abrasion-resist. textile and paper coatings, textile sizing, paper saturation, nonwoven binders, metal coatings, textile finishing; food pkg. adhesives, coatings, paper, polymers, rubber articles; produces stiff films  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 177.1010, 177.1200, 177.1210, 177.2260, 177.2600, 178.3790  
*Properties:* Sp.gr. 1.07; dens. 8.9 lb/gal; visc. 60 cps; pH 5.5; surf. tens. 43 dynes/cm; 50% solids; anionic
- Hycar® 26322** [BF Goodrich]  
*Chem. Descrip.:* Acrylic latex, heat-reactive  
*Uses:* Used for paper saturation, leather finishing, nonwoven binders; produces soft films  
*Properties:* Sp.gr. 1.06; visc. 40 cps; pH 6.0; 50% solids
- Hydrad™ 10** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina, 99.5%  
*Chem. Analysis:* Al(OH)<sub>3</sub> (99.5%), free moisture (0.5-0.6%)  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; flame retardant for paper and composites; offers high brightness, low abrasion; low binder demand  
*Properties:* Wh. dry pigment (or slurry); 85-95% < 2 μ particle size; 0.9-1.3 μ median particle size; 0.01% max. on 325 mesh; slurry sp.gr. 1.7; absolute dens. 2.42 g/cc; slurry visc. 100-200 cps; surf. area 10-14; TAPPI brightness 96-98; ref. index 1.57; pH 7-9 (20% solids); hardness (Moh) 2.5-3.5; slurry 70% solids
- Hydrad™ 10W** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina, 99.5%  
*Chem. Analysis:* Al(OH)<sub>3</sub> (99.5%), free moisture (0.5-0.6%)  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; flame retardant for paper and composites; offers high brightness, low abrasion; low binder demand  
*Properties:* Wh. dry pigment (or slurry); 85-95% < 2 μ particle size; 0.9-1.3 μ median particle size; 0.01% max. on 325 mesh; slurry sp.gr. 1.7; absolute dens. 2.42 g/cc; slurry visc. 50-150 cps; surf. area 10-14; TAPPI brightness 97-99; ref. index 1.57; pH 7-9 (20% solids); hardness (Moh) 2.5-3.5; slurry 70% solids
- Hydrad™ 15** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina, 99.5%  
*Chem. Analysis:* Al(OH)<sub>3</sub> (99.5%), free moisture (0.5-0.6%)  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; flame retardant for paper and composites; offers high brightness, low abrasion; low binder demand  
*Properties:* Slurry; 70-80% < 2 μ particle size; 1.5 μ median particle size; 0.01% max. on 325 mesh; sp.gr. 2.42; visc. 50-150 cps; surf. area 10-14; brightness (TAPPI) 94-96%; ref. index 1.57; pH 7-9 (28% solids); hardness (Moh) 2.5-3.5; slurry 70% solids; 1% max. moisture
- Hydrad™ 15W** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina, 99.5%  
*Chem. Analysis:* Al(OH)<sub>3</sub> (99.5%), free moisture (0.5-0.6%)  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; flame retardant for paper and composites; offers high brightness, low abrasion; low binder demand  
*Properties:* Wh. dry pigment (or slurry); 70-80% < 2 μ particle size; 1.5 μ median particle size; 0.01% max. on 325 mesh; slurry sp.gr. 1.7; absolute dens. 2.42 g/cc; slurry visc. 50-150 cps; surf. area 10-14; TAPPI brightness 98-99; ref. index 1.57; pH 7-9 (20% solids); hardness (Moh) 2.5-3.5; slurry 70% solids
- Hydrad™ 20** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina, 99.5%  
*Chem. Analysis:* Al(OH)<sub>3</sub> (99.5%), free moisture (0.5-0.6%)  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; flame retardant for paper and composites; offers high brightness, low abrasion; low binder demand  
*Properties:* Wh. dry pigment (or slurry); 70-80% < 2 μ particle size; 2 μ median particle size; 0.01% max. on 325 mesh; slurry sp.gr. 1.7; absolute dens. 2.42 g/cc; slurry visc. 50-150 cps; surf. area 11-13; TAPPI brightness 94-96; ref. index 1.57; pH 7-9 (20% solids); hardness (Moh) 2.5-3.5; slurry 70% solids
- Hydrad™ C** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; offers high brightness, low abrasion  
*Properties:* Wh. pigment; 47% < 2 μ particle size; 26% < 1 μ; 16% < 0.5 μ; 12% > 5 μ; 2% > 10 μ; 0.01% max. on 325 mesh; sp.gr. 2.42; visc. 125 cps (70% solids); brightness (TAPPI) 96%; ref. index 1.57; pH 9-10 (20%); 1% max. moisture
- Hydrad™ F** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; offers high brightness, low abrasion  
*Properties:* Wh. pigment; 29% < 2 μ particle size; 25% < 5 μ; 13% < 1 μ; 6% > 5 μ; 5% > 10 μ; 0.01% max. 325 mesh residue; sp.gr. 2.42; visc. 75 cps (70% solids); brightness (TAPPI) 94%; ref. index 1.57; pH 9-10 (28%); 1% max. moisture
- Hydrad™ HBC** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; offers high brightness, low abrasion  
*Properties:* Wh. pigment; 47% < 2 μ particle size; 26% < 1 μ; 15% < 0.5 μ; 12% > 5 μ; 2% > 10 μ; 0.01% 325 mesh residue; sp.gr. 2.42; visc. 125 cps (70% solids); brightness (TAPPI) 98%; ref. index 1.57; pH 9-10 (20%); 1% max. moisture
- Hydrad™ HBF** [Huber Engineered Materials]  
*Chem. Descrip.:* Hydrated alumina  
CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Wh. pigment for use in paper filling and coating applics.; offers high brightness, low abrasion  
*Properties:* Wh. pigment; 29% < 2 μ particle size; 25% < 5 μ; 13% < 1 μ; 6% > 0.5 μ; 5% > 10 μ; 0.01% 325 mesh residue; sp.gr. 2.42; visc. 75 cps (70% solids); brightness (TAPPI) 97%; ref. index 1.57; pH 9-10 (20%)
- Hydrafil®** [Huber Engineered Materials]  
*Chem. Descrip.:* Partially delaminated clay  
*Uses:* Filler for paper and paperboard  
*Properties:* Spray-dried slurry; 0.005% max. 325 mesh residue; sp.gr. 2.60; visc. 400 cps; brightness (TAPPI) 86.5-88%; ref. index 1.57; pH 6-8 (28% solids); 68.5-70% slurry solids; 1% max. moisture
- Hydrafil® 90** [Huber Engineered Materials]  
*Chem. Descrip.:* Partially delaminated clay  
*Uses:* Filler for paper and paperboard; high brightness  
*Properties:* Spray-dried slurry; 0.005% max. 325 mesh residue; sp.gr. 2.60; visc. 400 cps; brightness (TAPPI) 89-90%; ref. index 1.57; pH 6-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture
- Hydrafine®** [Huber Engineered Materials]  
*Chem. Descrip.:* Partially delaminated clay  
*Uses:* Pigment for paper and paperboard; multipurpose  
*Properties:* Spray-dried slurry; 90-96% finer than 2 μ; 0.005% max. 325

mesh residue; sp.gr. 2.60; visc. 450 cps; brightness (TAPPI) 87-88.5%; ref. index 1.57; pH 6-8 (28% solids); 68.5-70% slurry solids; 1% max. moisture

**Hydrifine® 90** [Huber Engineered Materials]

*Uses:* High glossing clay for paper/paperboard; provides balance of print gloss, sheet gloss, and brightness

*Properties:* Spray-dried slurry; 90-96% finer than 2 µ; 0.005% max. 325 mesh residue; visc. 450 cps; brightness (TAPPI) 90.0-91.5; pH 6-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture

**Hydragloss** [Omya Croxton+Garry]

*Chem. Descrip.:* Clay (Al<sub>2</sub>O<sub>3</sub> · 2SiO<sub>2</sub> · 2H<sub>2</sub>O)

*Chem. Analysis:* moisture (1%)

CAS 1327-36-2; EINECS/ELINCS 215-475-1

*Uses:* Coating clay for high quality paper and board; high gloss, high surf. area

*Properties:* Spray dried powd.; 0.01% on 325 mesh screen; 94-97% < 2 µm particle size; visc. 350 cps; surf. area 22 m<sup>2</sup>/g; pH 6-7.5 (28% solids); TAPPI brightness 86.5-88%

**Hydragloss®** [Huber Engineered Materials]

*Uses:* High glossing clay for paper/paperboard; std. brightness, easy finishing

*Properties:* Spray-dried slurry; 92-98% finer than 2 µ; 0.005% max. 325 mesh residue; visc. 400 cps; brightness (TAPPI) 87-88; pH 6-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture

**Hydragloss® 90** [Huber Engineered Materials]

*Uses:* High glossing clay for paper/paperboard, premium sheet; high brightness

*Properties:* Spray-dried slurry; 96-100% finer than 2 µ; 0.005% max. 325 mesh residue; visc. 400 cps; brightness (TAPPI) 90.0-91.5; pH 6-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture

**Hydragloss® 92** [Huber Engineered Materials]

*Uses:* High glossing clay for paper/paperboard; unmatched brightness; blue-wh. shade

*Properties:* Spray-dried slurry; 98-100% finer than 2 µ; 0.005% max. 325 mesh residue; visc. 700 cps; brightness (TAPPI) 92.0-92.5; pH 6-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture

**Hydraid® 2010** [Nalco]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Retention and drainage aid, mill water clarification, and save-all operation for pulp/paper industry

*Regulatory:* FDA and EPA approved

*Properties:* Clear to pale yel. liq.; sol. in water; dens. 8.6 lb/gal; visc. 4000 cps max.; f.p. 27 F; flash pt. noncombustible; pH 7.0 ± 0.5; cationic

*Precaution:* Mod. corrosive to iron and copper, incl. their alloys

*Storage:* Store in heated area to prevent freezing; stratification may occur upon freezing, but prod. will homogenize upon agitation

**Hydraid® 7607** [Nalco]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Controls anionic trash and fines from primary and secondary fiber from wide variety of pulp used in papermaking; binds anionic fines to paper fibers before sheet formation; promoter in alkaline papermaking systems; food-contact paper/paperboard; chlorine resist.

*Regulatory:* FDA 21CFR §176.170

*Properties:* Cationic

**Hydraid® 7736 EZ** [Nalco]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Retention and drainage aid for pulp/paper industry; food-contact paper/paperboard

*Use Level:* 0.25-2.0% sol'n.

*Regulatory:* FDA 21CFR §176.170

*Properties:* Opaque wh. liq.; dens. 8.8 lbs/gal; visc. 1800-3200 cps; f.p. 23 F; flash pt. 275 F; pH 6.7 (1% sol'n.); anionic

*Storage:* Store in heated area; freezing will cause prod. instability

**Hydraid® 7871** [Nalco]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Retention and drainage aid for pulp/paper industry; food-contact paper/paperboard; effective in retaining fines and fillers without affecting sheet props.

*Use Level:* 0.25-2% sol'n.

*Regulatory:* FDA 21CFR §176.170

*Properties:* Opaque wh. liq.; dens. 8.8 lbs/gal; visc. 1100-1900 cps; f.p. 23 F; flash pt. 275 F; pH 4.6 (1% sol'n.); nonionic

*Storage:* 6 mos. shelf life; store in heated area as freezing will cause prod. instability

**Hydraid® 8105** [Nalco]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Retention and drainage aid for mill water clarification, save-all operation for pulp/paper industry; effective coagulant aid; food-contact paper/paperboard; chlorine resist.; effective over wide pH range

*Regulatory:* FDA 21CFR §176.170

*Properties:* Cationic

**Hydraid® 8182 EZ** [Nalco]

*Chem. Descrip.:* Polyelectrolyte

*Uses:* Retention and drainage aid for pulp/paper industry; food-contact paper/paperboard

*Use Level:* 0.25-2.0% sol'n.

*Regulatory:* FDA 21CFR §176.110

*Properties:* Opaque wh. liq.; dens. 8.8 lbs/gal; visc. 1200-1800 cps; f.p. 23 F; flash pt. 275 F; pH 5.7 (1% sol'n.); anionic

*Storage:* Store in heated area; freezing will cause prod. instability

**Hydral® 710** [Alcoa]

*Chem. Descrip.:* Aluminum trihydroxide

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65.1%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Fire retardant, smoke suppressant improving arc track resist. in thermosets, thermoplastics, elastomers; filler and coating pigment, opacifier in fine printing papers (inc. brightness, smoothness); for vinyl compding.; reinforcing pigment in adhesives and tapes; abrasive in waxes and polishes; filler for cosmetic powds., lotions; polishing agent in dentifrices

*Regulatory:* DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

*Properties:* Wh. cryst. powd.; 0.003% on 325 mesh; odorless; insol. in water; dens. 2.42 g/cm<sup>3</sup>; bulk dens. 0.22 g/cm<sup>3</sup> (loose), 0.37 g/cm<sup>3</sup> (packed); surf. area 5.0 m<sup>2</sup>/g; brightness 99+; m.p. 2040 C; pH 8.5-10.2 (20 C, 20% aq.); ref. index 1.57; hardness (Mohs) 2.5-3.5; 99% solids

*Toxicology:* Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed

*Environmental:* Generally not hazardous for water

*Precaution:* Prevent formation of dust

*Hazardous Decomp. Prods.:* Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

*Storage:* Keep material dry

**Hydral® 716** [Alcoa]

*Chem. Descrip.:* Hydrated alumina

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant, smoke suppressant for thermosets, thermoplastics, and elastomers; filler and coating pigment, opacifier for fine printing papers (inc. brightness, smoothness); reinforcing pigment in adhesives and tapes; abrasive in waxes and polishes; filler for cosmetic powds., lotions; polishing agent in dentifrices

*Regulatory:* DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

*Properties:* Wh. cryst. powd.; 0.008% on 325 mesh; odorless; insol. in water; dens. 2.42 g/cm<sup>3</sup>; bulk dens. 0.37 g/cm<sup>3</sup> (loose); surf. area 3.6 m<sup>2</sup>/g; brightness 99+; m.p. 2040 C; pH 8.5-10.2 (20 C, 20% aq.); ref. index 1.57; hardness (Mohs) 2.5-3.5; 99% solids

*Toxicology:* Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed

*Environmental:* Generally not hazardous for water

*Precaution:* Prevent formation of dust

*Hazardous Decomp. Prods.:* Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

*Storage:* Keep material dry

**Hydral® PGA** [Alcoa]

*Chem. Descrip.:* Spray-dried alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Extender/filler/pigment in paper coatings imparting brightness and gloss; filler, flame retardant, smoke suppressant for natural and syn. rubbers, plastics, thermosets, thermoplastics, elec. cable jacketing, PU foam insulation; reinforcing pigment in adhesives and tapes; polishing agent in waxes;



filler in cosmetic powds. and lotions; flame retardant pigment; arc-track resist. applics.; polish for dentifrices

**Regulatory:** DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

**Properties:** Wh. cryst. powd.; 0.002% on 325 mesh; odorless; insol. in water; dens. 2.42 g/cm<sup>3</sup>; bulk dens. 0.35 g/cm<sup>3</sup> (loose), 0.61 g/cm<sup>3</sup> (packed); surf. area 5.2 m<sup>2</sup>/g; brightness 99+; m.p. 2040 C; pH 8.5-10.2 (20 C, 20% aq.); ref. index 1.57; hardness (Mohs) 2.5-3.5; 99% solids

**Toxicology:** Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed

**Environmental:** Generally not hazardous for water

**Precaution:** Prevent formation of dust

**Hazardous Decomp. Prods.:** Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

**Storage:** Keep material dry

#### Hydral® Brite 100 Slurry [Alcoa]

**Chem. Descrip.:** Hydrated alumina

**Chem. Analysis:** Al(OH)<sub>3</sub> (99.5%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Uses:** Filler pigment for paper coatings; improved brightness; maintains opacity; rec. where gloss and high whiteness are desired; TiO<sub>2</sub> replacement

**Regulatory:** DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

**Properties:** Wh. slurry; 1.0 mm median particle size; 0.02% on 325 mesh; abs. dens. 2.42; dens. 14.14 lb/gal (70% solids slurry); visc. 800 cps (70% solids slurry); surf. area 5 m<sup>2</sup>/g; brightness (TAPPI) 100%; ref. index 1.57; pH 8.0-9.5; 65% solids min.

**Toxicology:** Can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed

**Environmental:** Generally not hazardous for water

**Precaution:** Prevent formation of dust

**Hazardous Decomp. Prods.:** Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

#### Hydral® Coat 2 [Alcoa]

**Chem. Descrip.:** Hydrated alumina

**Chem. Analysis:** Al<sub>2</sub>O<sub>3</sub> (65%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Uses:** Pigment for paper coatings; features whiteness, opacity, improved smoothness and gloss; good printability; less binder required; stable under high shear coating conditions

**Regulatory:** DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

**Properties:** Dry or slurry; 0.2 μm median particle size; 0.02% on 325 mesh; odorless; insol. in water; abs. dens. 2.42; bulk dens. 30 lb/ft<sup>3</sup> (dry, loose); slurry dens. 92 lb/ft<sup>3</sup>; slurry visc. 2000 cps; surf. area 18.7 m<sup>2</sup>/g; brightness (TAPPI) 100; ref. index 1.57; pH 9.0 (slurry); hardness (Mohs) 2.5-3.5; 55% solids (slurry)

**Toxicology:** Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed

**Environmental:** Generally not hazardous for water

**Precaution:** Prevent formation of dust

**Hazardous Decomp. Prods.:** Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

**Storage:** Keep material dry; 30 days slurry stability

#### Hydral® Coat 5 [Alcoa]

**Chem. Descrip.:** Hydrated alumina

**Chem. Analysis:** Al<sub>2</sub>O<sub>3</sub> (65%), water (33%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Uses:** Pigment for paper coatings; features whiteness, opacity, improved smoothness and gloss; good printability; less binder required; stable under high shear coating conditions

**Regulatory:** DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

**Properties:** Slurry; 0.5 μm median particle size; 0.02% on 325 mesh; odorless; insol. in water; abs. dens. 2.42; dens. 103 lb/ft<sup>3</sup>; visc. 800 cps; surf. area 14 m<sup>2</sup>/g; brightness (TAPPI) 100; ref. index 1.57; pH 9.0; hardness (Mohs) 2.5-3.5; 67% solids

**Toxicology:** Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease,

skin rashes; TSCA listed

**Environmental:** Generally not hazardous for water

**Precaution:** Prevent formation of dust

**Hazardous Decomp. Prods.:** Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

**Storage:** 30 days slurry stability

#### Hydral® Coat 7 [Alcoa]

**Chem. Descrip.:** Hydrated alumina

**Chem. Analysis:** Al<sub>2</sub>O<sub>3</sub> (65%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Uses:** Pigment for paper coatings; features whiteness, opacity, improved smoothness and gloss; good printability; less binder required; stable under high shear coating conditions

**Regulatory:** DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

**Properties:** Dry; 0.7 μm median particle size; 0.02% on 325 mesh; odorless; insol. in water; abs. dens. 2.42; bulk dens. 30 lb/ft<sup>3</sup> (loose); surf. area 10.5 m<sup>2</sup>/g; brightness (TAPPI) 100; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Toxicology:** Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; exposure can aggravate asthma, chronic lung disease, skin rashes; TSCA listed

**Environmental:** Generally not hazardous for water

**Precaution:** Prevent formation of dust

**Hazardous Decomp. Prods.:** Exposed to fire or heat, aluminum trihydroxide decomposes forming aluminum oxide and water vapor beginning at 200 C

**Storage:** Keep material dry; 30 days slurry stability

#### Hydramatte® [Huber Engineered Materials]

**Uses:** Clay for matte paper grades; coarse, delaminated; rec. where print smoothness and coverage are of primary importance

**Properties:** Spray-dried slurry; 0.005% 325 mesh residue; sp.gr. 2.60; visc. 400-800 cps; brightness (TAPPI) 87.5-89%; ref. index 1.57; pH 6.5-8.0 (28% solids); 66-68% slurry solids; 1% max. moisture

#### Hydraprint® [Huber Engineered Materials]

**Chem. Descrip.:** Delaminated coating clay

**Uses:** Clay for paper and paperboard, esp. LWC and merchant grades; std. particle size distribution; rec. where print smoothness and coverage are important

**Properties:** Spray-dried slurry; 0.005% max. 325 mesh residue; sp.gr. 2.60; visc. 450 cps; brightness (TAPPI) 87.5-89%; ref. index 1.57; pH 6.5-8 (28% solids); 67-69% slurry solids; 1% max. moisture

#### Hydrasperse® [Huber Engineered Materials]

**Uses:** Clay for paper and paperboard, esp. high vol. grades of coated paper and board; std. brightness

**Properties:** Spray-dried slurry; 80-86% finer than 2 μ; 0.005% max. 325 mesh residue; sp.gr. 2.60; visc. 450 cps; brightness (TAPPI) 86-87.5%; ref. index 1.57; pH 6.5-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture

#### Hydrasperse® 90 [Huber Engineered Materials]

**Uses:** Clay for paper and paperboard, esp. high vol. grades of coated paper and board; high brightness

**Properties:** Spray-dried slurry; 80-86% finer than 2 μ; 0.005% max. 325 mesh residue; sp.gr. 2.60; visc. 450 cps; brightness (TAPPI) 89.5-91%; ref. index 1.57; pH 6.5-8 (28% solids); 69.5-71% slurry solids; 1% max. moisture

#### Hydrax™ H-312 [R.J. Marshall]

**Chem. Descrip.:** Alumina trihydrate

**Chem. Analysis:** 65% (Al<sub>2</sub>O<sub>3</sub>); 0.29% (total Na<sub>2</sub>O); 0.02% (sol. Na<sub>2</sub>O); 0.01% (SiO<sub>2</sub>); 0.01% (Fe<sub>2</sub>O<sub>3</sub>)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Uses:** Flame retardant and smoke suppressant for plastics, rubber, paper, adhesives, coatings, nitrile rubbers, neoprene, polyolefins, EPDM, SBR, EPR, latexes, urethanes, EVA copolymers, unsat. polyesters, epoxies, phenolics, etc.

**Properties:** Off-wh. coarse free-flowing powd.; 12 μ median particle size; 99% < 55 μ; sp.gr. 2.42; bulk dens. (loose) 45 lb/ft<sup>3</sup>; oil absorp. 32; TAPPI brightness 88+; ref. index 1.57; hardness (Mohs) 3; 0.3% free moisture

#### Hydrax™ H-470 [R.J. Marshall]

**Chem. Descrip.:** Alumina trihydrate

**Chem. Analysis:** 64.8% (Al<sub>2</sub>O<sub>3</sub>); 0.29% (total Na<sub>2</sub>O); 0.02% (sol. Na<sub>2</sub>O); 0.01% (SiO<sub>2</sub>); 0.01% (Fe<sub>2</sub>O<sub>3</sub>)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Uses:** Flame retardant and smoke suppressant for plastics, rubber, paper,

adhesives, coatings, flexible and rigid PVC, nitrile rubbers, neoprene, polyolefins, EPDM, SBR, EPR, latexes, urethanes, EVA copolymers, unsat. polyesters, etc.

*Properties:* Wh. free-flowing powder; 7.0 μ median particle size; 99% < 44 μ; sp.gr. 2.42; bulk dens. (loose) 0.64 g/cm<sup>3</sup>; surf. area 2 m<sup>2</sup>/g; oil absorp. 16; TAPPI brightness 88+; ref. index 1.57; hardness (Mohs) 3; 0.4% free moisture

**Hydrax™ H-490** [R.J. Marshall]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* 64.8% (Al<sub>2</sub>O<sub>3</sub>); 0.29% (total Na<sub>2</sub>O); 0.02% (sol. Na<sub>2</sub>O); 0.01% (SiO<sub>2</sub>); 0.01% (Fe<sub>2</sub>O<sub>3</sub>)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant and smoke suppressant for plastics, rubber, paper, adhesives, coatings, flexible and rigid PVC, nitrile rubbers, neoprene, polyolefins, EPDM, SBR, EPR, latexes, urethanes, EVA copolymers, unsat. polyesters, etc.

*Properties:* Wh. free-flowing powder; 9.0 μ median particle size; 99% < 44 μ; sp.gr. 2.42; bulk dens. (loose) 0.76 g/cm<sup>3</sup>; surf. area 2 m<sup>2</sup>/g; oil absorp. 16; TAPPI brightness 88+; ref. index 1.57; hardness (Mohs) 3; 0.4% free moisture

**Hydrax™ H-550** [R.J. Marshall]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* 64.8% (Al<sub>2</sub>O<sub>3</sub>); 0.29% (total Na<sub>2</sub>O); 0.03% (sol. Na<sub>2</sub>O); 0.01% (SiO<sub>2</sub>); 0.01% (Fe<sub>2</sub>O<sub>3</sub>)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant and smoke suppressant for plastics, rubber, paper, adhesives, coatings, flexible and rigid PVC, nitrile rubbers, neoprene, polyolefins, EPDM, SBR, EPR, latexes, urethanes, EVA copolymers, unsat. polyesters, etc.; approved for dentifrice and internal use

*Properties:* Wh. free-flowing powder; 5.0 μ median particle size; 99% < 16 μ; sp.gr. 2.42; bulk dens. (loose) 0.6 g/cm<sup>3</sup>; surf. area 5 m<sup>2</sup>/g; oil absorp. 24; TAPPI brightness 89+; ref. index 1.57; hardness (Mohs) 3; 0.4% free moisture

**Hydrax™ H-636** [R.J. Marshall]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* 64.8% (Al<sub>2</sub>O<sub>3</sub>); 0.29% (total Na<sub>2</sub>O); 0.04% (sol. Na<sub>2</sub>O); 0.01% (SiO<sub>2</sub>); 0.01% (Fe<sub>2</sub>O<sub>3</sub>)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant and smoke suppressant for plastics, rubber, paper, adhesives, coatings, flexible and rigid PVC, nitrile rubbers, neoprene, polyolefins, EPDM, SBR, EPR, latexes, urethanes, EVA copolymers, unsat. polyesters, etc.; approved for dentifrice and internal use

*Properties:* Wh. free-flowing powder; 3.6 μ median particle size; 99% < 11 μ; sp.gr. 2.42; bulk dens. (loose) 0.56 g/cm<sup>3</sup>; surf. area 6 m<sup>2</sup>/g; oil absorp. 27; TAPPI brightness 90+; ref. index 1.57; hardness (Mohs) 3; 0.4% free moisture

**Hydrax™ H-910** [R.J. Marshall]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* 65.0% (Al<sub>2</sub>O<sub>3</sub>); 0.39% (total Na<sub>2</sub>O); 0.10% (sol. Na<sub>2</sub>O); 0.02% (SiO<sub>2</sub>); 0.02% (Fe<sub>2</sub>O<sub>3</sub>)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant and smoke suppressant for plastics, rubber, paper, adhesives, coatings, flexible and rigid PVC, nitrile rubbers, neoprene, polyolefins, EPDM, SBR, EPR, latexes, urethanes, EVA copolymers, unsat. polyesters, etc.; approved for dentifrice and internal use

*Properties:* Wh. free-flowing powder; 1.2 μ median particle size; 99% < 6 μ; sp.gr. 2.42; bulk dens. (loose) 0.2 g/cm<sup>3</sup>; surf. area 4-8 m<sup>2</sup>/g; oil absorp. 30; TAPPI brightness 92+; ref. index 1.57; hardness (Mohs) 3; 0.3% free moisture

**Hydrocarb 60-ME 78%** [Omya Croxton+Garry]

*Chem. Descrip.:* Calcium carbonate slurry

*Chem. Analysis:* CaCO<sub>3</sub> (> 98.5%), MgCO<sub>3</sub> (< 1.0%), SiO<sub>2</sub> (< 0.2%), Al<sub>2</sub>O<sub>3</sub> (< 0.05%), Fe<sub>2</sub>O<sub>3</sub> (< 0.02%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Coating pigment for paper and board prod.

*Properties:* Fine slurry; < 0.005% on 45 μ sieve; 60% < 2 μ; sp.gr. 1.97; visc. 200 mPa·s; surf. area 7 m<sup>2</sup>/g; TAPPI brightness 94.5; 78% solids

**Hydrocarb 75-ME 78%** [Omya Croxton+Garry]

*Chem. Descrip.:* Calcium carbonate slurry

*Chem. Analysis:* CaCO<sub>3</sub> (> 98.5%); MgCO<sub>3</sub> (< 1.0%); Al<sub>2</sub>O<sub>3</sub> (< 0.05%); SiO<sub>2</sub> (< 0.02%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Coating pigment for paper and board prod.

*Properties:* < 0.005% on 45 μ sieve; sp.gr. 1.97; visc. 200 mPa·s; surf. area 10 m<sup>2</sup>/g; TAPPI brightness 94.5; 78% solids

**Hydrocarb 90-ME 78%** [Omya Croxton+Garry]

*Chem. Descrip.:* Calcium carbonate slurry

*Chem. Analysis:* CaCO<sub>3</sub> (> 98.5%), MgCO<sub>3</sub> (< 1.0%), SiO<sub>2</sub> (< 0.2%), Al<sub>2</sub>O<sub>3</sub> (< 0.05%), Fe<sub>2</sub>O<sub>3</sub> (< 0.02%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Coating pigment for paper and board prod.

*Properties:* Very fine slurry; < 0.005% on 45 μ sieve; 90% < 2 μ; sp.gr. 1.97; visc. 250 mPa·s; surf. area 12 m<sup>2</sup>/g; TAPPI brightness 94.5; 78% solids

**Hydrocol®** [Ciba Spec. Chems./Paper]

*Uses:* Microparticle retention aid/drainage aid for pulp, paper, and paperboard

**Hydrofix®** [Ciba Spec. Chems./Paper]

*Uses:* Runnability aid for papermaking

**Hydrolin** [Olin/Chlor Alkali]

*Chem. Descrip.:* Sodium hydrosulfite sol'n.

CAS 7775-14-6; EINECS/ELINCS 231-890-0

*Uses:* Bleaching agent for clay, groundwood, and thermomech. pulp

**Hydrosulfite® AWC** [Cognis/Chems. Group; Cognis/Textiles]

*Chem. Descrip.:* Sodium formaldehyde sulfoxylate

CAS 149-44-0; EINECS/ELINCS 295-739-4

*Uses:* Reducing agent, cocatalyst for redox-catalyzed polymerization, in discharge printing; stripping agent for acid dyed nylon and wool; food pkg. adhesives, paper, closures with sealing gaskets for food containers; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1210, 177.2600, 178.3400; SARA §311/312 reportable

*Properties:* Wh. powder; garlic-like odor; sp.gr. 0.60; dens. 5.0 lb/gal; pH 10.1 (10%); VOC 0% (EPA Method 24); 100% solids

*Toxicology:* LD50 (oral, rat) > 1 g/kg; may cause skin, eye, and respiratory tract irritation; TSCA listed

*Environmental:* BOD5 126,490 ppm; COD 622,720 ppm; 20.3% biodeg.

*Precaution:* May generate heat when wet; avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, SO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 1

*Storage:* Store in cool, dry place away from direct heat and low flash point material; will decompose slowly in moist, warm air

**Hydrosulfite of Soda, 70%** [Cognis/Chems. Group]

*Chem. Descrip.:* Sodium hydrosulfite

CAS 7775-14-6; EINECS/ELINCS 231-890-0

*Uses:* Reducing agent in redox polymerization; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 178.3400

*Properties:* Liq.; 70% act.

**Hydrosulfite of Soda Conc.** [Cognis/Chems. Group]

*Chem. Descrip.:* Sodium hydrosulfite

CAS 7775-14-6; EINECS/ELINCS 231-890-0

*Uses:* Reducing agent in redox polymerization; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 178.3400; DOT regulated; SARA §311/312 reportable

*Properties:* Wh. to off-wh. powder; odorless; 18% sol. in water (20 C); sp.gr. 0.88; dens. 55 lb/ft<sup>3</sup> (loose), 65 lb/ft<sup>3</sup> (packed); pH 4.2

*Toxicology:* Causes skin, respiratory tract, and severe eye irritation; may cause respiratory allergic reaction; ing. may cause GI irritation, nausea, vomiting; mod. toxic by ing.; TSCA listed

*Precaution:* Flamm.; heats spontaneously when in contact with moisture; avoid contact with strong oxidizing agents and acids

*Hazardous Decomp. Prods.:* Decomposes in water to sulfur dioxide and other sulfur oxides, sodium sulfite, and sodium thiosulfite; hydrogen sulfide and mercaptans may also be present; NFPA: Health 3; Flammability 2; Reactivity 1

*Storage:* Store tightly closed in cool, dry place away from low flash point materials; avoid exposure to atmosphere; storage for > 90 days must meet EPA requirements

**Hydrosulphite®** [BASF AG]

*Chem. Descrip.:* Sodium dithionite

CAS 7775-14-6; EINECS/ELINCS 231-890-0

*Uses:* Reducing agents for textiles; reducing bleaching agents for wood pulps

and wood-based old paper

**Hyonic® NP-90** [Cognis/Chems. Group; Cognis Canada]

*Chem. Descrip.:* Nonoxynol-9

CAS 9016-45-9

*Uses:* Detergent and penetrant for household and industrial cleaning compds., textile processing; degreasing compds.; wetting agent for paper toweling or tissue; emulsifier in agric. applics.

*Properties:* Clear liq.; sol. in water; dens. 1.06 g/ml; HLB 13; pour pt. 2 C; cloud pt. 54 C (1% aq.); pH 7.0 (1% aq.); surf. tens. 31 dynes/cm (0.01%); > 99% act.; nonionic

**Hyonic® OP-100** [Cognis/Chems. Group]

*Chem. Descrip.:* Octoxynol-9

CAS 9002-93-1

*Uses:* Wetting agent; coemulsifier; detergent for household and industrial cleaning compds. and textile processing; penetrant; degreasing compds.; wetting agent for paper toweling/tissue; agric. applics.

*Properties:* Clear liq.; sol. in water; dens. 1.07 g/ml; HLB 13; pour pt. 10 C; cloud pt. 65 C (1% aq.); pH 7.0 (1% aq.); surf. tens. 30 dynes/cm (0.01%); > 99% act.; nonionic

**Hyonic® PE-90** [Cognis/Chems. Group]

*Chem. Descrip.:* Nonyl phenol ethoxylate

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier, stabilizer for household and industrial cleaning, textile, paper processing; stabilizer for NR and SR latex adhesives; stabilizes latex against coagulation by high-speed stirring, pumping

*Properties:* Water-wh. clear liq.; sp.gr. 1.06; dens. 8.8 lb/gal; cloud pt. 54 C (1% aq.); pour pt. 2 C; surf. tens. 31 dynes/cm (0.01%); pH 7.0 (1% aq.); > 99% act.; nonionic

**Hyonic® PE-100** [Cognis/Chems. Group]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* Detergent, wetting agent, emulsifier, base, penetrant for household and industrial cleaners, paper toweling; latex stabilizer for NR, SBR, CR, NBR, acrylics

*Properties:* Water-wh. clear liq.; sp.gr. 1.068; dens. 8.9 lb/gal; cloud pt. 68 C (1% aq.); pour pt. 4 C; surf. tens. 32 dynes/cm (0.01%); pH 7.0 (1% aq.); > 99% act.; nonionic

**Hyper+Ion™ 1050** [General Chem.]

*Chem. Descrip.:* Polyaluminum hydroxychloride

CAS 1327-41-9; EINECS/ELINCS 215-477-2

UN No. 1760 (DOT)

*Uses:* Coagulant and flocculant for potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics., paper mfg., emulsion breaking, lagoon treatment, coal cleaning

*Regulatory:* EPA approved

*Properties:* Amber clear liq.; negligible odor; completely sol. in water; sp.gr. 1.22; dens. 10.2 lb/gal; f.p. 10 F; m.p. -10 C; b.p. 112.5 C; pH 2.3; 80% volatiles; cationic

*Toxicology:* Inh. of mist will irritate mucous membranes, respiratory tract; ing. may irritate mouth and GI tract; skin contact may cause severe reddening and swelling; may strongly irritate or burn eyes; ACGIH TLV 2 mg(AI)/m<sup>3</sup>

*Precaution:* Corrosive; incompat. with iron or steel

*Hazardous Decom. Prods.:* HCl vapor generated at high temps.

*Storage:* Store in cool, dry place; protect from freezing

**Hyper+Ion™ 1050A** [General Chem.]

*Chem. Descrip.:* Polyaluminum hydroxychloride (< 35%) and proprietary polyamine flocculating agents

*Uses:* Coagulant and flocculant for potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics., paper mfg., emulsion breaking, lagoon treatment, coal cleaning; designed to replace inorg. coagulants such as aluminum sulfate, aluminum chloride, ferric sulfate, ferric chloride, and other inorg. salts, and org. coagulants and dual treatment programs; superior P removal, inc. suspended solids removal

*Regulatory:* EPA approved

*Properties:* Clear to pale amber liq.; negligible odor; complete sol. in water; sp.gr. 1.17; dens. 9.8 lb/gal; f.p. 10 F; m.p. -10 C; b.p. 112.5 C; pH 2.3; 80% volatiles; cationic

*Toxicology:* Inh. of mist will irritate mucous membranes, respiratory tract; ing. may irritate mouth and GI tract; skin contact may cause severe reddening and swelling; may strongly irritate or burn eyes; ACGIH TLV 2 mg(AI)/m<sup>3</sup>

*Precaution:* Corrosive; incompat. with iron or steel

*Hazardous Decom. Prods.:* HCl vapor generated at high temps.

*Storage:* Store in FRP, HDPE, or other suitable acid and corrosion resist. plastic containers; prod. will freeze at 10 F

**Hyper+Ion™ 2050A** [General Chem.]

*Uses:* Coagulant and flocculant for potable water treatment, municipal wastewater treatment, industrial water and wastewater treatment, industrial applics., paper mfg., emulsion breaking, lagoon treatment, coal cleaning

*Properties:* Clear to pale amber liq.; sp.gr. 1.22; dens. 10.2 lb/gal; f.p. 10 F; pH 2.7; cationic

**ICB® 3000, 3100, 3200** [Tate & Lyle N. Am.]

*Chem. Descrip.:* Visc. modified waxy corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Binder in paper coatings, adhesives; provides low visc. at high solids on prep. in cold water  
*Properties:* Sol. in cold water

**ICB® 3000D** [Tate & Lyle N. Am.]

*Chem. Descrip.:* Visc. modified dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Binder in paper coatings, adhesives; provides low visc. at high solids on prep. in cold water  
*Properties:* Sol. in cold water

**Iceberg®** [Burgess Pigment]

*Chem. Descrip.:* Aluminum silicate, anhyd., calcined  
*Chem. Analysis:* SiO<sub>2</sub> (51.0-52.4%), Al<sub>2</sub>O<sub>3</sub> (42.1-44.3%), moisture (0.5% max.)  
 CAS 1327-36-2; EINECS/ELINCS 215-475-1  
*Uses:* Extender pigment used in paints, paper, board, rubber and plastics; reinforcing filler for NR, SR, resins, flooring, molded and extruded goods, heels, soles, wire and cable, sundries, footwear  
*Properties:* Thin flat plate; 0.15% on 325 mesh; sp.gr. 2.63; oil absorp. 55; ref. index 1.62; pH 5.0-6.0

**Icecap® K** [Burgess Pigment]

*Chem. Descrip.:* Aluminum silicate, anhyd., calcined  
*Chem. Analysis:* SiO<sub>2</sub> (51.0-52.4%), Al<sub>2</sub>O<sub>3</sub> (42.1-44.3%), moisture (0.5% max.)  
 CAS 1327-36-2; EINECS/ELINCS 215-475-1  
*Uses:* Extender for TiO<sub>2</sub> in coatings where high Hegman grind is required, paper coatings, paints; reinforcing filler for NR, SR, resins, flooring, heels, soles, wire and cable, molded and extruded rubber and plastic prods., sundries; good electricals, low compr. set, low water absorp.  
*Properties:* Thin flat plate; 0.009-0.03% on 325 mesh; sp.gr. 2.63; oil absorp. 55; ref. index 1.62pH 5.0-6.0

**Iconol NP-6** [BASF]

*Chem. Descrip.:* Nonoxynol-6  
 CAS 9016-45-9  
*Uses:* Detergent, wetting agent, emulsifier, and dispersant used in cleaners, detergents, leather, fur, paper, paint and dye industries  
*Properties:* APHA 100 max. liq.; sol. in min. oil, alcohols, ketones, aromatic and chlorinated hydrocarbons; disp. in water; m.w. 479; sp.gr. 1.04; visc. 300 cps; HLB 10.8; pour pt. -28 C; pH 6.0-7.5 (5% aq.); surf. tens. 29 dynes/cm (0.1% aq.); 1.0% max. water; nonionic

**Iconol NP-8** [BASF AG]

*Chem. Descrip.:* Nonoxynol-8  
 CAS 9016-45-9  
*Uses:* Detergent, wetting agent, emulsifier, and dispersant used in cleaners, detergents, leather, fur, paper, paint and dye industries  
*Properties:* Clear liq.; sol. in water, 5% HCl, alcohols, ketones, aromatic and chlorinated hydrocarbons; sp.gr. 1.05; visc. 350 cps; surf. tens. 31 dynes/cm; 100% act.; nonionic

**Iconol NP-9** [BASF; BASF AG]

*Chem. Descrip.:* Nonoxynol-9  
 CAS 9016-45-9  
*Uses:* Detergent, wetting agent, emulsifier, and dispersant used in cleaners, detergents, leather, fur, paper, paint and dye industries

*Properties:* APHA 70 max. liq.; sol. in water, 5% HCl, alcohols, ketones, aromatic and chlorinated hydrocarbons; m.w. 611; sp.gr. 1.06; visc. 300 cps; HLB 13.0; pour pt. 4 C; cloud pt. 52-56 C (1.0% aq.); pH 6.0-7.5 (5% aq.); surf. tens. 32 dynes/cm (0.1% aq.); 100% act., 1.0% max. water; nonionic

**Iconol NP-10** [BASF; BASF AG]

*Chem. Descrip.:* Nonoxynol-10  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* Detergent, wetting agent, emulsifier, and dispersant used in cleaners, detergents, leather, fur, paper, paint and dye industries  
*Properties:* APHA 70 max. liq.; sol. in water, 5% HCl, alcohols, ketones, aromatic and chlorinated hydrocarbons; m.w. 655; sp.gr. 1.06; visc. 300 cps; HLB 13.5; pour pt. 9 C; cloud pt. 60-65 C (1.0 aq.); pH 6.0-7.5 (5% aq.); surf. tens. 34 dynes/cm (0.1% aq.); 100% act., 1.0% max. water; nonionic

**Iconol NP 14** [BASF AG]

*Chem. Descrip.:* Nonoxynol-14  
 CAS 9016-45-9  
*Uses:* Detergent, wetting agent, emulsifier, and dispersant used in cleaners, detergents, leather, fur, paper, paint and dye industries  
*Properties:* Clear liq.; sol. in water, 5% HCl, alcohols, ketones, aromatic and chlorinated hydrocarbons; sp.gr. 1.05 (50 C); visc. 250 cps (30 C); surf. tens. 37 dynes/cm; 100% act.; nonionic

**Igepal® CA-520** [Rhodia HPCII]

*Chem. Descrip.:* Octoxynol-5  
 CAS 9002-93-1  
*Uses:* Emulsifier, dispersant, detergent, wetting agent for wax polishes, cleaners, agric., emulsion cleaner formulations, dry cleaning, paints, paper/pulp formulations, industrial metal cleaners; automotive fuel additive, deicing fluid; solubilizer for hair dye formulations; intermediate to anionic surfactants; rust inhibitor in oil storage tanks  
*Regulatory:* FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
*Properties:* APHA 160 max. clear to sl. hazy liq.; aromatic odor; sol. in Stod., xylene, butyl Cellosolve, perchloroethylene, ethanol; disp. in water; m.w. 426; sp.gr. 1.04; visc. 250-280 cps; HLB 10.0; hyd. no. 126-136; neutral. no. 0.5 max.; pour pt. -15 ± 2 F; flash pt. (PMCC) > 200 F; surf. tens. 30 dynes/cm (0.01%); 100% act.; nonionic

**Igepal® CA-620** [Rhodia HPCII]

*Chem. Descrip.:* Octoxynol-7  
 CAS 9002-93-1  
*Uses:* Detergent, wetting agent, emulsifier for household and industrial detergents, textile, paper, metal and acid cleaning compds., fine fabric detergents, agric. formulations, paints, personal care prods.  
*Regulatory:* FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
*Properties:* Pale yel. liq.; aromatic odor; sol. in xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.05; visc. 240-260 cps; HLB 12.0; cloud pt. 70-75 F (1%); flash pt. > 200 F (PMCC); pour pt. 15 ± 2 F; surf. tens. 30 dynes/cm (0.01%); 100% act.; nonionic

**Igepal® CA-630** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Octoxynol-9  
 CAS 9002-93-1  
*Uses:* Detergent, wetting agent, emulsifier for personal care prods., metal processing, emulsion cleaners, agric. formulations, paints; wetting agent

- with min. acids and corrosion inhibitors; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e); BGA XIV compliance  
**Properties:** Pale yel. liq.; aromatic odor; sol. in xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.06; visc. 230-260 cps; HLB 13.0; cloud pt. 63-67 C (1% aq.); flash pt. > 200 F (PMCC); pour pt. 45 ± 2 F; surf. tens. 31 dynes/cm (0.01%); 100% act.; nonionic
- Igepal® CA-880** [Rhodia HPCII]  
**Chem. Descr.:** Octoxynol-30  
 CAS 9002-93-1  
**Uses:** Emulsifier for fats and oils, vinyl acetate and acrylate polymerization, personal care prods.; post-stabilizer for syn. latexes; dyeing assistant; food pkg. adhesives, paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180  
**Properties:** Solid; HLB 17.4; surf. tens. 38 dynes/cm (at CMC); 100% conc.; nonionic
- Igepal® CA-887** [Rhodia HPCII]  
**Chem. Descr.:** Octoxynol-30 aq. sol'n.  
 CAS 9002-93-1  
**Uses:** Primary emulsifier for vinyl acrylate polymerizations; post-stabilizer for syn. latexes; dyeing assistant; emulsifier for fats and waxes; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400  
**Properties:** Pale yel. liq.; aromatic odor; sp.gr. 1.10; HLB 17.4; cloud pt. > 100 C (1% aq.); flash pt. (PMCC) > 200 F; pour pt. 36 ± 2 F; surf. tens. 39 dynes/cm (0.01%); 70% act.; nonionic
- Igepal® CA-890** [Rhodia HPCII]  
**Chem. Descr.:** Octoxynol-40  
 CAS 9002-93-1  
**Uses:** Emulsifier for emulsion polymerization, personal care prods.; stabilizer for plastics; dyeing assistant; paints surfactant; food pkg. adhesives, paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180  
**Properties:** Off-wh. wax; aromatic odor; sol. in butyl Cellosolve, ethanol, water; sp.gr. 1.08 (50 C); HLB 18.0; cloud pt. > 212 F (1% aq.); flash pt. > 200 F (PMCC); pour pt. 115 ± 2 F; surf. tens. 42 dynes/cm (0.01%); 100% act.; nonionic
- Igepal® CA-897** [Rhodia HPCII; Rhodia HPCII France]  
**Chem. Descr.:** Octoxynol-40  
 CAS 9002-93-1  
**Uses:** Primary emulsifier for vinyl acrylate polymerizations; post-stabilizer for syn. latexes; dyeing assistant; emulsifier for fats and waxes, crop protection applics.; food pkg. adhesives, paper/paperboard; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
**Properties:** Pale yel. liq.; aromatic odor; sp.gr. 1.10; HLB 18.0; cloud pt. > 100 C (1% aq.); flash pt. (PMCC) > 200 F; pour pt. 25 ± 2 F; surf. tens. 48 dynes/cm (0.01%); 70% act.; nonionic
- Igepal® CO-530** [Rhodia HPCII; Rhodia HPCII France]  
**Chem. Descr.:** Nonoxynol-6  
 CAS 9016-45-9  
**Uses:** Emulsifier for silicones, detergent, dispersant for agric., petrol., paper, plastics, metalworking industries, paints, personal care prods.; de-icing fluid for jet aircraft fuels and automotive gasoline  
**Regulatory:** FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
**Properties:** Pale yel. liq., aromatic odor; sol. in Stod., naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol; sp.gr. 1.04; visc. 230-300 cps; HLB 10.8; flash pt. > 200 F (PMCC); pour pt. -26 ± 2 F; surf. tens. 28 dynes/cm (0.01%); Ross-Miles foam 15 mm (0.1% aq., initial); 100% act.; nonionic  
**Toxicology:** Severe eye irritant; LD50 (oral, rat) 1.98 g/kg  
**Environmental:** Biodeg.
- Igepal® CO-610** [Rhodia HPCII; Rhodia HPCII France]  
**Chem. Descr.:** Nonoxynol-8 (7.7 EO)  
 CAS 9016-45-9  
**Uses:** Surf. modifying surfactant, detergent, wetting agent, emulsifier, lubricant for household and industrial formulations, aq. pulp/paper formulations, deinking of paper, textile processing/finishing, metalworking, paints, industrial metal cleaning, personal care prods.; low foaming  
**Regulatory:** FDA compliance  
**Properties:** Gardner 1 max. liq., aromatic odor; sol. in naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol, water; m.w. 570; sp.gr. 1.05; visc. 230-290 cps; HLB 12.0; neutral. no. 0.5 max.; cloud pt. 72-82 F (1%); pour pt. 37 ± 2 F; flash pt. (PMCC) > 200 F; surf. tens. 30 dynes/cm (0.01%); Ross-Miles foam 55 mm (0.1% aq., initial); 100% act.; nonionic  
**Environmental:** Biodeg.
- Igepal® CO-630** [Rhodia HPCII; Rhodia HPCII France]  
**Chem. Descr.:** Nonoxynol-9  
 CAS 9016-45-9  
**Uses:** Detergent, wetting agent, rewetting agent, corrosion inhibitor, penetrant, emulsifier, dispersant for textiles, paper, leather, household/industrial cleaners, agric., paints, metal processing, emulsion cleaning, emulsion polymerization, personal care prods.; food pkg. adhesives, paper/paperboard; emulsifier in mfg. of food-contact articles  
**Regulatory:** FDA 21CFR §175.105, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
**Properties:** Almost colorless liq., aromatic odor; sol. in naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.06; visc. 225-300 cps; HLB 13.0; cloud pt. 126-133 F (1%); flash pt. > 200 F (PMCC); pour pt. 31 ± 2 F; surf. tens. 31 dynes/cm (0.01%); Ross-Miles foam 80 mm (0.1% aq., initial); 100% act.; nonionic  
**Toxicology:** LD50 (oral, rat) 3 g/kg; severe eye irritant  
**Environmental:** Biodeg.
- Igepal® CO-630/EP** [Rhodia HPCII]  
**Chem. Descr.:** Nonylphenol plus 9 EO (polymerization grade)  
 CAS 9016-45-9  
**Uses:** Surfactant, detergent, wetting agent, and emulsifier in textiles, paper, leather, compounding, paints, and pesticides; wetting agent with min. acids and corrosion inhibitors in metal processing; emulsifier in emulsion cleaning  
**Properties:** Liq.; HLB 13.0; water sol.; 100% conc.; nonionic
- Igepal® CO-660** [Rhodia HPCII]  
**Chem. Descr.:** Nonoxynol-10  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
**Uses:** Detergent, wetting agent, rewetting agent, corrosion inhibitor, penetrant, emulsifier for textiles, paper, leather, household/industrial cleaners, agric., paints, metal processing, emulsion cleaning, personal care prods.  
**Regulatory:** FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
**Properties:** Pale yel. liq., aromatic odor; sol. in naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.06; visc. 225-275 cps; HLB 13.2; cloud pt. 140-149 F (1%); flash pt. > 200 F (PMCC); pour pt. 46 ± 2 F; surf. tens. 31 dynes/cm (0.01%); Ross-Miles foam 82 mm (0.1% aq., initial); 100% act.; nonionic  
**Environmental:** Biodeg.
- Igepal® CO-710** [Rhodia HPCII; Rhodia HPCII France]  
**Chem. Descr.:** Nonoxynol-11  
 CAS 9016-45-9  
**Uses:** Detergent, wetting agent, rewetting agent, corrosion inhibitor, penetrant, emulsifier for textiles, paper, leather, household/industrial cleaners, agric., paints, metal processing, emulsion cleaning, emulsion polymerization  
**Regulatory:** FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
**Properties:** Pale yel. liq., aromatic odor; sol. in naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.06; visc. 240-300 cps; HLB 13.6; cloud pt. 158-165 F (1%); flash pt. > 200 F (PMCC); pour pt. 49 ± 2 F; surf. tens. 32 dynes/cm (0.01%); Ross-Miles foam 110 mm (0.1% aq., initial); 100% act.; nonionic  
**Environmental:** Biodeg.
- Igepal® CO-720** [Rhodia HPCII; Rhodia HPCII France]  
**Chem. Descr.:** Nonoxynol-12  
 CAS 9016-45-9  
**Uses:** Detergent, wetting agent, rewetting agent, corrosion inhibitor, penetrant, emulsifier, dispersant for textiles, paper, leather, household/industrial cleaners, agric., paints, metal processing, emulsion cleaning, personal care prods.  
**Regulatory:** FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)  
**Properties:** Opaque liq., aromatic odor; sol. in naphtha, xylene, butyl Cello-

solve, perchloroethylene, ethanol, water; sp.gr. 1.06; visc. 260-340 cps; HLB 14.2; flash pt. > 200 F (PMCC); pour pt. 62 ± 2 F; surf. tens. 34 dynes/cm (0.01%); Ross-Miles foam 110 mm (0.1% aq., initial); 100% act.; nonionic

*Toxicology:* Severe eye irritant; LD50 (oral, rat) > 1.5 g/kg

*Environmental:* Biodeg.

**Igepal® CO-850** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-20

CAS 64812-54-4

*Uses:* Detergent, wetting agent, dispersant, emulsifier for household/industrial cleaners, metalworking fluids, emulsion polymerization, polyester resins, paints, textile scouring, processing, and finishing; latex post-stabilizer; demulsifier for crude petrol.; glass mold release agent; in silicone emulsions; solubilizer for pesticides; emulsifier for essential oils and fragrances; personal care prods.; food pkg. adhesives, paper; emulsifier for food contact

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3400

*Properties:* APHA 100 max. soft wax; aromatic odor; sol. in naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.13; visc. 80-120 cSt (50 C); HLB 16.0; hyd. no. 47-53; neutral. no. 0.5 max.; pour pt. 91 ± 2 F; cloud pt. 68-72 C (1% in 10% NaCl); flash pt. (PMCC) > 200 F; surf. tens. 39 dynes/cm (0.01%); Ross-Miles foam 120 mm (0.1% aq., initial); 100% act.; nonionic

**Igepal® CO-880** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* Detergent, wetting agent, dispersant, emulsifier for industrial cleaners, polyester resins, emulsion polymerization, agric., paints; latex post-stabilizer; demulsifier for crude petrol. oil emulsions; textile scouring; solubilizer for chlordane, toxaphene, kerosene, and essential oils; personal care prods.; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e)

*Properties:* Pale yel. wax; aromatic odor; sol. in naphtha, xylene, butyl Cellosolve, perchloroethylene, ethanol, water; sp.gr. 1.08 (50 C); HLB 17.2; cloud pt. 74-78 C (1% in 10% NaCl); flash pt. (PMCC) > 200 F; pour pt. 109 ± 2 F; surf. tens. 43 dynes/cm (0.01%); Ross-Miles foam 120 mm (0.1% aq., initial); 100% act.; nonionic

*Toxicology:* Minimal eye irritant; LD50 (oral, rat) > 16 g/kg

**Igepal® CO-887** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* Detergent, wetting agent, dispersant, emulsifier for industrial cleaners, polyester resins, paints, emulsion polymerization; latex post-stabilizer; demulsifier for crude petrol. oil emulsions; textile scouring; solubilizer for chlordane, toxaphene, kerosene, essential oils; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400, EPA compliance; BGA XIV compliance

*Properties:* Pale yel. liq.; aromatic odor; sp.gr. 1.09; solid. pt. 28 F; HLB 17.2; cloud pt. 74-78 C (1% in 10% NaCl); flash pt. (PMCC) > 200 F; pour pt. 34 ± 2 F; 70% act.; nonionic

**Igepal® CO-897** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-40

CAS 9016-45-9

*Uses:* Emulsifier, stabilizer, wetting agent, dyeing assistant for plastics, latexes, floor polishes, paints, etc.; emulsion polymerization surfactant; latex post-stabilizer; textile scouring; solubilizer for chlordane, toxaphene, kerosene, essential oils; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e); BGA XIV compliance

*Properties:* Pale yel. liq.; aromatic odor; sp.gr. 1.10; solid. pt. 40 F; HLB 17.8; cloud pt. > 100 C (1% aq.); flash pt. (PMCC) > 200 F; pour pt. 46 ± 2 F; 70% act.; nonionic

**Igepal® CO-977** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-50

CAS 9016-45-9

*Uses:* Emulsifier, stabilizer, wetting agent for floor polishes, waxes, paints; polymerization surfactant for vinyl acetate and acrylic emulsions; latex stabilizer; dyeing assistant for acid and azo dyes; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-

contact articles; effective at elevated temps. or in conc. electrolytes

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; EPA compliance; BGA XIV compliance

*Properties:* Pale yel. liq.; aromatic odor; sol. in ethanol, water; sp.gr. 1.0 (50 C); HLB 18.2; pour pt. 52 ± 2 F; cloud pt. > 100 C (1% aq.); flash pt. (PMCC) > 200 F; surf. tens. 44 dynes/cm (@ CMC); 70% conc.; nonionic

**Igepal® DM-710** [Rhodia HPCII]

*Chem. Descrip.:* Nonyl nonoxynol-15

CAS 9014-93-1

*Uses:* Detergent, emulsifier, dispersant, wetting agent, antistat for industrial cleaners, textiles, leather, metal cleaners, paper, latexes, pesticides; co-emulsifier for syn. latexes

*Regulatory:* Exempt from tolerance under EPA 40CFR §180.1001(c)(e)

*Properties:* Pale yel. opaque liq.; aromatic odor; sol. in naphtha, xylene, perchloroethylene, ethanol, water; sp.gr. 1.045; dens. 8.72 lb/gal; visc. 19 cps (100 C); HLB 13.0; pour pt. 18 C; cloud pt. 48-52 C (1% aq.); flash pt. (COC) 500-520 F; surf. tens. 29 dynes/cm (0.01%); 100% act.; nonionic

**Igepal® DM-730** [Rhodia HPCII]

*Chem. Descrip.:* Nonyl nonoxynol-24

CAS 9014-93-1

*Uses:* Detergent, emulsifier for textiles, leather, metal cleaners, paper, latexes, pesticides, emulsion polymerization, latex stabilization

*Properties:* Pale yel. paste; aromatic odor; sol. in xylene, ethanol, water; sp.gr. 1.049; dens. 8.75 lb/gal; visc. 25 cps (100 C); HLB 15.0; pour pt. 25 C; cloud pt. > 100 C (1% aq.); flash pt. (COC) 500-520 F; surf. tens. 33 dynes/cm (0.01%); 100% act.; nonionic

**Igepal® DM-970 FLK** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonyl nonoxynol-150

CAS 9014-93-1

*Uses:* Detergent, dispersant, wetting agent, stabilizer for laundry, household, textile, hard-surface detergents, cosmetics, insecticides, paper, petrol., paints

*Regulatory:* EPA compliance

*Properties:* Wh. flakes; sol. in water, aromatic solv., methanol, ethanol; sp.gr. 1.05 (80 C); HLB 19; cloud pt. > 100 C (1%); 100% act.; nonionic

**Igepal® NP-9** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-9

CAS 9016-45-9

*Uses:* Emulsifier, wetting agent, dispersant for textile scouring, dyeing and finishing, household/industrial cleaners, alkaline degreasers, acid pickling in metalworking; emulsifier/stabilizer for emulsion polymerization; pitch dispersant in pulp prod.; detergent, emulsifier, and solubilizer for cosmetic prods.

*Properties:* Liq.; HLB 13.0; 100% conc.; nonionic

**Igepal® RC-520** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Dodoxynol-6

CAS 9014-92-0

*Uses:* Rewetting agent, emulsifier for industrial cleaners, paper towels, tissues, semichemical corrugated media, textiles, agric., aerosols, dry cleaning soaps, etc.

*Regulatory:* FDA compliance; exempt from tolerance under EPA 40CFR §180.1001(c)(e)

*Properties:* VCS 2 max., slightly visc. liq.; sol. in most hydrocarbon and polar solv.; sp.gr. 1.03; visc. 360 cps (Ostwald-Fenske); HLB 9.6; pour pt. -10 C; cloud pt. < 20 C (1% aq.); 100% act.; nonionic

**Imbentin-AG/124/020 I** [Dr. W. Kolb AG]

*Chem. Descrip.:* Linear C-12/14 fatty alcohol polyethylene glycol ether, 2 EO  
CAS 68439-50-9

*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textile and leather applics., agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing

*Properties:* Liq.; HLB 6.1; cloud pt. 39 C (5 gin 25 g BDG 25%); nonionic

**Imbentin-AG/124/030 B** [Dr. W. Kolb AG]

*Chem. Descrip.:* Linear C-12/14 fatty alcohol polyethylene glycol ether, 3 EO  
CAS 68439-50-9

*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textile and leather applics., agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing

*Properties:* Liq.; HLB 8; cloud pt. 53 C (5 gin 25 g BDG 25%); nonionic

**Imbentin-AG/124/040 I** [Dr. W. Kolb AG]

*Chem. Descrip.:* Linear C-12/14 fatty alcohol polyethylene glycol ether, 4 EO







- Uses:* For household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Liq.; cloud pt. 72 C (10% in BDG 25%); nonionic
- Imbentin-AGM 90%** [Dr. W. Kolb AG]  
*Chem. Descr.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* For household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Liq.; cloud pt. 60 C (1% in DI water); nonionic
- Imbentin-AGM/050** [Dr. W. Kolb AG]  
*Chem. Descr.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* For household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Liq.; cloud pt. 72 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-AGM/128** [Dr. W. Kolb AG]  
*Chem. Descr.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* For household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Solid; cloud pt. 52 C (1%); nonionic
- Imbentin-AGM/136 G** [Dr. W. Kolb AG]  
*Chem. Descr.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* For household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Pellets; nonionic
- Imbentin-C/91/025** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 2.5 EO  
 CAS 68439-46-3  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 8.1; cloud pt. 44 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-C/91/35** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 5 EO  
 CAS 68439-46-3  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.6; cloud pt. 36 C (1% in DI water); nonionic
- Imbentin-C/91/040** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 4 EO  
 CAS 68439-46-3  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 10.5; cloud pt. 62 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-C/91/060** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 6 EO  
 CAS 68439-46-3  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12.5; cloud pt. 54 C (1% in DI water); nonionic
- Imbentin-C/91/080 I** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 8 EO  
 CAS 68439-46-3  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 13.8; cloud pt. 80 C (1% in DI water); nonionic
- Imbentin-C/91/080 OFA** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 8 EO  
 CAS 68439-46-3
- Uses:* Solubilizer and cleaning agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; low odor; HLB 13.8; cloud pt. 84 C (1% in DI water); nonionic
- Imbentin-C/91/85** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 9 EO  
 CAS 68439-46-3  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 14.2; cloud pt. 85 C (1% in DI water); nonionic
- Imbentin-C/91/120** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-9/11 fatty alcohol polyethylene glycol ether, 12 EO  
 CAS 68439-46-3  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 15.3; cloud pt. 68 C (1% in NaCl 10%); nonionic
- Imbentin-C/123/065** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-12/13 fatty alcohol polyethylene glycol ether, 6.5 EO  
 CAS 66455-14-9  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.9; cloud pt. 43 C (5% in DI water); nonionic
- Imbentin-C/125/030** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-12/15 fatty alcohol polyethylene glycol ether, 3 EO  
 CAS 68131-39-5  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 7.8; cloud pt. 42 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-C/125/050** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-12/15 fatty alcohol polyethylene glycol ether, 5 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 10.5; cloud pt. 67 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-C/125/55 90%** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-12/15 fatty alcohol polyethylene glycol ether, 8 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12.6; cloud pt. 55 C (1% in DI water); nonionic
- Imbentin-C/125/070** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-12/15 fatty alcohol polyethylene glycol ether, 7 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12; cloud pt. 49 C (1% in DI water); nonionic
- Imbentin-C/125/85** [Dr. W. Kolb AG]  
*Chem. Descr.:* Branched C-12/15 fatty alcohol polyethylene glycol ether,

10 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 13.6; cloud pt. 82 C (1% in DI water); nonionic

**Imbentin-C/125/090** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-12/15 fatty alcohol polyethylene glycol ether, 9 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 13.1; cloud pt. 78 C (1% in DI water); nonionic

**Imbentin-C/125/130 80%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-12/15 fatty alcohol polyethylene glycol ether, 13 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 14.7; cloud pt. 88 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-C/135/030** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13/15 fatty alcohol polyethylene glycol ether, 3 EO  
 CAS 68131-39-5  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 7.7; cloud pt. 57 C (10% in BDG 25%); nonionic

**Imbentin-C/135/040** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13/15 fatty alcohol polyethylene glycol ether, 4 EO  
 CAS 68131-39-5  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 9.1; cloud pt. 60 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-C/135/070** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13/15 fatty alcohol polyethylene glycol ether, 7 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.9; cloud pt. 47 C (1% in DI water); nonionic

**Imbentin-C/135/090** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13/15 fatty alcohol polyethylene glycol ether, 9 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 13.1; cloud pt. 65 C (1% in DI water); nonionic

**Imbentin-C/135/110 85%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13/15 fatty alcohol polyethylene glycol ether, 11 EO  
 CAS 68131-39-5  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 14; cloud pt. 87 C (1% in DI water); nonionic

**Imbentin-C/135/200** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13/15 fatty alcohol polyethylene glycol ether,

20 EO  
 CAS 68131-39-5  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Solid; HLB 16.2; nonionic

**Imbentin-C/145/030** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-14/15 fatty alcohol polyethylene glycol ether, 3 EO  
 CAS 68951-67-7  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 7.5; cloud pt. 51 C (5g in 25 g BDG 25%); nonionic

**Imbentin-C/145/070** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-14/15 fatty alcohol polyethylene glycol ether, 7 EO  
 CAS 68951-67-7  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.7; cloud pt. 46 C (1% in DI water); nonionic

**Imbentin-C/145/110** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-14/15 fatty alcohol polyethylene glycol ether, 11 EO  
 CAS 68951-67-7  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 13.8; cloud pt. 58 C (1% in NaCl 10%); nonionic

**Imbentin-CAM/020** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Cocosamine, 2 EO  
 CAS 61791-14-8  
*Uses:* Wetting agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 6-10; amine no. 200; nonionic

**Imbentin-CM/125** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* Surfactant for household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Liq.; cloud pt. 70 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-CM/145** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* Surfactant for household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Liq.; cloud pt. 65 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-CM/935** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Mixt. of fatty alcohol polyethylene glycol ethers  
*Uses:* Surfactant for household/industrial detergents and cleaning agents, and paper processing  
*Properties:* Liq.; cloud pt. 48 C (1% in DI water); nonionic

**Imbentin-CMEA/100** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Cocosmonoethanolamide, 10 EO  
*Uses:* Surfactant for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; cloud pt. 60 C (10% in NaCl 10%); nonionic

**Imbentin-DE/300** [Dr. W. Kolb AG]  
*Chem. Descrip.:* C20/22 propylene diamine, 30 EO  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Pasty; HLB > 15; amine no. 66; nonionic

**Imbentin-DT/250** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Tallow propylenediamine, 25 EO  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal

treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Pasty solid; HLB > 15; amine no. 77; nonionic

**Imbentin-EAM/300** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Fatty amine, 30 EO  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Solid; HLB > 15; amine no. 34; nonionic

**Imbentin-L/145/040** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-14/15 fatty alcohol polyethylene glycol ether, 4 EO  
 CAS 68951-67-7  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textile and leather applics., agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 8.9; cloud pt. 62 C (5g in 25 g BDG 25%); nonionic

**Imbentin-L/145/080** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-14/15 fatty alcohol polyethylene glycol ether, 8 EO  
 CAS 68951-67-7  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textile and leather applics., agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 12.3; cloud pt. 78 C (5g in 25 g BDG 25%); nonionic

**Imbentin-N/7 A** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 1.5 EO  
 CAS 9016-45-9; EINECS/ELINCS 248-291-5  
*Uses:* W/o emulsifier, coemulsifier for industrial detergents and cleaners, textile and leather applics., agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 4.6; cloud pt. 70 C (2% in BDG 25%); nonionic

**Imbentin-N/020 I** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 2 EO  
 CAS 9016-45-9; EINECS/ELINCS 248-291-5  
*Uses:* W/o emulsifier, coemulsifier for industrial detergents and cleaners, textile and leather applics., agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 5.7; cloud pt. 70 C (10% in BDG 50%); nonionic

**Imbentin-N/30** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 7.5 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 12; cloud pt. 31 C (1% in DI water); nonionic

**Imbentin-N/35** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 8 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 12.3; cloud pt. 34 C (1% in DI water); nonionic

**Imbentin-N/040** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 4 EO  
 CAS 9016-45-9; EINECS/ELINCS 230-770-5  
*Uses:* Wetting agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 8.9; cloud pt. 55 C (10% in BDG 25%); nonionic

**Imbentin-N/40 A** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 6.5 EO  
 CAS 9016-45-9; EINECS/ELINCS 248-292-0  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 11.3; cloud pt. 40 C (3 g prod. in 10 ml alcohol, 30 C); nonionic

**Imbentin-N/44** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 8.5 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 12.6; cloud pt. 42 C (1% in DI water); nonionic

**Imbentin-N/050** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 5 EO  
 CAS 9016-45-9; EINECS/ELINCS 247-555-7  
*Uses:* Wetting agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 10; cloud pt. 60 C (10% in BDG 25%); nonionic

**Imbentin-N/52** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 9.5 EO  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 13.1; cloud pt. 50 C (1% in DI water); nonionic

**Imbentin-N/55** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 9 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 12.9; cloud pt. 54 C (1% in DI water); nonionic

**Imbentin-N/060** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 6 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 10.9; cloud pt. 67 C (10% in BDG 25%); nonionic

**Imbentin-N/63** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 10 EO  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 13.3; cloud pt. 63 C (1% in DI water); nonionic

**Imbentin-N/82** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 12 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Pasty solid; HLB 14.1; cloud pt. 81 C (1% in DI water); nonionic

**Imbentin-N/85** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 12.5 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Pasty solid; HLB 14.3; cloud pt. 91 C (1% in DI water); nonionic

**Imbentin-N/91** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 14 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Pasty solid; HLB 14.7; cloud pt. 91 C (1% in DI water); nonionic

**Imbentin-N/98** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 15 EO  
 CAS 9016-45-9  
*Uses:* O/w emulsifier for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Pasty solid; HLB 15; cloud pt. 96 C (1% in DI water); nonionic

**Imbentin-N/200 80%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 20 EO

- CAS 9016-45-9  
*Uses:* Solubilizer and cleaning agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 16; cloud pt. 72 C (10% in DI water); nonionic
- Imbentin-N/300 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 30 EO  
 CAS 9016-45-9  
*Uses:* Solubilizer and cleaning agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Pellets; HLB 17.1; nonionic
- Imbentin-N/400 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 40 EO  
 CAS 9016-45-9  
*Uses:* Solubilizer and cleaning agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Pellets; HLB 17.8; nonionic
- Imbentin-N/600 G 50%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Nonylphenol polyethylene glycol ether, 60 EO  
 CAS 9016-45-9  
*Uses:* Solubilizer and cleaning agent for industrial detergents and cleaners, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 18; nonionic
- Imbentin-OA/020** [Dr. W. Kolb AG]  
*Chem. Descrip.:* 2-Ethylhexanol polyethylene glycol ether, 2 EO  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing  
*Properties:* Liq.; HLB 6-10; cloud pt. 50 C (5% in 25% BDG); nonionic
- Imbentin-OA/030** [Dr. W. Kolb AG]  
*Chem. Descrip.:* 2-Ethylhexanol polyethylene glycol ether, 3 EO  
*Uses:* O/w emulsifier, laundry and cleaning detergents for cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing  
*Properties:* Liq.; HLB 10-15; cloud pt. 22 C (10% in DI water); nonionic
- Imbentin-OA/050** [Dr. W. Kolb AG]  
*Chem. Descrip.:* 2-Ethylhexanol polyethylene glycol ether, 5 EO  
*Uses:* O/w emulsifier, laundry and cleaning detergents for cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing  
*Properties:* Liq.; HLB 10-15; cloud pt. 64 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-OA/080** [Dr. W. Kolb AG]  
*Chem. Descrip.:* 2-Ethylhexanol polyethylene glycol ether, 8 EO  
*Uses:* O/w emulsifier, laundry and cleaning detergents for cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing  
*Properties:* Liq.; HLB 10-15; cloud pt. 79 C (5 g in 25 g BDG 25%); nonionic
- Imbentin-OAD/500 70%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Oleylmonoethanolamide, 50 EO  
*Uses:* Surfactant for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; cloud pt. 74 C (10% in NaCl 10%); nonionic
- Imbentin-OAM/020** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Oleylamine, 2 EO  
 CAS 26635-93-8  
*Uses:* W/o emulsifier, coemulsifier for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 3-6; amine no. 163; nonionic
- Imbentin-OAM/200** [Dr. W. Kolb AG]

- Chem. Descrip.:* Oleylamine, 20 EO  
 CAS 71786-60-2  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB > 15; amine no. 45; nonionic
- Imbentin-PAP/6100** [Dr. W. Kolb AG]  
*Chem. Descrip.:* EO/PO block copolymers  
 CAS 9003-11-6  
*Uses:* Surfactant for industrial detergents and cleaners, textiles, leather, emulsion polymerization, metal treatment, petroleum/mining industries, and paper processing  
*Properties:* Liq.; cloud pt. 25 C (1% in DI water); 10% PO in molecule; nonionic
- Imbentin-PAP/6200** [Dr. W. Kolb AG]  
*Chem. Descrip.:* EO/PO block copolymers  
 CAS 9003-11-6  
*Uses:* Surfactant for industrial detergents and cleaners, textiles, leather, emulsion polymerization, metal treatment, petroleum/mining industries, and paper processing  
*Properties:* Liq.; cloud pt. 35 C (1% in DI water); 20% PO in molecule; nonionic
- Imbentin-PAP/10200** [Dr. W. Kolb AG]  
*Chem. Descrip.:* EO/PO block copolymers  
 CAS 9003-11-6  
*Uses:* Surfactant for industrial detergents and cleaners, textiles, leather, emulsion polymerization, metal treatment, petroleum/mining industries, and paper processing  
*Properties:* Liq.; cloud pt. 17 C (3 g prod. in 10 ml alcohol, 30 C); 20% PO in molecule; nonionic
- Imbentin-PEG/300** [Dr. W. Kolb AG]  
*Chem. Descrip.:* PEG-6  
 CAS 25322-68-3; EINECS/ELINCS 220-045-1  
*Uses:* Surfactant for household/industrial detergents and cleaners, cosmetic and toiletries, agric., pharmaceuticals, textiles, leather, paints and coatings, metal treatment, plastics, and paper processing  
*Properties:* Liq.; hyd. no. 375; nonionic
- Imbentin-PEG/400** [Dr. W. Kolb AG]  
*Chem. Descrip.:* PEG-8  
 CAS 25322-68-3; EINECS/ELINCS 225-856-4  
*Uses:* Surfactant for household/industrial detergents and cleaners, cosmetic and toiletries, agric., pharmaceuticals, textiles, leather, paints and coatings, metal treatment, plastics, and paper processing  
*Properties:* Liq.; hyd. no. 280; nonionic
- Imbentin-PEG/600** [Dr. W. Kolb AG]  
*Chem. Descrip.:* PEG-12  
 CAS 25322-68-3; EINECS/ELINCS 229-859-1  
*Uses:* Surfactant for household/industrial detergents and cleaners, cosmetic and toiletries, agric., pharmaceuticals, textiles, leather, paints and coatings, metal treatment, plastics, and paper processing  
*Properties:* Liq.; hyd. no. 185; nonionic
- Imbentin-PEG/1500 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* PEG-32  
 CAS 25322-68-3; EINECS/ELINCS 203-989-9  
*Uses:* Surfactant for household/industrial detergents and cleaners, cosmetic and toiletries, agric., pharmaceuticals, textiles, leather, paints and coatings, metal treatment, plastics, and paper processing  
*Properties:* Pellets; hyd. no. 75; nonionic
- Imbentin-POA/020 5055** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 2 EO  
*Uses:* W/o emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 5; cloud pt. 32 C (5g in 25 g BDG 25%); nonionic
- Imbentin-POA/024 5055** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 2.4 EO  
*Uses:* W/o emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment,



paper processing  
*Properties:* Liq.; HLB 5.7; cloud pt. 39 C (5g in 25 g BDG 25%); nonionic  
**Imbentin-POA/050 7075** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 5 EO  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 9.1; cloud pt. 65 C (5g in 25 g BDG 25%); nonionic  
**Imbentin-POA/060** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 6 EO  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 10; cloud pt. 72 C (5g in 25 g BDG 25%); nonionic  
**Imbentin-POA/080 90%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 8 EO  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.4; cloud pt. 83 C (5g in 25 g BDG 25%); nonionic  
**Imbentin-POA/180** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 18 EO  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 15; cloud pt. 73 C (1% in NaCl 10%); nonionic  
**Imbenti-POA/220 6065 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 25 EO  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pellets; HLB 16.1; nonionic  
**Imbentin-POA/220 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 18 EO  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pellets; HLB 15.7; nonionic  
**Imbentin-POA/310 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 31 EO  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pellets; HLB 16.8; nonionic  
**Imbenti-POA/800 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Linear C-16/18' fatty alcohol polyethylene glycol ether, 80 EO  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pellets; HLB 18.6; nonionic  
**Imbentin-SAM/050** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Stearylamine, 5 EO  
CAS 9003-93-4  
*Uses:* Wetting agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plas-

tics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 6-10; amine no. 115; nonionic  
**Imbentin-SAM/250** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Stearylamine, 25 EO  
CAS 9003-93-4  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Pasty solid; HLB > 15; amine no. 29; nonionic  
**Imbentin-SAM/400** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Stearylamine, 40 EO  
CAS 26635-92-7  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Solid; HLB > 15; amine no. 29; nonionic  
**Imbentin-T/030** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 3 EO  
CAS 24938-91-8; EINECS/ELINCS 224-540-3  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 8.1; cloud pt. 36 C (5g in 25 g BDG 25%); nonionic  
**Imbentin-T/040** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 4 EO  
CAS 24938-91-8  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 9.5; cloud pt. 68 C (5% in 25% BDG); nonionic  
**Imbentin-T/050 I** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 5 EO  
CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 10.6; cloud pt. 66 C (10% in BDG 25%); nonionic  
**Imbentin-T/060** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 6 EO  
CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.5; cloud pt. 77 C (5% in 25% BDG); nonionic  
**Imbentin-T/65 100%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 9.5 EO  
CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pasty solid; HLB 13.6; cloud pt. 63C (1% in DI water); nonionic  
**Imbentin-T/070** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 7 EO  
CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12.2; cloud pt. 71 C (5g in 25 g BDG 25%); nonionic  
**Imbentin-T/080** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 8

EO  
 CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12.9; cloud pt. 47 C (1% in DI water); nonionic

**Imbentin-T/090** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 9 EO  
 CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 13.4; cloud pt. 79 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-T/100 90%** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 10 EO  
 CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 13.9; cloud pt. 75 C (2% in DI water); nonionic

**Imbentin-T/120** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 12 EO  
 CAS 24938-91-8  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Solid; HLB 14.6; cloud pt. 86 C (1% in DI water); nonionic

**Imbentin-T/150** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 15 EO  
 CAS 24938-91-8  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Solid; HLB 15.4; cloud pt. 68 C (1% in NaCl 10%); nonionic

**Imbentin-T/400 G** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-13 fatty alcohol polyethylene glycol ether, 40 EO  
 CAS 24938-91-8  
*Uses:* Solubilizer for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Pellets; HLB 18; nonionic

**Imbentin-TAM/020** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Tallowamine, 2 EO  
 CAS 61791-44-4  
*Uses:* W/o emulsifier, coemulsifier for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 3-6; amine no. 165; nonionic

**Imbentin-TAM/050** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Tallowamine, 5 EO  
 CAS 61791-44-4  
*Uses:* Wetting agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Liq.; HLB 6-10; amine no. 115; nonionic

**Imbentin-TAM/200 N** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Tallowamine, 20 EO  
 CAS 61791-44-4  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing

*Properties:* Liq.; HLB > 15; amine no. 50; nonionic

**Imbentin-TAM/350** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Tallowamine, 35 EO  
 CAS 61791-44-4  
*Uses:* Solubilizer, cleaning agent for industrial detergents and cleaners, cosmetics and toiletries, textiles, leather, agric., paints and coatings, metal treatment, plastics, petroleum/mining industries, and paper processing  
*Properties:* Solid; HLB > 15; amine no. 31; nonionic

**Imbentin-U/030** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-11 fatty alcohol polyethylene glycol ether, 3 EO  
 CAS 127036-24-2  
*Uses:* Wetting agent for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 8.7; cloud pt. 45 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-U/050** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-11 fatty alcohol polyethylene glycol ether, 5 EO  
 CAS 127036-24-2  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 11.2; cloud pt. 62 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-U/060** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-11 fatty alcohol polyethylene glycol ether, 6 EO  
 CAS 127036-24-2  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12.1; cloud pt. 69 C (5 g in 25 g BDG 25%); nonionic

**Imbentin-U/070** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-11 fatty alcohol polyethylene glycol ether, 7 EO  
 CAS 127036-24-2  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 12.8; cloud pt. 53 C (1% in DI water); nonionic

**Imbentin-U/080** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-11 fatty alcohol polyethylene glycol ether, 8 EO  
 CAS 127036-24-2  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 13.4; cloud pt. 63 C (1% in DI water); nonionic

**Imbentin-U/100** [Dr. W. Kolb AG]  
*Chem. Descrip.:* Branched C-11 fatty alcohol polyethylene glycol ether, 10 EO  
 CAS 127036-24-2  
*Uses:* O/w emulsifier for household/industrial detergents and cleaning agents, cosmetics and toiletries, textiles, leather, agric., paints and coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing  
*Properties:* Liq.; HLB 14.4; cloud pt. 85 C (1% in DI water); nonionic

**Imidazoline 18 DA** [Lakeland Labs Ltd]  
*Chem. Descrip.:* Oleic amidoethylimidazoline  
 CAS 63441-26-9  
 UN No. 1760 NOS  
*Uses:* For oil fields, metalworking, paper, lubricants, road making, paints, inks, agric.; corrosion inhibition, dispersants, dewatering, emulsification; bitumen emulsification; thermally stable; acid stable; substantive to metal, glass and paint  
*Properties:* Dk. amber clear liq.; oil sol.; sp.gr. 0.93; 100% act.; cationic  
*Precaution:* Corrosive

**Imidazoline 18OH** [Lakeland Labs Ltd]  
*Chem. Descrip.:* Oleic hydroxyethylimidazoline  
 CAS 95-38-5  
 UN No. 1760 NOS  
*Uses:* For oil fields, metal finishing, textiles, paper, lubricants, road making,

paints, inks, maintenance chems., agric., anticorrosives, acid cleaning; corrosion inhibition; dispersant; dewatering; emulsification; rheology modifiers; adhesion promoters, flocculation, softening, bitumen emulsification; thermally stable; acid stable; substantive to metal, glass and paint

*Properties:* Dk. amber clear liq.; oil-sol.; sp.gr. 0.94; 100% act.; cationic

*Precaution:* Corrosive

**Imidazoline SOH** [Lakeland Labs Ltd]

*Chem. Descrip.:* Stearic hydroxyethylimidazoline

CAS 68937-01-9; EINECS/ELINCS 202-397-8

UN No. 1760 NOS

*Uses:* For oil fields, metalworking, textiles, paper, lubricants, paints, inks, agric., maintenance chems.; dispersants, dewatering, emulsification; flocculation, softening (as quat); bitumen emulsification; thermally stable; acid stable; substantive to metal, glass and paint

*Properties:* Cream-colored waxy solid; oil sol.; sp.gr. 0.97; 100% act.; cationic

*Precaution:* Corrosive

**Imprint®** [Ciba Spec. Chems./Paper]

*Uses:* Antilinting aid for newsprint and paperboard

**Incroquat SDQ-25** [Croda Inc; Croda Chem. Ltd; Croda Oleochems.]

*Chem. Descrip.:* Stearalkonium chloride and water

CAS 122-19-0; EINECS/ELINCS 204-527-9

*Uses:* Surfactant in personal care prods., textiles, and paper; dispersant for pigments and dyestuffs; antistat for fibers and synthetics; hair conditioner; softener; emollient

*Use Level:* 2-10%

*Properties:* Wh. paste; m.p. 140 F; pH 3.0-4.0 (1%); 25% conc.; cationic

**Indopol® H-100** [BP Amoco]

*Chem. Descrip.:* Polybutene

CAS 9003-29-6

UN No. 3257

*Uses:* Lubricant for food-contact applics.; plasticizer for food-grade PE and PS; mfg. of caulks, sealants, and adhesives; component of food-contact adhesives/coatings/paper/textiles

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.1430, 177.2260(d)(2), 178.3570, 178.3910, 177.2800, 177.1520, 177.1640, 178.3740; SARA §302/311/312/313 nonreportable

*Properties:* Clear liq.; sol. < 0.1% in water; sp.gr. 0.89; visc. 196-233 cSt (99 C); pour pt. -6.7 C; flash pt. (PMCC) 155 C; 100% act.

*Toxicology:* LD50 (oral, rat) > 34,600 mg/kg, (skin, rabbit) > 10,250 mg/kg; LC50 (inh., rat) > 17,000 mg/m<sup>3</sup>; heated material can cause thermal burns to eyes and skin; negligible eye and skin irritant

*Environmental:* LC50 (rainbow trout, 96 h) > 10,000 mg/l, (fathead minnows, 96 h) > 1000 mg/l; nontoxic; only very sl. biodegradation; non-water endangering

*Hazardous Decomp. Prods.:* Incomplete burning can produce CO, CO<sub>2</sub>, other harmful prods.

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep away from ignition sources

**Indopol® H-1500** [BP Amoco]

*Chem. Descrip.:* Polybutene

CAS 9003-29-6

UN No. 3257

*Uses:* Lubricant for food-contact applics.; plasticizer for food-grade PE and PS; mfg. of caulks, sealants, and adhesives; component of food-contact adhesives/coatings/paper/textiles

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.1430, 177.2260(d)(2), 178.3570, 178.3910, 177.2800, 177.1520, 177.1640, 178.3740; SARA §302/311/312/313 nonreportable

*Properties:* Clear liq.; sol. < 0.1% in water; sp.gr. 0.9; visc. 3026-3381 cSt (99 C); pour pt. 18 C; flash pt. (PMCC) 170 C; 100% act.

*Toxicology:* LD50 (oral, rat) > 34,600 mg/kg, (skin, rabbit) > 10,250 mg/kg; LC50 (inh., rat) > 17,300 mg/m<sup>3</sup>; heated material can cause thermal burns to eyes and skin; negligible skin irritant; sl. eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Incomplete burning can produce CO, CO<sub>2</sub>, other harmful prods.

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep away from ignition sources

**Indopol® L-10** [BP Amoco]

*Chem. Descrip.:* Polybutene

CAS 9003-29-6

*Uses:* Lubricant for food-contact applics.; plasticizer for food-grade PE and

PS; mfg. of caulks, sealants, and adhesives; component of food-contact adhesives/coatings/paper/textiles

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.1430, 177.2260(d)(2), 178.3570, 178.3910, 177.2800, 177.1520, 177.1640, 178.3740; DOT nonregulated; SARA §302/311/312/313 nonreportable

*Properties:* Clear liq.; sol. < 0.1% in water; sp.gr. 0.84; visc. 18-24 cSt (100 F); b.p. 35 C min.; pour pt. -46 C; flash pt. 110 C; 100% act.

*Toxicology:* LD50 (oral, rat) > 34,600 mg/kg, (skin, rabbit) > 10,250 mg/kg; pract. nontoxic; LC50 (inh., rat) > 850 mg/m<sup>3</sup>; negligible eye irritant; sl. skin irritant; TSCA listed

*Hazardous Decomp. Prods.:* Incomplete burning can produce CO, CO<sub>2</sub>, other harmful prods.

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep away from ignition sources

**Induclor®** [PPG Ind.]

*Chem. Descrip.:* Calcium hypochlorite

CAS 7778-54-3; EINECS/ELINCS 231-908-7

*Uses:* Algicide, slimicide in municipal and industrial water treatment, municipal water treatment, sewage treatment, in textile and paper mills, tanneries, wastewater effluent treatment in petrochem. industry; chlorinating agent for swimming pools; disinfectant for cleaning pool parts, locker room floors, etc.; highly effective against bacteria, algae, slime, fungi, and other harmful and objectionable microorganisms; delivers slow release of chlorine

*Properties:* Tablets; sol. in water; bulk dens. 64 lb/ft<sup>3</sup>; 65% available chlorine

*Toxicology:* Avoid inhalation or contact with eyes, skin; harmful or fatal if swallowed

*Precaution:* Strong oxidant

*Storage:* Store tightly closed in cool, dry, well-ventilated place; keep away from lighted tobacco prods.

**Intacol S-22** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. 20-500 mPa·s; pH 8-9.5; 37-39% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Intacol S-24** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. 20-500 mPa·s; pH 8-9.5; 20% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Intacol S-26** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. 20-500 mPa·s; pH 8-9.5; 15% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Intacol S-28** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. 50-600 mPa·s; pH 8-9.5; 15% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Intacol S-2240** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. < 500 mPa·s; pH 8.5-9.5; 20% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Intacol S-2252** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. < 500 mPa·s; pH 8.5-9.5; 20% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Intacol S-2425** [Omya Croxton+Garry]

*Chem. Descrip.:* Styrene and maleic anhydride copolymer aq. sol'n.

CAS 9011-13-6

*Uses:* Surf. sizing agent for paper and cardboard applics. (printing and writing papers, particularly laser and ink jet papers); imparts hydrophobic props.

*Use Level:* 0.2-0.6%

*Properties:* Visc. < 500 mPa·s; pH 8.5-9.5; 20% act.; anionic

*Toxicology:* Low toxicity; nonirritating to skin

**Integral®** [Hercules]

*Uses:* Sizing agent for surf. and internal sizing of pulp, paper, and paperboard

**Interbond® C** [Tate & Lyle N. Am.]

*Chem. Descrip.:* Dent corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Drainage aid, retention aid, and dry str. agent for papermaking wet end, recycled board; ideal for paper systems requiring little cationic charge in the wet end

*Properties:* Cationic

**Intrabond®** [Crompton & Knowles]

*Uses:* Direct dyes for fine papers, tissue grades, toweling, paperboard, and cover stocks

**Intracid®** [Crompton & Knowles]

*Uses:* Acid dyes for specialty papers, leather; high wet and lightfastness

**Intrafix®** [Crompton & Knowles]

*Uses:* Fixing agent, retention aid for paper

**Intralan® Liq.** [Crompton & Knowles]

*Uses:* Metalized dye for leather spray dyeing applics.; provides high lightfastness

*Properties:* Solv.-sol.

**Intralite®** [Crompton & Knowles]

*Uses:* Direct dyes for fine papers, tissue grades, toweling, paperboard, and cover stocks

**Intrawite®** [Crompton & Knowles]

*Uses:* Fluorescent whitening agent for paper

**Ionac Corcat® P-12** [Sybron]

*Chem. Descrip.:* Polyethylenimine polymer

CAS 26913-06-4

*Uses:* Dispersant for printing inks, and to inc. adhesion of some pigments to cellulose fibers; offers high thermal and electrolyte stability for oil field applics.; for clarification of municipal drinking water; enzyme catalyst; used for flocculation of clay and silica in mining operations; in metal treatment, textile industry, personal care; food pkg. adhesives, coatings, paper/paperboard, cellophane; improves adhesion to surfaces

*Regulatory:* FDA 21CFR §173.357, 175.105, 175.320, 176.170, 176.180, 177.1200; DOT nonregulated; SARA nonreportable

*Properties:* APHA 400 max. liq.; faint amine odor; sol. in water, lower alcohols, glycols (propylene, ethylene, triethylene), benzene; insol. in n-hexane; m.w. 1200; sp.gr. 1.01-1.05; visc. 3000-8000 cP; b.p. 100 C; flash pt. (TCC) 93.3 C; pH 10-11 (5% aq.); 99% solids; cationic

*Toxicology:* LD50 (oral, rat) 2286 mg/kg, (skin, rabbit) 3000 mg/kg; sl. toxic by ing.; ing. may cause gastric disturbances; may cause mild skin irritation; may cause eye injury

*Precaution:* Reacts with oxidizing materials; reacts slowly with methylene chloride; reacts violently with CCl<sub>4</sub>

*Hazardous Decomp. Prods.:* Combustion generates NO<sub>x</sub> and CO

HMIS: Health 2; Flammability 1; Reactivity 0

**Ionac Corcat® P-600** [Sybron]

*Chem. Descrip.:* Polyethylenimine polymer

CAS 26913-06-4

*Uses:* Dispersant for printing inks, and to inc. adhesion of some pigments to cellulose fibers; offers high thermal and electrolyte stability for oil field applics.; for clarification of municipal drinking water; enzyme catalyst; used for flocculation of clay and silica in mining operations; in metal treatment, textile industry, personal care; food pkg. adhesives, coatings, paper/paperboard, cellophane; improves adhesion to surfaces;

*Regulatory:* FDA 21CFR §173.357, 175.105, 175.320, 176.170, 176.180, 177.1200; DOT nonregulated; SARA nonreportable

*Properties:* APHA 200 max. liq.; faint amine odor; sol. in water, lower alcohols, glycols (propylene, ethylene, triethylene); m.w. 60,000; sp.gr. 1.04-1.06; visc. > 5000 cP; vapor pressure 18 mm Hg (20 C); f.p. -20 C; b.p. 100 C; pH 10-11 (5% aq.); 33% solids; cationic

*Toxicology:* LD50 (oral, rat) 7550 mg/kg, (skin, rabbit) > 3000 mg/kg; sl. toxic by ing.; ing. may cause gastric disturbances; may cause eye irritation; nonirritating to skin; prolonged/repeated skin contact may cause irritation

*Precaution:* Reacts with oxidizing materials; reacts slowly with methylene chloride; reacts violently with CCl<sub>4</sub>

*Hazardous Decomp. Prods.:* Combustion generates NO<sub>x</sub> and CO

HMIS: Health 2; Flammability 1; Reactivity 0

**Ipex™-400** [Ipex]

*Chem. Descrip.:* 40% 3-Iodo-2-propynyl butyl carbamate in inert ingreds.

*Uses:* Fungicide for aq. and solv. systems such as oleoresinous and latex paints, wood prods., cutting oils, textiles, paper coatings, inks, plastics, adhesives, canvas, and cordage; broad-spectrum; industrial grade

*Use Level:* 0.5-2.5% (plastics), 4-12 lb/100 gal (paint), 1-4 lb/100 gal (interior paints), 0.05-0.5% (cutting oils), 0.5-2.0% (wood treatment), 0.01-1.0% (textiles), 0.05-0.3% (paper coatings), 0.5-2% (canvas), 0.05-3% (inks), 0.05-0.2% (adhesives)

*Properties:* Amber liq., char. odor; sol. in aromatics and alcohols; sp.gr. 1.13-1.16; dens. 9.4-9.7 lb/gal; 40% min. act.

*Storage:* Store above 32 F; do not use or store near heat or open flame

**Ipex™-1000** [Ipex]

*Chem. Descrip.:* 97% 3-Iodo-2-propynyl butyl carbamate in inert ingreds.

*Uses:* Fungicide for aq. and solv. systems such as oleoresinous and latex paints, wood prods., cutting oils, textiles, paper coatings, inks, plastics, adhesives, canvas, and cordage; broad-spectrum; industrial grade

*Use Level:* 0.05-0.6% (PVC), 0.3-0.5% (paints and stains), 0.1-0.32% (interior paints), 0.03-0.3% (cutting oils), 0.3-0.5% (wood treatments), 0.05-0.5% (textiles, inks), 0.1-0.5% (paper coatings), 0.025-0.1% (adhesives)

*Properties:* Off-wh. cryst. solid; sol. in most aromatic solvs. and alcohols; sp.gr. 1.74-1.77 (20 C); m.p. 65-68 C; 97% min. active, 1% max. moisture

*Storage:* Store @ 0-32 C; do not use or store near heat or open flame

**Irgalite®** [Ciba Spec. Chems./Paper]

*Chem. Descrip.:* Org. pigment

*Uses:* Pigment for paper coloration, decorative laminate papers, cover papers and boards, laundry tags, poster papers, tinting of wh. papers; rec. where higher levels of fastness are required

*Properties:* Paste

**Irganox® 259** [Ciba Spec. Chems./Addit.]

*Chem. Descrip.:* 1,6-Hexamethylene bis-(3,5-di-tert-butyl-4-hydroxyhydrocinnamate)

CAS 35074-77-2

*Uses:* Antioxidant/stabilizer for polyolefin, elastomer, styrenic, polyacetal, petrol. prods., and org. substrates; food pkg. adhesives, coatings, paper, polymers; nondiscoloring, nonstaining

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300(b), 175.320(b), 176.170(a)(b), 177.2470, 178.2480, 178.2010 etc.

*Properties:* Off-wh. cryst. powd.; odorless; sol. in benzene, acetone, chloroform, min. oil, hexane, and water; m.w. 639; m.p. 103-108 C

**Irganox® 1010** [Ciba Spec. Chems./Addit.]

*Chem. Descrip.:* Tetrakis [methylene (3,5-di-tert-butyl-4-hydroxyhydrocinnamate)] methane

CAS 6683-19-8; EINECS/ELINCS 229-722-6

*Uses:* Nondiscoloring, nonstaining antioxidant and thermal stabilizer for org. and polymeric materials, polyolefin, elastomer, acetal, acrylic, PET, PU, PMMA, PVC, food-contact adhesives/coatings/paper/polymers, petrol. prods., coatings; U.S. patents 3,285,855 and 3,644,482

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300(b), 175.320(b), 176.170(a), 177.2470, 178.2010 etc.

*Properties:* Wh. free-flowing cryst. powd.; odorless; sol. (g/100 g): 163 g methylene chloride, 144 g chloroform, 122 g benzene, 89 g acetone; m.w. 1178; sp.gr. 1.15; m.p. 110-125 C

**Irganox® 1035** [Ciba Spec. Chems./Addit.]

*Chem. Descrip.:* Thiodiethylene bis-(3,5-di-t-butyl-4-hydroxy) hydrocinnamate

CAS 41484-35-9

*Uses:* Stabilizer and antioxidant for polymers, org. substrates, polyolefins, crosslinked PE systems esp. wire and cable, BR, SBR, NBR, SEBS, elastomer, petrol. prods., powd. and high-bake coatings, food pkg.; food pkg. adhesives, paper, polymers, rubber; nondiscoloring, nonstaining

*Regulatory:* FDA 21CFR §175.105, 175.125, 176.170, 176.180, 177.1210, 177.2600, 178.2010

*Properties:* Wh. cryst. powd.; odorless; sol. in toluene, acetone, ethyl acetate, methanol, min. oil; sol. < 0.01% in water; m.w. 643; sp.gr. 1.10 (20 C); m.p. 63-68 C

**Irganox® 1520 D/L** [Ciba Spec. Chems./Addit.]

*Chem. Descrip.:* 2,4-Bis [(octylthio) methyl]-o-cresol  
CAS 110553-27-0

*Uses:* Antioxidant for polymers for base stabilization of elastomers and the compd. stabilization of adhesives; food pkg. adhesives, coatings, paper, polymers, rubber; effective during elastomer dynamic processing without the use of phosphites

*Regulatory:* FDA 21CFR §175.105, 175.300(b), 175.125, 176.170, 176.180, 177.1210, 177.2600, 178.2010

*Properties:* Pale yel. low-visc. liq.; sol. in methanol, ethanol, acetone, ethyl acetate, methylene chloride, chloroform, toluene, n-hexane; sol. < 0.01 g/100 g water; m.w. 424.7; dens. 0.9787 g/ml; flash pt. > 200 C

**Isopar® G** [Exxon]

*Chem. Descrip.:* C10-11 isoparaffin

*Chem. Analysis:* paraffin (95%), cycloparaffin (5%)

CAS 64742-48-9

*Uses:* Solvent, diluent, carrier for personal care sprays; solvent for coatings, thinners, cleaners, degreasers; extremely low surf. tens. to improve flow and wetting; suitable for odorless alkyd/acrylic paints; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free

*Regulatory:* FDA 21CFR §172.882, 172.884, 176.180, 176.210, 177.2600, 178.3530, 178.3570, 178.3620(b), 178.3650; 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Odorless; m.w. 149; sp.gr. 0.75 (15.6 C); dens. 6.23 lb/gal (60 F); visc. 1.0 cP; vapor pressure 2.3 mm Hg (20 C); b.p. 160-176 C; flash pt. 106 F; surf. tens. 23.8 dynes/cm; KB value 28

*Toxicology:* OEL 300 ppm; low toxicity

**Isopar® H** [Exxon]

*Chem. Descrip.:* C11-12 isoparaffin

*Chem. Analysis:* paraffin (95%), cycloparaffin (5%)

CAS 64742-48-9

*Uses:* Solvent, diluent, carrier for personal care sprays; solvent for coatings, thinners, cleaners, degreasers; extremely low surf. tens. to improve flow and wetting; suitable for odorless alkyd/acrylic paints; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free

*Regulatory:* FDA 21CFR §172.882, 172.884, 176.180, 176.210, 177.2600, 178.3530, 178.3570, 178.3620(b), 178.3650; 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Odorless; m.w. 160; sp.gr. 0.76 (15.6 C); dens. 6.32 lb/gal (60 F); visc. 1.3 cP; vapor pressure 1.0 mm Hg (20 C); b.p. 178-188 C; flash pt. 129 F; surf. tens. 24.1 dynes/cm; KB value 27

*Toxicology:* OEL 300 ppm; low toxicity

**Isopar® K** [Exxon]

*Chem. Descrip.:* C11-12 isoparaffin

*Chem. Analysis:* paraffin (94%), cycloparaffin (6%)

CAS 64742-48-9

*Uses:* Solvent, diluent, carrier for personal care sprays; solvent for coatings, thinners, cleaners, degreasers; extremely low surf. tens. to improve flow and wetting; suitable for odorless alkyd/acrylic paints; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free

*Regulatory:* FDA 21CFR §172.882, 172.884, 176.180, 176.210, 177.2600, 178.3530, 178.3570, 178.3620(b), 178.3650; 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Odorless; m.w. 164; sp.gr. 0.76 (15.6 C); dens. 6.34 lb/gal (60 F); visc. 1.4 cP; vapor pressure 0.9 mm Hg (20 C); b.p. 177-197 C; flash pt. 135 F; surf. tens. 24.2 dynes/cm; KB value 27

*Toxicology:* OEL 300 ppm; low toxicity

**Isopar® L** [Exxon]

*Chem. Descrip.:* C11-13 isoparaffin

CAS 64742-48-9

*Uses:* Solvent for skin care formulations, coatings, agrochems., thinners, cleaners, and degreasers; extremely low surf. tens. to improve flow and wetting; suitable for odorless alkyd/acrylic paints; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free

*Regulatory:* FDA 21CFR §172.882, 172.884, 176.180, 176.210, 177.2600, 178.3530, 178.3570, 178.3620(b), 178.3650, 573.680; 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Odorless; m.w. 171; sp.gr. 0.77 (15.6 C); dens. 6.40 lb/gal (60 F); visc. 1.6 cP; vapor pressure 0.8 mm Hg (20 C); b.p. 189-207 C; flash pt. 147 F; surf. tens. 25.1 dynes/cm; KB value 27; 89% paraffin, 11% cycloparaffin

*Toxicology:* OEL 300 ppm; low toxicity

**Isopar® M** [Exxon]

*Chem. Descrip.:* C13-14 isoparaffin

CAS 64742-48-9

*Uses:* Solvent for hair spray, coatings, antiperspirants, laundry prewash, furniture/floor polish, waterless hand cleaner, agrochems, thinners, cleaners, degreasers; suitable for odorless alkyd/acrylic paints; carrier for insecticide actives; good dispersing props.; extremely low surf. tens. to improve flow and wetting; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; complies with criteria for LVP solvent; minimizes VOC; virtually HAPs-free

*Regulatory:* FDA 21CFR §172.882, 172.884, 176.180, 176.210, 177.2600, 178.3530, 178.3570, 178.3620(b), 573.680; 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Nearly odorless; m.w. 191; sp.gr. 0.79 (15.6 C); dens. 6.57 lb/gal (60 F); visc. 2.7 cP; vapor pressure < 0.1 mm Hg (20 C); b.p. 223-254 C; flash pt. 199 F; surf. tens. 26.4 dynes/cm; KB value 27; 80% paraffin, 21% cycloparaffin

*Toxicology:* OEL 300 ppm; low acute toxicity

**Isopar® V** [Exxon]

*Chem. Descrip.:* Isoparaffin hydrocarbon solv.

CAS 64742-46-7

*Uses:* Solvent for household applics. (polishes, cleaning compds., degreasers, waterless hand cleaners, stain removers, air fresheners, insecticides), inks, and elastomer-based adhesives; food-contact paper and applics.; defoamer in food-contact paper/paperboard; complies with criteria for LVP solvent

*Regulatory:* FDA 21CFR §172.884, 176.180, 176.210, 178.3620(b), 178.3650, 573.220, 573.680; 40CFR §180.1001(c)(e); SARA nonreportable

*Properties:* Saybolt +30 color; low odor; misc. with other hydrocarbons; m.w. 197; sp.gr. 0.82 (15.6 C); dens. 6.82 lb/gal (60 F); visc. 7.5 cps; vapor pressure 0.3 mm Hg (38 C); b.p. 273-311; flash pt. (ATSM D 93) 129 C; surf. tens. 26.9 dynes/cm; KB value 25

*Toxicology:* OEL 300 ppm

*Precaution:* Volatile; vapors can be ignited causing explosions or flash fires

*Storage:* Keep away from heat, sparks, and open flame

**Istemul 710** [Canamex]

*Chem. Descrip.:* Surfactant blend

*Uses:* Surfactant for paper; hydrophilic

*Properties:* Amber liq.

**Istemul 770** [Canamex]

*Chem. Descrip.:* Surfactant blend

*Uses:* Surfactant for paper; hydrophilic

*Properties:* Liq.

**Istemul 775** [Canamex]

*Chem. Descrip.:* Surfactant blend

*Uses:* Surfactant for paper; hydrophilic

*Properties:* Amber liq.

# J

## Jaguar® 418 [Vinings Ind.]

*Chem. Descrip.:* Carboxymethyl hydroxypropyl guar  
 CAS 68130-15-4

*Uses:* Viscosifier; formation aid, str. agent in syn., glass, and specialty fiber sheets, papermaking; improves runnability of fiber web; crosslinkable; hydrates rapidly to yield a smooth, visc., almost clear sol'n. at acidic pH

*Use Level:* 10-40 lb/ton

*Properties:* Pale yel. free-flowing powd.; 95% min. thru 150 mesh; disp. in water; bulk dens.  $40 \pm 5$  lb/ft<sup>3</sup>; visc. 3400 cps min. (1%); pH 8-10 (1%); 6-12% moisture; 5-7% ash

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, or repeated contact with skin

*Environmental:* Can be broken down with enzymes or oxidants

*Precaution:* Wet material will become very slippery

*Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup

## Jaguar® 2100® [Vinings Ind.]

*Chem. Descrip.:* Purified guar gum  
 CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Viscosifier; dry str. agent, formation agent for fine paperboard and specialty papers; component of paper/paperboard in contact with aq./fatty/dry foods; improved smoothness; reduced press sticking; rec. where controlled visc. development is required

*Use Level:* 4-6 lb/ton (added to paper machine)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Yel. free-flowing powd.; 80% -200 mesh, 100% -20 mesh; nondispersible; visc. 3000 cps (1%); pH 5-6 (1%); 6-13% moisture

*Precaution:* Wet material will become very slippery

*Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup

## Jaguar® 8707 [Vinings Ind.]

*Chem. Descrip.:* Carboxymethyl guar gum

*Uses:* Viscosifier; retention aid, drainage aid, drying aid for papermaking; retention aid for removal of fiber fines and trash from papermaking systems; promotes fiber to fiber bonding; component of paper/paperboard in contact with aq./fatty/dry foods; improved runnability, str., printability; better sheet formation and fiber distribution; med. visc. gum with low charge dens.

*Use Level:* 2-8 lb/ton (added to paper machine)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Yel. free-flowing powd.; exc. disp. in water; visc. 2800 cps (1%); 6-13% moisture; anionic

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, or repeated contact with skin

*Precaution:* Wet material will become very slippery

*Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup

## Jaguar® CB-11 [Vinings Ind.]

*Chem. Descrip.:* Guar gum  
 CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Formation and dry str. agent for paper; component of paper/paperboard in contact with aq./fatty/dry foods; improves formation in fiber grades, low consistency papermaking systems, and syn. fibers

*Use Level:* 2-25 lb/ton

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Yel. free-flowing powd.; exc. dispersability in water; visc. 3200-

3800 cps (1%); 6-13% moisture

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, repeated contact with skin

*Precaution:* Wet material will become very slippery

*Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup

## Jaguar® CB-123 [Vinings Ind.]

*Chem. Descrip.:* Guar gum  
 CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Retention aid, drainage aid, drying aid, str. agent for fine paper, linerboard, and tissue mfg.; component of paper/paperboard in contact with aq./fatty/dry foods; improves wet end cleanliness due to retention of fines and anionic trash removal; provides good pigment and fines retention without overflocculation

*Use Level:* 3-10 lb/ton (added to paper machine)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Exc. dispersability in water; visc. 750-1000 cps; 6-12% moisture; amphoteric

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, repeated contact with skin

*Precaution:* Wet material will become very slippery

*Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup

## Jaguar® CP-4 [Vinings Ind.]

*Chem. Descrip.:* Guar gum deriv.

*Uses:* Retention aid, drainage aid, drying aid for paper and board mfg.; component of paper/paperboard in contact with aq./fatty/dry foods; improves wet end cleanliness due to retention of fines and anionic trash removal; natural affinity for cellulose fiber; allows for good overall retention without overflocculation, while still giving good dry str. chars.

*Use Level:* 1-20 lb/ton (added to paper machine)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Yel. free-flowing powd.; exc. dispersability in water; visc. 3300 cps (1%); 6-12% moisture; cationic

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, repeated contact with skin

*Precaution:* Wet material will become very slippery

*Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup

## Jaguar® CP-13 [Vinings Ind.]

*Chem. Descrip.:* Guar gum  
 CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Retention aid, drainage aid, drying aid for paper and board mfg.; str. agent in sec. fiber systems; component of paper/paperboard in contact with aq./fatty/dry foods; improves wet end cleanliness due to retention of fines and anionic trash removal; natural affinity for cellulose fiber; allows for good overall retention without overflocculation; improved optical efficiency of pigments; inc. production

*Use Level:* 0.2-1.5 lb/ton (added to paper machine)

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Yel. free-flowing powd.; exc. dispersability in water; visc. 3200 cps (1%); pH 5-7; 6-13% moisture; cationic

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, repeated contact with skin

*Precaution:* Wet material will become very slippery



- Storage:* Store in dry location; keep container closed when not in use to prevent moisture pickup
- Jarcol™ I-12** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Butyl-octanol (95% min.)  
 CAS 3913-02-8; EINECS/ELINCS 223-470-0  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. 186; sp.gr. 0.833; visc. 23 mPa·s; m.p. < -30 C; b.p. 145-149 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 286-305; flash pt. 120 C; ref. index 1.443; 0.1% max. water
- Jarcol™ I-14T** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Alkyl alkanol mixt., 2-butyl decanol/2-hexyl octanol 45/55  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. 212-223; sp.gr. 0.835; visc. 32 mPa·s; m.p. < -25 C; b.p. 160-195 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 252-265; flash pt. 139 C; ref. index 1.447; 0.1% max. water
- Jarcol™ I-16** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Hexyl-decanol (97% min.)  
 CAS 2425-77-6; EINECS/ELINCS 219-370-1  
*Uses:* Extender, solvent for use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. ≈ 242; sp.gr. 0.836; visc. 38 mPa·s; m.p. -21 to -15 C; b.p. 193-197 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 225-235; flash pt. 156 C; ref. index 1.450; 0.1% max. water
- Jarcol™ I-18E** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Octyl decanol, 2-hexyl dodecanol (46/54)  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. 269-279; sp.gr. 0.837; visc. 50 mPa·s; m.p. -10 to -6 C; b.p. 211-218 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 201-210; flash pt. 170 C; ref. index 1.452; 0.1% max. water
- Jarcol™ I-18T** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Octyl decanol/2-hexyl dodecanol 46/54  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. 267-285; sp.gr. 0.837; visc. 50 mPa·s; m.p. -10 to -6 C; b.p. 207-236 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 197-210; flash pt. 170 C; ref. index 1.452; 0.1% max. water
- Jarcol™ I-20** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Octyl-dodecanol (97%min.)  
 CAS 5333-42-6; EINECS/ELINCS 226-242-9  
*Uses:* Carrier, lubricant, solubilizer for use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. 298; sp.gr. 0.838; visc. 60 mPa·s; m.p. -1 to 1 C; b.p. 234-238 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 184-190; flash pt. 180 C; ref. index 1.455; 0.1% max. water
- Jarcol™ I-24** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Decyl-tetradecanol (97% min.)  
 CAS 58670-89-6; EINECS/ELINCS 216-385-0  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 20 max. liq.; m.w. 354; sp.gr. 0.842; visc. 86 mPa·s; m.p. 17-20 C; b.p. 271-275 C; acid no. 0.1 max.; iodine no. 1.0 max.; sapon. no. 1.0 max.; hyd. no. 154-190; flash pt. 230 C; ref. index 1.457; 0.1% max. water
- Jarcol™ I-28** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Dodecyl-1-hexadecanol (85% min.)  
 CAS 72388-18-2; EINECS/ELINCS 276-627-0
- Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 400 max. liq.; m.w. 415; sp.gr. 0.830; m.p. 29-31 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 130-140; flash pt. 230 C; 0.2% max. water
- Jarcol™ I-32** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Tetradecyl-1-octadecanol (85% min.)  
 CAS 32582-32-4; EINECS/ELINCS 251-110-2  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 470 max. liq.; m.w. 470; sp.gr. 0.830; m.p. 42-45 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 110-126; flash pt. 266 C; 0.2% max. water
- Jarcol™ I-34T** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Tetradecyl-1-octadecanol, 2-tetradecyl-1-eicosanol, 2-hexadecyl-1-octadecanol, 2-hexadecyl-1-eicosanol  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 400 max. liq.; m.w. 490; sp.gr. 0.820; m.p. 38-42 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 105-120; flash pt. 278 C; 85% min. act.; 0.2% max. water
- Jarcol™ I-36** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Hexadecyl-1-eicosanol (85% min.)  
 CAS 17658-63-8; EINECS/ELINCS 241-637-6  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 400 max. liq.; m.w. 510; sp.gr. 0.821; m.p. 52-55 C; b.p. > 300 C; acid no. 0.2 max.; hyd. no. 100-115; flash pt. 279 C; 0.2% max. water
- Jaric I-12** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Butyl octanoic acid  
 CAS 27610-92-0  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 30 max. clear liq.; m.w. 202-206; sp.gr. 0.887; visc. 30 mPa·s; m.p. -10 to -14 C; acid no. 273-283 max.; iodine no. 2 max.; flash pt. 160 C; ref. index 1.4394; 0.1% max. water
- Jaric I-14T** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Alkyl alkanolic mixt.  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 30 max. clear liq.; m.w. 228-232; sp.gr. 0.882; visc. 40 mPa·s; m.p. -2 to -6 C; acid no. 238-248 max.; iodine no. 2 max.; flash pt. 163 C; ref. index 1.4434; 0.1% max. water
- Jaric I-16** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Hexyl decanoic acid  
 CAS 25354-97-6  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 30 max. clear liq.; m.w. 258-262; sp.gr. 0.878; visc. 53 mPa·s; m.p. 15 to 17 C; acid no. 211-221 max.; iodine no. 2 max.; flash pt. 168 C; ref. index 1.4468; 0.1% max. water
- Jaric I-18T** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Alkyl alkanolic mixt.  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles  
*Properties:* APHA 30 max. clear liq.; m.w. 369-313; sp.gr. 0.871; visc. 59 mPa·s; m.p. 9 to 13 C; acid no. 175-185 max.; iodine no. 2 max.; flash pt. 192 C; ref. index 1.4498; 0.1% max. water
- Jaric I-20** [Jarchem Ind.]  
*Chem. Descrip.:* 2-Octyl dodecanoic acid  
 CAS 40596-46-1; EINECS/ELINCS 254-992-7  
*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing,

paper coating, and textiles

*Properties:* Wh. waxy substance; m.w. 327-331; sp.gr. 0.846 (60 C); visc. 17 mPa·s (60 C); m.p. 20 to 25 C; acid no. 173-183 max.; iodine no. 2 max.; flash pt. 210 C; ref. index 1.4444 (60 C); 0.1% max. water

**Jaric I-24** [Jarchem Ind.]

*Chem. Descrip.:* 2-Decyl tetradecanoic acid  
CAS 93778-52-0

*Uses:* For use in industries such as cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles

*Properties:* Wh. waxy substance; m.w. 374-378; sp.gr. 0.897 (60 C); visc. 21 mPa·s (60 C); m.p. 46 to 50 C; acid no. 144-154 max.; iodine no. 2 max.; flash pt. 234 C; ref. index 1.4428 (60 C); 0.1% max. water

**Jayflex® DHP** [Exxon]

*Chem. Descrip.:* Dihexyl phthalate  
CAS 68515-50-4; EINECS/ELINCS 201-559-5

*Uses:* Plasticizer; food pkg. adhesives, coatings, paper, rubber articles, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 177.1210, 177.2600, 178.3740

*Properties:* Pt-Co < 25 color; sp.gr. 1.008 (20/20 C); dens. 8.39 lb/gal (20 C); visc. 37 cSt (20 C); vapor pressure 3 mm Hg (200 C); b.p. 210 C (5 mm); pour pt. -33 C; flash pt. (TCC) 380 F; surf. tens. 26 dynes/cm (20 C); 99.6% purity

**Jayflex® DINA** [Exxon]

*Chem. Descrip.:* Diisononyl adipate  
CAS 33703-08-1; EINECS/ELINCS 251-646-7

*Uses:* Plasticizer; food-contact coatings, paper, rubber articles, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 176.170, 177.1210, 177.2600, 178.3740

*Properties:* Pt-Co < 25 color; sp.gr. 0.924 (20/20 C); dens. 7.68 lb/gal (20 C); visc. 19.6 cSt; vapor pressure 0.9 mm Hg (200 C); b.p. 233 C (5 mm); pour pt. -59 C; flash pt. (TCC) 390 F; surf. tens. 32 dynes/cm (20 C); 99% purity

**Jayflex® DINP** [Exxon]

*Chem. Descrip.:* Diisononyl phthalate  
CAS 68515-48-0; EINECS/ELINCS 249-079-5

*Uses:* Plasticizer used in coatings; food-contact coatings, paper, rubber articles, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 176.170, 177.1210, 177.2600, 178.3740

*Properties:* Pt-Co < 25 color; sp.gr. 0.973 (20/20 C); dens. 8.10 lb/gal (20 C); visc. 102 cSt (20 C); vapor pressure 0.5 mm Hg (200 C); b.p. 252 C (5 mm); pour pt. -48 C; flash pt. (TCC) 415 F; surf. tens. 33 dynes/cm (20 C); 99.6% purity

**Jayflex® DIOP** [Exxon]

*Chem. Descrip.:* Diisooctyl phthalate  
CAS 27554-26-3; EINECS/ELINCS 248-523-5

*Uses:* Plasticizer; food-contact adhesives, coatings, paper, cellophane, rubber articles, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 177.1200, 177.1210, 177.2600, 178.3740

*Properties:* Pt-Co < 25 color; sp.gr. 0.985 (20/20 C); dens. 8.20 lb/gal (20 C); visc. 85 cSt (20 C); vapor pressure 1 mm Hg (200 C); b.p. 230 C (5 mm); pour pt. -46 C; flash pt. (TCC) 400 F; surf. tens. 30 dynes/cm (20 C); 99.6% purity

**Jeffamine® EDR-148** [Huntsman]

*Chem. Descrip.:* Polyoxyalkylene diamine

*Uses:* Epoxy curing agent with flexibilizing and toughening props.; also in polyamide, polyurea, modified urethane resins, in adhesives, elastomers, foam formulas; intermediate for textile and paper treatment chemicals

*Use Level:* 20 phr

*Properties:* Nearly colorless liq.; m.w. 148; sp.gr. 1.0154 (25/4 C); visc. 8 cSt; flash pt. (PMCC) 265 F; distort. temp. 44-47 C (264 psi)

**Jeffamine® T-3000** [Huntsman]

*Chem. Descrip.:* Polyoxypropylenetriamine (50 PO)

*Uses:* Epoxy curing agent; also in polyamide, polyurea, modified urethane resins, in adhesives, elastomers, foam formulas; intermediate for textile and paper treatment chemicals

*Properties:* Colorless to lt. yel. hazy liq.; m.w. 3000; sp.gr. 1.1203; visc. 467 cSt; flash pt. (PMCC) 455 F

**Jeffamine® T-5000** [Huntsman]

*Chem. Descrip.:* Polyoxypropylenetriamine (85 PO)

*Uses:* Epoxy curing agent; also in polyamide, polyurea, modified urethane resins, in adhesives, elastomers, foam formulas; intermediate for textile and paper treatment chemicals; promotes adhesion and thermal shock resist.

*Properties:* Colorless to lt. yel. hazy liq.; m.w. 5000; sp.gr. 0.9967 (25/4 C); visc. 829 cSt; flash pt. (PMCC) 410 F; 0.10% water

**Jetcoat™ PCC** [Specialty Mins.]

*Chem. Descrip.:* Precipitated calcium carbonate  
CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for coating ink jet and other non-impact printing papers

**Jetsize® Colloidal Disp.** [Eka Chems.]

*Chem. Descrip.:* Polyurethane

*Uses:* Surf. treatment for paper with superior inkjet and offset printing chars.; highest hydrophobicity chars.

**Jetsize® Emulsion** [Eka Chems.]

*Chem. Descrip.:* Aq. disp. of styrene-acrylic ester copolymers  
CAS 9010-92-8

*Uses:* Surf. sizing agent for paper and board enhancing non-impact printing, such as ink jet or bubble jet, while maintaining good toner adhesion and friction chars.; surfactant-free; may be used alone or combined with starch; reduced foaming and pH sensitivity offer wider operating window at size press

**Jetsize® Sol'n.** [Eka Chems.]

*Chem. Descrip.:* Styrene/MA and styrene acryl acid copolymers

*Uses:* Surf. treatment for paper; offers porosity control, toner adhesion, and fair printing chars.

**Jetslide** [Vinings Ind.]

*Uses:* Corrugator lubricant; allows corrugators to run at elevated line speeds by reducing drag thru the hotplate section when running high friction grades such as clay-coated white liners

**Jungbunzlauer Xanthan Gum, Technical Grade** [Jungbunzlauer Int'l. AG]

*Chem. Descrip.:* Polysaccharide

*Uses:* Thickener and stabilizer for agrochem. industry, cleaners, polishes, paints, textile printing pastes, adhesives, paper process, mining, printing inks, ceramic glazes, oil well drilling

*Use Level:* 0.05-0.1% (inks); 0.1-0.2% (paper); 0.1-0.3% (agric.); 0.1-0.3% (paints, adhesives); 0.1-0.4% (drilling); 0.2-0.3% (mining); 0.2-0.5% (textile); 0.2-0.7% (cleaners); 0.3-0.5% (ceramic glazes)

*Properties:* Wh. to cream-colored free-flowing powd., 100% < 250 µm (60 US mesh), 95% ≤ 180 µm (80 US mesh); readily sol. in water; insol. in most org. solvs.; visc. 1300-1700 mPa·s; pH 7 ± 1.5 (1%); < 15% moisture; > 1.5% pyruvic acid; anionic

*Storage:* Store in cool, dry place; preservative rec. if stored > 24 h

# K

**Kalipol™ 4KP** [Albright & Wilson UK/Phosphorus Spec.]

*Chem. Descrip.:* Tetrapotassium pyrophosphate  
 CAS 7320-34-5; EINECS/ELINCS 230-785-7

*Uses:* Sequestrant for use in detergents, paints, paper, water treatment, and metal finishing; binds metal ions into sol. complex so they no longer show normal reactions, e.g., sequesters calcium and magnesium so that these ions no longer interfere with washing action of detergents

*Properties:* Clear, pale straw liq.; sp.gr. 1.54-1.59; dens. 1.56 g/ml; visc. 6 cSt; pH 10 (5 g/l sol'n.); 50% solids

**Kalipol™ 20** [Albright & Wilson UK/Phosphorus Spec.]

*Chem. Descrip.:* Sodium hexametaphosphate  
 CAS 10124-56-8; EINECS/ELINCS 233-343-1

*Uses:* Sequestrant for use in detergents, paints, paper, cement, ceramics, refractories, and potable water treatment; binds metal ions into sol. complex so they no longer show normal reactions, e.g., sequesters calcium and magnesium so that these ions no longer interfere with washing action of detergents

*Properties:* Clear colorless liq., sp.gr. 1.29 min.; dens. 1.32 g/ml; visc. 6 cSt; pH 7 (5 g/l sol'n.); 32% solids; anionic

**Kalipol™ KTP** [Albright & Wilson UK/Phosphorus Spec.]

*Chem. Descrip.:* Potassium tripolyphosphate  
 CAS 13845-36-8; EINECS/ELINCS 237-574-9

*Uses:* Sequestrant for use in detergents, paints, paper, and cement; binds metal ions into sol. complex so they no longer show normal reactions, e.g., sequesters calcium and magnesium so that these ions no longer interfere with washing action of detergents

*Properties:* Clear, pale straw liq.; sp.gr. 1.56-1.60 min.; dens. 1.57 g/ml; visc. 13 cSt; pH 9.8 (5 g/l sol'n.); 50% solids

**Kamyr Defoamer 121** [Process Chems. LLC]

*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing, for use in brownstock washing, screen room, and bleach plant operations; oil-based; does not contribute to deposit formation; suitable whether batch or continuous pulp is employed

*Properties:* Opaque tan liq.; dens. 6.95-7.45 lb/gal; visc. 400-850 cps

*Toxicology:* TSCA listed

*Storage:* Store in dry area

**Karaya Gum #1 FCC** [Frutarom Meer]

*Chem. Descrip.:* Karaya gum  
 CAS 9000-36-6; EINECS/ELINCS 232-539-4

*Uses:* Stabilizer, water binder, emulsifier for water ices, sherbets, cheese spreads, meringue powds., meat processing; in pharmaceuticals (bulk laxatives, denture adhesives); binder in paper industry; thickener for textile dyes

**Kathon® WT** [Rohm & Haas; Rohm & Haas France]

*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one  
 CAS 26172-55-4; EINECS/ELINCS 247-500-7

*Uses:* Antimicrobial for cooling tower water; slimicide for paper mills

*Properties:* Water-sol.

**Kauramin®** [BASF AG]

*Chem. Descrip.:* Melamine-formaldehyde condensate

*Uses:* Glues for prod. of weather-resist. chipboard and plywood; impregnating resin for decorative and overlay papers

**Kaurit®** [BASF AG]

*Chem. Descrip.:* Urea-formaldehyde based  
 CAS 9011-05-6

*Uses:* Glues for prod. of veneered board, furniture; impregnating resins for decorative papers

**KC-350** [Georgia Marble]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%), Na<sub>2</sub>O (0.40%), SiO<sub>2</sub> (0.01%), Fe<sub>2</sub>O<sub>3</sub> (0.01%), free moisture (0.5% max., 110 C)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant, smoke suppressant filler in polymeric materials incl. PVC, thermosets, elastomeric copolymers, rubber, latex, paints, wire and cable, coatings, paper, and adhesives

*Properties:* Dry, free-flowing powd.; 3-4 μ median particle size; 0.05% on 325 mesh; sp.gr. 2.42; bulk dens. 35 lb/ft<sup>3</sup> (loose), 60 lb/ft<sup>3</sup> (packed); brightness (Hunter Y) 92-94; ref. index 1.57

**KC-500** [Georgia Marble]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%), Na<sub>2</sub>O (0.40%), SiO<sub>2</sub> (0.01%), Fe<sub>2</sub>O<sub>3</sub> (0.01%), free moisture (0.5% max., 110 C)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant, smoke suppressant filler in polymeric materials incl. PVC, thermosets, elastomeric copolymers, rubber, latex, paints, wire and cable, coatings, paper, and adhesives

*Properties:* Dry, free-flowing powd.; 4-6 μ median particle size; 0.1% on 325 mesh; sp.gr. 2.42; bulk dens. 40 lb/ft<sup>3</sup> (loose), 70 lb/ft<sup>3</sup> (packed); brightness (Hunter Y) 92-94; ref. index 1.57

**KC-750** [Georgia Marble]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%), Na<sub>2</sub>O (0.40%), SiO<sub>2</sub> (0.01%), Fe<sub>2</sub>O<sub>3</sub> (0.01%), free moisture (0.5% max., 110 C)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant, smoke suppressant filler in polymeric materials incl. PVC, thermosets, elastomeric copolymers, rubber, latex, paints, wire and cable, coatings, paper, and adhesives

*Properties:* Dry, free-flowing powd.; 6-8 μ median particle size; 0.1% on 325 mesh; sp.gr. 2.42; bulk dens. 45 lb/ft<sup>3</sup> (loose), 75 lb/ft<sup>3</sup> (packed); brightness (Hunter Y) 92-94; ref. index 1.57

**KC-900** [Georgia Marble]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65%), Na<sub>2</sub>O (0.40%), SiO<sub>2</sub> (0.01%), Fe<sub>2</sub>O<sub>3</sub> (0.01%), free moisture (0.5% max., 110 C)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant, smoke suppressant filler in polymeric materials incl. PVC, thermosets, elastomeric copolymers, rubber, latex, paints, wire and cable, coatings, paper, and adhesives

*Properties:* Dry, free-flowing powd.; 8-10 μ median particle size; 1.0% on 325 mesh; sp.gr. 2.42; bulk dens. 50 lb/ft<sup>3</sup> (loose), 75 lb/ft<sup>3</sup> (packed); brightness (Hunter Y) 92-94; ref. index 1.57

**K-Corr® 100A2** [King Ind.]

*Chem. Descrip.:* Ester/amide/carboxylate with octadecyldimethyl amine

*Uses:* Rust inhibitor/demulsifier used in turbine oils, hydraulic fluids, gear oils, and paper machine oils; environmentally friendly; ashless

*Properties:* Sp.gr. 0.97; dens. 8.1 lb/gal; visc. 16 cSt (100 C); acid no. 80; flash pt. (COC) 165 C; 100% act.

*Environmental:* Biodeg.

**K-Corr® 181CA** [King Ind.]

*Chem. Descrip.:* Calcium salt of ester/amide/carboxylate in trimethylolpro-

pane ester

*Uses:* Rust inhibitor/demulsifier in turbine oils, hydraulic fluids, gear oils, and paper machine oils; environmentally friendly

*Properties:* Sp.gr. 1.04; dens. 8.7 lb/gal; visc. 59 cSt (100 C); acid no. 10; flash pt. (COC) 165 C; 80% act.

*Environmental:* Biodeg.

**K-Corr® 182CA** [King Ind.]

*Chem. Descrip.:* Calcium salt of ester/amide/carboxylate in hydrotreated naphthenic oil

*Uses:* Rust inhibitor/demulsifier in turbine oils, hydraulic fluids, gear oils, and paper machine oils; environmentally friendly

*Properties:* Sp.gr. 1.01; dens. 8.4 lb/gal; visc. 39 cSt (100 C); acid no. 10; flash pt. (COC) 165 C; 80% act.

*Environmental:* Biodeg.

**K-Cure® 129B** [King Ind.]

*Chem. Descrip.:* Mixed acid catalyst (50%), methanol/n-butanol solv.

*Uses:* Catalyst used in paper, wood, and ink coatings; fast curing

*Properties:* Gardner 1 color; dens. 8.90 lb/gal; acid no. 200-210; 50% act.

**K-Cure® 1040** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid, isopropanol

*Uses:* Used in coatings for appliances, automotive, can, coil, general industrial, paper, ink and wood; general purpose, high quality grade acid; high gloss, fast cure; for applics. where weathering and exterior durability are needed

*Properties:* Gardner 1 color; dens. 8.25 lb/gal; acid no. 130-140; 40% act.

**K-Cure® 1040W** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid, water

CAS 104-15-4; EINECS/ELINCS 203-180-0

*Uses:* Used in coatings for appliances, automotive, can, coil, general industrial, paper, ink and wood; general purpose, high quality grade acid; high gloss, fast cure; nonflamm. for waterborne applics.; for applics. where weathering and exterior durability are needed

*Properties:* Gardner 2 color; dens. 9.40 lb/gal; acid no. 130-140; 40% act.

**KELACID®** [ISP Alginates]

*Chem. Descrip.:* Alginic acid

CAS 9005-32-7; EINECS/ELINCS 232-680-1

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; tablet disintegrant; hemostatic agent; primary reagent; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §184.1011, GRAS; FCC/NF compliance; EU E400 compliance; Kosher approved

*Properties:* Wh. fibrous particles, sl. odor; 93% min. thru 80 mesh, 88% min. thru 100 mesh; sol. in alkaline sol'n.; swells in water; bulk dens. ≈ 50 lb/ft<sup>3</sup>; pH 2.6-3.2 (3% aq. slurry); surf. tens. 53 dynes/cm; 7% moisture

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; excessive dust inhalation may cause respiratory irritation; dry powd. may cause eye irritation

*Precaution:* Not flamm., but powd. will burn if involved in fire; spills are slippery; incompat. with strong oxidizers

*Storage:* Store in cool, dry place @ 46-59 F

**KELCOLOID® DH** [ISP Alginates]

*Chem. Descrip.:* Propylene glycol alginate

CAS 9005-37-2

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics., emulsions and low pH systems; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §172.858, EU E405 compliance

*Properties:* Cream agglomerated, sl. odor; 840 μ particle size; sol. in water; sp.gr. 1.46; dens. 33.71 lb/ft<sup>3</sup>; visc. 400 cps (1%), 7000 cps (2%); ref. index 1.3343; pH 3.7; surf. tens. 58 dynes/cm

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

*Precaution:* Incompat. with strong oxidizers

**KELCOLOID® HVF** [ISP Alginates]

*Chem. Descrip.:* Propylene glycol alginate

CAS 9005-37-2

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §172.858, EU E405 compliance

*Properties:* Cream fibrous particles, sl. odor; 175 μ particle size; 80 mesh; sol. in water; sp.gr. 1.46; dens. 33.71 lb/ft<sup>3</sup>; visc. 400 cps (1%), 7000 cps (2%); ref. index 1.3343; pH 3.7; surf. tens. 58 dynes/cm

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye

irritation

*Precaution:* Incompat. with strong oxidizers

**KELCOLOID® LVF** [ISP Alginates]

*Chem. Descrip.:* Propylene glycol alginate

CAS 9005-37-2

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §172.858, EU E405 compliance

*Properties:* Cream fibrous particles; 175 μ particle size; 80 mesh; sp.gr. 1.46; dens. 33.71 lb/ft<sup>3</sup>; visc. 120 cps (1%), 1200 cps (2%); ref. index 1.3343; pH 3.7; surf. tens. 58 dynes/cm

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

*Precaution:* Incompat. with strong oxidizers

**KELCOLOID® O** [ISP Alginates]

*Chem. Descrip.:* Propylene glycol alginate

CAS 9005-37-2

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; beer foam stabilizer; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §172.858, EU E405 compliance

*Properties:* Cream fibrous particles; 175 μ particle size; sp.gr. 1.46; dens. 33.71 lb/ft<sup>3</sup>; visc. 25 cps (1%), 130 cps (2%); ref. index 1.3343; pH 4.0; surf. tens. 58 dynes/cm

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

*Precaution:* Incompat. with strong oxidizers

**KELCOLOID® S** [ISP Alginates]

*Chem. Descrip.:* Propylene glycol alginate

CAS 9005-37-2

*Uses:* Gellant, emulsifier, and stabilizer in foods, pharmaceutical, and industrial applics.; beer foam stabilizer; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §172.858, EU E405 compliance

*Properties:* Cream fibrous particles; 175 μ particle size; sp.gr. 1.46; dens. 33.71 lb/ft<sup>3</sup>; visc. 20 cps (1%), 120 cps (2%); ref. index 1.3343; pH 4.1; surf. tens. 58 dynes/cm

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

*Precaution:* Incompat. with strong oxidizers

**KELCOSOL®** [ISP Alginates]

*Chem. Descrip.:* Algin

CAS 9005-38-3

*Uses:* Gellant, suspending agent, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance

*Properties:* Cream fibrous particles, sl. odor; 80 mesh; water-sol.; sp.gr. 1.64; dens. 43.38 lb/ft<sup>3</sup>; visc. 1300 cps (1%), 15,000 cps (2%); pH 7; surf. tens. 70 dynes/cm; 9% moisture

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

*Precaution:* Incompat. with strong oxidizers

**KELGIN® F** [Monsanto]

*Chem. Descrip.:* Algin, refined

CAS 9005-38-3

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance

*Properties:* Ivory gran., sl. odor; 80 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft<sup>3</sup>; visc. 300 cps (1%), 4000 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation

*Precaution:* Incompat. with strong oxidizers

**KELGIN® HV** [Monsanto]

*Chem. Descrip.:* Algin

CAS 9005-38-3

*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry

*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance

*Properties:* Ivory gran., sl. odor; 30 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft<sup>3</sup>; visc. 800 cps (1%), 10,000 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye

- irritation  
*Precaution:* Incompat. with strong oxidizers
- KELGIN® LV** [Monsanto]  
*Chem. Descrip.:* Algin  
 CAS 9005-38-3  
*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry  
*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance  
*Properties:* Ivory gran., sl. odor; 42 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft<sup>3</sup>; visc. 60 cps (1%), 500 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation  
*Precaution:* Incompat. with strong oxidizers
- KELGIN® MV** [Monsanto]  
*Chem. Descrip.:* Algin  
 CAS 9005-38-3  
*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry  
*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance  
*Properties:* Ivory gran., sl. odor; 30 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft<sup>3</sup>; visc. 400 cps (1%), 6000 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation  
*Precaution:* Incompat. with strong oxidizers
- KELGIN® XL** [Monsanto]  
*Chem. Descrip.:* Refined sodium alginate  
 CAS 9005-38-3  
*Uses:* Gellant, emulsifier, and stabilizer in food, pharmaceutical, and industrial applics.; stabilizer in paper and textile industry  
*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance  
*Properties:* Ivory gran., sl. odor; 42 mesh; water-sol.; sp.gr. 1.59; dens. 54.62 lb/ft<sup>3</sup>; visc. 30 cps (1%), 160 cps (2%); ref. index 1.3343; pH 7; surf. tens. 62 dynes/cm; 13% moisture  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation  
*Precaution:* Incompat. with strong oxidizers
- KELSET®** [Monsanto]  
*Chem. Descrip.:* Sodium alginate  
 CAS 9005-38-3  
*Uses:* Gellant, emulsifier, and stabilizer in foods (bakery fillings, tomato sauces, glazes), pharmaceutical, and industrial applics.; stabilizer in paper and textile industry; self-gelling gum  
*Regulatory:* FDA 21CFR §184.1724, GRAS; EU E401 compliance  
*Properties:* Lt. ivory soft gel, sl. odor; 177 μ particle size; 80 mesh; water-sol.; bulk dens. ≈ 50 lb/ft<sup>3</sup>; pH 7.0  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; dry powd. may cause eye irritation  
*Precaution:* Incompat. with strong oxidizers
- KELZAN®** [Monsanto]  
*Chem. Descrip.:* Industrial grade xanthan gum  
 CAS 11138-66-2; EINECS/ELINCS 234-394-2  
*Uses:* Foam stabilizer, flocculant suspending agent, gellant, rheology modifier, lubricant for industrial applics. incl. abrasives, adhesives, herbicides, fertilizers, ceramics, cleaners, emulsions, gels, mining, thixotropic paints, paper, petrol., pigments; viscosifier for drilling fluids; latex thickener; std. industrial grade  
*Properties:* Cream dry powd.; 40 mesh size; water-sol.; sp.gr. 1.6; bulk dens. 52.4 lb/ft<sup>3</sup>; visc. 850 cps; f.p. 0 C (1% aq.); surf. tens. 75 dynes/cm; pH 7.0
- KELZAN® XC Polymer** [Monsanto]  
*Chem. Descrip.:* Xanthan gum  
 CAS 11138-66-2; EINECS/ELINCS 234-394-2  
*Uses:* Foam stabilizer, flocculant suspending, gelling agent, rheology modifier, lubricant for industrial applics. incl. abrasives, adhesives, herbicides, fertilizers, ceramics, cleaners, emulsions, gels, mining, thixotropic paints, paper, petrol., pigments; additive to oil well drilling mud  
*Properties:* Cream dry powd.; 40 mesh size; water-sol.; sp.gr. 1.6; bulk dens. 52.4 lb/ft<sup>3</sup>; visc. 850 cps; f.p. 0 C (1% aq.); surf. tens. 75 dynes/cm; pH 7.0
- Kemamide® W-20** [Crompton/Witco]

- Chem. Descrip.:* Ethylene dioleamide  
 CAS 110-31-6; EINECS/ELINCS 203-756-1  
*Uses:* Lubricant, slip, antilock, and mold release agent for plastics, rubber, crayons, petrol. prods., asphalts, inks, metals, textiles; mold release agent for thermoplastic resins in inj. molding; defoamer/water repellent in industrial/household applic.; internal and external lubricants in ABS, PS, polyethylene, PP, PVC, nylon, cellulose acetate, PVAc, and phenolic resins; defoamer in paper industry blk. liquoring, fabric dyeing, latex systems; metal processing, asphalts  
*Regulatory:* FDA compliance  
*Properties:* Gardner 6 max. powd. and flake; sol. (g/100 g solv. @ 35 C) > 20 g in toluene, 12 g in IPA, 4 g in dichloroethane, 3 g in MEK; m.p. 120 C; acid no. 10 max.; flash pt. 296 C (COC); fire pt. 315 C (COC)
- Kemamide® W-39** [Crompton/Witco]  
*Chem. Descrip.:* Ethylene distearamide  
 CAS 110-30-5; EINECS/ELINCS 203-755-6  
*Uses:* Lubricant, slip, antilock, and mold release agent for plastics, crayons, petrol. prods., asphalts, inks, metals, textiles; mold release agent for thermoplastic resins in inj. molding; defoamer and water repellent in industrial/household applic.; release agent migrating from food pkg.; food pkg. adhesives, coatings, paper, cellophane  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.380, 175.390, 176.170, 177.1200, 177.2470, 177.2480, 181.28  
*Properties:* Gardner 18 max. flakes; sol. (g/100 g solv. @ 70 C) 2.0 g toluene, 1.6 g dichloroethane; 1.4 g IPA, 0.9 g MEK; m.p. 140 C; acid no. 10 max.; flash pt. 299 C (COC); fire pt. 315 C (COC); nonionic
- Kemamide® W-40** [Crompton/Witco]  
*Chem. Descrip.:* Ethylene distearamide  
 CAS 110-30-5; EINECS/ELINCS 203-755-6  
*Uses:* Lubricant, slip, antilock, and mold release agent for plastics, rubber, crayons, petrol. prods., asphalts, inks, metals, textiles; mold release agent for thermoplastic resins in inj. molding; defoamer/water repellent in industrial/household applic.; release agent migrating from food pkg.; food pkg. adhesives, coatings, paper, cellophane  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.380, 175.390, 176.170, 177.1200, 177.2470, 177.2480, 181.28  
*Properties:* Gardner 3 max. powd. and flake; sol. (g/100 g solv. @ 70 C) 2.0 g toluene, 1.6 g dichloroethane; 1.4 g IPA, 0.9 g MEK; m.p. 140 C; acid no. 10 max.; flash pt. 299 C (COC); fire pt. 315 C (COC); nonionic
- Kemamide® W-45** [Crompton/Witco]  
*Chem. Descrip.:* Ethylene distearamide  
 CAS 110-30-5; EINECS/ELINCS 203-755-6  
*Uses:* Lubricant, slip, antilock, and mold release agent for plastics, rubber, petrol. prods., asphalts, inks, metals, textiles; mold release agent for thermoplastic resins in inj. molding; defoamer and water repellent in industrial/household applic.; release agent migrating from food pkg.; food pkg. adhesives, coatings, paper, cellophane  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.380, 175.390, 176.170, 177.1200, 177.2470, 177.2480, 181.28  
*Properties:* Gardner 3 max. powd. and flake; sol. (g/100 g solv. @ 70 C) 2.0 g toluene, 1.6 g dichloroethane; 1.4 g IPA, 0.9 g MEK; m.p. 145 C; acid no. 10 max.; flash pt. 304 C (COC); fire pt. 322 C; nonionic
- Kemester® 5500** [Crompton/Witco]  
*Chem. Descrip.:* Glyceryl stearate  
 CAS 123-94-4  
*Uses:* Emollient, emulsifier; stabilizer, plasticizer, lubricant for cosmetics, paper, textiles, and industrial uses  
*Properties:* Gardner 3 max. bead, flake; m.p. 56-60 C; acid no. 3 max.; iodine no. 0.5 max.; sapon. no. 164-177; 100% conc.; nonionic
- Kemester® 6000SE** [Crompton/Witco]  
*Chem. Descrip.:* Glyceryl stearate SE  
 CAS 11099-07-3  
*Uses:* Emulsifier, emollient, lubricant, plasticizer for cosmetics, paper and textiles  
*Properties:* Gardner 3 max. beads; m.p. 56-61 C; acid no. 10 max.; iodine no. 3 max.; sapon. no. 140-156; 100% conc.; anionic
- Kenores® Series** [Eka Chems.]  
*Uses:* Wet sur. agent for papermaking; meets needs of low levels of chlorinated compds. while maintaining high efficiency
- Kessco® Cetyl Alcohol NF** [Stepan]  
*Chem. Descrip.:* Cetyl alcohol NF  
 CAS 36653-82-4; EINECS/ELINCS 253-149-0

*Uses:* Emulsifier, opacifier, and foaming agent in cleansing prods., hair conditioners, creams/lotions, lipsticks, makeup bases; emollient, emulsion stabilizer, thickener, and visc. stabilizer for skin and hair conditioners; defoamer in food-contact paper coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 177.1010, 177.1200, 177.2800, 178.3910; listed in US, Europe, Canada, Australia, Korea, Japan

*Properties:* Wh. to off-wh. flakes; typ. mild waxy odor; sol. in IPA; sol. @ 50 C in min. oil, peanut oil; insol. in water; m.p. 47.5 C; acid no. 0.25; iodine no. 0.8; hyd. no. 227; flash pt. (COC) 198 C; 0% RVOC

*Toxicology:* Pract. nontoxic orally; causes sl. skin and pract. no eye irritation; TSCA listed

*Environmental:* Biodeg.

*Storage:* Store in sealed containers in cool, dry place; avoid prolonged storage above 32 C; avoid overheating

#### **Kevlar® 29, 49** [DuPont; DuPont Canada]

*Chem. Descrip.:* Aramid fiber

*Uses:* Used for aircraft/aerospace, boat hulls, prosthetics, footwear, sporting goods, ropes and cables, fiber optics, bullet-resist. vests, fabrics, brakes and other friction prods., in radial tires; asbestos replacement; reinforcement for mech. rubber goods; high str., lightweight, flexible material; avail. as continuous filament yarn, staple, engineered short fiber, pulp, spun yarn, needlepunched felt, paper, woven fabrics, cord, narrow webbing

*Properties:* Kevlar 29, 49 yarn props.: dens. 1.44 g/cc; tens. str. 2930 MPa; tens. elong. 3.6 and 2.5% resp. (break); Kevlar 29, 49 fiber props.: dens. 1.44 g/cc; tens. str. 3620 MPa; tens. elong. 4.4 and 2.9% (break)

#### **Keydime® A Series** [Eka Chems.]

*Chem. Descrip.:* Alkyl ketene dimer

*Uses:* Internal sizing agent for paper; for improved efficiency in systems containing highly cationic additives, such as wet str.; compat. with anionic additives such as whiteners

*Properties:* Anionic

#### **Keydime® C Series** [Eka Chems.]

*Chem. Descrip.:* Alkyl ketene dimer

*Uses:* Internal sizing agent for paper; starch-stabilized dispersion for use with microparticle retention systems

*Properties:* Cationic

#### **Keydime® D Series** [Eka Chems.]

*Chem. Descrip.:* Alkyl ketene dimer

*Uses:* Internal sizing agent for sizing paper systems, esp. recycled fiber, or systems using dispersed fillers; polymer-stabilized dispersion

*Properties:* Cationic

#### **Keydime® E Series** [Eka Chems.]

*Chem. Descrip.:* Alkyl ketene dimer

*Uses:* Internal sizing agent for sizing paper systems, esp. fine paper systems containing precipitated calcium carbonate and systems which exhibit low cationic demand; polymer-stabilized dispersion

*Properties:* Cationic

#### **Keydime® NU** [Eka Chems.]

*Uses:* Dispersion for use in wood-containing paper grades, to provide improved sizing and converting/printing characteristics

#### **K-Flex® UD-320** [King Ind.]

*Chem. Descrip.:* Aliphatic urethane diol

*Uses:* Polyurethane polyol used in solv.-based systems; modifier for acrylic, polyester, and alkyd resins; high-solids coatings, machinery and equip. coatings, appliance coatings, automotive topcoats, paper and wood coatings, aerospace coatings; lower VOC

*Properties:* Gardner < 3 clear visc. liq.; sol. in water, alcohol, esters, ketones; insol. in xylene, min. spirits, glycols; low m.w.; sp.gr. 1.13; dens. 9.40 lb/gal; visc. 9000 cps; acid no. 0.5; hyd. no. 300; 82% act. in methoxy propyl acetate; 31% urethane; 0.02% moisture

#### **K-Flex® UD-320-100** [King Ind.]

*Chem. Descrip.:* Aliphatic urethane diol

*Uses:* Polyurethane polyol used as a modifier for high solids solv. borne coatings; polymer intermediate; preparation of polyester-urethanes; rec. for appliance coatings, automotive topcoats, paper and wood coatings, aerospace coatings; lower VOC

*Properties:* Gardner < 3 clear visc. liq.; sol. in water, alcohol, esters, ketones, glycols; insol. in xylene, min. spirits; low m.w.; sp.gr. 1.14; dens. 9.50 lb/gal; visc. 7000 cps (50 C); hyd. no. 350; 100% solids; 37% urethane; 0.02% moisture

#### **K-Flex® UD-320W** [King Ind.]

*Chem. Descrip.:* Aliphatic urethane diol

*Uses:* Polyurethane polyol used as a modifier for water-sol. resins and emulsions, coil coatings, paper and wood coatings, appliance coatings, automotive topcoats/primers, can coatings, ink and graphics systems; lower VOC

*Properties:* Gardner < 3 clear visc. liq.; sol. in water, alcohols, glycol-esters, glycols; insol. in ketones, xylene, min. spirits; low m.w.; sp.gr. 1.14; dens. 9.50 lb/gal; visc. 8000 cps; acid no. 0.5; hyd. no. 315; 88% act. in water; 10% moisture

#### **K-Flex® XM-2304** [King Ind.]

*Chem. Descrip.:* Aliphatic urethane diol resin modifier

*Uses:* Modifier for amino or isocyanate crosslinked coatings, elastomers, and adhesives, automotive, aerospace, wood/paper, and general industrial coatings, and inks; water-sol.; reduces VOCs

*Properties:* Gardner 3 viscous liq.; sol. in water, alcohols, esters, ketones, and glycol ethers; sp.gr. 1.188; visc. 26,000 cps; hyd. no. 383; flash pt. (CC) > 200 F; 95% act.

*Toxicology:* TSCA listed

#### **Klucel® E** [Hercules/Aqualon]

*Chem. Descrip.:* Hydroxypropylcellulose, standard grade

CAS 9004-64-2

*Uses:* Surface active thickener, stabilizer, film-former, suspending agent, protective colloid for coatings, adhesives, extrusions, moldings, paper, paint removers, encapsulations, inks

*Properties:* Off-wh. powd., tasteless; 99% thru 20 mesh; sol. in water and many polar org. solvs.; m.w. 80,000; visc. 150-700 cps (10% aq.); bulk dens. 0.5 g/ml; soften. pt. 100-150 C; nonionic

#### **Klucel® L** [Hercules/Aqualon]

*Chem. Descrip.:* Hydroxypropylcellulose, standard grade

CAS 9004-64-2

*Uses:* Surface active thickener, stabilizer, film-former, suspending agent, protective colloid for coatings, adhesives, extrusions, moldings, paper, paint removers, encapsulations, inks

*Properties:* Off-wh. powd., tasteless; 99% thru 20 mesh; sol. in water and many polar org. solvs.; m.w. 80,000; visc. 150-700 cps (10% aq.); bulk dens. 0.5 g/ml; soften. pt. 100-150 C; nonionic

#### **Koldex® 50, 60** [Tate & Lyle N. Am.]

*Chem. Descrip.:* Visc. modified dent corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Binder in paper coatings, adhesives; provides low visc. at med.-high solids on prep. in cold water; rec. where good tack at high solids is important

*Properties:* Sol. in cold water

#### **Korad Klear** [Polymer Extruded Prods.]

*Chem. Descrip.:* Acrylic film

*Uses:* Permanently bondable to substrates incl. metal, wood, plastics, paper, and foil; used in directional and warning signs, prod. coding; with wood grain decoration in large appliances; auto and boat interiors; metalized film for trim (appliance, automotive), name plates, watch housings; in laminates for outdoor prods., (automotive panels, moldings and bumpers, solar blocking film, lighting, housings); weatherable with optical clarity; easily decorated; clear film; tens. str. 4400 psi; tens. elong. 130%.

#### **Koster Keunen Beeswax** [Koster Keunen]

*Chem. Descrip.:* Beeswax, white and yel.

EINECS/ELINCS 232-383-7

*Uses:* Emulsifier, thickener, emollient, opacifier, oil gellant used in creams, lotions, lipstick, makeup, depilatories, ointments, salves, sustained release pharmaceuticals, furniture, wood, and leather polishes, leather, textile, wood, and paper finishes, candles, molding, lithography, non-cosmetic emulsions

*Regulatory:* FDA 21CFR §184.1973, 184.1975

*Properties:* Wax; sol. 24.2 g/100 ml in benzene; sp.gr. 0.950-0.960; m.p. 61-65 C; acid no. 17-24; iodine no. 8-11; cloud pt. < 65 C; flash pt. 242-250 C; ref. index 1.4398-1.4451; dielec. const. 3.1-3.3

#### **Koster Keunen Candelilla** [Koster Keunen]

*Chem. Descrip.:* Candelilla (Euphorbia cerifera) wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0

*Uses:* Gellant, emollient used for lipsticks, creams, lotions, gel prods.; leather dressings; furniture and other polish; cements; varnishes; sealing wax; elec. insulating compositions; phonograph records; paper sizing; rubber; waterproofing and insectproofing; paint removers; soft wax stiffeners; lubricants; candy and gum; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180

*Properties:* Wax; sol. hot in alcohol, benzene, petroleum ether; sp.gr. 0.9820-0.9930; m.p. 68.5-72.5 C; acid no. 11-19; iodine no. 19-44; sapon. no. 44-



66; ref. index 1.4555; dielec. const. 2.50-2.63

**Koster Keunen Carnauba** [Koster Keunen]

*Chem. Descrip.:* Carnauba (Copernicia cerifera) wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Used for lipsticks, salves, creams, ointments; pill coatings; shoe, furniture, and car polishes; lacquers, varnishes; phonograph records; hardener for candles; leather finishes; elec. insulating composition; waterproofing textiles, wood; inks; mold lubricant; candies; paper glazing

*Regulatory:* FDA 21CFR §182.1978

*Properties:* Wax; sol. (g/100 cc): 1.690 g chloroform, 0.610 g xylene, 0.518 g benzene, 0.440 g turpentine, 0.324 g acetone; sp.gr. 0.996-0.998; m.p. 82.5-86 C; acid no. 2-6; iodine no. 7-14; sapon. no. 78-88; flash pt. > 300 C; ref. index 1.463; dielec. const. 2.67-4.20

**Koster Keunen Ceresine** [Koster Keunen]

*Chem. Descrip.:* Ceresin

CAS 8001-75-0; EINECS/ELINCS 232-290-1

*Uses:* Cosmetics and pharmaceuticals (creams, lotions, ointments, salves); candles; shoe, floor, and leather polishes; antifouling paints; wood polishes/filler; incandescent gas mantles; paper sizing; waxed paper; lubricants; wax figures; elec. insulation; impregnating/preserving agent; crayons; perfume pastes; pomades; rubber mixtures; waterproofing textiles; food pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Properties:* Wax; sp.gr. 0.88-0.92; m.p. various grades from 133-163 F; acid no. 0; sapon. no. < 1; ref. index 1.4416-1.4465; dielec. const. 2.15-2.33

**Koster Keunen Microcrystalline Waxes** [Koster Keunen]

*Chem. Descrip.:* Microcrystalline wax

CAS 64742-42-3; EINECS/ELINCS 264-038-1

*Uses:* Used for cosmetics, pharmaceuticals; laminating of paper, cloth; waterproofing paper, fiberboard, textiles, wood; potting compds. for condensers; polishes for floor, furniture, skis, leather; rust prevention compding. of rubber; pattern-making; printing inks; lubricants; records; food-contact applics.

*Regulatory:* FDA §172.886, 178.3710

*Properties:* Wh. to amber wax; sp.gr. 0.90-0.94; visc. 50-100 (210 F); m.p. 140-190 F; acid no. 0-0.2; iodine no. 0-1.5; sapon. no. 0-2; flash pt. > 425 F; fire pt. > 550 F

**Koster Keunen Oxidized Microcrystalline Wax** [Koster Keunen]

*Chem. Descrip.:* Oxidized microcrystalline wax

CAS 97017-52-9

*Uses:* Used for prep. of wax emulsions such as liq. softening, lubricating and polishing agents; carbon paper; crayons; as replacement for vegetable waxes

*Regulatory:* FDA 29CFR §1910.1200

*Properties:* M.p. 160-200 F; acid no. 10-35; sapon. no. 25-66

**Koster Keunen Ozokerite** [Koster Keunen]

*Chem. Descrip.:* Ozokerite

CAS 8021-55-4; EINECS/ELINCS 265-134-6

*Uses:* Used for cosmetics, creams, lotions, pomades; paints, varnishes; polishes for leather, automobile, floor; printing inks; pharmaceutical ointments; crayons; waxed paper; linen/cotton sizing; elec. insulating; lubricants and sealing wax compositions; process engraving, lithography; rubber filler

*Regulatory:* FDA approved

*Properties:* Wax; sol. (g/100 g): 12.99 carbon bisulfide, 11.83 g petrol. ether (75 C), 6.06 g turpentine (160 C), 3.95 g xylene (137 C), 2.83 g toluene (109 C), 2.42 g chloroform; sp.gr. 0.85-0.95; m.p. various grades from 149-190 F; acid no. 0; iodine no. 7-9; sapon. no. 0; ref. index 1.440 (60 C); dielec. const. 2.37-2.55

**Koster Keunen Paraffin Wax** [Koster Keunen]

*Chem. Descrip.:* Paraffin

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Wax used for cosmetics, pharmaceutical ointments and salves; candles; waterproofing, sealing; lubricating; protection of food, plants, fruits, cheese, and vegetables; paper; polishes; crayons; electronic insulation; hot-melt adhesives; food pkg. coatings and applics.

*Regulatory:* FDA 21CFR §172.615, 175.250, 175.300

*Properties:* Wax; sol. (g/100 cc): 40 g benzene, 9 g min. oil, 3 g dichloroethane, 0.4 g IPA; m.p. various grades from 118-165 F; ref. index 1.4219-1.4357

**Koster Keunen Synthetic Candelilla** [Koster Keunen]

*Chem. Descrip.:* Syn. candelilla wax

CAS 136097-95-5

*Uses:* Gellant, thickener, stabilizer, and moisturizer used for lipsticks, creams,

lotions, gel prods.; leather dressings; furniture and other polish; cements; varnishes; sealing wax; elec. insulating compositions; phonograph records; paper sizing; rubber; waterproofing and insectproofing; paint removers; soft wax stiffeners; lubricants; adhesives; candy and gum

*Properties:* Wax; sol. hot in alcohol, benzene, petroleum ether; m.p. 68.5-72.5 C; acid no. 11-20; sapon. no. 44-66

**Kotamite®** [IMERYS]

*Chem. Descrip.:* Calcium carbonate, coated with < 2% stearic acid

*Chem. Analysis:* CaCO<sub>3</sub> (97.6%), MgCO<sub>3</sub> (1.5%), moisture (0.2% max.)

*Uses:* Coated pigment, filler, reinforcement with easy dispersion in plastic compds., e.g., polyolefins, rigid and flexible PVC, nat. and syn. rubbers and latexes for wire and cable insulation compds., water sealant compds., improved impact props. in PP; hardens and stiffens stocks; filler, pigment, reinforcing agent in paper, paints, caulks; hydrophobic; disperses readily

*Regulatory:* NSF compliance

*Properties:* Wh. powd., odorless; 3 μ mean particle size; fineness (Hegman) 6.0; sp.gr. 2.71; dens. 50 lb/ft<sup>3</sup> (loose); surf. area 2.8 m<sup>2</sup>/g; oil absorp. 13; pH 9.5 (5% slurry); nonflamm.

*Toxicology:* TLV/TWA 10 mg/m<sup>3</sup>, considered nuisance dust

*Precaution:* Incompat. with acids

**KP-140®** [FMC]

*Chem. Descrip.:* Tributoxyethyl phosphate

CAS 78-51-3; EINECS/ELINCS 201-122-9

*Uses:* Plasticizer; leveling agent in floor polish formulations; flame retardant for plastics or syn. rubbers of lower flammability; imparts low temp. flexibility to plastics or acrylonitrile rubbers; reduces visc. in plastisols; defoamer for drilling muds, cements, fracturing fluids, plasters, paper coatings, pulp bleaching, aq. emulsion paints, adhesives, mercerizing liquors/dye baths, anti-freeze, fermentation, detergents

*Properties:* APHA 75 max. liq.; mild butyl odor; sol. in org. liqs. and gasoline; insol. in water; m.w. 398; sp.gr. 1.016-1.023 (20/20 C); dens. 8.5 lb/gal (20 C); visc. 12.2 cp (20 C); vapor pressure < 0.1 mm Hg (150 C); f.p. < -70 C; b.p. 215-228 C (4 mm); pour pt. < -70 C; flash pt. (PMCC) 224 C; fire pt. 252 C; ref. index 1.434 ± 0.002; surf. tens. 30 dynes/cm (20 C)

*Precaution:* Low degree of fire hazard

**Kronitex® TBP** [FMC]

*Chem. Descrip.:* Tributyl phosphate

CAS 126-73-8; EINECS/ELINCS 204-800-2

*Uses:* Primary plasticizer for NC, cellulose acetate, chlorinated rubber, vinyls; high boiling solvent for lithographic inks; antifoam for paints, paper coatings, aq. adhesives, inks, casein sol'ns., textile sizes, detergent sol'ns.; pigment dispersant; also for uranium extraction

*Properties:* APHA 50 max. color, char. odor; sol. in most org. liqs., min. oil, gasoline, 0.1% in water; m.w. 266; sp.gr. 0.977-0.983 (20/20 C); dens. 8.14 lb/gal (20 C); visc. 3.7 cp (20 C); vapor pressure 7.3 mm Hg (150 C); f.p. < -80 C; pour pt. < -80 C; b.p. 137-145 C; flash pt. (PMCC) 115 C; fire pt. 182 C; ref. index 1.423 ± 0.001; surf. tens. 29 dynes/cm (20 C)

*Toxicology:* Severe skin irritant

**Kronos® 1000** [Kronos]

*Chem. Descrip.:* Anatase titanium dioxide

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Pigment for fibers, paper and coatings, elastomers, food-contact coatings/paper

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Properties:* Dens. 3.8 g/cc; oil absorp. 20; 98% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 1070** [Kronos]

*Chem. Descrip.:* Anatase titanium dioxide

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Pigment for fibers, paper and coatings, food-contact coatings/paper

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 1072** [Kronos]

*Chem. Descrip.:* Anatase titanium dioxide

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Pigment for fibers, paper and coatings, food-contact coatings/paper

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 1074** [Kronos]

*Chem. Descrip.:* Anatase titanium dioxide  
 CAS 13463-67-7; EINECS/ELINCS 236-675-5  
*Uses:* Pigment for fibers, paper and coatings, food-contact coatings/paper  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2020 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al  
*Uses:* Pigment for coatings (interior trade sales finishes, maintenance paints, industrial coatings, wh. exterior latex house paints, gel coats), plastisols, food-contact coatings/paper, PVC pipe for potable water  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; NSF approved; EC, German approvals

*Properties:* Dens. 4.1 g/cc; oil absorp. 17; 94% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2073 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al  
*Uses:* Pigment for plastics (PC, PE, LLDPE, PS, plasticized and rigid interior or exterior PVC, ABS, other engineering thermoplastics, elastomers, linoleum, masterbatches, PVC pipe for potable water, food-contact coatings/paper  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; NSF approved; EC, German approvals

*Properties:* Dens. 4.2 g/cc; oil absorp. 11; 97% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2081 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al, Si  
*Uses:* Pigment for paper laminates, urea-melamine resins, rigid PVC outdoor applics., food-contact coatings/paper; highest lightfastness  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Properties:* Dens. 4.0 g/cc; oil absorp. 20; 90% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2090 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide  
 CAS 13463-67-7; EINECS/ELINCS 236-675-5  
*Uses:* Pigment for coatings, food-contact coatings/paper  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2101 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al, Si  
*Uses:* Pigment for coatings (aq. and nonaq. exterior or interior trade sales finishes, weatherable maintenance and industrial coatings), roofing, pastel rigid PVC siding, PVC pipe for potable water, food-contact coatings/paper  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; NSF approved; EC, German approvals

*Properties:* Dens. 4.0 g/cc; oil absorp. 20; 92% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2131 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide  
 CAS 13463-67-7; EINECS/ELINCS 236-675-5  
*Uses:* Pigment for coatings, food-contact coatings/paper  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2160 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al, Si  
*Uses:* Pigment for coatings where max. gloss retention and chalk resist. are essential, powd. coatings, automotive finishes, plasticized and rigid exterior PVC, plastisols, epoxy and polyester resins, food-contact coatings/paper, PVC pipe for potable water  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; NSF approved; EC, German approvals

*Properties:* Dens. 3.9 g/cc; oil absorp. 18; 91% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2200 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al  
*Uses:* Pigment for plastics (PS and copolymers, polyolefins, plasticized PVC), elastomers, linoleum, masterbatches, food-contact coatings/paper; high str. blue-toned  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, Germany ap-

proved

*Properties:* Dens. 4.1 g/cc; oil absorp. 13; 96% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2210 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al  
*Uses:* Pigment primarily for plastics (plasticized and rigid interior PVC, PC, polyolefins, PS and copolymers, plastisols, rigid exterior PVC), masterbatches, food-contact coatings/paper; designed for ease of disp. and bluest tint tone; not rec. for very high temp. applics.

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Properties:* Dens. 4.1 g/cc; oil absorp. 13; 96% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2220 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al, Si  
*Uses:* Pigment primarily for plastics (PC, polyolefin fibers, PS and copolymers, plasticized and rigid PVC, plastisols, other engineering thermoplastics), masterbatches, liq. colors, powd. coatings, food-contact coatings/paper; moderate weather resist.

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Properties:* Dens. 4.0 g/cc; oil absorp. 17; 93% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2230 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al  
*Uses:* Pigment primarily for plastics (PC, PE, LLDPE, ABS, PS, plasticized and rigid PVC, other engineering thermoplastics), masterbatches, food-contact coatings/paper; max. ease of disp.

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Properties:* Dens. 4.1 g/cc; oil absorp. 11

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Kronos® 2310 [Kronos]**

*Chem. Descrip.:* Rutile titanium dioxide, stabilized with Al, Si, Zr  
*Uses:* Pigment for coatings, epoxy and thermoset polyester resins, food-contact coatings/paper  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180; EC, German approvals

*Properties:* Dens. 4.0 g/cc; oil absorp. 18; 93% TiO<sub>2</sub>

*Toxicology:* Inert dust; TLV 6 mg/m<sup>3</sup> air

**Krytox® DF [DuPont]**

*Chem. Descrip.:* PTFE in HCFC-141b

*Uses:* Dry film lubricant and mold release agent for rubbers and plastics, coating and mfg. of metal; promotes thickening and retards fouling; mfg. of machine parts, metalworking operations, in precision audiovisual equip., mfg. of glass and paper; additive for paints and finishes, paper and paper coatings, printing and writing inks, waxes and polishes for metals, cars, appliances, etc.; resist. to nitric acid, hydrochloric acid, sodium hydroxide, and alcoholic potassium hydroxide

*Properties:* Translucent fluid disp.; sl. ethereal odor; insol. in nonfluorinated solvs.; sp.gr. 1.32; dens. 11.0 lb/gal; m.p. 300 C; 15% solids; 85% volatiles

**Krytox® DF250/IPA [DuPont]**

*Chem. Descrip.:* PTFE in isopropyl alcohol

*Uses:* Dry film lubricant and mold release agent for rubbers and plastics, coating and mfg. of metal; promotes thickening and retards fouling; mfg. of machine parts, metalworking operations, in precision audiovisual equip., mfg. of glass and paper; additive for paints and finishes, paper and paper coatings, printing and writing inks, waxes and polishes for metals, cars, appliances, etc.; resist. to nitric acid, hydrochloric acid, sodium hydroxide, and alcoholic potassium hydroxide

*Properties:* Wh. translucent fluid disp.; alcohol odor; insol. in nonfluorinated solvs.; sp.gr. 0.94; dens. 7.8 lb/gal; m.p. 300 C; 25% solids; 75% volatiles

**Krytox® DF/IPA [DuPont]**

*Chem. Descrip.:* PTFE in isopropyl alcohol

*Uses:* Dry film lubricant and mold release agent for rubbers and plastics, coating and mfg. of metal; promotes thickening and retards fouling; mfg. of machine parts, metalworking operations, in precision audiovisual equip., mfg. of glass and paper; additive for paints and finishes, paper and paper coatings, printing and writing inks, waxes and polishes for metals, cars, appliances, etc.; resist. to nitric acid, hydrochloric acid, sodium hydroxide, and alcoholic potassium hydroxide

*Properties:* Translucent fluid disp.; alcohol odor; insol. in nonfluorinated solvs.; sp.gr. 0.9; dens. 7.5 lb/gal; m.p. 300 C; 15% solids; 80% volatiles

**Krytox® DF/W** [DuPont]

*Chem. Descrip.:* PTFE in water

CAS 9002-84-0; EINECS/ELINCS 204-126-9

*Uses:* Dry film lubricant and mold release agent for rubbers and plastics, coating and mfg. of metal; promotes thickening and retards fouling; mfg. of machine parts, metalworking operations, in precision audiovisual equip., mfg. of glass and paper; additive for paints and finishes, paper and paper coatings, printing and writing inks, waxes and polishes for metals, cars, appliances, etc.; resist. to nitric acid, hydrochloric acid, sodium hydroxide, and alcoholic potassium hydroxide

*Properties:* Creamy wh. fluid disp.; sl. sweet odor; insol. in nonfluorinated solvs.; sp.gr. 1.1; dens. 9.2 lb/gal; m.p. 300 C; 20% solids; 80% volatiles

**K® Sodium Silicate** [PQ]

*Chem. Descrip.:* Sodium silicate

*Chem. Analysis:* SiO<sub>2</sub> (31.7%), Na<sub>2</sub>O (11%)

CAS 1344-09-8; EINECS/ELINCS 215-687-4

*Uses:* Detergent, deflocculant, bleaching enhancer, alkalinity agent in deinking paper stock; peroxide stabilizer in repulping and postbleaching; clay refining, slurry thinner in ceramics; liq. soaps and detergents; sealant in metal castings; binder in metal pelletizing

*Properties:* Sticky heavy sol'n.; dens. 12.3 lb/gal (20 C); visc. 960 cps; pH 11.5

**Kybreak®** [Hercules]

*Uses:* Repulping aid to defiber and decolorize (dyed) paper and paperboard treated with wet str. resins

# L

## L-45 Series [Crompton/Witco]

*Chem. Descrip.:* Dimethicone

CAS 9006-65-9

*Uses:* Lubricant, emollient for creams and lotions; antifoam for nonaq. petrol. processing systems, hydraulic fluids, pigment flotation on paints; heat transfer fluid for drug mfg.; release agent; also for cosmetics, car polish; aerosol pkg., antiperspirants/deodorants; in resinous/polymeric food-contact coatings; in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* 350 cSt grade: FDA 21CFR §173.340, 175.300, 175.390, 176.170, 176.180, 177.1210, 177.2260, 177.2800, 178.3570, 178.3910, 181.28

*Properties:* Clear liq.; sol. in most nonpolar solvs.; visc. 10-100,000 cstk grades

## Lamacit® AP 6 [Cognis]

*Chem. Descrip.:* Fatty acid and POE derivs.

*Uses:* Emulsifier for paraffins used in particle and fiber boards, paper mfg.

*Properties:* Solid; 100% conc.; anionic

## Lambent E-2140 [Lambent Tech./Norcross]

*Chem. Descrip.:* Polydimethylsiloxane emulsion

CAS 9006-65-9

*Uses:* Used in tire and vinyl dressings; mold release agent for plastic, rubber, iron, cement, and paper mfg.

*Properties:* Liq.; disp. in water; intermed. visc.; 60% solids

## Lambent E-2140 35% Food Grade [Lambent Tech./Norcross]

*Chem. Descrip.:* Polydimethylsiloxane emulsion

CAS 9006-65-9

*Uses:* Used in tire and vinyl dressings; mold release agent for plastic, rubber, iron, cement, and paper mfg.; for food contact

*Regulatory:* FDA 21CFR §21.340 compliant

*Properties:* Liq.; disp. in water; intermed. visc.; 35% solids

## LamChem C-100-L [Lambent Tech.]

*Chem. Descrip.:* 1-Hydroxyethyl-2-lauric imidazoline

CAS 136-99-2; EINECS/ELINCS 205-271-0

*Uses:* Intermediate for quat. ammonium compds.; strongly absorbed on textiles, paper and many metal surfs.; for agric., asphalt, cleaners, corrosion inhibitors, demulsifiers, flotation, metalworking, paints, pigment grinding, inks, textiles, wax emulsions

*Properties:* Tan paste; sol. in mineral/vegetable oils, dilute sol'ns. of mineral acids, org. solvs., sl. sol. in water; m.w. 276; sp.gr. 0.96; pH 10-11 (2% sol'n.); cationic

## LamChem C-100-O [Lambent Tech.]

*Chem. Descrip.:* 1-Hydroxyethyl-2-oleic imidazoline

CAS 21652-27-7

*Uses:* Intermediate for quat. ammonium compds.; strongly absorbed on textiles, paper and many metal surfs.; for agric., asphalt, cleaners, corrosion inhibitors, demulsifiers, flotation, metalworking, paints, pigment grinding, inks, textiles, wax emulsions

*Properties:* Brn. liq.; sol. in mineral/vegetable oils, dilute sol'ns. of mineral acids, org. solvs., sl. sol. in water; m.w. 350; sp.gr. 0.93; pH 10-11 (2% sol'n.); cationic

## LamChem C-100-S [Lambent Tech.]

*Chem. Descrip.:* 1-Hydroxyethyl-2-stearic imidazoline

CAS 95-19-2; EINECS/ELINCS 202-397-8

*Uses:* Intermediate for quat. ammonium compds.; strongly absorbed on textiles, paper and many metal surfs.; for agric., asphalt, cleaners, corrosion

inhibitors, demulsifiers, flotation, metalworking, paints, pigment grinding, inks, textiles, wax emulsions

*Properties:* Yel. solid; sol. in mineral/vegetable oils, dilute sol'ns. of mineral acids, org. solvs., sl. sol. in water; m.w. 352; sp.gr. 0.94; pH 10-11 (2% sol'n.); cationic

## LamChem C-100-T [Lambent Tech.]

*Chem. Descrip.:* 1-Hydroxyethyl-2-tall oil imidazoline

CAS 61791-39-7; EINECS/ELINCS 263-171-2

*Uses:* Intermediate for quat. ammonium compds.; strongly absorbed on textiles, paper and many metal surfs.; for agric., asphalt, cleaners, corrosion inhibitors, demulsifiers, flotation, metalworking, paints, pigment grinding, inks, textiles, wax emulsions

*Properties:* Amber liq.; sol. in mineral/vegetable oils, dilute sol'ns. of mineral acids, org. solvs., sl. sol. in water; m.w. 350; sp.gr. 0.945; pH 10-11 (2% sol'n.)

## Laminating Adhesive #5110 [Polymer Research Corp. of Am.]

*Chem. Descrip.:* Copolymer

*Uses:* Adhesive offering uniformity of particles and emulsion behavior, for textile backing, pigment and fiber binders, adhesive formulations, paper saturants, and wet-end additions

*Properties:* Milky wh. emulsion; dens. 8.3-8.4 lb/gal; visc. 200 cps; pH 9.0-9.5; 47.0 ± 1.0% solids (wet)

## Laponite® JS [Southern Clay Prods.]

*Chem. Descrip.:* Sodium magnesium fluorosilicate, tetrasodium pyrophosphate

*Chem. Analysis:* SiO<sub>2</sub> (50-52%), MgO (22-24%), Na<sub>2</sub>O (6-8%), P<sub>2</sub>O<sub>5</sub> (3.3-5.5%), Li<sub>2</sub>O (1.1-1.4%)

*Uses:* Thixotrope, gellant, suspending agent for aq. systems incl. paints and cleansers; may be coated onto paper or other surfaces to give elec. conductive films; imparts a shear sensitive structure to waterborne formulations

*Properties:* Wh. free-flowing powd.; odorless; insol. in water but forms a colloid gel on standing; dens. 0.7-1.3 kg/dm<sup>3</sup> (packed); m.p. fuses @ 900 C; pH 9.8 (2% aq. disp.)

*Toxicology:* LD50 (oral, rat) > 8 g/kg; LC50 (inh., rat) > 1.66 g/m<sup>3</sup>; OEL 5 mg/m<sup>3</sup> (respirable dust); nuisance dust; may cause degreasing of skin, dryness or cracking, eye irritation, nose/mouth irritation, gastric irritation, fibrosis of lung tissue

*Environmental:* Contains no heavy metals or other agents harmful to the environment; ecologically inert; pyrophosphate additive may affect aquatic life or cause algal blooms if released into rivers in lg. quantities

*Precaution:* Avoid contact with strong min. acids or substances liable to decomp. by dust, e.g., peroxides; avoid excessive moisture; humidity or direct contact with water results in caking

*Hazardous Decomp. Prods.:* Lithium salts if prod. dec. by min. acid

*Storage:* Store under dry conditions; seal container after use

## Larostat® 902 A [BASF]

*Chem. Descrip.:* Amide

*Uses:* Non-amine internal/topical antistat for PE and PP film, electronics pkg.; food pkg. adhesives, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard; does not affect film quality or clarity; nonreactive with PC

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.1210; meets MIL spec. B-81705C

*Properties:* Liq.; water-sol.; 99% act.

## Larostat® 902 AS [BASF]

- Chem. Descrip.:* Non-amide antistat on silica  
*Uses:* Internal antistat for polyolefins; food pkg. adhesives, closures with sealing gaskets for food containers; defoamer in food-contact paper/paper-board; stable to 230 C  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.1210; meets MIL spec. B-81705C  
*Properties:* Free-flowing powd.; water-disp.; 60% act.
- Larostat® FPE-S [BASF]**  
*Chem. Descrip.:* Amide antistat on silica  
*Uses:* Internal antistat for food-grade polyolefin films, food pkg. adhesives/paper/polymers/textiles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 177.2260, 177.2800, 178.3130  
*Properties:* Free-flowing powd.; water-disp.; 60% act.
- LASAR™ [Eka Chems.]**  
*Chem. Descrip.:* Alkenyl succinic anhydride  
 CAS 70983-55-0  
*Uses:* Sizing agent providing cost effective sizing in alkaline fine papers containing precipitated calcium carbonate and in grades where full sizing cure is required at size press or at reel
- Laserbond [Vinings Ind.]**  
*Uses:* Surf. sizing agent for papers imparting improved adhesion of toner inks used in copiers and laser printers; improves water holdout on treated sheets
- Lastabil 923 [BK Giulini Chemie]**  
*Chem. Descrip.:* Phosphonate, aminocarboxylate, phosphate blend  
*Uses:* Stabilizer for peroxide bleaching liquors of mechanical pulp, cellulose, and secondary fibers  
*Properties:* Ylsh.-brn. liq.; misc. with water; sp.gr. 1.4; pH 11 (20 C)  
*Storage:* 1 yr. shelf life @ 5-30 C; protect from frost
- Lastabil 928 OE [BK Giulini Chemie]**  
*Chem. Descrip.:* Polycarboxylic acids and phosphorus-nitrogen compds.  
*Uses:* Stabilizer for peroxide in the deinking process; chelating agent for heavy metal ions such as iron, manganese, and copper  
*Use Level:* 0.4-0.8%  
*Properties:* Pale yel. liq.; misc. with water; sp.gr. 1.2; pH 13  
*Storage:* 1 yr. shelf life @ 5-30 C; protect from frost
- Lastaron 891 [BK Giulini Chemie]**  
*Chem. Descrip.:* Sodium salt of low-molecular polyacrylate  
 CAS 9003-04-7  
*Uses:* Dispersant for inorg. pigments and fillers used in paper coating  
*Use Level:* 0.1-0.5%  
*Regulatory:* BgVV compliant  
*Properties:* Ylsh. liq.; misc. with water; sp.gr. 1.3; pH 8-9 (20 C); anionic  
*Storage:* 6 mos. shelf life @ R.T.; protect from frost
- Leaf River 90 Hardwood [Georgia-Pacific Resins]**  
*Chem. Descrip.:* Southern bleached hardwood from sweet and blk. gum (40%), red oak (30%), and yel. poplar (30%)  
*Uses:* Short fiber pulp for printing and writing paper, coated paper, cast coated paper, computer paper, copy paper; high opacity, smooth surf. finish when blended with softwood; good brightness, str., and cleanliness; rec. where smooth surf. is desired  
*Properties:* 1.01 mm fiber length; 0.124 mg/m coarseness; brightness (ISO) 90
- Leaf River 90 Softwood [Georgia-Pacific Resins]**  
*Chem. Descrip.:* Southern bleached softwood from loblolly pine (90%) and longleaf and slash pine (10%)  
*Uses:* Long fiber pulp for fine writing papers, printing papers, coffee filters, postage stamps, calendars, etc.; high brightness, str., and cleanliness; avail. as furnish for uncoated free sheet, coated paper, filter paper, machine glazed paper, and tissue  
*Properties:* 2.47 mm fiber length; 0.293 mg/m coarseness; brightness (ISO) 90
- Leucophor® AP Liq. [Clariant UK]**  
*Chem. Descrip.:* Disulfonated stilbene  
*Uses:* Optical brightener for stock applic. in sized and unsized papers, esp. neutrally sized and calcium carbonate-filled papers and for use in coatings which contain casein as a sec. binder; highly substantive; exhibits very good buildup even at low concs.; very good stability to hard and soft water and alkaline conditions; for use continuously or batchwise; compat. with most anionic and nonionic prods.  
*Properties:* Yel.-brn. clear liq.; readily dilutable with water; dens. 1.211 kg/l; visc. < 150 mPa·s (20 C), < 600 mPa·s (0 C); solid. pt. -18 C; pH 8.5; anionic
- Storage:* Stable for 12 mos at < 40 C and protected from light
- Leucophor® BCF Ultra Powd. [Clariant UK]**  
*Chem. Descrip.:* Stilbene deriv.  
*Chem. Analysis:* NaCl (1.3%), Ca (210 ppm), Fe (6 ppm)  
*Uses:* Optical brightener for photographic paper; produces paper with exc. contrast and brilliance; added to baryte coating or gelatin emulsion or both; adsorbed by gelatin and not washed off into developing bath even at pH 10-11; good light stability  
*Properties:* Pale yel. powd.; sol. clear @ 5% dilution in water; anionic
- Leucophor® CN Liq. [Clariant UK]**  
*Chem. Descrip.:* Stilbene deriv.  
*Uses:* Optical brightener for high quality photographic papers for applic. in the stock, at the size press, or as part of a coating formulation; brilliant neutral shade; economical; good substantivity; good stability to acids, alkalis, water hardness; for use continuously or batchwise; compat. with anionics, nonionics  
*Properties:* Yel.-brn. clear liq.; readily diluted with water; dens. 1.12 kg/l; visc. < 100 mPa·s (20 C), < 200 mPa·s (0 C); pH 9.1; anionic  
*Storage:* Stable for 12 mos at < 40 C and protected from light
- Leucophor® NS Liq. [Clariant UK]**  
*Chem. Descrip.:* Stilbene deriv.  
*Uses:* Optical brightener for papers for surf. applic. at the size press or in coatings; brilliant, high-wh.; patent pending; very good stability to acids, alkalis, and hard water conditions; for use continuously or batchwise; compat. with anionics, nonionics  
*Properties:* Yel.-brn. clear liq., neutral blue hue; readily diluted with water; dens. 1.18 kg/l (20 C); visc. < 20 mPa·s (20 C), < 50 mPa·s (0 C); solid. pt. -9 C; pH 9.3; anionic  
*Storage:* Stable for 12 mos at < 40 C and protected from light
- Leucophor® SHR Liq. [Clariant UK]**  
*Chem. Descrip.:* Hexasulfonated stilbene deriv.  
*Uses:* Optical brightener for papers for surf. treatment at the size press or in coatings; brilliant, high-wh.; very good stability to acids, alkalis, and hard water conditions; for use continuously or batchwise; compat. with anionics, nonionics  
*Properties:* Yel.-brn. clear liq., sl. red hue; readily dilutable with water; dens. 1.23 kg/l (20 C); visc. < 50 mPa·s (20 C), < 200 mPa·s (0 C); solid. pt. -12 C; pH 8.9; anionic  
*Storage:* Stable for 12 mos at < 40 C and protected from light
- Leucophor® U Liq. [Clariant UK]**  
*Chem. Descrip.:* Benzenesulfonic acid, 2,2'-(1,2-ethenediyl) bis [5-[[4-[bis(2-hydroxyethyl) amino]-6-[(4-sulfohenyl) amino]-1,3,5-triazin-2-yl] amino]-, tetrasodium salt  
 CAS 16470-24-9  
*Uses:* Optical brightener for papers for applic. at the stock, at the size press, or in coatings; optical brightener in paper/paperboard in contact with dry or aq./fatty foods; brilliant, neutral shade; good substantivity to bleached pulps; good stability to acids, alkalis, salts; for use continuously or batchwise; compat. with commercial starches, anionics, nonionics  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Yel.-brn. clear liq., readily dilutable with water; dens. 1.17 kg/l (20 C); visc. < 100 mPa·s (20 C), < 200 mPa·s (0 C); solid. pt. -7 C; pH 8.9; anionic  
*Storage:* Stable for 12 mos at < 40 C and protected from light
- Leucophor® UKO Liq. [Clariant UK]**  
*Chem. Descrip.:* Tetrasulfonated stilbene deriv.  
*Uses:* Optical brightener for papers for applic. at the stock, at the size press, or in coatings; brilliant, neutral shade; urea-free; good substantivity to bleached pulps; good stability to acids, alkalis, salts; for use continuously or batchwise; compat. with commercial starches, anionics, nonionics  
*Properties:* Yel.-brn. clear liq., readily dilutable with water; dens. 1.118 kg/l (20 C); visc. < 100 mPa·s (20 C), < 200 mPa·s (0 C); solid. pt. -3 C; pH 8.8; anionic  
*Storage:* Stable for 12 mos at 4-40 C and protected from light
- Leucophor® UO Liq. [Clariant UK]**  
*Chem. Descrip.:* Benzenesulfonic acid, 2,2'-(1,2-ethenediyl) bis [5-[[4-[bis(2-hydroxyethyl) amino]-6-[(4-sulfohenyl) amino]-1,3,5-triazin-2-yl] amino]-, tetrasodium salt  
 CAS 16470-24-9  
*Uses:* Optical brightener for papers for applic. at the stock, at the size press, or in coatings; brilliant, neutral shade; urea-free; good substantivity to bleached pulps; good stability to acids, alkalis, salts; for use continuously or batchwise; compat. with commercial starches, anionics, nonionics

*Properties:* Yel.-brn. clear liq., readily dilutable with water; dens. 1.13 kg/l (20 C); visc. < 100 mPa·s (20 C), < 200 mPa·s (0 C); solid. pt. -1 C; pH 8.8; anionic

*Storage:* Stable for 12 mos at 4-40 C and protected from light

**Leukoglanzöl® BPA 50** [Münzing Chemie GmbH]

*Chem. Descrip.:* Sulfated vegetable oils, sodium salt

*Uses:* Rheology modifier for paper coating, coating colors; improves yield of coating color and reduces fish eyes and streaks resulting from roll coaters; insensitive to alkali and shear demand, but must be protected against acid influences

*Use Level:* 0.2-1%

*Properties:* Yel. oil; good sol. in water; sp.gr. 1.04 (20 C); visc. low; pH 10; 43% act.; anionic

*Storage:* 1 yr shelf life in closed packing @ 15-25 C min.; not sensitive to freezing

**Leukonöl LBA-2** [Münzing Chemie GmbH]

*Chem. Descrip.:* Sulfated castor oil

CAS 8002-33-3; EINECS/ELINCS 232-306-7

*Uses:* Emulsifier for emulsion polymers, paints, aq. systems; coating agent in paper prod.; wetting agent for alkaline systems to pH 13; food-contact coatings, paper; defoamer in food-contact coatings

*Use Level:* 1-3%

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200; BGA compliance

*Properties:* Yel. clear liq.; sol. in water in all proportions; dens. 1.03 g/cc (20 C); visc. low; pH 7 (10%); surf. tens. 41 mN/m (1%); 36% act.; anionic

*Storage:* 12 mos min. shelf life stored @ 15-25 C in closed pkg.; sensitive to freezing; solidifies below 0 C—warm to R.T. and stir to reverse

**Levacell® Blue 6GLL Liq.** [Bayer/Industrial Chems.]

*Uses:* Bright green-shade blue dyestuff for papers (sized, acid, alkaline, tissue); highly substantive to common paper pulp furnishes; very good lightfastness and bleedfastness; partially bleachable in hypochlorite; good affinity for clay fillers

*Properties:* Liq.; misc. in acidified water; dens. 9.8 lb/gal; visc. < 100 cps; pH 3.0

**Levacell® Fast Yellow KS-R Liq.** [Bayer/Industrial Chems.]

*Uses:* Red-shade direct yellow dyestuff for papers (acid, alkaline-sized, tissue); highly substantive to common paper pulp furnishes; exc. lightfastness, very good bleedfastness; pract. bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; misc. in acidified water; dens. 8.8 lb/gal; visc. < 100 cps; pH 2.0; cationic

**Levacell® Red KS-4BE Conc.** [Bayer/Industrial Chems.]

*Uses:* Bluer-shade red dyestuff for papers (tissue); highly substantive to common paper pulp furnishes; good affinity for clay fillers; rapid exhaustion onto paper fibers; fair lightfastness; very good bleedfastness; pract. bleachable in hypochlorite

*Properties:* Liq.; misc. in acidified water; dens. 9.2 lb/gal; visc. < 100 cps; pH 2.0

**Levacell® Scarlet KS BP Liq.** [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, and specialty papers; direct affinity for cellulose fibers

*Properties:* Liq.

**Levacell® Yellow 2GNX** [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, and specialty papers; direct affinity for cellulose fibers

*Properties:* Liq.

**Levogen® E-1062** [Bayer/Industrial Chems.]

*Uses:* Fixing agent for anionic direct dyestuffs for paper; improves fastness to bleeding, reduces staining of effluent, and improves color retention

**Levogen® E-1063** [Bayer/Industrial Chems.]

*Uses:* Fixing agent for anionic direct dyestuffs for paper; improves fastness to bleeding, reduces staining of effluent, and improves color retention

**Levogen® F** [Bayer/Industrial Chems.]

*Uses:* Fixing agent for anionic direct dyestuffs for paper; improves fastness to bleeding, reduces staining of effluent, and improves color retention

**Levogen® G** [Bayer/Industrial Chems.]

*Uses:* Fixing agent for anionic direct dyestuffs for paper; improves fastness to bleeding, reduces staining of effluent, and improves color retention

**Levogen® PM** [Bayer/Industrial Chems.]

*Chem. Descrip.:* Polyhydroxyamide resin

*Uses:* Fixing agent for direct and other anionic dyestuffs and pigments;

effective in acid or neutral systems; improves bleedfastness

*Properties:* Clear transparent liq.; misc. in water in all proportions; sp.gr. 1.20; visc. < 200 cps; pH 4.5; strongly cationic

*Storage:* 1 yr min. stability; protect from freezing; of prod. becomes frozen, thaw and mix thoroughly before use

**Levogen® PM-N** [Bayer/Industrial Chems.]

*Chem. Descrip.:* Amine condensate

*Uses:* Fixing agent for direct and other anionic dyestuffs and pigments; effective in acid or neutral systems; improves bleedfastness

*Properties:* Yel. liq.; misc. in water in all proportions; sp.gr. 1.21; visc. < 400 cps; pH 5.5; strongly cationic

*Storage:* 1 yr min. stability; protect from freezing

**Lightcoat** [Süd-Chemie AG]

*Chem. Descrip.:* Bentonite

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* For priming or precoating of paper and board where multicoating is required; reduces overall tension

**Lignosite® 260** [Georgia-Pacific Resins]

*Chem. Descrip.:* Sodium lignosulfonate, alkali-treated

CAS 8061-51-6

*Uses:* O/w emulsifier, dispersant for pigments, insecticides; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 573.600

*Properties:* Brn. powd., no appreciable odor; sol. in water; sp.gr. ≈ 0.5; m.p. dec.; pH ≈ 10; anionic

*Toxicology:* Nontoxic orally, nonirritating to skin and eyes; prolonged exposure to dust may cause sneezing, coughing, or other nuisance symptoms

*Environmental:* Biodeg.

*Precaution:* Finely divided particles mixed with air in presence of ignition source may present explosion hazard; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* SO<sub>2</sub>

*Storage:* Store in a dry place and keep sealed until ready to use to prevent caking from moisture pickup

**Lignosite® 431** [Georgia-Pacific Resins]

*Chem. Descrip.:* Sodium lignosulfonate

CAS 8061-51-6

*Uses:* Dispersant for pigments, wettable powds., wax emulsions, industrial cleaners; food-contact adhesives, paper/paperboard; defoamer in food-contact paper/paperboard; animal feeds

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 573.600

*Properties:* Brn. powd., no appreciable odor; sol. in water; sp.gr. ≈ 0.5; m.p. dec.; pH 3.8-4.2; anionic

*Toxicology:* Nontoxic orally, nonirritating to skin and eyes; prolonged exposure to dust may cause sneezing, coughing, or other nuisance symptoms

*Environmental:* Biodeg.

*Precaution:* Finely divided particles mixed with air in presence of ignition source may present explosion hazard; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* SO<sub>2</sub>

*Storage:* Store in a dry place and keep sealed until ready to use to prevent caking from moisture pickup

**Lignosite® 458** [Georgia-Pacific Resins]

*Chem. Descrip.:* Sodium lignosulfonate

CAS 8061-51-6

*Uses:* Emulsifier, emulsion stabilizer, dispersant for pigments, mfg. of concrete admixtures, wax emulsions, wettable powds., industrial cleaners; food-contact adhesives, paper/paperboard; defoamer in food-contact paper/paperboard; animal feeds

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 573.600

*Properties:* Brn. powd., no appreciable odor; sol. in hot or cold water; sp.gr. ≈ 0.5; dens. 23 lb/ft<sup>3</sup>; m.p. dec.; pH 6-8; anionic

*Toxicology:* Nontoxic orally, nonirritating to skin and eyes; prolonged exposure to dust may cause sneezing, coughing, or other nuisance symptoms

*Environmental:* Biodeg.

*Precaution:* Finely divided particles mixed with air in presence of ignition source may present explosion hazard; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* SO<sub>2</sub>

*Storage:* Store in a dry place and keep sealed until ready to use to prevent caking from moisture pickup

**Lignosite® 823** [Georgia-Pacific Resins]



- Chem. Descrip.:* Sodium lignosulfonate  
CAS 8061-51-6  
*Uses:* Emulsifier, emulsion stabilizer, dispersant for dyestuffs and pigments, mfg. of wax emulsions, wettable powds.; food-contact adhesives, paper/paperboard; defoamer in food-contact paper/paperboard; animal feeds  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 573.600  
*Properties:* Brn. powd., no appreciable odor; sol. in cold or hot water; sp.gr. ≈ 0.5; dens. 23 lb/ft<sup>3</sup>; m.p. dec.; pH 6-8; anionic  
*Toxicology:* Nontoxic orally, nonirritating to skin and eyes; prolonged exposure to dust may cause sneezing, coughing, or other nuisance symptoms  
*Environmental:* Biodeg.  
*Precaution:* Finely divided particles mixed with air in presence of ignition source may present explosion hazard; incompat. with strong oxidizing agents  
*Hazardous Decomp. Prods.:* SO<sub>2</sub>  
*Storage:* Store in a dry place and keep sealed until ready to use to prevent caking from moisture pickup
- Lignosite® AC** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Calcium lignosulfonate, alkali-treated  
*Uses:* Dispersant; emulsifier; emulsion stabilizer; food-contact adhesives, paper/paperboard; defoamer in food-contact paper/paperboard; animal feeds  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 573.600  
*Properties:* Lt. tan powd., no appreciable odor; sol. in water; sp.gr. ≈ 0.5; m.p. dec.; pH 7-9; anionic  
*Toxicology:* Nontoxic orally, nonirritating to skin and eyes; prolonged exposure to dust may cause sneezing, coughing, or other nuisance symptoms  
*Environmental:* Biodeg.  
*Precaution:* Finely divided particles mixed with air in presence of ignition source may present explosion hazard; incompat. with strong oxidizing agents  
*Hazardous Decomp. Prods.:* SO<sub>2</sub>  
*Storage:* Store in a dry place and keep sealed until ready to use to prevent caking from moisture pickup
- Lionsurf®** [Vinings Ind.]  
*Uses:* Deinking agent for papermaking
- Liponic 70-NC** [Lipo]  
*Chem. Descrip.:* Sorbitol  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
*Uses:* Humectant, plasticizer, softener, and lubricant for personal care prods., adhesives, leather, and paper coatings; adds sweet taste and pleasant mouthfeel to oral hygiene prods. such as dentifrices and mouthwashes, oral dosage pharmaceuticals  
*Properties:* Clear colorless sol'n.; water-sol.; sp.gr. 1.29-1.32; ref. index 1.455-1.470; pH neutral
- Liponic 76-NC** [Lipo]  
*Chem. Descrip.:* Sorbitol  
CAS 50-70-4; EINECS/ELINCS 200-061-5  
*Uses:* Humectant, plasticizer, softener, and lubricant for personal care prods., adhesives, leather, and paper coatings; adds sweet taste and pleasant mouthfeel to oral hygiene prods. such as dentifrices and mouthwashes, oral dosage pharmaceuticals  
*Properties:* Colorless to pale yel. clear syrup; odorless; sp.gr. 1.32-1.35; ref. index 1.468-1.475; 25% max. water
- Liporol SP** [Lucas Meyer]  
*Chem. Descrip.:* Standardized guar gum  
CAS 9000-30-0; EINECS/ELINCS 232-536-8  
*Uses:* Thickener and stabilizer for aq. systems in textiles, paper, varnishes, emulsion paints, cleaning and pickling systems; emulsion stabilizer; high freeze/thaw stability; acid and alkali resist.  
*Properties:* Lt. free-flowing powd.; 98% 200 mesh; disp. in hot and cold water; visc. 5500 mPa·s (after 24 h); 85% conc.; nonionic  
*Environmental:* Biodeg.  
*Storage:* Extended storage life when stored cool and dry
- Lipotin SB** [Lucas Meyer]  
*Chem. Descrip.:* Single-bleached, refined soy lecithin  
CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* W/o emulsifier, wetting agent, dispersant for wh. enamels, pigment-free flat varnishes, pigment pastes, coating of pigments and extenders; cleaning agent for offset plates and printing rollers; min. oil industry; paper additives; drilling and cutting oils  
*Regulatory:* EC permitted food additive, E 322  
*Properties:* Liq.; visc. 12 Pa·s; HLB 3-4; acid no. 30 max.; 60% conc.; amphoteric  
*Storage:* 12 mos storage life in original pkg. stored < 15 C; reclose immediately after opening; sensitive to light
- Lipotol FA** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special fatty acid  
*Uses:* Deinking agent, highly effective in collecting ink as applied to flotation process of waste newspapers  
*Use Level:* 0.1-0.3% to pulp  
*Properties:* Lt. yel. beads
- Lipotol LH-200** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Deinking agent, highly effective in collecting ink as applied to flotation process, permitting ink removal to be performed efficiently; also has high preventative power against restaining  
*Use Level:* 0.1-0.3% to pulp  
*Properties:* Colorless lt. cloudy visc. liq.; pH 6.5 (5%); nonionic
- Lipotol LH-900** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Fatty acid derivatives; special activator  
*Uses:* Deinking agent, highly effective in collecting ink as applied to needing flotation process of waste newspapers or wh. leisure papers  
*Use Level:* 0.1-0.3% to pulp  
*Properties:* Straw-colored transparent liq.; pH 7 (5%); nonionic
- Lipowax C** [Lipo]  
*Chem. Descrip.:* N,N'-Ethylenebisstearamide  
CAS 110-30-5; EINECS/ELINCS 203-755-6  
*Uses:* Internal lubricant in thermoplastic and thermosetting resins; defoamer for paper, textile processing; antitacking and antiblocking agent, antistat used in vinyls, PS, polyethylene, ABS; surf.-finishing agent in hard rubber; emulsifying wax in cosmetics; mold release agent, lubricant, antiblock, and detackifier in syn. rubbers; aids pigment suspension and salt spray resist. in paints and lacquers; in food pkg. materials  
*Properties:* Lt. cream prills; sol. in toluene, naphtha, kerosene, and turpentine; m.p. 140-145 C; acid no. 10 max.; flash pt. 285 C (COC); 100% act.; nonionic
- Liquazinc AQ-90** [Crompton/Witco]  
*Chem. Descrip.:* Zinc stearate aq. emulsion  
CAS 557-05-1; EINECS/ELINCS 209-151-9  
*Uses:* Partitioning agent, antitack agent, mold release, lubricant for rubber, liq. slab dips; release aid and lubricant for abrasive papers; special sub micron particle size prevents settling out; very low visc.  
*Properties:* Wh. disp.; fineness 99.9% thru 325 mesh; sp.gr. 1.02; visc. 1000 cps; 50% solids
- Liquid Water (WS) & Oil Soluble** [Odor Control]  
*Uses:* Odor neutralizers for wastewater facilities, composting, fertilizer plants, incinerators, landfills, tanneries, meat and food processing, oil and chem. spills, pulp/paper mills, rendering plants, waste containers, inks, adhesives  
*Use Level:* Dilution 1:100 to 1:300  
*Properties:* Clear liq.; water or oil sol.; typ. odor (natron, strawberry, floral, pine, evergreen, peach, mixed cherry, vanilla, cinnamon, citrus, citrus/floral, no scent); sp.gr. 0.98 (WS), 0.85 (OS); visc. < 400 cps; f.p. -12 C; flash pt. (CC) 75 C (WS), 49 C (OS); pH neutral  
*Storage:* Shelf life 1 yr. with no loss of act.
- Liquinat®** [Jungbunzlauer Int'l. AG]  
*Chem. Descrip.:* Citric acid  
CAS 77-92-9; EINECS/ELINCS 201-069-1  
*Uses:* Acidulant, pH control agent for foods, feeds, detergents, textile auxiliaries, paper auxiliaries, electroplating chems.  
*Properties:* Liq.
- Liquisize™ Emulsifier** [Penford Prods.]  
*Uses:* Emulsifier for ASA sizes in papermaking incl. food pkg.; results in high ASA sizing efficiency, emulsion stability, and clean wet end operation; stable; requires no cooking  
*Regulatory:* FDA approved  
*Properties:* Liq.
- Liquistrength™ Bonding Agent** [Penford Prods.]  
*Chem. Descrip.:* Starch  
CAS 9005-25-8; EINECS/ELINCS 232-686-4  
*Uses:* Bonding agent added at wet end to improve dry str. in paper and board, food pkg.; stable; requires no cooking  
*Regulatory:* FDA approved  
*Properties:* Liq.; cationic
- Lithoprint®** [Huber Engineered Materials]

*Uses:* Clay for paper and paperboard; high brightness; produces exc. coverage and print gloss

*Properties:* Spray-dried slurry; 88-92% finer than 2 µ; 0.005% 325 mesh residue; sp.gr. 2.60; visc. 200-400 cps; brightness (TAPPI) 89.5-91%; ref. index 1.57; pH 6.5-8.0 (28% solids); 68-70% slurry solids; 1% max. moisture

**Locust Bean Gum Speckless Type D-200 [Frutarom Meer]**

*Chem. Descrip.:* Locust bean gum

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, water binder, suspending agent, stabilizer for soft cheese and spreads, bread, cakes, biscuits, frozen pie fillings, sausages, stuffed meat prods., canned pet foods; freeze/thaw stabilizer in ice cream; wet-end additive in papermaking, sizing; textile sizing agent; thickener for textile print pastes; excipient for pharmaceutical tablets; thickener for toothpaste; thickener/stabilizer for cosmetic/pharmaceutical creams and lotions

*Properties:* Wh. to cream-wh. powd.; nearly odorless; 97% thru 100 mesh, ≥ 25% thru 200 mesh; visc. ≥ 2800 cps (1%); pH 5.0-6.4

**Locust Bean Gum Type A-100 [Gumix Int'l.]**

*Chem. Descrip.:* Locust bean gum

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, visc. modifier, water binder, suspending agent, stabilizer for foods (cheese, confections, bakery prods., pie fillings, meat binder, sauces, salad dressings), cosmetics, pharmaceuticals (creams, lotions, toothpaste, tablet excipient), industrial (papermaking, textiles, tobacco)

*Properties:* Off-wh. to lt. tan powd.; disp. in water; insol. in most org. liqs.

**Locust Bean Gum Type A-250 [Gumix Int'l.]**

*Chem. Descrip.:* Locust bean gum

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, visc. modifier, water binder, suspending agent, stabilizer for foods (cheese, confections, bakery prods., pie fillings, meat binder, sauces, salad dressings), cosmetics, pharmaceuticals (creams, lotions, toothpaste, tablet excipient), industrial (papermaking, textiles, tobacco)

*Properties:* Off-wh. to lt. tan powd.; disp. in water; insol. in most org. liqs.

**Locust Bean Gum Type A-270 [Gumix Int'l.]**

*Chem. Descrip.:* Locust bean gum

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, visc. modifier, water binder, suspending agent, stabilizer for foods (cheese, confections, bakery prods., pie fillings, meat binder, sauces, salad dressings), cosmetics, pharmaceuticals (creams, lotions, toothpaste, tablet excipient), industrial (papermaking, textiles, tobacco)

*Properties:* Off-wh. to lt. tan powd.; disp. in water; insol. in most org. liqs.

**Lodyne® [Ciba Spec. Chems./Paper]**

*Chem. Descrip.:* Fluorochemicals

*Uses:* Oil/grease/water resist. aid for paper, paperboard, and molded prods. in food, fast food, and pet food pkg.; surf. tens. reducer and foam stabilizer in firefighting prods.; wetting agent, spreading agent, flow control agent in coatings; environmentally friendly

**Lok-Size® 30 [Tate & Lyle N. Am.]**

*Chem. Descrip.:* Visc. modified dent corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Retention aid for papermaking size press; designed where inc. starch retention during repulping is required to improve BOD and COD levels in mill effluents

*Properties:* Cationic

**Lomar® LS-1 [Cognis]**

*Chem. Descrip.:* Condensed sodium naphthalene sulfonate (91.5%), sodium sulfate (2%), water (6.5%)

*Uses:* Dispersant, emulsifier for emulsion polymerization, dyestuff mfg., agric. formulations; sec. stabilizer for SBR mfg.; dispersant for gypsum slurries; leveling agent for dyeing fibers; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; low salt

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400, BGA approved; SARA §311/312 reportable

*Properties:* Tan powd.; bland odor; sol. @ 5% in water; sp.gr. 0.60; dens. 5.0 lb/gal; cloud pt. 2 C; flash pt. 92 F; pH 9.5 (10% aq.); 6.5% volatiles; 95% act.; anionic

*Toxicology:* LD50 (oral, rat) 3800 mg/kg; sl. toxic if ingested; may cause transient skin, eye, and respiratory tract irritation; TSCA listed

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store in cool, dry place

**Lomar® LS Liq. [Cognis]**

*Chem. Descrip.:* Condensed sodium naphthalene sulfonate (45%), sodium sulfate (1%), water (54%)

*Uses:* Dispersant for gypsum slurries; primary emulsifier for emulsion polymerization; sec. stabilizer for SBR mfg.; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400, BGA approved; SARA nonreportable

*Properties:* Dk. amber liq.; bland odor; 20% clear sol'ns.; sp.gr. 1.2; dens. 10 lb/gal (20 C); visc. 100 cps; VOC 0% (EPA Method 54); 46% solids; anionic

*Toxicology:* LD50 (oral, rat) 3800 mg/kg; sl. toxic if ingested; may cause transient skin and eye irritation; TSCA listed

*Environmental:* BOD5 43,838 ppm; COD 846,867 ppm

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; allow to warm to R.T., mix well

**Lomar® PL [Cognis]**

*Chem. Descrip.:* Condensed sodium naphthalene sulfonate (43%), sodium sulfate (3%), water (54%)

*Uses:* Dispersant for pigments, extenders, and fillers in aq. media; dyeing syn. and natural fibers; emulsifier in emulsion polymerization; ceramics; gypsum board; pigments; printing; rubber and wet milling; agric. prods.; food pkg. adhesives, paper, cellophane, rubber articles

*Regulatory:* EPA-exempt; FDA 21CFR §175.105, 176.170, 176.180, 177.1200, 177.1210, 177.2600; SARA nonreportable

*Properties:* Dk. amber liq.; bland odor; water-sol. @ 5%; sp.gr. 1.25; dens 10 lb/gal; visc. 11 cSt (100 F); pour pt. -1 C; cloud pt. 6 C; flash pt. (PMCC) > 93 C; pH 6.8; 0% VOC (EPA Method 24); 46% solids; anionic

*Toxicology:* LD50 (oral, rat) 3800 mg/kg; sl. toxic if ingested; may cause transient skin and eye irritation; TSCA listed

*Environmental:* BOD5 26,616 ppm; COD 699,508 ppm; 3.8% biodeg.

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well

**Lomar® PW [Cognis]**

*Chem. Descrip.:* Condensed sodium naphthalene sulfonate (88.5%), sodium sulfate (5%), water (6.5%)

*Uses:* Dispersant for pigments, extenders, and fillers in aq. media; dyeing syn. and natural fibers; emulsifier in emulsion polymerization; ceramics; gypsum board; pigments; printing; rubber and wet milling; agric. prods.; suspending agent, stabilizer for paint and paper industries, latexes; food-contact rubber articles

*Regulatory:* FDA 21CFR §177.2600; EPA-exempt; SARA §311/312 reportable

*Properties:* Tan powd.; bland odor; water-sol. @ 5%; dens. 0.66 g/cc; cloud pt. 5 C; flash pt. 87 F; pH 9.5 (10%); 0% VOC (EPA Method 24); 87% act.; anionic

*Toxicology:* LD50 3800 mg/kg; sl. toxic if ingested; may cause transient skin, eye, and respiratory irritation; TSCA listed

*Environmental:* BOD5 94,962 ppm; COD 369,852 ppm

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store in cool, dry place

**Lomar® PWA [Cognis]**

*Chem. Descrip.:* Condensed ammonium naphthalene sulfonate

*Uses:* Visc. depressant; for molding and extruding operations in ceramics; dispersant for emulsion paints, agric., gypsum slurries; emulsifier for emulsion polymerization of syn. elastomers; visc. reducer for pigment slurries; sec. stabilizer for SBR mfg.; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; EPA exempt; BGA approved

*Properties:* Lt. tan powd.; sol. in water; pH 3.5 (10%); 92% act.; anionic

**Lomar® PWA Liq. [Cognis]**

*Chem. Descrip.:* Ammonium naphthalene sulfonate (< 44%), ammonium sulfate (> 1%), water (55%)

*Uses:* Dispersant for carbon black in aq. systems, printing inks, waterborne architectural paints, gypsum slurries; sec. stabilizer for SBR mfg.; food pkg.

- adhesives, paper; emulsifier in mfg. of food-contact articles  
*Use Level:* 1-4% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; BGA approved; SARA §311/312/313 reportable  
*Properties:* Dk. amber clear liq.; sl. ammonia odor; sp.gr. 1.16; dens. 9.7 lb/gal; visc. 15 cps; flash pt. (PMCC) > 93 C; pH 7.3; 55% volatiles; 45% act., 55% water; anionic  
*Toxicology:* LD50 (oral rat) 3800 mg/kg; sl. toxic if ingested; can cause skin, eye, and respiratory irritation; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* May congeal or stratify if cold; warm to 50 C, mix well
- Loxiol® G 10** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Fatty acid ester of polyol  
*Uses:* Internal lubricant in clear or opaque applics., rigid and soft PVC, food applics.; pigment dispersing aux. in PVC paste processing; costabilizer in combination with tin; aids flow in pigmented and filled rigid PVC compds.; food-contact coatings, paper, closures with sealing gaskets for food containers  
*Use Level:* 1.0-1.5 (rigid PVC), 0.5-1.5 (soft PVC)  
*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170, 177.1210, 181.27, 182.1323, 182.4505, GRAS; BGA, Japan approvals  
*Properties:* Pale yel. liq.; dens. 7.9 lb/gal; visc. 200-225 cps; f.p. -1 to -8 C; pour pt. < 4 C; acid no. 3.0 max.; ref. index 1.467 ± 0.005; flash pt. (CC) 435 F
- Loxiol® G 11** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Fatty acid ester of polyol  
*Uses:* Internal lubricant for rigid and soft PVC, rigid PVC film and sheeting; food pkg. adhesives, paper, textiles, animal glue; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210, 177.2800, 178.3120, 178.3130; BGA, Japan approvals  
*Properties:* Liq.; sp.gr. 0.970-0.985; visc. 500-610 mPa·s; pour pt. < -10 C; acid no. < 1; ref. index 1.473-1.478; flash pt. > 220 C
- Loxiol® G 13** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Fatty acid ester of polyol  
*Uses:* Lubricant for rigid PVC esp. in cable and inj. molding; food pkg. adhesives, paper, textiles, animal glue; defoamer in food-contact paper/paperboard  
*Use Level:* 1.0-1.5 phr  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210, 177.2800, 178.3120; Japan approvals  
*Properties:* Liq.; sp.gr. 0.905-0.915; visc. 35-40 mPa·s; pour pt. < -10 C; acid no. < 1; ref. index 1.460-1.466; flash pt. > 190 C
- Loxiol® G 15** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Fatty acid ester of polyol  
*Uses:* Internal lubricant for rigid PVC for use in inj. molding, extrusion, and calendaring; food-contact coatings, paper, cellophane, textiles  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 177.1200, 177.1210, 177.1350, 177.1400, 177.2420, 177.2800, 178.3280; BGA, Japan approvals  
*Properties:* Pale tan flakes, off-wh. beads, 20 mesh particle size; dens. 20-30 lb/ft<sup>3</sup>; m.p. 83-87 C; acid no. 5 max.; ref. index 1.445 ± 0.005 (95 C); flash pt. (OC) > 300 C
- Loxiol® G 16** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Glycerol ester of unsat. fatty acid  
*Uses:* Internal lubricant for rigid PVC film, calendered and rigid sheet, clear, opaque inj. molding and profiles; costabilizer in tin-stabilized rigid, semirigid, or plasticized systems; printing and laminating properties to articles; food pkg. adhesives, coatings, animal glues; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3120, 182.90, 182.4505, GRAS; BGA, Japan approvals  
*Properties:* Pale yel. fluid; dens. 7.3 lb/gal; visc. 90-120 cP; f.p. < -5 C; pour pt. < 0 C; acid no. 1.0 max.; flash pt. (CC) 460 F; ref. index 1.468 ± 0.005
- Loxiol® G 20** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Stearic acid  
 CAS 57-11-4; EINECS/ELINCS 200-313-4  
*Uses:* External lubricant for rigid and soft PVC, esp. for cable extrusions; food pkg. adhesives, coatings, paper, polymers, cellophane, rubber articles, textiles, animal glue; defoamer in food-contact paper/paperboard
- Use Level:* 0.2-0.5 phr  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.210, 177.1010, 177.1200, 177.1210, 177.1350, 177.1400, 177.2260, 177.2420, 177.2600, 177.2800, 178.3120, 178.3570, 178.3910, 184.1090, GRAS; BGA, Japan approvals  
*Properties:* Fine beads; sp.gr. 0.840-0.850 (80 C); visc. 8-11 mPa·s (80 C); acid no. 207-210; flash pt. > 180 C; ref. index 1.436-1.437 (60 C)
- Loxiol® G 21** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Hydroxystearic acid  
 CAS 106-14-9; EINECS/ELINCS 203-366-1  
*Uses:* External lubricant for rigid and soft PVC, esp. for cable extrusions; food pkg. adhesives, paper, animal glue; lubricant for incidental food contact; most suitable for post-lubrication of existing formulations; antiplate-out effect  
*Use Level:* 0.2-1.0 phr  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3120, 178.3570; BGA, Japan approvals  
*Properties:* Fine beads; sp.gr. 0.885-0.891 (80 C); visc. 30-35 mPa·s (80 C); acid no. 172-180; flash pt. > 210 C; ref. index 1.440-1.442 (80 C)
- Loxiol® G 23** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Hard paraffin  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Additive for PVC paste processing; food-contact coatings, paper, cellophane, polymers, rubber articles, textiles  
*Regulatory:* FDA 21CFR §175.320, 176.170, 176.180, 176.200, 177.1200, 177.1400, 177.2420, 177.2600, 177.2800, 178.3710, 179.45; BGA, Japan approvals
- Loxiol® G 53** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* C16-18 fatty alcohol  
 CAS 8005-44-5; EINECS/ELINCS 267-008-6  
*Uses:* Surfactant for polymerization; internal lubricant for rigid PVC, inj. molding; food pkg. adhesives, paper, textiles, polymers; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210, 177.1010, 177.2800, 178.3120, 178.3910; BGA, Japan approvals  
*Properties:* Solid; sp.gr. 0.790-0.802 (80 C); visc. 4-6 mPa·s (80 C); m.p. 48-51 C; acid no. < 0.2; ref. index 1.427-1.430 (80 C); flash pt. > 160 C; 100% conc.
- Loxiol® HOB 7111** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Fatty acid ester of polyol  
*Uses:* Internal lubricant for rigid PVC extrusion, inj. molding, calenders, clear blow-molded bottles, sheet; food-contact coatings, paper, cellophane, polymers; highly compat.; produces high clarity articles  
*Regulatory:* FDA 21CFR §175.300, 176.170, 177.1200, 177.1210, 177.1350; BGA, Japan approvals  
*Properties:* Wh. flakes; dens. 15-20 lb/ft<sup>3</sup>; acid no. 5 max.; flash pt. > 285 F; ref. index 1.438 ± 0.005 (95 C)
- Loxiol® HOB 7121** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Fatty acid ester of polyol  
*Uses:* Internal lubricant/costabilizer for rigid PVC processing esp. clear rigid articles; superior flow in rigid PVC inj. molding and complicated profiles; extrusion films, calendered sheets, blow-molded bottles; highly costabilizing in CaZn stabilized and lead stabilized PVC systems; food pkg. adhesives, animal glue; stabilizer in food-grade polymers; defoamer in food-contact paper/paperboard; good thermal and lt. stability; effective in high calcium stearate compds.; resistant to plate-out  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.2010, 178.3120; BGA, Japan approvals  
*Properties:* Off-wh. beads or flakes, 20 mesh bead; dens. 30-35 lb/ft<sup>3</sup> (bead), 15-25 lb/ft<sup>3</sup> (flake); acid no. 2.0 max.; flash pt. 535 F; ref. index 1.450 ± 0.004 (70 C)
- Loxiol® HOB 7169** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Hard paraffin  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Processing aid for extruded rigid PVC; food-contact coatings, paper, cellophane, film, rubber articles, textiles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.320, 176.170, 176.180, 176.200, 177.1200, 177.1400, 177.2420, 177.2600, 177.2800, 178.3710, 179.45; BGA, Japan approvals  
*Properties:* Solid
- Lubracal® 48** [Crompton/Witco]  
*Chem. Descrip.:* Calcium stearate-based aq. disp.  
 CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant and plasticizer for paper coatings; improves flow and leveling of paper coatings enabling smooth finishes with enhanced gloss and printability; meets lubricity, stability, visc., and color requirements of the most sophisticated processes

*Properties:* Wh. powd., 99.9% thru 325 mesh sieve; sp.gr. 1.00; visc. 110 cps; 50.1% solids

**Lubracal® 53** [Crompton/Witco]

*Chem. Descrip.:* Calcium stearate-based aq. disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant and plasticizer for paper coatings; improves flow and leveling of paper coatings enabling smooth finishes with enhanced gloss and printability; meets lubricity, stability, visc., and color requirements of the most sophisticated processes

*Properties:* Wh. powd., 99.9% thru 325 mesh sieve; sp.gr. 1.00; visc. 700 cps; 56.0% solids

**Lubracal® 60** [Crompton/Witco]

*Chem. Descrip.:* Calcium stearate-based aq. disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant and plasticizer for paper coatings; improves flow and leveling of paper coatings enabling smooth finishes with enhanced gloss and printability; meets lubricity, stability, visc., and color requirements of the most sophisticated processes

*Properties:* Wh. powd., 99.9% thru 325 mesh sieve; sp.gr. 1.02; visc. 350 cps; 60.0% solids

**Lubrol 90** [CNC Int'l.]

*Chem. Descrip.:* Ester

*Uses:* Press release agent for rubber roll release problems in pulp/paper industry; surface lubricant for tabulator card stock and paperboard; nonoily

**Lucidene® 600** [Rohm & Haas]

*Uses:* Top lacquer designed for paper/paperboard, and preprint liner; food pkg. adhesives, paper/paperboard; high heat resist., gloss; prevents smearing or marring of ink

*Regulatory:* FDA 21CFR §175.105, 176.170, and 176.180

*Properties:* Tan emulsion; 0.2 µ particle size; dens. 9.3 lb/gal; visc. 200-400 cps; acid no. 132; flash pt. > 93 C; pH 9-10; 40.5-47% solids

**Lucidene® 602** [Rohm & Haas]

*Uses:* Very hard, high gloss, film-forming latex for clay-coated paper and SBS-type board; exc. flow and leveling props.; universal vehicle for pigment dispersions, letdowns, and metallic pigments; food pkg. adhesives, paper/paperboard; fast drying; good water and grease resist.

*Regulatory:* FDA 21CFR §175.105, 176.170, and 176.180

*Properties:* Off-wh. emulsion; 0.1 µ particle size; dens. 8.8 lb/gal; visc. 1000-2000 cps; acid no. 105; flash pt. > 93 C; pH 8.3-8.9; 42-45.5% NV

**Lucidene® 5010** [Rohm & Haas]

*Chem. Descrip.:* Latex polymer

*Uses:* Letdown vehicle, rewetting agent in ink systems where min. VOC is required, food pkg. adhesives/coatings/paper; high gloss, fast dry; solv.-free; no VOC

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* M.w. > 200,000; dens. 8.7 lb/gal; visc. 500 cps; acid no. 42; pH 8.3; 0% VOC; 52.5% solids

**Lucidene® 5011** [Rohm & Haas]

*Chem. Descrip.:* Latex polymer

*Uses:* Letdown vehicle in ink systems where min. VOC is required, food pkg. adhesives/coatings/paper; high gloss, fast dry; solv.-free; no VOC

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* M.w. > 200,000; dens. 8.7 lb/gal; visc. 1000 cps; acid no. 55; pH 8.2; 0% VOC; 48% solids

**Lucidene® 5020** [Rohm & Haas]

*Chem. Descrip.:* Latex polymer

*Uses:* Hard film-forming vehicle for use in flexographic/gravure inks and overprints where max. VOC reduction is required, food pkg. adhesives/coatings/paper; fast dry, good rewet; solv.-free; no VOC

*Use Level:* 57.5% (gravure ink); 87.9% (rub resist. overprint)

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* M.w. > 200,000; dens. 8.75 lb/gal; visc. 300 cps; acid no. 42; pH 8.0; 0% VOC; 51% solids

**Lucidene® 5021** [Rohm & Haas]

*Chem. Descrip.:* Latex polymer

*Uses:* Hard film-forming vehicle for use in flexographic/gravure inks and overprints where max. VOC reduction is required, food pkg. adhesives/coatings/paper; fast dry, good rewet, high gloss, grease resist.; solv.-free; no VOC

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* M.w. > 200,000; dens. 8.7 lb/gal; visc. 900 cps; acid no. 42; pH 8.0; 0% VOC; 52% solids

**Lucidene® 5030** [Rohm & Haas]

*Chem. Descrip.:* Latex polymer

*Uses:* Film-forming vehicle for flexographic/gravure inks and overprints where max. VOC reduction is required; food pkg. adhesives, coatings, paper; fast dry, good rewet, high gloss, grease resist.; solv.-free; no VOC

*Use Level:* 46% (gloss ink); 67% (wet offset overprint); 86% (high gloss overprint)

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* M.w. > 200,000; dens. 8.75 lb/gal; visc. 300 cps; acid no. 42; pH 8.0; 0% VOC; 51% solids

**Lucidene® 5040** [Rohm & Haas]

*Chem. Descrip.:* Latex polymer

*Uses:* Film-former for flexographic/gravure inks and overprints for max. VOC reduction; food pkg. adhesives, coatings, paper; offers adhesion to films, water resist.; solv.-free; no VOC

*Use Level:* 54% (flexible ink for film); 25% (no VOC OPV)

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* M.w. > 200,000; dens. 8.8 lb/gal; visc. 300 cps; acid no. 42; pH 8.2; 0% VOC; 52% solids

**Ludox® CL-X** [DuPont]

*Chem. Descrip.:* Aq. colloidal silica disp.

EINECS/ELINCS 231-545-4

*Uses:* Frictionizing agent for corrugated boxes and multiwall paper bags; cleanable; inert; heat-resist.; stabilized with sodium hydroxide

*Properties:* Sp.gr. 1.37; dens. 11.4 lb/gal; visc. 17 cps; surf. area 130 m<sup>2</sup>/g; pH 9.1; 46% SiO<sub>2</sub>

**Luminex™** [Engelhard]

*Chem. Descrip.:* Kaolin-based

*Uses:* Pigment, brightener for specialty printing, writing, and recycled grades of uncoated freesheet paper; cost effective; high performance

**Lumisorb™ PSML-80** [Lambent Tech.]

*Chem. Descrip.:* PEG-80 sorbitan laurate

CAS 9005-64-5

*Uses:* Food emulsifier for bakery, dairy, confectionery, and convenience foods; emulsifier for personal care, pharmaceuticals, agric., paints, pulp/paper, etc.

*Properties:* Yel. liq.; water-sol.; sp.gr. 1.1; HLB 19.4; acid no. 3 max.; sapon. no. 7-15; hyd. no. 25-40; 27-29% moisture; nonionic

**Lumisorb™ PSMO-5** [Lambent Tech.]

*Chem. Descrip.:* Polysorbate 81

CAS 9005-65-6

*Uses:* Food-grade emulsifier for bakery, dairy, confectionery, and convenience foods applics.; emulsifier for personal care, pulp/paper, paints, agric., metalworking, textiles, etc.

*Regulatory:* Also avail. in kosher grade

*Properties:* Yel. liq. (may gel on standing); disp. in water; sp.gr. 1.0; HLB 10.0; acid no. 2 max.; sapon. no. 95-105; hyd. no. 136-152; nonionic

**Lumisorb™ PSMO-20** [Lambent Tech.]

*Chem. Descrip.:* Polysorbate 80

CAS 9005-65-6

*Uses:* Emulsifier for food processing, personal care, and industrial applics. (paints, pulp/paper, agric., metalworking, textiles, etc.); dispersant for flavor oils; flavor/color enhancer in pickles; improves dryness and melt down in frozen desserts

*Use Level:* 0.05-0.2%

*Regulatory:* FDA 21CFR §172.836, 172.845, 172.854; also avail. in kosher grade

*Properties:* Yel. liq., bland odor; water-sol.; sp.gr. 1.1; b.p. > 350 F (760 mm); HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; flash pt. (COC) > 150 C; 100% conc.; nonionic

*Toxicology:* May cause eye irritation

*Precaution:* Avoid strong oxidizing agents

- Storage:* Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources
- Lumisorb™ PSMP-20** [Lambent Tech.]  
*Chem. Descrip.:* Polysorbate 40  
 CAS 9005-66-7  
*Uses:* Emulsifier for food processing, personal care, and industrial applics., paints, pulp/paper, agric., metalworking, textiles, etc.  
*Properties:* Yel. liq. (may gel on standing); sol. in water; sp.gr. 1.1; HLB 15.6; acid no. 2 max.; sapon. no. 43-49; hyd. no. 89-105; 100% conc.; nonionic
- Lumisorb™ PSMS-20** [Lambent Tech.]  
*Chem. Descrip.:* Polysorbate 60  
 CAS 9005-67-8  
*Uses:* Emulsifier for food processing (chocolate, confectionery coatings, panned sugar), personal care, and industrial applics.; provides greater aeration in cakes, improves volume in icings and fillings, provides faster whip in whipped toppings; dispersant in dry coffee whiteners, vitamin drops; improves stability in salad dressings; foaming agent in beverage mixes; emulsifier for industrial applics., paints, pulp/paper, etc.  
*Use Level:* 0.05-1%  
*Regulatory:* FDA 21CFR §172.836, 172.854; also avail. kosher  
*Properties:* Yel. liq. (may gel on standing), mild odor; water-sol.; sp.gr. 1.1; b.p. > 200 C (760 mm); HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; flash pt. (COC) > 175 C; 100% conc.; nonionic  
*Toxicology:* May cause eye irritation  
*Precaution:* Avoid oxidizing agents  
*Storage:* Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources
- Lumisorb™ PSTO-20** [Lambent Tech.]  
*Chem. Descrip.:* Polysorbate 85  
 CAS 9005-70-3  
*Uses:* Food-grade emulsifier for bakery, dairy, confectionery, and convenience foods applics.; emulsifier for personal care, paints, pulp/paper, metalworking, textiles, etc.  
*Properties:* Yel. liq. (may gel on standing); disp. in water; sp.gr. 1.0; HLB 11.0; acid no. 2 max.; sapon. no. 82-95; hyd. no. 39-52; nonionic
- Lumisorb™ PSTS-20** [Lambent Tech.]  
*Chem. Descrip.:* Polysorbate 65  
 CAS 9005-71-4  
*Uses:* Emulsifier for food processing, personal care, and industrial applics. (paints, pulp/paper, agric., metalworking, textiles, etc.); dispersant for dry coffee whiteners  
*Use Level:* 0.1-0.3%  
*Properties:* Yel. soft solid, bland odor; sol. in water; sp.gr. 1.0; b.p. > 200 C (760 mm); HLB 10.5; acid no. 2 max.; sapon. no. 88-98; hyd. no. 42-60; flash pt. (COC) > 175 C; 100% conc.; nonionic  
*Toxicology:* May cause eye irritation  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* Combustion produces CO<sub>2</sub>, CO, thick smoke  
*Storage:* Store in well-ventilated area @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources
- Lumisorb™ SML** [Lambent Tech.]  
*Chem. Descrip.:* Sorbitan laurate  
 CAS 1338-39-2; EINECS/ELINCS 215-663-3  
*Uses:* Emulsifier, oil additive, corrosion inhibitor for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; food-grade emulsifier  
*Properties:* Yel. liq.; water-disp.; oil-sol.; sp.gr. 1.0; HLB 8.6; acid no. 7 max.; sapon. no. 158-170; hyd. no. 330-358; 100% conc.; nonionic
- Lumisorb™ SMO** [Lambent Tech.]  
*Chem. Descrip.:* Sorbitan oleate  
 CAS 1338-43-8; EINECS/ELINCS 215-665-4  
*Uses:* Emulsifier, oil additive, corrosion inhibitor for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; food-grade emulsifier  
*Regulatory:* Also avail. kosher  
*Properties:* Amber liq.; oil-sol.; sp.gr. 1.0; HLB 4.3; acid no. 7.5; sapon. no. 149-160; hyd. no. 193-209; 100% conc.; nonionic
- Lumisorb™ SMP** [Lambent Tech.]  
*Chem. Descrip.:* Sorbitan palmitate  
 CAS 26266-57-9; EINECS/ELINCS 247-568-8  
*Uses:* Emulsifier, oil additive, corrosion inhibitor for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; food-grade emulsifier  
*Properties:* Tan solid; oil-sol.; sp.gr. 1.0; HLB 6.7; acid no. 7.5 max.; sapon. no. 140-150; hyd. no. 275-305; 100% conc.; nonionic
- Lumisorb™ SMS** [Lambent Tech.]  
*Chem. Descrip.:* Sorbitan stearate  
 CAS 1338-41-6; EINECS/ELINCS 215-664-9  
*Uses:* Emulsifier for food processing (chocolate and confectionery coatings) and personal care prods.; improves volume in icings and fillings; dispersant in dry coffee whiteners, flavor oils; emulsifier for pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Regulatory:* FDA 21CFR §172.842, 172.845, 182.4504; also avail. kosher  
*Properties:* Cream flakes; insol. in water; sp.gr. 1.0; b.p. > 200 C (760 mm); HLB 4.7; acid no. 10 max.; sapon. no. 147-157; hyd. no. 235-260; flash pt. (COC) > 175 C; 100% conc.; nonionic  
*Toxicology:* May cause eye irritation  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* Combustion produces CO<sub>2</sub>, CO, thick smoke  
*Storage:* Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources
- Lumisorb™ STO** [Lambent Tech.]  
*Chem. Descrip.:* Sorbitan trioleate  
 CAS 26266-58-0; EINECS/ELINCS 247-569-3  
*Uses:* Oil additive; corrosion inhibitor; emulsifier for food, pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; also avail. in tech. grade  
*Properties:* Amber liq.; oil-sol.; sp.gr. 1.0; HLB 1.8; acid no. 13.5 max.; sapon. no. 171-185; hyd. no. 58-69; 100% conc.; nonionic
- Lumisorb™ STS** [Lambent Tech.]  
*Chem. Descrip.:* Sorbitan tristearate  
 CAS 26658-19-5; EINECS/ELINCS 247-891-4  
*Uses:* Oil additive; corrosion inhibitor; emulsifier for food, pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Regulatory:* Also avail. kosher  
*Properties:* Cream solid; oil-sol.; sp.gr. 1.0; HLB 2.1; acid no. 15 max.; sapon. no. 175-190; hyd. no. 65-80; 100% conc.; nonionic
- Lumitac®** [Tosoh]  
*Chem. Descrip.:* VLDPE  
*Uses:* For blown film (general purpose pkg., heavy duty bags, agric. film, diaper backings, stretch film, shrink film), extrusion coating and laminating (kraft papers, milk carton stocks, polymeric film, box liners), blow molding (box liners); inj. molding (housewares, artificial flowers)
- Lumiten® P** [BASF AG]  
*Chem. Descrip.:* Polyether alcohol  
*Uses:* Visc. control agent and slip agent for paper coating
- Lumulse™ 8000** [Lambent Tech.]  
*Chem. Descrip.:* PEG-150  
 CAS 25322-68-3; EINECS/ELINCS 203-989-9  
*Uses:* Cosmetics; pharmaceuticals; resins; coatings; antistat for rubber conveyor belting; shoe polish; lubricant for paper size; printing inks; release agent for rubber; tablet binder/lubricant  
*Properties:* Wh. waxy solid; water-sol.; m.w. 7000-9000; visc. 470-900 cSt (210 F); f.p. 60-63 C; pH 4.5-7.5 (5%); nonionic
- Lumulse™ DGL** [Lambent Tech.]  
*Chem. Descrip.:* PEG-2 laurate  
 CAS 141-20-8; EINECS/ELINCS 205-468-1  
*Uses:* Emulsifier for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; also avail. in tech. grade  
*Properties:* Yel. liq.; nondisp. in water; sp.gr. 0.95; HLB 6.5; pour pt. 1 C; 100% conc.; nonionic
- Lumulse™ DGO** [Lambent Tech.]  
*Chem. Descrip.:* PEG-2 oleate  
 CAS 106-12-7; EINECS/ELINCS 203-364-0  
*Uses:* Lubricant for cosmetics, pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Yel. liq.; nondisp. in water; sp.gr. 0.95; HLB 4.7; 100% conc.; nonionic
- Lumulse™ DGS** [Lambent Tech.]  
*Chem. Descrip.:* PEG-2 stearate  
 CAS 106-11-6; EINECS/ELINCS 203-363-5  
*Uses:* Emulsifier, opacifier, thickener for cosmetics, o/w emulsions; lubricant

for stamping and drawing; protective coating for hygroscopic materials (tablets); opacifier/lubricant for paper industry; antitack agent

*Properties:* Wh. flake; insol. in water; m.p. 44-48 C; HLB 4.7; acid no. 5 max.; sapon. no. 153-165; pour pt. 46 C; pH 4.5-6.5 (3% disp.); 100% conc.; nonionic

**Lumulse™ DGS-C** [Lambent Tech.]

*Chem. Descrip.:* PEG-2 stearate SE and stearic acid

*Uses:* Self-emulsifying emulsifier, opacifier, thickener for cosmetics, o/w emulsions; lubricant for stamping and drawing; protective coating for hygroscopic materials (tablets); opacifier/lubricant for paper industry; antitack agent

*Properties:* Wh. flake; disp. in water; m.p. 47-53 C; acid no. 95-105; sapon. no. 160-170; pH 6.5-7.5 (3% disp.)

**Lumulse™ DGS-N** [Lambent Tech.]

*Chem. Descrip.:* PEG-2 stearate and stearic acid

*Uses:* Emulsifier, opacifier, thickener for cosmetics, o/w emulsions; lubricant for stamping and drawing; protective coating for hygroscopic materials (tablets); opacifier/lubricant for paper industry; antitack agent

*Properties:* Wh. flake; insol. in water; m.p. 43-50 C; acid no. 95-105; sapon. no. 175-185; pH 4.5-6.5 (3% disp.)

**Lumulse™ EGDS** [Lambent Tech.]

*Chem. Descrip.:* Glycol distearate

CAS 627-83-8; EINECS/ELINCS 211-014-3

*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives

*Properties:* Cream solid; nondisp. in water; sp.gr. 0.95; HLB 1.5; pour pt. 56 C; nonionic

**Lumulse™ GMO** [Lambent Tech.]

*Chem. Descrip.:* Glyceryl oleate

CAS 25496-72-4; EINECS/ELINCS 203-827-7

*Uses:* Emulsifier, opacifier, stabilizer for food, drug, and cosmetic industries; improves stability in pet foods, margarine; dough conditioner for tacos and tortillas; lubricant for textiles; anti-icing fuel additive; solvent; mold release agent; clarifier and antiblocking agent in plastics (food pkg.); in food pkg. adhesives, coatings, paper/paperboard, textiles; defoamer in food-contact paper/paperboard; improves overrun in frozen desserts

*Use Level:* 0.1-0.5%

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210, 177.2800, 181.27, 182.4505, Part 166; also avail. in kosher grade

*Properties:* Yel. opaque liq., bland odor; insol. in water; sol. in ethanol, propylene glycol, org. solvs., veg. and min. oils; sp.gr. 0.95; dens. 8.0 lb/gal; visc. 90 cSt (40 C); b.p. > 200 C (760 mm); HLB 3.4; acid no. 2 max.; iodine no. 96; sapon. no. 160-170; pour pt. 0 C; flash pt. 215 C; 100% conc.; nonionic

*Toxicology:* May cause eye irritation

*Precaution:* Avoid strong oxidizing agents

*Storage:* Store in well-ventilated areas @ 50-120 F; keep away from oxidizing agents, excessive heat, ignition sources

**Lumulse™ PEG 540** [Lambent Tech.]

*Chem. Descrip.:* PEG-6, PEG-32 (50/50 mixt.)

*Uses:* Cosmetic, pharmaceutical, and suppository formulation; humectant, plasticizer in adhesives; base for metal polishes; lubricant for paper sizes; inks; in alkyd resins and coatings

*Properties:* Wh. waxy solid; water-sol.; m.w. 500-600; visc. 26-33 cSt (210 F); f.p. 38-41 C; pH 4.5-7.5 (5%)

**Lumulse™ PEG 1000** [Lambent Tech.]

*Chem. Descrip.:* PEG-20

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Cosmetic and pharmaceutical formulation; resins and coatings; imparts dimensional stability to paper wet str. resins, improves coatings gloss

*Properties:* Wh. waxy solid; water-sol.; m.w. 950-1050; visc. 16-19 cSt (210 F); f.p. 37-40 C; pH 4.5-7.5 (5%); nonionic

**Lumulse™ PEG 3350** [Lambent Tech.]

*Chem. Descrip.:* PEG-75

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Cosmetic and pharmaceutical formulation; resins and coatings; humectant, plasticizer for adhesives; antistat for rubber conveyor belt; in shoe polish; lubricant for paper sizing; printing inks; tablet binder, lubricant

*Properties:* Wh. waxy solid; water-sol.; m.w. 3015-3685; visc. 76-110 cSt (210 F); f.p. 53-56 C; pH 4.5-7.5 (5%); nonionic

**Lumulse™ PGML** [Lambent Tech.]

*Chem. Descrip.:* Propylene glycol laurate

CAS 27194-74-7; EINECS/ELINCS 205-542-3

*Uses:* Surfactant for food, industrial uses, cosmetics, pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives

*Properties:* Yel. liq.; disp. in water; sp.gr. 0.92; HLB 4.0; pour pt. -4 C; 100% conc.; nonionic

**Lumulse™ PGMP** [Lambent Tech.]

*Chem. Descrip.:* Propylene glycol palmitate

*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives

*Properties:* Wh. solid; nondisp. in water; sp.gr. 0.95; HLB 3.6; pour pt. 36 C; nonionic

**Lumulse™ PGMS** [Lambent Tech.]

*Chem. Descrip.:* Propylene glycol stearate

CAS 1323-39-3; EINECS/ELINCS 215-354-3

*Uses:* Surfactant for food, industrial, and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives

*Properties:* Wh. waxy solid; insol. in water; sp.gr. 0.95; HLB 3.4; pour pt. 38 C; 100% conc.; nonionic

**Luprintol® FBT** [BASF AG]

*Uses:* Auxiliary for transfer paper printing on textile machines

**Luredur® AS 10, 60%** [BASF; BASF AG]

*Chem. Descrip.:* Acrylic polymer aq. sol'n.

*Uses:* Dry str. agent for strengthening the structure of paper and board, esp. short-fibered and secondary stocks; reinforces the bond between the individual fibers; suitable in all cases where starch is used in surface treatment for reinforcing the structure

*Properties:* Water-sol.; anionic

**Luredur® JP 2** [BASF; BASF AG]

*Chem. Descrip.:* Acrylic polymer aq. sol'n.

*Uses:* Dry str. agent for strengthening the structure of paper and board, esp. short-fibered and secondary fiber-containing furnishes; applied at the size press; best in weakly acid to neutral applics.; forms strong hydrogen bonds with fibers; forms strong, tough film on fibers

*Properties:* Anionic

**Luredur® NB-25** [BASF; BASF AG]

*Chem. Descrip.:* Acrylic polymer aq. sol'n.

*Uses:* Dry str. agent for strengthening the structure of paper and board, esp. short-fibered and secondary stocks; reinforces the bond between the individual fibers; suitable in all cases where starch is used in surface treatment for reinforcing the structure

*Properties:* Water-sol.; anionic

**Luresin®** [BASF AG]

*Chem. Descrip.:* Based on aq. sol'ns. of formaldehyde-free cationic polyamido-amine-epichlorohydrin resins

*Uses:* Wet and dry str. agent for papers, esp. in the neutral pH range

**Lustrabrite® S** [Telechemische]

*Chem. Descrip.:* Toluene sulfonamide/epoxy resin

*Uses:* Nail enamel resin, gloss aid; plasticizer for nitrocellulose; food-contact paper/paperboard; patented; formaldehyde-free; provides superior clarity, brilliance, high gloss, adhesion

*Regulatory:* FDA 21CFR 175.105, 175.300, 176.170

**Lutensol® TO 3** [BASF AG]

*Chem. Descrip.:* PEG-3 C13 oxo-alcohol

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods.; intermediate in prod. of ether sulfates

*Properties:* Colorless clear or cloudy liq.; sol. @ 10% in alcohols, aromatic hydrocarbons; sp.gr. 0.93; visc. 50 mPa·s; drop pt. < 5 C; solid. pt. < 5 C; HLB 9; hyd. no. 165; cloud pt. 40 C (in BDG); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 30 mN/m (1 g/l in DW); 100% conc.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Lutensol® TO 5** [BASF AG]

*Chem. Descrip.:* PEG-5 C13 oxo-alcohol

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods.

*Properties:* Colorless clear or cloudy liq.; sol. @ 10% in alcohols, aromatic hydrocarbons; sp.gr. 0.96; visc. 70 mPa·s; drop pt. 13 C; solid. pt. < 5 C; HLB 10.5; hyd. no. 130; cloud pt. 62 C (in BDG); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 30 mN/m (1 g/l in DW); 100% conc.; nonionic

*Environmental:* > 90% biodeg.



*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Lutensol® TO 6** [BASF AG]

*Chem. Descrip.:* PEG-6 C13 oxo-alcohol

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods.

*Properties:* Nonionic

**Lutensol® TO 7** [BASF AG]

*Chem. Descrip.:* PEG-7 C13 oxo-alcohol

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods., emulsion polymerization (acrylic, vinyl, and styrene monomers)

*Properties:* Colorless clear or cloudy liq.; sol. @ 10% in alcohols, aromatic hydrocarbons; sp.gr. 0.98; visc. 90 mPa·s; drop pt. 18 C; solid. pt. < 5 C; HLB 12; hyd. no. 110; cloud pt. 70 C (in BDG); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 30 mN/m (1 g/l in DW); 100% conc.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Lutensol® TO 8** [BASF AG]

*Chem. Descrip.:* PEG-8 C13 oxo-alcohol

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods., pickling baths, emulsion polymerization (acrylic, vinyl, and styrene monomers)

*Properties:* Colorless clear or cloudy liq.; sol. @ 10% in water, 5% caustic soda, 5% HCl, 5% NaCl, alcohols; sp.gr. 1.01; visc. 150 mPa·s; drop pt. 22 C; solid. pt. 10 C; HLB 13; hyd. no. 100; cloud pt. 60 C (in water); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 31 mN/m (1 g/l in DW); 100% conc.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Lutensol® TO 12** [BASF AG]

*Chem. Descrip.:* PEG-12 C13 oxo-alcohol

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods., pickling baths, emulsion polymerization (acrylic, vinyl, and styrene monomers)

*Properties:* Wh. soft paste; sol. @ 10% in water, 5% caustic soda, 5% HCl, 5% NaCl, alcohols; sp.gr. 1.00 (60 C); visc. 60 mPa·s (60 C); drop pt. 30 C; solid. pt. 20 C; HLB 14.5; hyd. no. 75; cloud pt. 87 C (in BDG); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 34 mN/m (1 g/l in DW); 100% conc.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Lutensol® TO 89** [BASF AG]

*Chem. Descrip.:* PEG-8 C13 oxo-alcohol (90% Lutensol TO 8 in water)

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods., pickling baths

*Properties:* Colorless clear liq.; sol. @ 10% in water, 5% caustic soda, 5% HCl, 5% NaCl, petrol. fractions, alcohols; sp.gr. 1.02; visc. 140 mPa·s; drop pt. < 5 C; solid. pt. < 5 C; HLB 13; hyd. no. 100; cloud pt. 60 C (in water); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 31 mN/m (1 g/l in DW); 90% conc.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Lutensol® TO 389** [BASF AG]

*Chem. Descrip.:* Fatty alcohol ethoxylate (Lutensol TO 3 and TO 8 in water)

*Uses:* Detergent, emulsifier, dispersant, wetting agent for laundry detergents, household and industrial cleaners, emulsions, dispersions, surf. treatment, leather, pulp/paper, dyes and pigments, paints, building prods.

*Properties:* Colorless clear liq.; sol. @ 10% in alcohols, aromatic hydrocarbons; sp.gr. 0.99; visc. 100 mPa·s; drop pt. < 5 C; solid. pt. < 5 C; HLB 12; hyd. no. 110; cloud pt. 70 C (in BDG); flash pt. > 100 C; pH 7 (5% aq.); surf. tens. 30 mN/m (1 g/l in DW); 90% conc.; nonionic

*Environmental:* > 90% biodeg.

*Storage:* May become cloudy if stored at low temps.; heat to 40 C to reverse

**Luviskol® K12** [BASF AG]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, thickener, protective colloid, suspending agent, and dispersant for cosmetics, adhesives, paints, coatings, paper, detergents, glass fibers, inks, ceramics, nonpharmaceutical tableting, photographic films, crop protection agents; hair fixative

*Properties:* Powd. and liq.; sol. in alcohols, esters, ether alcohols, ketones, lactams, chlorinated hydrocarbons, nitroparaffins, acids, amines; pH 5-7 (10%); 50% solids in water (sol'n.)

**Luviskol® K17** [BASF; BASF AG]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, thickener, protective colloid, stabilizer, visc. modifier, suspending agent, and dispersant used for emulsion and suspension polymerizations, cosmetics, adhesives, sealants, paints, coatings, paper, detergents, glass fibers, inks, ceramics, nonpharmaceutical tableting, photographic films; hair fixative

*Properties:* Powd. or liq.; > 99% > 250 µm particle size (powd.); sol. in alcohols, esters, ether alcohols, ketones, lactams, chlorinated hydrocarbons, nitroparaffins, acids, amines; bulk dens. 0.4-0.5 g/cc (powd.); visc. 5.4 cps (5% in methanol); pH 3-7 (10%, powd.), 7-10 (10%, sol'n.); > 92% solids (powd.), 50% solids in water (sol'n.)

**Luviskol® K30** [BASF; BASF AG]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, thickener, protective colloid, stabilizer, visc. modifier, suspending agent, and dispersant used for emulsion and suspension polymerizations, cosmetics, adhesives, sealants, paints, coatings, paper, detergents, glass fibers, inks, ceramics, nonpharmaceutical tableting, photographic films; hair fixative

*Properties:* Powd. or liq.; particle size > 99% > 250 µm (powd.); sol. in alcohols, esters, ether alcohols, ketones, lactams, chlorinated hydrocarbons, nitroparaffins, acids, amines; bulk dens. 0.4-0.5 g/cc; visc. 7.0 cps (5% in methanol); pH 3-7 (10%, powd.), 7-10 (10%, sol'n.); > 95% solids (powd.), 30% solids in water (sol'n.)

**Luviskol® K60** [BASF; BASF AG]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, thickener, protective colloid, stabilizer, visc. modifier, suspending agent, and dispersant used for emulsion and suspension polymerizations, cosmetics, adhesives, sealants, paints, coatings, paper, detergents, glass fibers, inks, ceramics, nonpharmaceutical tableting, photographic films; hair fixative

*Properties:* Liq.; sol. in alcohols, esters, ether alcohols, ketones, lactams, chlorinated hydrocarbons, nitroparaffins, acids, amines; pH 7-10 (10%); 45% solids in water

**Luviskol® K80** [BASF; BASF AG]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, thickener, protective colloid, suspending agent, and dispersant for cosmetics, adhesives, paints, coatings, paper, detergents, glass fibers, inks, ceramics, nonpharmaceutical tableting, photographic films; hair fixative

*Properties:* Powd. or liq.; particle size > 99% > 250 µm (powd.); sol. in alcohols, esters, ether alcohols, ketones, lactams, chlorinated hydrocarbons, nitroparaffins, acids, amines; bulk dens. 0.3-0.4 g/cc (powd.); visc. 27 cps (5% in methanol); pH 5-8 (10%, powd.), 7-10.5 (10%, sol'n.); > 95% solids (powd.), 20% solids in water (sol'n.)

**Luviskol® K90** [BASF; BASF AG]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, thickener, protective colloid, stabilizer, visc. modifier, suspending agent, and dispersant used for emulsion and suspension polymerizations, cosmetics, adhesives, sealants, paints, coatings, paper, detergents, glass fibers, inks, ceramics, nonpharmaceutical tableting, photographic films; hair fixative

*Properties:* Powd. or liq.; particle size > 99% > 250 µm (powd.); sol. in alcohols, esters, ether alcohols, ketones, lactams, chlorinated hydrocarbons, nitroparaffins, acids, amines; bulk dens. 0.3-0.4 g/cc (powd.); visc. 30.8 cps (5% in methanol); pH 5-9 (10%, powd.), 7-10.5 (10%, sol'n.); > 95% solids (powd.), 15% or 20% solids in water (sol'n.)

**Luwax® E** [BASF AG]

*Chem. Descrip.:* Montan ester wax

CAS 8002-53-7; EINECS/ELINCS 232-313-5

*Uses:* Suitable for production of purely saponified, solv.-free or solv.-containing polishes; antiblocking agent for paper and cardboard, esp. for foodstuff pkgs.; lubricant for exterior and interior applic. for processing PVC with or without plasticizers

*Properties:* Flakes/powd.

**Luwax® LG** [BASF AG]

*Chem. Descrip.:* Montanic acid wax

CAS 8002-53-7; EINECS/ELINCS 232-313-5

*Uses:* For production of emulsions for polishes, paper and film finishing, impregnating agents for building, wood and metal industry, leather auxiliary; very easily emulsifiable, hard wax

*Properties:* Flakes

**Luwax® LGE** [BASF AG]

*Chem. Descrip.:* Montanic acid wax containing emulsifiers

CAS 8002-53-7; EINECS/ELINCS 232-313-5

*Uses:* Dry-bright wax for production of emulsions for floor polishes, leather finishes, paper and film finishing, wood and plastics processing, glass and ceramics; mold release agent for PUR

*Properties:* Flakes

**Luwax® OA** [BASF]

*Chem. Descrip.:* Oxidized polyethylene wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Improves rub resist. in printing inks; flattening and antisetting agent in paints/coatings; dispersant and color enhancer in color concs.; inc. hardness in wax compds.; improves blk. heel mark resist. in floor polishes; lubricant for plastics processing; in the production of emulsions for polishes, textile, paper and other industries

*Properties:* Pastilles; dens. 0.96 g/cm<sup>3</sup>; visc. 400 mm<sup>2</sup>/s; m.p. 94 C; drop pt. 101 C; 22 mg KOH/g

**Luwax® OA 3** [BASF]

*Chem. Descrip.:* Oxidized polyethylene wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Improves rub resist. in printing inks; flattening and antisetting agent in paints/coatings; dispersant and color enhancer in color concs.; inc. hardness in wax compds.; improves blk. heel mark resist. in floor polishes; lubricant for plastics processing; in the production of emulsions for polishes, textile, paper and other industries; very high hardness

*Properties:* Powd; dens. 0.99 g/cm<sup>3</sup>; visc. 4500 mm<sup>2</sup>/s (140 C); m.p. 130 C; drop pt. 130 C; 23 mg KOH/g

**Luwax® OA 5** [BASF]

*Chem. Descrip.:* Oxidized polyethylene wax

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Improves rub resist. in printing inks; flattening and antisetting agent in paints/coatings; dispersant and color enhancer in color concs.; inc. hardness in wax compds.; improves blk. heel mark resist. in floor polishes; high hardness wax for coating of fruits, paper, cellophane, textiles, and floor polishes; lubricant for plastics processing

*Properties:* Gran. or powd.; dens. 0.97 g/cc; visc. 410 mm<sup>2</sup>/s (120 C); m.p. 104 C; drop pt. 110 C; acid no. 16; penetration hardness < 1 dmm

**LX-685®\_125** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Plasticizer, softener, processing aid in adhesives (hot melt pressure sensitive, mastic, pressure sensitive), coatings (alum., can & drum, emulsion, industrial, marine, traffic), inks (gelled varnishes, gravure, heat set, letterpress, lithographic), rubber (cements, mechanical goods, molded goods, tires), concrete-curing compds., and caulking compds.; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 12 solid, flakes (50% in toluene); sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 790; sp.gr. 1.095; R&B soften. pt. 103 C; iodine no. (Wijs) 130; flash pt. (COC) 350 F

**LX-685®\_135** [Neville]

*Chem. Descrip.:* Petrol. resin

*Uses:* Processing aid, extender in adhesives (hot melt pressure sensitive, mastic, pressure sensitive), coatings (alum., can & drum, emulsion, industrial, marine, traffic), inks (gelled varnishes, gravure, heat set, letterpress, lithographic), rubber (cements, mechanical goods, molded goods, tires), concrete-curing compds., and caulking compds.; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210,

177.2600, 178.3800

*Properties:* Gardner 12 solid, flakes (50% in toluene); sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 720; sp.gr. 1.090; R&B soften. pt. 115 C; iodine no. (Wijs) 140; flash pt. (COC) 425 F

**LX-782®** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Plasticizer, softener for NR, SR; reinforcing aid; also used for inks, adhesives, coatings, and concrete cures; food-contact adhesives, coatings, paper, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 14 solid, flakes (50% in toluene); m.w. 690; sp.gr. 1.09; R&B soften. pt. 102 C; iodine no. (Wijs) 140; flash pt. (COC) 460 F

**LX®-973** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Used for inks, adhesives, coatings, rubbers, and concrete cures; food-contact adhesives, coatings, paper, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 6 solid, flakes (50% in toluene); m.w. 630; sp.gr. 1.09; R&B soften. pt. 113 C; iodine no. (Wijs) 160; flash pt. (COC) 450 F

**LX®-1035** [Neville]

*Chem. Descrip.:* Petrol. resin, not filtered

*Uses:* Used in adhesives (hot melt pressure sensitive, mastic, pressure sensitive), coatings (alum., can & drum, emulsion, industrial, marine, traffic), inks (gelled varnishes, gravure, heat set, letterpress, lithographic); rubber (cements, mechanical goods, molded goods, tires), concrete-curing compds., and caulking compds.; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 15 solid, flakes (50% in toluene); sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 920; sp.gr. 1.090; R&B soften. pt. 170 C; iodine no. (Wijs) 160; flash pt. (COC) 425 F

**LX®-1082** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Used for inks, adhesives, coatings, rubbers, and concrete cures; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 12 solid, flakes (50% in toluene); m.w. 730; sp.gr. 1.09; R&B soften. pt. 102 C; iodine no. (Wijs) 130; flash pt. (COC) 480 F

**LX®-1082,280** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Used for inks, adhesives, coatings, rubbers, and concrete cures; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 13 solid, flakes (50% in toluene); m.w. 785; sp.gr. 1.12; R&B soften. pt. 140 C; iodine no. (Wijs) 155; flash pt. (COC) 505 F

**LXR-1122** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Used for inks, adhesives, coatings, rubbers, and concrete cures; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 12 solid, flakes (50% in toluene); m.w. 705; sp.gr. 1.07; R&B soften. pt. 100 C; iodine no. (Wijs) 120; flash pt. (COC) 450 F

**LX®-1127** [Neville]

*Chem. Descrip.:* Petrol. resin

*Uses:* Used in adhesives (hot melt pressure sensitive, mastic, pressure sensitive), coatings (alum., can & drum, emulsion, industrial, marine, traffic), inks (gelled varnishes, gravure, heat set, letterpress, lithographic); rubber (cements, mechanical goods, molded goods, tires), concrete-curing compds., and caulking compds.; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 10 solid, (50% in toluene); sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydro-

carbons; m.w. 800; sp.gr. 1.050; R&B soften. pt. 100 C; iodine no. (Wijs) 200; flash pt. (COC) 450 F

**LX®-1200** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Used for inks, adhesives, coatings, rubbers, and concrete cures; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 11 solid, flakes (50% in toluene); m.w. 715; sp.gr. 1.09; R&B soften. pt. 113 C; iodine no. (Wijs) 140; flash pt. (COC) 435 F

**LX®-1200,130** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Used for inks, adhesives, coatings, rubbers, and concrete cures; food-contact adhesives, coatings, paper, rubber, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 12 solid, flakes (50% in toluene); m.w. 770; sp.gr. 1.11; R&B soften. pt. 132 C; iodine no. (Wijs) 130; flash pt. (COC) 465 F

**Lycoid® 260** [Vinings Ind.]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Dry str. agent, formation aid in papermaking; component of paper/paperboard in contact with aq./fatty/dry foods; reduced press sticking; improves smoothness

*Use Level:* 4-6 lb/ton

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Off-wh. tan powd.; 100% thru Tyler 20 mesh sieve; easy disp. in cold water; visc. 3200 cps min. (1%); pH 5-6 (1% aq.); 6-13% moisture

*Toxicology:* Dust may be irritating; avoid breathing dust, contact with eyes, or repeated contact with skin

*Precaution:* Wet material will become very slippery

*Storage:* Store in a dry location; keep container closed when not in use to prevent moisture pickup

**Lytron® 2203** [OMNOVA Sol'ns./Paper]

*Chem. Descrip.:* Lightweight polystyrene polymer aq. disp.

CAS 9003-53-6; EINECS/ELINCS 202-851-5

*Uses:* Pigment for paper coatings; creates bulky coatings with exc. optical props., gloss, improved printability, brightness, and opacity

*Properties:* Visc. 500 cps max.; pH 9.0; 54% total solids

# M

## MA 115H [Process Chems. LLC]

*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing, for use in brownstock washing, screen room, and bleach plant operations; oil-based; does not contribute to deposit formation; suitable whether batch or continuous pulp is employed

*Properties:* Off-wh. liq.; dens. 6.27-8.29 lb/gal; visc. 1000-2500 cps

*Toxicology:* TSCA listed

*Storage:* Store in dry area

## MA 1124B [Process Chems. LLC]

*Uses:* Defoamer, drainage aid for kraft pulp/paper applics., for use in brownstock washing, screen room, and bleach plant operations; water-based; does not contain EBS, min. oil, or dioxin precursors; does not contribute to deposit formation; suitable whether batch or continuous pulp is employed

*Properties:* Opaque wh. liq.; sp.gr. 1.005-1.030; dens. 8.38-8.58 lb/gal; visc. 950-1550 cps; pH 5.5-6.5

*Toxicology:* TSCA listed

*Storage:* Store in dry area

## Mackester™ EGDS [McIntyre]

*Chem. Descrip.:* Glycol distearate

CAS 627-83-8; EINECS/ELINCS 211-014-3

*Uses:* Emulsifier, lubricant, antistat, defoamer for metalworking, textile lubricants, plastics, paper; emulsifier, pearlescent, emollient for cosmetics

*Properties:* Flake; 100% conc.; nonionic

## Mackester™ EGMS [McIntyre]

*Chem. Descrip.:* Glycol stearate

CAS 111-60-4; EINECS/ELINCS 203-886-9

*Uses:* Emulsifier, lubricant, antistat, defoamer for metalworking, textile lubricants, plastics, paper; emulsifier, pearlescent, emollient for cosmetics

*Properties:* Flake; 100% conc.; nonionic

## Mackester™ IP [McIntyre]

*Chem. Descrip.:* Glycol stearate, other ingreds.

*Uses:* Emulsifier, lubricant, antistat, defoamer for metalworking, textile lubricants, plastics, paper; emulsifier, pearlescent, emollient for cosmetics

*Properties:* Flake; 100% conc.

## Mackester™ SP [McIntyre]

*Chem. Descrip.:* Glycol stearate and stearamide MEA

*Uses:* Emulsifier, lubricant, antistat, defoamer for metalworking, textile lubricants, plastics, paper; emulsifier, pearlescent, emollient for cosmetics

*Properties:* Flake; 100% conc.

## Macol® OP-10 SP [BASF]

*Chem. Descrip.:* Octoxynol-10

CAS 9002-93-1

*Uses:* Emulsifier, detergent, wetting agent, dispersant, solubilizer, coupling agent for cosmetics, I&I cleaners, paints, textiles, paper processing, adhesives, metalworking; emulsifier for heavy petrol. oils and silicone fluids

*Properties:* APHA 100 max. clear liq., polyol odor; sol. in water, alcohol, ethylene glycol, chlorinated hydrocarbon and aromatic solvs.; insol. in most veg. and min. oils; sp.gr. 1.06; visc. 250 cps; vapor pressure < 0.1 mm Hg; b.p. > 300 F; HLB 13.4; cloud pt. 65 C (1% aq.); flash pt. (PMCC) > 300 F; nonionic

*Toxicology:* Contact with skin and eyes may cause temporary irritation

*Precaution:* Incompat. with strong oxidizing materials

*Hazardous Decomp. Prods.:* Thermal decomp. may produce CO<sub>x</sub>

*Storage:* Store in well-ventilated area below 120 F

## Magnabrite™ [PQ]

*Chem. Descrip.:* Magnesium sulfate aq. sol'n.

CAS 7487-88-9; EINECS/ELINCS 231-298-2

*Uses:* Descaling agent for bleaching and deinking processes in pulp/paper industry; metal deactivator in peroxide or oxygen bleaching of pulp; modifies the sol. domain of silica, forcing it into an area where it forms a soft, nonadherent, talc-like scale which has a low affinity for metal surfs. and is easily removed; stable

*Regulatory:* SARA §302/304/313 nonreportable; not a RCRA hazardous waste

*Properties:* Colorless transparent sol'n.; odorless; misc. with water; sp.gr. 1.31 (20 C); flash pt. noncombustible; pH 8.5; 27% solids

*Toxicology:* May cause irritation by eye contact (pain, redness, tearing) and inh. (sneezing and dryness of mucous membranes); ing. may cause nausea, vomiting, abdominal cramps, and diarrhea

*Environmental:* No adverse effects known or suspected

*Hazardous Decomp. Prods.:* Magnesium oxide, sulfur dioxide, and sulfur trioxide may be generated at very high temps.

## Magnafloc® [Ciba Spec. Chems./Paper]

*Uses:* Flocculant, coagulant for raw water, saveall, and effluent treatment in paper industry

## Magnum Gloss [Mississippi Lime]

*Chem. Descrip.:* Precipitated calcium carbonate slurry

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Coating pigment for glossy, high brightness coated paper and board applics.; provides increased opacity, brightness, ink receptivity; outstanding high shear rheology

*Properties:* Slurry; 0.38 μ mean particle size; 98.5% finer than 2 μ; sp.gr. 2.85; dens. 11.28 dry lb/gal; visc. 500 cps; surf. area 12 m<sup>2</sup>/g; oil absorp. 28; brightness 98; ref. index 1.68; pH 9.5; 72% slurry solids; 98.6% CaCO<sub>3</sub>

## MAKON® 4 [Stepan; Stepan Canada; Stepan Europe]

*Chem. Descrip.:* Nonoxynol-4

CAS 9016-45-9; EINECS/ELINCS 230-770-5

*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries

*Properties:* Lt. straw liq.; sol. in oils, xylene; dens. 8.5 lb/gal; visc. 260 cps; HLB 9.0; pour pt. -20 C; pH 7.7 (1%); 100% act.; nonionic

## MAKON® 6 [Stepan; Stepan Canada; Stepan Europe]

*Chem. Descrip.:* Nonoxynol-6

CAS 9016-45-9

*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries

*Properties:* Lt. straw liq.; sol. in xylene; disp. in water; dens. 8.67 lb/gal; visc. 255 cps; HLB 11; pour pt. -29 C; cloud pt. 78 C (1%); pH 7.9 (1%); 100% act.; nonionic

## MAKON® 8 [Stepan; Stepan Canada; Stepan Europe]

*Chem. Descrip.:* Nonoxynol-8

CAS 9016-45-9

*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries

*Properties:* Lt. straw liq.; sol. in water, xylene; dens. 8.76 lb/gal; visc. 205 cps; HLB 12; cloud pt. 24 C (1%); pour pt. -5 C; pH 7.0 (1%); 100% act.; nonionic

## MAKON® 10 [Stepan; Stepan Canada; Stepan Europe]

*Chem. Descrip.:* Nonoxynol-10

- CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries  
*Properties:* Lt. straw liq.; sol. in water, xylene; dens. 8.85 lb/gal; visc. 235 cps; HLB 13.0; cloud pt. 54 C (1%); pour pt. 2.8 C; pH 8.2 (1%); 100% act.; nonionic
- MAKON® 12** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-12  
 CAS 9016-45-9  
*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries  
*Properties:* Lt. straw liq.; sol. in water, xylene; dens. 8.9 lb/gal; visc. 300 cps; HLB 14; cloud pt. 81 C (1%); pour pt. 12.2 C; pH 7.2 (1%); 100% act.; nonionic
- MAKON® 14** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-14  
 CAS 9016-45-9  
*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries  
*Properties:* Lt. straw liq.; sol. in water, xylene; dens. 8.9 lb/gal; visc. 520 cps; HLB 15; cloud pt. 94 C (1%); pour pt. 18.9 C; pH 7.2 (1%); 100% act.; nonionic
- MAKON® 30** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-30  
 CAS 9016-45-9  
*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries  
*Properties:* Off-wh. waxy solid; sol. in water, xylene; dens. 9.0 lb/gal; HLB 17; pour pt. 40 C; pH 8.5 (1%); 100% act.; nonionic
- MAKON® NP-5570** [Stepan Canada]  
*Chem. Descrip.:* Nonylphenol ethoxylate  
 CAS 9016-45-9  
*Uses:* Detergent, emulsifier used in chemical specialties, cosmetics, agric., industrial and metal cleaners, textiles, paper and petrol. industries  
*Properties:* Nonionic
- Malros®** [Eka Chems.]  
*Chem. Descrip.:* Rosin soap  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Sizing agent for internal sizing of all kinds of paper and board at low pH  
*Properties:* Liq.
- Maracarb N-1** [LignoTech USA]  
*Chem. Descrip.:* Sodium lignosulfonate  
 CAS 8061-51-6  
*Uses:* Modifier, dispersant, and humectant in dyestuff pastes; industrial cleaners; plant foliar spray; chelating agent for metal ions; slime control agent for paper mill systems  
*Properties:* Dk. brn. powd.; bulk dens. 600 kg/m<sup>3</sup>; pH 8.2 (10%); 95% dry matter; anionic
- Maranil® A 25 IS** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium n-alkyl (C<sub>10</sub>-C<sub>13</sub>) benzene sulfonate  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* For mfg. of PVC and S/B dispersions; foaming agent for syn. foams; food pkg. paper, cellophane; emulsifier in mfg. of food-contact articles; stable against acidic and basic hydrolysis; preserved  
*Regulatory:* FDA 21CFR §176.170, 177.1200, 178.3400; BGA approved  
*Properties:* Liq.; 24.5-25.5% act.; anionic
- Maranil® Paste A 55** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium dodecylbenzene sulfonate  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Base for mfg. detergents, dishwashing, cleaning agents; wetting agent; surfactant for mfg. of PVC and S/B disp.; foaming agent for syn. foams; food pkg. paper, cellophane; emulsifier in mfg. of food-contact articles; stable against acidic and basic hydrolysis  
*Regulatory:* FDA 21CFR §176.170, 177.1200, 178.3400; BGA approval  
*Properties:* Paste; 55% conc.; anionic
- Marasperse 52 CP** [LignoTech USA]  
*Chem. Descrip.:* Polymerized sodium lignosulfonate  
 CAS 8061-51-6  
*Uses:* Dispersant for disperse dyestuffs; pitch dispersant in paper mills; dispersant for cements, ceramics, oil drilling muds, pesticides, leather tanning; binder for coal briquettes, fertilizers, feed pellets; sequestrant for micro-nutrient systems, cleaning compds., water treatments for boiling and cooling systems; emulsifier for asphalt emulsions, pigments and dyes, pesticides, wax emulsions; low stain, high heat stability  
*Properties:* Brn. powd.; bulk dens. 650 kg/m<sup>3</sup>; pH 9.9 (10%); 96% dry matter; anionic
- Marlican®** [Condea Vista]  
*Chem. Descrip.:* Straight-chain dodecylbenzene  
 CAS 67774-74-7  
*Uses:* Detergent intermediate; solubilizer; sec. plasticizer; visc. reducer for PVC pastes; solvent for carbonless copy papers  
*Properties:* Liq.; 100% act.; anionic  
*Environmental:* Biodeg.
- Martinal® OL-104** [Martinswerk GmbH]  
*Chem. Descrip.:* Aluminum hydroxide  
 CAS 21645-51-2; EINECS/ELINCS 244-492-7  
*Uses:* Filler, flame retardant for polyester resins (SMC, BMC, laminates), epoxy and acrylic resins, crosslinked elastomers (conveyor belts, cables, profiles, molded parts), latexes (wall paper, carpetbacking), thermoplastic and thermoplastic elastomers (PP, PE and copolymers, EVA), PVC (plasticized, rigid, foam), aq. disp., PU castings, lacquers, elastomers, flexible and rigid foam)  
*Properties:* Powd.; 1.3-2.6 µm median particle size; dens. 2.4 g/cc; bulk dens. ≈ 320 kg/m<sup>3</sup>; surf. area 3-5 m<sup>2</sup>/g; oil absorp. 27-35 cc/100 g; brightness (TAPPI) > 94; ref. index 1.58; pH 9 ± 1; conduct. < 100 µS/cm; 99.6% act.
- Masil® EM 501** [BASF]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Provides better coating coverage, improved wetting and dilution stability in printing industry when used in heat-set, offset lithographic printing processes as a topcoat on printed paper; provides antistatic props.; eliminates excessive ink buildup; usually diluted 40:1 with water; exc. dilution stability; good freeze-thaw stability  
*Properties:* Wh. milky emulsion, very little odor; 80% < 0.3 µ particle size; misc. with water; sp. gr. ≈ 1; vapor pressure 24 mm Hg; m.p. < 32 C; b.p. 212 F; flash pt. (PMCC) > 212 F; pH 7.0; 60% solids  
*Toxicology:* Contact with skin or eyes may cause temporary irritation  
*Precaution:* Incompat. with strong oxidizing materials; thermal decomp. on exposure to air in excess of 150 C may produce carbon and silicone oxides and formaldehyde  
*Storage:* Store in well-ventilated areas @ 32-120 F
- Masil® SF-MH** [BASF]  
*Chem. Descrip.:* Methicone  
 CAS 9004-73-3  
*Uses:* Modifier for polyester and methacrylic resins; waterproofing agent and impregnating agent for textiles, paper, leather; hydrophobizing agents for powds., silicas, and other fillers; reactive fluid
- Masil® SFR 70** [BASF]  
*Chem. Descrip.:* Dimethiconol  
 CAS 31692-79-2  
*Uses:* Spreading agent and emollient in antiperspirant formulations; offers humidity resist. to hair spray formulas; raw material in compding. silicone RTV systems, textile and paper coatings; plasticizer/processing aid for silicone elastomers; hydrophobizing agent for silica; in water repellent formulations; reactive fluid  
*Properties:* Water-wh. clear liq., odorless, tasteless; visc. 55-90 cst; 92.5% min. solids
- Masil® SFR 100** [BASF]  
*Chem. Descrip.:* Dimethiconol  
 CAS 31692-79-2  
*Uses:* Spreading agent and emollient in antiperspirant formulations; offers humidity resist. to hair spray formulas; plasticizer for silicone elastomers; hydrophobizing agent for silica; in water thermoplastics, textile and paper coatings; raw material for RTV silicone systems  
*Properties:* Water-wh. clear liq., odorless, tasteless; visc. 90-150 cst; acid no. 0.05 max.
- Masil® SFR 750** [BASF]  
*Chem. Descrip.:* Dimethiconol  
 CAS 31692-79-2  
*Uses:* Spreading agent, softener, and nongreasy emollient for skin and nail care prods.; plasticizer for silicone elastomers; hydrophobizing agent for silica; in water thermoplastics, textile and paper coatings; raw material for RTV silicone systems  
*Properties:* Water-wh. clear liq., odorless, tasteless; visc. 675-825 cps

**Masil® SFR 2000 [BASF]***Chem. Descrip.:* Dimethiconol

CAS 31692-79-2

*Uses:* Spreading agent, softener, and nongreasy emollient for skin and nail care prods.; plasticizer for silicone elastomers; hydrophobizing agent for silica; in water thermoplastics, textile and paper coatings; raw material for RTV silicone systems*Properties:* Water-wh. clear liq.; odorless, tasteless; visc. 1800-2200 cps**Masil® SFR 3500 [BASF]***Chem. Descrip.:* Dimethiconol

CAS 31692-79-2

*Uses:* Spreading agent, softener, and nongreasy emollient for skin and nail care prods.; plasticizer for silicone elastomers; hydrophobizing agent for silica; in water thermoplastics, textile and paper coatings; raw material for RTV silicone systems*Properties:* Water-wh. clear liq.; odorless, tasteless; visc. 3150-3850 cSt**Masil® SFR 50,000 [BASF]***Chem. Descrip.:* Dimethiconol

CAS 31692-79-2

*Uses:* Substantivity agent, softener, and lubricant for hair, skin, and nail care prods.; plasticizer for silicone elastomers; hydrophobizing agent in treating silica; in thermoplastics, textile and paper coatings; raw material for RTV silicone systems; very high m.w. for highest substantivity*Properties:* Water-wh. clear liq.; odorless, tasteless; visc. 45,000-55,000 cSt**Masquol® DTPA Liq. [Synthron SA]***Chem. Descrip.:* DTPA

CAS 67-43-6; EINECS/ELINCS 200-652-8

*Uses:* Sequestrant for pretreatment of mech. pulp before bleaching**Max White 5R™ [Michelman]***Uses:* Wh. coating for paper; general-purpose; resists wax gray-out; glueable; repulpable*Regulatory:* FDA compliance**Mayzo RA-60R [Mayzo]***Chem. Descrip.:* Polyethyleneimine octadecyl carbamide*Uses:* Release coating for nat. rubber adhesive pressure-sensitive tapes and labels of PP, PE, polyester, cellophane, foil, and paper; prevents delamination and tearing of the substrate*Properties:* Lt. brn. dry powd.; sol. in toluene, heptane, hexane, and Shell Cypar™; m.p. 95 C; cloud pt. < 20 C (5% in toluene)**Mayzo RA-75 [Mayzo]***Chem. Descrip.:* Polyvinyl octadecyl carbamate

CAS 36671-85-9

*Uses:* Release coating for hot-melt, acrylic adhesive pressure-sensitive tapes and labels of PP, PE, polyester, cellophane, foil, and paper; prevents delamination and tearing of the tape*Properties:* Ylsh. sol'n.; sol. in toluene, heptane, hexane, Shell Cypar™; sp.gr. 0.865; m.p. > 92 C; 25% solids in xylene**Mayzo RA-95H [Mayzo]***Chem. Descrip.:* Polyvinyl octadecyl carbamate

CAS 36671-85-9

*Uses:* Release coating for hot-melt, acrylic adhesive pressure-sensitive tapes and labels of PP, PE, polyester, cellophane, foil, and paper; prevents delamination and tearing of the substrate*Properties:* Wh. dry powd.; sol. in toluene, heptane, hexane, Shell Cypar™; m.w. 135,000; m.p. 87-93 C; cloud pt. < 25 C (5% in toluene); 99.5% min. assay*Storage:* 2 yr storage in sealed containers stored in cool, dry area**Mayzo RA-95HS [Mayzo]***Chem. Descrip.:* Polyvinyl octadecyl carbamate

CAS 36671-85-9

*Uses:* Release coating for hot-melt, acrylic adhesive pressure-sensitive tapes and labels of PP, PE, polyester, cellophane, foil, and paper; aging resist.; prevents delamination and tearing of the substrate*Properties:* Wh. dry powd.; sol. in toluene, heptane, hexane, Shell Cypar™; m.w. 420,000; m.p. 102-120 C; cloud pt. < 25 C (5% in toluene); 99.5% min. assay*Storage:* 2 yr storage in sealed containers stored in cool, dry area**Mayzo RA-100W [Mayzo]***Chem. Descrip.:* Polyethyleneimine octadecyl carbamide*Uses:* Release coating for nat. rubber, hot-melt, acrylic pressure-sensitive tapes and labels of PP, PE, polyester, cellophane, foil, and paper; prevents delamination and tearing of the substrate*Properties:* Milky wh. aq. emulsion; sp.gr. 1.1; pH 7-9; 18% solids**Mayzo RA-120W [Mayzo]***Chem. Descrip.:* Perfluoroalkyl phosphate*Uses:* Release coating for pressure-sensitive film and paper tapes and labels of PP, PE, polyester, cellophane, foil, and paper; food-contact paper/paper-board; prevents delamination and tearing of the substrate*Regulatory:* FDA 21CFR §176.170*Properties:* Milky wh. aq. emulsion; water-disp.; sp.gr. 1.1; pH 8.5; 13% solids**Mayzo RA-150W [Mayzo]***Chem. Descrip.:* Polyvinyl octadecyl carbamate aq. emulsion

CAS 36671-85-9

*Uses:* Release coating for pressure-sensitive and hot-melt pressure-sensitive tapes and labels of PP, PE, polyester, cellophane, foil, and paper; prevents delamination and tearing of the substrate*Properties:* Hazy wh. emulsion; water-disp.; sp.gr. 1.1; pH 8.5-9.0; 25% solids**Mazawet® 77 [BASF]***Chem. Descrip.:* Alkyl polyoxyalkylene ether*Uses:* Wetting agent, surfactant used in metalworking, textile processing, spray-dried detergents, emulsion polymerization, dry cleaning systems, paints, inks, hard surface cleaners, deresination of sulfite pulp*Properties:* Gardner 1 liq.; m.w. 426 avg.; sol. @ 5% in toluene, perchloroethylene, Stod., propylene glycol, water; sp.gr. 0.965; pour pt. 11 C; cloud pt. 45 C (1% aq.); flash pt. (PMCC) 340 F; pH 6.5 (3% aq.); surf. tens. 28.1 dynes/cm (0.1%); Draves wetting 4 s (0.1% aq.); 100% act.; non-ionic**Mazu® DF 204 [BASF]***Uses:* Defoamer for metalworking concs.; enzyme, amino acid, and citric acid defoamer for fermentation applics.; pharmaceutical defoamer; wet end/coating defoamer in pulp/paper processing; modest wetting chars.*Properties:* Clear liq.; water-disp.; sp.gr. 1.010; visc. 400 cps; flash pt. (PMCC) > 350 F**Mazu® DF 210SX [BASF]***Chem. Descrip.:* Silicone emulsion*Uses:* Emulsifier; defoamer for dehydrating, evaporating, abrasive slurries, metalworking, adhesives, antifreeze, hot aq. systems, water-based inks and paints, vinyl latex binders and emulsions, petrol., textiles, paper, cutting oils, fermentation processing, commercial cleaning compds., insecticides/pesticides*Properties:* Creamy wh. liq., bland odor; water-disp.; sp.gr. 1.00; dens. 8.34 lb/gal; visc. 800-2500 cps; i.b.p. 212 F; flash pt. (PMCC) > 200 F; pH 7.0; 10% silicone; nonionic*Toxicology:* Contact with skin or eyes may cause temporary irritation*Storage:* Store in well-ventilated area at 32-120 F**Mazu® DF 230SX [BASF]***Chem. Descrip.:* Silicone emulsion*Uses:* Emulsifier; defoamer for adhesive, water-based paints; soap mfg., antifreeze, hot aq. systems, insecticides, textile, paper, petrol., vinyl latex binders and emulsions, boiler water defoaming, leather finishing, metalworking, and waste treatment*Properties:* Liq.; sp.gr. 1.00; dens. 8.3 lb/gal; visc. 3000 cSt; flash pt. (PMCC) none; pH 7.0; 30% silicone; nonionic**Mazu® DF 255 [BASF]***Chem. Descrip.:* Organic defoamer*Uses:* Defoamer for institutional cleaners, metalworking formulations, effluents from industrial processing, brownstock in paper/pulp processing, latex, adhesives*Properties:* Liq.; sp.gr. 0.91; visc. 500 cps; flash pt. (PMCC) 300 F**McLube 1829 [McLube]***Chem. Descrip.:* Fluorochemical/resin mixt. aq. disp.*Uses:* Mold release coating, lubricant for rubber and plastic molding processes; release coating for paper processing equip.; antistick/antitack coating for uncured rubber (replaces mica, talc, etc.); nondusting slab dip; improved release and lubricity*Properties:* Milk-wh. thin emulsion; dens. 8.3 lb/gal; nonionic**MEA Commercial Grade [Dow]***Chem. Descrip.:* Monoethanolamine

CAS 141-43-5; EINECS/ELINCS 205-483-3

*Uses:* Used in surfactants, cosmetics/toiletries, pharmaceuticals, metalworking fluids, textile chemicals, gas conditioning chemicals, agric. intermediates, adhesives, coatings, petroleum, rubber, wood pulping, and cement



grinding aids; polymerization chain terminator

*Properties:* Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

**MEA Low Freeze Grade** [Dow]

*Chem. Descrip.:* Monoethanolamine

CAS 141-43-5; EINECS/ELINCS 205-483-3

*Uses:* Used in surfactants, cosmetics/toiletries, pharmaceuticals, metalworking fluids, textile chemicals, gas conditioning chemicals, agric. intermediates, adhesives, coatings, petroleum, rubber, wood pulping, and cement grinding aids

*Properties:* Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

**MEA Low Iron Grade** [Dow]

*Chem. Descrip.:* Monoethanolamine

CAS 141-43-5; EINECS/ELINCS 205-483-3

*Uses:* Used in surfactants, cosmetics/toiletries, pharmaceuticals, metalworking fluids, textile chemicals, gas conditioning chemicals, agric. intermediates, adhesives, coatings, petroleum, rubber, wood pulping, and cement grinding aids

*Properties:* Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

**MEA Low Iron-Low Freeze Grade** [Dow]

*Chem. Descrip.:* Monoethanolamine

CAS 141-43-5; EINECS/ELINCS 205-483-3

*Uses:* Used in surfactants, cosmetics/toiletries, pharmaceuticals, metalworking fluids, textile chemicals, gas conditioning chemicals, agric. intermediates, adhesives, coatings, petroleum, rubber, wood pulping, and cement grinding aids

*Properties:* Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

**MEA NF Grade** [Dow]

*Chem. Descrip.:* Monoethanolamine NF

CAS 141-43-5; EINECS/ELINCS 205-483-3

*Uses:* Used in surfactants, cosmetics/toiletries, pharmaceuticals, metalworking fluids, textile chemicals, gas conditioning chemicals, agric. intermediates, adhesives, coatings, petroleum, rubber, wood pulping, and cement grinding aids

*Properties:* Sp.gr. 1.0113 (25/4 C); dens. 8.45 lb/gal; visc. 18.9 cps; f.p. 10 C; b.p. 171 C (760 mm Hg); flash pt. (Seta CC) 201 F; fire pt. 200 F; ref. index 1.4525

**Mearlin® Supersparks** [Engelhard]

*Chem. Descrip.:* Mica coated with titanium dioxide and/or iron oxide

*Uses:* Luster pigment for plastics, surf. coatings, and printing inks; low proportions provide a high gloss 'wet look' finish; higher concs. produce a fine sandpaper texture

*Properties:* Wh. powd.; 10-150 μ particle size; sp.gr. ≈ 3.0; bulk dens. ≈ 10 lb/ft<sup>3</sup>

**Megafil® PCC** [Specialty Mins.]

*Chem. Descrip.:* Precipitated calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler, functional additive, strengthener for paper; fiber substitute; offers balance of improved dry str. props. and internal sizing; creates a uniform structure which promotes greater paper stiffness and strength

*Properties:* Prismatic crystals

**Melapur® MPH** [DSM Chem. N. Am.]

*Uses:* Flame retardant for intumescent coatings, paper, and textiles

**Melapur® WP** [DSM Chem. N. Am.]

*Uses:* Flame retardant for paper and textile applics.

**Melmac® 243-3** [Cytec Ind.]

*Chem. Descrip.:* Highly butylated melamine-formaldehyde resin in 100% aromatic naphtha solv.

*Uses:* Crosslinking agent for TS acrylic and alkyd automotive top-coat finishes and metal decorating systems; high resistivity for electrostatic spray finishes; food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.170

*Properties:* Sp.gr. 1.02; dens. 9.6 lb/gal (solids); visc. 9-18 poises; acid no. 1 max.; flash pt. (Seta) 52 C; 62 ± 2% NV by wt.; free formaldehyde (< 0.5% max.)

*Toxicology:* May irritate eyes, nose, throat, respiratory tract; inh. may cause dizziness and/or drowsiness

*Storage:* Store up to 1 yr @ < 49 C; excessive heat may partially self-condense resin so that gel particles may form

**Melthene®-M5001** [Tosoh]

*Chem. Descrip.:* Polyolefin

*Uses:* Adhesive polymer for extrusion coating and laminating, textile, lumber, plastic, rubber, metal, formed prods., paper, packing film, etc.; exc. adhesion with most substrates; easy peel seals for plastic containers

*Properties:* Melt flow 46 g/10 min.; sp.gr. 0.95; m.p. 83 C; tens. str. 90 kgf/cm<sup>2</sup>; elong. 790%; hardness (Shore A) 84; Vicat soften. pt. 48 C

**Melthene®-M5002D** [Tosoh]

*Chem. Descrip.:* Polyolefin

*Uses:* Adhesive polymer for extrusion coating and laminating, textile, lumber, plastic, rubber, metal, formed prods., paper, packing film, etc.; exc. adhesion with most substrates; easy peel seals for plastic containers

*Properties:* Melt flow 32 g/10 min.; sp.gr. 0.94; m.p. 83 C; tens. str. 95 kgf/cm<sup>2</sup>; elong. 780%; hardness (Shore A) 85; Vicat soften. pt. 49 C

**Melthene®-M5311** [Tosoh]

*Chem. Descrip.:* Polyolefin

*Uses:* Adhesive polymer for extrusion coating and laminating, textile, lumber, plastic, rubber, metal, formed prods., paper, packing film, etc.; exc. adhesion with most substrates; easy peel seals for plastic containers

*Properties:* Melt flow 15 g/10 min.; sp.gr. 0.94; m.p. 118 C; tens. str. 100 kgf/cm<sup>2</sup>; elong. 570%; hardness (Shore A) 96; Vicat soften. pt. 71 C

**Melthene®-M5321** [Tosoh]

*Chem. Descrip.:* Polyolefin

*Uses:* Adhesive polymer for extrusion coating and laminating, textile, lumber, plastic, rubber, metal, formed prods., paper, packing film, etc.; exc. adhesion with most substrates; easy peel seals for plastic containers

*Properties:* Melt flow 7.5 g/10 min.; sp.gr. 0.95; m.p. 127 C; tens. str. 130 kgf/cm<sup>2</sup>; elong. 790%; hardness (Shore A) 92; Vicat soften. pt. 55 C

**Mergal® K 7** [Troy]

*Chem. Descrip.:* Isothiazolinones

*Uses:* In-can preservative for emulsion paints, pigment pastes, syn. color concentrates, caulks, grouts, and adhesives; food pkg. adhesives; food-contact paper/paperboard; slimicide in food-contact paper/paperboard; stable to 60 C; act. against bacteria, molds, and yeasts

*Use Level:* 0.1-0.3%

*Regulatory:* FDA 21CFR § 175.105, 176.170, 176.300 and BgVV compliant

*Properties:* Colorless clear to yel. liq.

**Mergal® K 9N** [Troy]

*Chem. Descrip.:* Isothiazolinones

*Uses:* In-can preservative for emulsion paints, sealants, caulks, grouts, and adhesives; food pkg. adhesives; food-contact paper/paperboard; slimicide in food-contact paper/paperboard; stable to 60 C; act. against bacteria, molds, and yeasts

*Use Level:* 0.1-0.3%

*Regulatory:* FDA 21CFR § 175.105, 176.170, 176.300 and BgVV compliant

*Properties:* Colorless clear to yel. liq.

**Mergal® K 10N** [Troy]

*Chem. Descrip.:* Proprietary BIT

*Uses:* In-can preservative for indoor, emission-free paints and coatings; rec. for polymer emulsions, adhesives, caulks, sealants, cement coatings, and plasters; food pkg. adhesives; food-contact paper/paperboard; slimicide in food-contact paper/paperboard; stable to 100 C; act. against bacteria; free of solvs.

*Use Level:* 0.05-0.2%

*Regulatory:* FDA 21CFR § 175.105, 176.170, 176.300 and BgVV compliant

*Properties:* Lt. to dk. brn. clear liq.

**Merpol® A** [Stepan]

*Chem. Descrip.:* Ethoxylated phosphate

*Uses:* Wetting agent, surf. tens. reducer for chemical mfg., cosmetics, metal processing, paper, petrol., inks, plastics, soaps, syn. fibers, textiles; low foaming; stable to acids, bases, heat to 100 C, freezing

*Properties:* Colorless to pale yel. liq., mild odor; sol. in polar solvs., 0.1-1% in nonpolar solvs.; disp. in water to 1%; sp.gr. 1.07 g/mL; dens. 8.9 lb/gal; visc. 104 cP; HLB 6.7; cloud pt. < 25 C (upper, 1%); flash pt. (TCC) 138 C; pH 5-7 (1% emulsion); surf. tens. 26 dynes/cm (0.1%); 100% act.; nonionic

**Merpol® HCS** [Stepan]

*Chem. Descrip.:* Alcohol ethoxylate

*Uses:* Wetting agent, detergent, emulsifier, penetrant, antistat, leveling agent, dyeing assistant, stabilizer used in textiles, leather, paper, metal processing, rubber, emulsion polymerization, paints, inks, medicinal ointments, antiperspirants, cutting oils, polishes, cosmetics; pigment dispersant

*Properties:* Lt. yel. clear, visc. liq.; mild fatty odor; 40% sol. in water, sol. in org. solvs. that are misc. with water; sp.gr. 1.03 g/mL; dens. 8.63 lb/gal; HLB 15.3; cloud pt. > 100 C (upper, 1%); flash pt. > 235 F; pH 6-8 (10%); surf. tens. 42.9 dynes/cm (0.1%); 60% act.; nonionic

**Merpol® SE [Stepan]**

*Chem. Descrip.:* Long-chain fatty alcohol ethoxylate

*Uses:* Wetting agent, rewetting agent, emulsifier, dispersant for textiles, paper, o/w emulsions, asbestos; low foaming; stable to acids, bases, heat, freezing

*Properties:* Colorless to pale yel. clear liq., mild odor; 0.1% sol. in water, cloudy disp. at higher conc.; sol. in polar solvs.; sp.gr. 0.97 g/mL; dens. 8.1 lb/gal; visc. 60 cP; HLB 10.5; cloud pt. < 25 C (upper, 1%); flash pt. (PMCC) 93 C; pH 6-8 (1% emulsion); surf. tens. 27 dynes/cm (0.1%); 95% act.; nonionic

**Merpol® SH [Stepan]**

*Chem. Descrip.:* Long-chain alcohol ethoxylate

CAS 24938-91-8

*Uses:* Detergent, wetting agent for textiles, hard surf. cleaning, paper, metal processing; stable to acids, bases, heat, freezing to 5 C

*Properties:* Colorless clear liq.; alcoholic odor; misc. with water, sol. or disp. in alcohols, acetone, MEK, ethylene glycol, glycerin, oleic acid; sp.gr. 0.96 g/mL; dens. 8.0 lb/gal; visc. 24 cps; HLB 12.8; cloud pt. 50 C (1%); flash pt. (TCC) 41 C; surf. tens. 27.4 dynes/cm (0.1 g/100 ml); pH 6-8 (10% aq.); 50% act.; nonionic

*Environmental:* Biodeg.

**Mesitol® [Bayer/Industrial Chems.]**

*Uses:* Fixing agent for anionic direct dyestuffs for paper; improves fastness to bleeding, reduces staining of effluent, and improves color retention

**Mesitol® NBS [Bayer/Industrial Chems.]**

*Uses:* Fixing agent for anionic direct dyestuffs for paper; improves fastness to bleeding, reduces staining of effluent, and improves color retention

**Metalure® L-53520 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in toluene (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 840 cps

**Metalure® L-54893 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in normal propyl acetate (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 35 cps

**Metalure® L-54894 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in isopropyl acetate (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 160 cps

**Metalure® L-54949 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in isopropyl alcohol (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 540 cps

**Metalure® L-55350 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in ethyl acetate (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 20 cps

**Metalure® L-55700 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in Ektasolve PM acetate (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 320 cps

**Metalure® L-56161 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in glycol ether PM (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 1000 cps

**Metalure® L-56716 [Avery Dennison; Eckart-Werke]**

*Chem. Descrip.:* Aluminum platelets (10%) in NBAC (87%)

*Uses:* Ultra brilliant disp. which delivers metalized appearance in solv. paints, coatings, rotogravure/flexographic/screen inks for coated paper and board, and inj. molded plastics

*Properties:* Slurry; controlled particle size; visc. 600 cps

**Metasol® 300 [Nalco]**

*Chem. Descrip.:* Sodium dimethyldithiocarbamate (15%), disodium ethylenebis-dithiocarbamate (15%), and inert ingreds. (70%)

*Uses:* Paper mill biocide used to control slime growth at wet-end; food-contact slimicide; nonfoaming, noncorrosive to equip.

*Regulatory:* FDA 21CFR §176.300 approved

*Properties:* Straw color liq.; sp.gr. 1.18; dens. 9.8 lbs/gal; pH 11.5; anionic

*Precaution:* Incompat. with quat. ammonium microbicides, acids, or other cationic compds.

**Metasol® 350 [Nalco]**

*Chem. Descrip.:* Dodecylguanidine hydrochloride

CAS 13590-97-1

UN No. 3265

*Uses:* Biocide used to control slime growth in aq. industrial papermaking systems and min. slurries; effective in control of sulfate-reducing bacteria; food-contact paper/paperboard; food-contact slimicide; most effective at higher pH values (> 7.8); nonoxidizing

*Use Level:* 1-1.5 oz. (sewage disposal lagoons); 10-1,000 ppm (pulp and papermill processing, adhesives, coatings); 0.007-0.57 lb/ton pulp or paper produced (pulp and papermill)

*Regulatory:* FDA 21CFR §176.170, 176.300; EPA reg. no. 10445-103; DOT regulated

*Toxicology:* Causes irreversible eye damage and skin irritation

*Environmental:* Toxic to fish

*Precaution:* Corrosive

*Storage:* 6 mos shelf life @ 25 C away from heat or open flame; protect from temp. extremes

**Metasol® 550 [Nalco]**

*Chem. Descrip.:* Glutaraldehyde

CAS 111-30-8; EINECS/ELINCS 203-856-5

UN No. 1760

*Uses:* Microbicide effective against bacteria and fungi present in papermaking systems; slimicide in papermaking process; does not contain formaldehyde

*Use Level:* 0.5-3.0 lbs/ton paper (initial); 0.3-2.0 lbs/ton paper (subsequent treatment)

*Regulatory:* EPA registered

*Properties:* Clear liq.; odorless; complete sol. in water; sp.gr. 1.131; dens. 9.41 lb/gal; vapor pressure 15 mm Hg (20 C); f.p. -21 C; flash pt. (TCC) none; pH 3.1-4.5; 50% act.

*Toxicology:* Causes irreversible eye damage, burns, skin sensitization; harmful if swallowed

*Environmental:* Biodeg.; toxic to fish

*Precaution:* Corrosive

*Storage:* Store @ 0-42 C; store away from heat and keep from freezing; temps. > 42 C may cause separation

**Metasol® 940 [Nalco]**

*Chem. Descrip.:* Sodium bromide (40%)

CAS 7647-15-6; EINECS/ELINCS 231-599-9

*Uses:* Microbicide that supplements conventional chlorination for control of planktonic and sessile in pulp mills and papermaking and wastewater treatment systems; removes existing biofouling; unaffected in presence of ammonia

*Use Level:* 0.004-0.047 gal/1000 gal water in system (initial); 0.001-0.047 gal/1000 gal water in system (subsequent dose)

*Regulatory:* EPA registered

*Properties:* Colorless to pale yel. clear liq.; sl. odor; sp.gr. 1.43; dens. 11.9 lb/gal; f.p. -10 F; pH 6.5-7.5 (10% aq.)

*Toxicology:* May cause eye and skin irritation; harmful if swallowed

*Storage:* Store @ > 0 F in dry, well-ventilated area

**Metasol® CB-220 [Nalco]**

*Chem. Descrip.:* Tripropylene glycol monomethyl ether (80%) and 1,2-dibromo

2,4-dicyanobutane (20% min.)

*Uses:* Silticide for controlling bacteria, fungi, and yeasts in pulp/paper mills; preservative for pigment slurries, adhesives, coatings, latex emulsions, and high visc. suspensions used in mfg. of paper and paperboard; food pkg. adhesives, paper/paperboard

*Use Level:* 0.02-0.1% (slime control); 0.05-0.75% (adhesives); 0.05-0.25% (latex emulsions); 0.05-0.125% (dispersed pigments)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300

*Properties:* Pale to lt. amber liq.; sp.gr. 1.063 (20 C); flash pt. (Fisher TCC) 200 F

*Toxicology:* Causes eye damage and skin irritation; harmful if swallowed

*Precaution:* Corrosive

*Storage:* Keep tightly closed

**Metasol® CB-225A.D.** [Nalco]

*Chem. Descrip.:* 1,2-Dibromo 2,4-dicyanobutane (25% min.), inert ingreds. (75%)

*Uses:* Silticide for controlling bacteria, fungi, and yeasts in pulp/paper mills; preservative for pigment slurries, adhesives, coatings, latex emulsions, and high visc. suspensions used in mfg. of paper and paperboard

*Use Level:* 0.08-0.4% (slime control); 0.04-1.0% (adhesives, latex emulsions, dispersed pigments)

*Properties:* Wh. to off-wh. disp.; sp.gr. 1.1 (20C); visc. 1800-2400 cps; f.p. 0 C

*Toxicology:* Causes eye damage and skin irritation; harmful if swallowed

*Precaution:* Corrosive

*Storage:* Keep tightly closed

**Metasol® CB-225 L.C.** [Nalco]

*Chem. Descrip.:* 1,2-Dibromo 2,4-dicyanobutane (25% min.)

CAS 35691-65-7; EINECS/ELINCS 252-681-0

*Uses:* Silticide for controlling bacteria, fungi, and yeasts in pulp/paper mills; preservative for pigment slurries, adhesives, coatings, latex emulsions, and high visc. suspensions used in mfg. of paper and paperboard; food pkg. adhesives, coatings, paper/paperboard

*Use Level:* 0.08-0.4% (slime control); 0.04-1.0% (adhesives, latex emulsions, dispersed pigments)

*Regulatory:* FDA 21CFR §175.105, 176.300, 176.170, 176.180 approved

*Properties:* Pale yel. to lt. amber liq.; sp.gr. 1.106 (20 C); flash pt. > 250 F

*Toxicology:* Causes eye damage and skin irritation; harmful if swallowed

*Precaution:* Corrosive

*Storage:* Keep tightly closed @ > 50 C

**Metasol® CMI-150** [Nalco]

*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one (1.15%), 2-methyl-4-isothiazolin-3-one (0.35%), and inert ingreds. (98.5%)

*Uses:* Silticide for controlling bacteria and fungi in pulp/paper mills

*Use Level:* 0.44-1.5 lbs/ton pulp or paper produced

*Properties:* Pale yel. to grn. liq.; mild aromatic odor; sp.gr. 1.02 (20 C); dens. 8.5 lbs/gal; pH 3-5

*Precaution:* Corrosive

*Storage:* 6 mos. shelf life @ 50 C

**Metasol® RB-20** [Nalco]

*Chem. Descrip.:* Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (21%) CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Bactericide/fungicide for controlling bacteria, fungi, and yeasts in paper mills; food pkg. adhesives, paper/paperboard

*Use Level:* 0.15-0.50 lb/ton of finished prod.

*Regulatory:* FDA 21CFR §175.105, 176.230, 176.300 approved

*Properties:* Pale amber nonvisc. liq.; sp.gr. 1.13-1.18; dens. 9.5-9.8 lb/gal; f.p. 0 F; flash pt. none

*Toxicology:* Causes severe eye burns and possible loss of vision; may burn skin; harmful or fatal if swallowed

*Environmental:* Toxic to fish

*Storage:* Store tightly closed @ < 60 C

**Metasol® T-10WB** [Nalco]

*Chem. Descrip.:* Methylene bithiocyanate (10%)

CAS 6317-18-6

*Uses:* Biocide for pulp/papermaking equip.; silticide in food-contact paper

*Use Level:* 9-90 ppm

*Regulatory:* FDA 21CFR §176.300 approved

*Properties:* Lt. grn.-yel. disp.; dens. 8.8 ± 0.2 lb/gal; visc. 1000-1400 cps; f.p. 0 C; pH 3.0 ± 0.5

*Toxicology:* Causes eye burns and skin irritation; harmful or fatal if swallowed or absorbed thru skin

*Environmental:* Toxic to fish

**Metasol® TK-100 Disp. W** [Nalco]

*Chem. Descrip.:* 2-(4-Thiazoly) benzimidazole disp. with glycol, sodium polymethacrylate, and lecithin

*Uses:* Fungicide for control of mildew on adhesive films, interior/exterior paint films, paper and paperboard prods. (for nonfood use such as soap wrappers), hard surfaces, and natural and syn. fibers such as canvas textiles and nylon carpets; thermally stable

*Use Level:* 0.05-0.3% (adhesives), 0.5-4.0 lb/100 gal (paints)

*Regulatory:* EPA reg. no. 10455-30

*Properties:* Visc. flowable liq.; sp.gr. 1.15; 50% act.

*Toxicology:* Harmful if swallowed

*Storage:* Keep container closed when not in use

**Metso Beads® 2048** [PQ]

*Chem. Descrip.:* Sodium metasilicate (anhyd.)

CAS 6834-92-0; EINECS/ELINCS 229-912-9

*Uses:* Corrosion inhibitor protecting metal surfs. and org. finishes such as paints or ceramic glazes; detergent in hard-surf. cleaners, laundry detergent, dishwasher detergents, fabricated metals cleaning, power-washing, pulp bleaching, paper deinking, desizing textiles, cleaning food processing equip.

*Regulatory:* FDA GRAS, 21CFR §184.1769a; EPA approved for treating drinking water

*Properties:* Wh. free-flowing bead; 93% between 20 and 65 mesh particle size; sol. in water; dens. 1.04 g/cm<sup>3</sup>; m.p. 1087.7 C; 51% Na<sub>2</sub>O, 47% SiO<sub>2</sub>

*Toxicology:* Strongly alkaline

*Storage:* Protect from humidity

**Metso Pentabead® 20** [PQ]

*Chem. Descrip.:* Sodium metasilicate pentahydrate

CAS 10213-79-3; EINECS/ELINCS 229-912-9

*Uses:* Corrosion inhibitor protecting metal surfs. and org. finishes such as paints or ceramic glazes; detergent in hard-surf. cleaners, laundry detergent, dishwasher detergents, fabricated metals cleaning, power-washing, pulp bleaching, paper deinking, desizing textiles, cleaning food processing equip.

*Regulatory:* FDA GRAS, 21CFR §184.1769a; EPA approved for treating drinking water

*Properties:* Free-flowing beads; 94% between 20 and 48 mesh particle size; sol. in water; dens. 0.88 g/cm<sup>3</sup>; m.p. 72.2 C; 29.3% Na<sub>2</sub>O, 28.7% SiO<sub>2</sub>, 41.3% water

*Toxicology:* Strongly alkaline

*Storage:* Protect from humidity

**Mewlon** [Unitika; British Traders & Shippers]

*Chem. Descrip.:* Polyvinyl alcohol fiber and filament

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Reinforcing agent and binder for specialized paper and nonwovens; reinforcing agent for syn. slate, concrete; yarn and thread for specialty textiles and fabrics

**Mhoromer® AM 101** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Ethyl methacrylate

CAS 97-63-2; EINECS/ELINCS 202-597-5

*Uses:* Base material for paint, leather, paper, and textile industries; polymerization/copolymerization in bulk, emulsion, and sol'n.; dental compds.; adhesives; floor care prods.; oil additives; toner resins

*Properties:* APHA 5 max. clear liq.; esterlike odor; sol. 0.77% water in ester, 0.4% ester in water (20 C); m.w. 114.1; sp.gr. 0.912; visc. 0.63 mPa·s (20 C); vapor pressure 21.3 mbar (20 C); b.p. 118.8 C; solid. pt. < -75 C; flash pt. 17.5 C; ref. index 1.415; 99.5% min. purity; 0.04% max. acid; 0.02% max. water

*Toxicology:* LD50 (oral, rat) 14.8 g/kg; mild skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® AM 103H** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* n-Butyl methacrylate

CAS 97-88-1; EINECS/ELINCS 202-615-1

*Uses:* Used in leather, lacquer, paper, and textile industries; base material for coatings, adhesives; oil additives; dental prods.; polymerization and copolymerization in emulsion and sol'n.

*Properties:* Pt-Co 5 max. clear liq.; esterlike odor; sol. 0.51% water in ester, 0.58% ester in water (20 C); m.w. 142.2; sp.gr. 0.896; visc. 1.09 mPa·s (20 C); vapor pressure 2.7 mbar (20 C); b.p. 163.5 C; solid. pt. -75 C; flash

pt. 46 C; ref. index 1.424; 99.5% min. purity; 0.005% max. acid; 0.02% max. water

*Toxicology:* TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® AM 105H** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Isobutyl methacrylate

CAS 97-86-9; EINECS/ELINCS 202-613-0

*Uses:* Used in leather, lacquer, paper, and textile industries; base material for coatings, adhesives; oil additives; dental prods.; floor care prods.; toner resins; polymerization and copolymerization in emulsion and sol'n.

*Properties:* Pt-Co 5 max. clear liq.; esterlike odor; sol. 0.5% water in ester, 0.2% ester in water (20 C); m.w. 142.2; sp.gr. 0.888; visc. 0.9 mPa·s (20 C); vapor pressure 4 mbar (20 C); b.p. 155 C; solid. pt. -37 C; flash pt. 45.5 C; ref. index 1.420; 99.5% min. purity; 0.005% max. acid; 0.02% max. water

*Toxicology:* TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® AM 107** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* n-Hexyl methacrylate with 100 ± 10 ppm MEHQ inhibitor  
CAS 142-09-6; EINECS/ELINCS 205-521-9

*Uses:* Internal plasticizer; copolymerization in emulsion and sol'n.; oil additives; soft component in paint resins, emulsions, adhesives, textile binders, paper

*Properties:* Pt-Co 10 max. clear liq.; esterlike odor; sol. 1.67% water in ester, 0.035% ester in water (20 C); m.w. 170; sp.gr. 0.885; visc. 1.45 mPa·s (20 C); b.p. 204-210 C; solid. pt. -59 to -55 C; flash pt. 80 C; ref. index 1.432; 98% min. purity; 0.05% max. acid; 0.05% max. water

*Toxicology:* LD50 (oral, rat) 20 g/kg; thermoplastics to skin; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® AM 199** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Methacrylic acid with 200 ± 20 ppm MEHQ inhibitor  
CAS 79-41-4; EINECS/ELINCS 201-204-4

*Uses:* Polymerization/copolymerization; thermally crosslinkable paint resin; adhesion promoter; binder for textiles, paper; adhesives; floor care prods.; dental prods.; base material for other methacrylates

*Properties:* Pt-Co 25 max. clear liq.; pungent odor; misc. with water (@ > 24 C); m.w. 86.1; sp.gr. 1.015; visc. 1.38 mPa·s (20 C); vapor pressure 0.8 mbar; b.p. 161 C; solid. pt. 15.8 C; flash pt. 65 C; ref. index 1.432; 99.5% min. purity; 0.02% max. water

*Toxicology:* LD50 (oral, rat) 2.2 g/kg; severe skin irritant; caustic; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 17-25 C max.

**Mhoromer® AM 414** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* 2-Hydroxyethyl acrylate with 250 ± 50 ppm MEHQ/HQ inhibitors

CAS 818-61-1; EINECS/ELINCS 212-454-9

*Uses:* Crosslinkable paint resin; binder for textiles and paper; urethane acrylates; reactive thinners for curing by radiation; comonomer for refinishing paints; adhesion promoter for polymers

*Properties:* Pt-Co 50 max. clear liq.; esterlike sl. yel. odor; misc. with water; m.w. 116.1; sp.gr. 1.11; visc. 9 mPa·s (20 C); vapor pressure 0.1 mbar; b.p. 230 C; solid. pt. -60 C; flash pt. 104 C; ref. index 1.450; 95% min. purity; 0.02% max. water; 0.5% max. acid

*Toxicology:* LD50 (oral, rat) 650 mg/kg; severe skin irritant and sensitizer; caustic; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® AM 438** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Hydroxypropyl acrylate with 250 ± 50 ppm MEHQ inhibi-

tor

CAS 25584-83-2; EINECS/ELINCS 247-118-0

*Uses:* Crosslinkable paint resin; binder for textiles and paper; urethane acrylates; reactive thinners for curing by radiation; comonomer for refinishing paints; adhesion promoter for polymers

*Properties:* Pt-Co 30 max. clear liq.; sl. pungent odor; misc. with water; m.w. 130.1; sp.gr. 1.05; visc. 9.5 mPa·s (20 C); vapor pressure 0.1 mbar; b.p. 230 C; solid. pt. -58 C; flash pt. 96 C; ref. index 1.446; 95% min. purity; 0.02% max. water; 0.5% max. acid

*Toxicology:* LD50 (oral, rat) 250 mg/kg; severe skin irritant; caustic; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 613** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Methacrylamidopropyltrimethylammonium chloride with 600 ± 60 ppm MEHQ inhibitor (50% solids in water)

CAS 51410-72-1; EINECS/ELINCS 257-182-1

*Uses:* Flocculants; paper sizes; ion exchange resins; antistatic finishing; hydrophilic glass fibers; superabsorbents; toner polymers; thickening agents; cement additives; anticorrosives; adhesives; cosmetics

*Properties:* Pt-Co 100 max. yls. liq.; ester-like odor; m.w. 220.5; sp.gr. 1.06; visc. 5-15 cps (20 C); solid. pt. < -22.5 C; ref. index 1.427 (20 C); pH 7-8

*Toxicology:* LD50 (oral, rat) 10 g/kg; not a skin irritant; TSCA listed

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 711** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Cyclohexyl methacrylate with 50 ± 5 ppm MEHQ inhibitor  
CAS 101-43-9; EINECS/ELINCS 202-943-5

*Uses:* Used in leather, lacquer, paper, and textile industries; coatings; adhesives; oil additives; dental prods.; polymerization/copolymerization in emulsion and sol'n.; optical materials

*Properties:* Pt-Co 10 max. liq.; ester-like odor; m.w. 168.2; sp.gr. 0.968; visc. 1.9 mPa·s (20 C); b.p. 210 C; flash pt. 82.5 C; ref. index 1.459 (20 C); 98% min. purity; 0.1% water content; 0.01% max. acid

*Toxicology:* LD50 (oral, rat) > 5 g/kg; not a skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 713** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* 2-Ethylhexyl methacrylate with 50 ± 10 ppm MEHQ inhibitor

CAS 688-84-6; EINECS/ELINCS 211-708-6

*Uses:* Internal plasticizer; copolymerization in emulsion and sol'n.; used in leather, paint, paper, and textile industries; coatings; adhesives; oil additives

*Properties:* Pt-Co 10 max. clear liq.; ester-like odor; sol. 0.2% ester in water, 0.25% water in ester; m.w. 198.3; sp.gr. 0.89; visc. 2.4 mPa·s (20 C); b.p. 218 C; solid. pt. < -50 C; flash pt. 95 C; ref. index 1.439 (20 C); 98% min. purity; 0.05% water content; 0.01% max. acid

*Toxicology:* LD50 (oral, rat) > 5 g/kg; not a skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 731** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Isobornyl methacrylate with 150 ± 30 ppm MEHQ inhibitor  
CAS 7534-94-3; EINECS/ELINCS 231-403-1

*Uses:* Polymerization/copolymerization in emulsion and sol'n.; adhesives; paint resins; leather, paper, and textile industries; hydrophobic; low polymerization shrinkage

*Properties:* Pt-Co 50 max. clear colorless liq.; ester-like odor; insol. in water; m.w. 222.3; sp.gr. 0.98; visc. 8.5 mPa·s (20 C); b.p. 66 C; flash pt. 127 C; ref. index 1.477 (20 C); 98% min. purity; 0.2% max. water; 0.5% max. acid

*Toxicology:* LD50 (oral, rat) 2.4 g/kg; not a skin irritant; TSCA listed

*Precaution:* Avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 903** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* 2-Hydroxyethyl methacrylate with 200 ± 20 ppm MEHQ

inhibitor

CAS 868-77-9; EINECS/ELINCS 212-782-2

*Uses:* Crosslinkable paint resin; binder for textiles/paper adhesives; urethane methacrylates; reactive thinners; grafting of textile fibers; scale inhibitors; adhesion promoter for polymers; hydrophilic polymers; lt.-curing polymer systems; rubber modifiers; contact lenses; photopolymer plates; photore-sists

*Properties:* Pt-Co 30 max. colorless clear liq.; ester-like odor; misc. with water; m.w. 130.1; sp.gr. 1.07 (20 C); visc. 5 mPa·s (30 C); b.p. ≈ 250 C; solid. pt. < -60 C; flash pt. 101 C; ref. index 1.453 (20 C); 97% min. purity; 1.5% max. acid content; 0.10% max. water

*Toxicology:* LD50 (oral, rat) 5.6 g/kg; mild skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 905** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* 2-Hydroxyethyl methacrylate with 200 ± 20 ppm MEHQ inhibitor

CAS 868-77-9; EINECS/ELINCS 212-782-2

*Uses:* Crosslinkable paint resin; binder for textiles/paper adhesives; urethane methacrylates; reactive thinners; grafting of textile fibers; scale inhibitors; adhesion promoter for polymers; hydrophilic polymers; lt.-curing polymer systems; rubber modifiers; contact lenses; photopolymer plates; photore-sists

*Properties:* Pt-Co 30 max. colorless clear liq.; ester-like odor; misc. with water; m.w. 130.1; sp.gr. 1.07 (20 C); visc. 5 mPa·s (30 C); b.p. ≈ 250 C; solid. pt. < -60 C; flash pt. 101 C; ref. index 1.453 (20 C); 98% min. purity; 0.1% max. acid content; 0.1% max. water

*Toxicology:* LD50 (oral, rat) 5.6 g/kg; mild skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 923** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* 2-Hydroxyethyl methacrylate with 10 ± 3 ppm MEHQ inhibitor

CAS 868-77-9; EINECS/ELINCS 212-782-2

*Uses:* Crosslinkable paint resin; binder for textiles/paper adhesives; urethane methacrylates; reactive thinners; grafting of textile fibers; scale inhibitors; adhesion promoter for polymers; hydrophilic polymers; lt.-curing polymer systems; rubber modifiers; contact lenses; photopolymer plates; photore-sists

*Properties:* Pt-Co 30 max. colorless clear liq.; ester-like odor; misc. with water; m.w. 130.1; sp.gr. 1.07 (20 C); visc. 5 mPa·s (30 C); vapor pressure 0.1 mbar (20 C); b.p. ≈ 250 C; solid. pt. < -60 C; flash pt. 101 C; ref. index 1.453 (20 C); 99% min. purity; 0.05% max. acid content; 0.1% max. water

*Toxicology:* LD50 (oral, rat) 5.6 g/kg; mild skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 951** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Hydroxypropyl methacrylate with 200 ± 20 ppm MEHQ inhibitor

CAS 27813-02-1; EINECS/ELINCS 248-666-3

*Uses:* Crosslinkable paint resin; binder for textiles/paper adhesives; urethane methacrylates; reactive thinners; grafting of textile fibers; scale inhibitors; adhesion promoter for polymers; hydrophilic polymers; rubber modifiers; contact lenses; photopolymer plates; photore-sists

*Properties:* Pt-Co 30 max. colorless clear liq.; ester-like odor; sol. 10.7% ester in water, 21% water in ester; m.w. 144.2; sp.gr. 1.03 (20 C); visc. 6.2 mPa·s (30 C); vapor pressure 0.1 mbar (20 C); b.p. ≈ 240 C; solid. pt. -58 C; flash pt. 101 C; ref. 1.448 (20 C); 98% min. purity; 0.1% max. acid content; 0.1% max. water

*Toxicology:* LD50 (oral, rat) 11.2 g/kg; mild skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® BM 955** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Hydroxypropyl methacrylate with 200 ± 20 ppm MEHQ inhibitor

CAS 27813-02-1; EINECS/ELINCS 248-666-3

*Uses:* Crosslinkable paint resin; binder for textiles/paper adhesives; urethane methacrylates; reactive thinners; grafting of textile fibers; scale inhibitors; adhesion promoter for polymers; hydrophilic polymers; rubber modifiers; contact lenses; photopolymer plates; photore-sists

*Properties:* Pt-Co 30 max. colorless clear liq.; ester-like odor; sol. 10.7% ester in water, 21% water in ester; m.w. 144.2; sp.gr. 1.03 (20 C); visc. 6.2 mPa·s (30 C); vapor pressure 0.1 mbar (20 C); b.p. ≈ 240 C; solid. pt. -58 C; flash pt. 101 C; ref. 1.448 (20 C); 97% min. purity; 1.5% max. acid content; 0.1% max. water

*Toxicology:* LD50 (oral, rat) 11.2 g/kg; mild skin irritant; TSCA listed

*Precaution:* Flamm.; avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light

*Storage:* 6 mos shelf life @ 30 C max.

**Mhoromer® MMA** [Röhm Am.; Röhm GmbH]

*Chem. Descrip.:* Methyl methacrylate

CAS 80-62-6; EINECS/ELINCS 201-297-1

*Uses:* Polymerization/copolymerization; plastics, leather, paint, paper, and textile industries; base material for other methacrylic esters; dental prods.

*Properties:* 0.01% max. water; ≤ 0.005% acid

**MHT® 60 S** [Dow]

*Chem. Descrip.:* Magnesium hydroxide, premium grade

CAS 1309-42-8; EINECS/ELINCS 215-170-3

*Uses:* Source of magnesium ion, catalyst, or raw material for high purity magnesium compds.; fuel oil and coal additives; fertilizer; sulfite pulping; water treatment; coatings; glass and ceramics mfg.; oil well industry; rayon mfg.; uranium refining; steel industry

**MHT® 60 XS** [Dow]

*Chem. Descrip.:* Magnesium hydroxide, premium grade

CAS 1309-42-8; EINECS/ELINCS 215-170-3

*Uses:* Source of magnesium ion, catalyst, or raw material for high purity magnesium compds.; fuel oil and coal additives; fertilizer; sulfite pulping; water treatment; coatings; glass and ceramics mfg.; oil well industry; rayon mfg.; uranium refining; steel industry

**Michem® Coat 50 Series** [Michelman]

*Uses:* Water-, oil- and grease-resist. coating for paper; general purpose; cold set and hot melt glueable; repulpable

*Regulatory:* FDA compliance

**Michem® Coat 500 Series** [Michelman]

*Uses:* Water-, oil- and grease-resist. coating for paper; general purpose; matte finish; cold set and hot melt glueable; repulpable

*Regulatory:* FDA compliance

**Micral® 532** [Huber Engineered Materials]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant, smoke suppresser, high loading filler for thermoset, thermoplastic, rubber, adhesives, paints, coatings, paper applics.; high in superfines

*Properties:* 9 μ median particle diam.; 99.9% thru 325 mesh; sp.gr. 2.42; bulk dens. 0.65 g/cc (loose); surf. area 4-5 m<sup>2</sup>/g; oil absorp. 27-29; brightness (TAPPI) 89; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Micral® 916** [Huber Engineered Materials]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Smoke suppresser/flame retardant filler for wire and cable insulation, inj.-molded polyolefins, coatings, adhesives, rubber goods, paper filler and coating, PVC, EPDM, EPR, ABS, XLPE, and compr.-molded thermosets; halogen-free

*Properties:* Powd.; 0.8 μ median particle diam.; 100% through 325 mesh; sp.gr. 2.42 g/cm<sup>3</sup>; bulk dens. 0.15 g/cm<sup>3</sup> (loose), 0.35 g/cm<sup>3</sup> (packed); surf. area 13 m<sup>2</sup>/g; oil absorp. 46 ml/100 g; brightness (Photovolt) 97+

**Micral® 932** [Huber Engineered Materials]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Smoke suppresser/flame retardant filler for wire/cable insulation, inj.-molded polyolefins, coatings, adhesives, rubber goods, paper filler and

coating, epoxy elec. laminates, FRP elec. laminates, SMC/BMC, flexible/rigid PVC, plastisols, EPR, ABS, XLPE, and compr.-molded thermosets; halogen-free

*Properties:* Ultrafine powd.; 2  $\mu$  median particle diam.; 100% thru 325 mesh; sp.gr. 2.42; bulk dens. 0.35 g/cc (loose), 0.5 g/cc (packed); surf. area 13 m<sup>2</sup>/g; oil absorp. 38; brightness (TAPPI) 95

**Microblanc 1** [Microfill K. Zafranias]

*Chem. Descrip.:* Calcium carbonate (99%); high purity  
CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Opacifier reinforcing hiding power of paints, interior/exterior emulsion paints, powd. coatings, printing inks, paper and board coatings

*Properties:* Extremely wh. very fine rhombohedral crystals; 70% < 2  $\mu$ ; sp.gr. 2.7; bulk dens. 0.9 g/ml (packed); oil absorp. 18/100 g; dry brightness 96.5%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture

**Microblanc 2** [Microfill K. Zafranias]

*Chem. Descrip.:* Calcium carbonate (99%); high purity  
CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Opacifier reinforcing hiding power of interior/exterior emulsion paints, polymer-based plasters, oil and syn. resin systems, adhesives, sealing compds., wallpaper, plastics, paper/board adhesives

*Properties:* Extremely wh. very fine rhombohedral crystals; 25% < 2  $\mu$ ; sp.gr. 2.7; bulk dens. 1.25 g/ml (packed); oil absorp. 15/100 g; dry brightness 95.5%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture

**Microblanc 3** [Microfill K. Zafranias]

*Chem. Descrip.:* Calcium carbonate (99%); high purity  
CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Opacifier reinforcing hiding power of plastics (PVC, PU, polyester, polyolefins), emulsion paints, primers, powd. coatings, paper/board adhesives

*Properties:* Extremely wh. very fine rhombohedral crystals; 40% < 2  $\mu$ ; sp.gr. 2.7; bulk dens. 1 g/ml (packed); oil absorp. 20/100 g; dry brightness 96%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture

**Microblanc 5** [Microfill K. Zafranias]

*Chem. Descrip.:* Calcium carbonate (99%); high purity  
CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Pigment for interior/exterior emulsion paints, polymer-based plasters, oil and syn. resin systems, sealing compds., wallpaper, plastics, powd. coatings, paper/board adhesives

*Properties:* Extremely wh. very fine rhombohedral crystals; 25% < 2  $\mu$ ; sp.gr. 2.7; bulk dens. 1.25 g/ml (packed); oil absorp. 15/100 g; dry brightness 95.5%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture

**Microcat® HT** [Bioscience]

*Chem. Descrip.:* Microbial catalyst

*Uses:* Catalyst in pulp/paper and other process industries; specialized microbes for high temp. applics. (35-45 C)

*Storage:* Long shelf life

**Microcat® XP** [Bioscience]

*Chem. Descrip.:* Microbial catalyst

*Uses:* Specialized microbes and enzymes for degradation of cellulose, lignins, and other pulping and papermaking by-prods.

*Storage:* Long shelf life

**Micro-Cel® T-26** [Celite]

*Chem. Descrip.:* Calcium silicate

*Chem. Analysis:* SiO<sub>2</sub> (47%), CaO (32%), Al<sub>2</sub>O<sub>3</sub> (2.5%), NaO + K<sub>2</sub>O (1.2%)

CAS 1344-95-2; EINECS/ELINCS 215-710-8

*Uses:* Filler, absorbent, adsorbent, inert carrier, conditioner, anticaking agent, diluent, bulking agent for agric., paper/paperboard, polishes, cleaners, rubber, plastic films

*Properties:* Gray powd.; 15  $\mu$  median particle size; 3% on 325 mesh; sp.gr. 2.6; bulk dens. 5.5 lb/ft<sup>3</sup>; surf. area (BET) 90 m<sup>2</sup>/g; water absorp. 495%; oil absorp. 405%; brightness (Photovolt) 60; ref. index 1.55; pH 8.4 (10% aq. slurry)

**Micro-Cel® T-49** [Celite]

*Chem. Descrip.:* Calcium silicate

*Chem. Analysis:* SiO<sub>2</sub> (36%), CaO (33%), moisture (8%)

CAS 1344-95-2; EINECS/ELINCS 215-710-8

*Uses:* Functional filler, absorbent, inert carrier, conditioner, anticaking agent, diluent for chemical, food, cosmetics, agric., paper, rubber, plastic, and other industrial applics.; converts liqs. to dry powds.

*Properties:* Gray powd.; 13.3  $\mu$  median particle size; 10% 325 mesh residue; sp.gr. 2.1; bulk dens. 12 lb/ft<sup>3</sup>; surf. area (BET) 105 m<sup>2</sup>/g; water

absorp. 240%; oil absorp. 190%; brightness (Photovolt) 60; ref. index 1.53; pH 10 (10% aq. slurry)

**Micro Floc™** [InterBio]

*Chem. Descrip.:* Biological prod.

*Uses:* Flocculant for pulp/paper industry; improves settleability; reduces chem. polymer costs

**Microcube™ C** [Hercules]

*Chem. Descrip.:* Refined microcrystalline wax emulsion

CAS 63231-60-7; EINECS/ELINCS 264-038-1

*Uses:* Lubricant in pigmented paper coatings; enhances sheet gloss, ink gloss, and printability; food-contact paper/paperboard; optimizes runnability of the coating

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. opaque liq.; hydrocarbon odor; dens. 8.0 lb/gal; m.p. 180 F; pH 6-7; 67% total linoleic acid, 31% oleic acid; nonionic

*Storage:* Protect from freezing (breaks the emulsion)

**Microcube™ N** [Hercules]

*Chem. Descrip.:* Semirefined paraffin wax emulsion

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Improves water resist., sheet props., calender operation on surface applic. to paper and other materials; for moisture protection in wood coatings

*Properties:* Wh. opaque liq., hydrocarbon odor; dens. 8.0 lb/gal; m.p. 135 F; pH 6-7; 48% total solids; nonionic

*Storage:* Protect from freezing (breaks the emulsion)

**Micronal®** [BASF AG]

*Chem. Descrip.:* Aq microcapsule dispersions

*Uses:* For prod. of the donor face of non-carbon copying papers

**Micro Pro™ DP** [InterBio]

*Uses:* Biological degrader for cooking liquor constituents, cellulose, tall oils, soaps, paper fibers and heavy starch for use in pulp/paper and winery industries

**Microtem 95** [Microfill K. Zafranias]

*Chem. Descrip.:* Calcium carbonate (99.3%)

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Filler for rubber, paper coatings, PVC dry blend or compounding, high quality emulsion paints

*Properties:* Microcryst. rhombohedral crystals; 65% < 2  $\mu$ ; sp.gr. 2.7; bulk dens. 0.9 g/ml (packed); oil absorp. 29/100 g; dry brightness 94%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture

**Microthene® FA 700-00** [EQUISTAR]

*Chem. Descrip.:* HDPE

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic filler for soaps/lotions/creams; extender in greases/lubricants; dusting agent, antiblock for rubber; textile/paper/glass/metal coatings; waterproofing heat-seal coatings for fabrics/paper; texturizer, delustering agent for inks/paints/coatings/adhesives; carrier/delivery system for pigments/oils/chems.; processing aid for PVC

*Properties:* Spherical powd.; 20  $\mu$  particle size; melt index 70 g/10 min.; sp.gr. 0.953; peak m.p. 134 C; soften. pt. (Vicat) 125 C; tens. str. 1700 psi (@ break); tens. elong. 400% (@ break); hardness (Shore D) 66

**Microthene® FA 709-00** [EQUISTAR]

*Chem. Descrip.:* HDPE

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent; pore former, cosmetic additive for soaps/lotions/creams; extender in grease and lubricant formulations; dusting agent for tacky pellets; dry and liq. coatings for textiles/paper/glass/metal; heat seal coatings for fabrics and paper; additive for inks/paints/coatings/adhesives; additive carrier-delivery system for pigments/oils/chems.; processing aid for PVC, polymer processes

*Properties:* Free-flowing powd.; 20  $\mu$  particle size; sp.gr. 0.953; melt index 70 g/10 min.; peak m.p. 134 C; soften. pt. (Vicat) 125 C; tens. str. 1700 psi (@ break); elong. 400% (@ break); hardness (Shore D) 66

**Microthene® FE 532-00** [EQUISTAR]

*Chem. Descrip.:* EVA copolymer (9% VA)

CAS 24937-78-8

*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic filler for soaps/lotions/creams; extender in greases/lubricants; dusting agent, antiblock for rubber; food pkg.; textile/paper/glass/metal coatings; waterproofing heat-seal coatings for fabrics/paper; texturizer, delustering agent for inks/paints/coatings/adhesives;



- carrier/delivery system for pigments/oils/chems.; processing aid for PVC  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Spherical powd.; 20 µ particle size; melt index 9 g/10 min; dens. 0.926 g/cm<sup>3</sup>; peak m.p. 96 C; soften. pt. (Vicat) 75 C; tens. str. 1700 psi (@ break); tens. elong. 675% (@ break); hardness (Shore D) 38
- Microthene® FN 500-00** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic filler for soaps/lotions/creams; extender in greases/lubricants; dusting agent, antiblock for rubber; food pkg.; textile/paper/glass/metal coatings; waterproofing heat-seal coatings for fabrics/paper; texturizer, delustering agent for inks/paints/coatings/adhesives; carrier/delivery system for pigments/oils/chems.; processing aid for PVC  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Spherical powd.; 20 µ particle size; melt index 22 g/10 min; dens. 0.915 g/cm<sup>3</sup>; peak m.p. 104 C; soften. pt. (Vicat) 83 C; tens. str. 1600 psi (@ break); tens. elong. 550% (@ break); hardness (Shore D) 52
- Microthene® FN 502-18** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic additive for soaps/lotions/creams; extender in greases/lubricants; dusting agent for tacky pellets; food pkg.; coatings for textiles/paper/glass/metal; waterproofing heat seal coatings for fabrics and paper; additive for inks/paints/coatings/adhesives; additive carrier-delivery system for pigments/oils/chems.; processing aid for PVC; mold release agent  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Free-flowing microfine spherical powd.; 20 µ particle size; melt index 70 g/10 min.; sp.gr. 0.912; bulk dens. 25-30 lb/ft<sup>3</sup>; peak m.p. 102 C; soften. pt. (Vicat) 78 C; tens. str. 1000 psi (@ break); elong. 200% (@ break); hardness (Shore D) 51; < 0.1% moisture
- Microthene® FN 510-00** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic filler for soaps/lotions/creams; extender in greases/lubricants; dusting agent, antiblock for rubber; textile/paper/glass/metal coatings; waterproofing heat-seal coatings for fabrics/paper; texturizer, delustering agent for inks/paints/coatings/adhesives; carrier/delivery system for pigments/oils/chems.; processing aid for PVC  
*Properties:* Spherical powd.; 20 µ particle size; melt index 5 g/10 min; dens. 0.923 g/cm<sup>3</sup>; peak m.p. 110 C; soften. pt. (Vicat) 97 C; tens. str. 1800 psi (@ break); tens. elong. 550% (@ break)
- Microthene® FN 514-00** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic filler for soaps/lotions/creams; extender in greases/lubricants; dusting agent, antiblock for rubber; textile/paper/glass/metal coatings; waterproofing heat-seal coatings for fabrics/paper; texturizer, delustering agent for inks/paints/coatings/adhesives; carrier/delivery system for pigments/oils/chems.; processing aid for PVC  
*Properties:* Powd.; 20 µ particle size; sp.gr. 0.912; melt index 70 g/10 min.; peak m.p. 102 C; soften. pt. (Vicat) 78 C; tens. str. 1000 psi (@ break); elong. 200% (@ break); hardness (Shore D) 51
- Microthene® FN 517-00** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic additive for soaps/lotions/creams; extender in greases/lubricants; dusting agent for tacky pellets; food pkg.; coatings for textiles/paper/glass/metal; waterproofing heat seal coatings for fabrics and paper; additive for inks/paints/coatings/adhesives; additive carrier-delivery system for pigments/oils/chems.; processing aid for PVC; mold release agent  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Free-flowing spherical powd.; 20 µ particle size; melt index 5.0 g/10 min.; sp.gr. 0.923; bulk dens. 25-30 lb/ft<sup>3</sup>; peak m.p. 110 C; soften. pt. (Vicat) 97 C; tens. str. 1800 psi (@ break); elong. 550% (@ break); hardness (Shore D) 53; < 0.1% moisture
- Microthene® FN 519-00** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic additive for soaps/lotions/creams; extender in greases/lubricants; dusting agent for tacky pellets; food pkg.; coatings for textiles/paper/glass/metal; waterproofing heat seal coatings for fabrics and paper; additive for inks/paints/coatings/adhesives; additive carrier-delivery system for pigments/oils/chems.; processing aid for PVC; mold release agent  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Free-flowing spherical powd.; 20 µ particle size; melt index 5.0 g/10 min.; sp.gr. 0.923; bulk dens. 25-30 lb/ft<sup>3</sup>; peak m.p. 110 C; soften. pt. (Vicat) 97 C; tens. str. 1800 psi (@ break); elong. 550% (@ break); hardness (Shore D) 53; < 0.1% moisture
- Microthene® FP 800-00** [Equistar]  
*Chem. Descrip.:* PP  
 CAS 9003-07-0  
*Uses:* Additive for FRP composites; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic filler for soaps/lotions/creams; extender in greases/lubricants; dusting agent, antiblock for rubber; food pkg.; textile/paper/glass/metal coatings; waterproofing heat-seal coatings for fabrics/paper; texturizer, delustering agent for inks/paints/coatings/adhesives; carrier/delivery system for pigments/oils/chems.; processing aid for PVC  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Free-flowing spherical powd.; 20 µ particle size; melt index 35 g/10 min.; sp.gr. 0.909; bulk dens. 25-30 lb/ft<sup>3</sup>; peak m.p. 163 C; soften. pt. (Vicat) 150 C; tens. str. 4600 psi (@ break); tens. elong. 15% (@ break); hardness (Shore D) 75; < 0.1% moisture
- Microthene® MN 701-00** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Powd. coating resin; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic exfoliant for soaps/lotions/creams; extender in greases/lubricants; textile/paper/glass/metal coatings; waterproofing/stiffening heat-seal coatings for fabrics, paper; carrier/delivery system for pigments/oils/chems.; pigment dispersant  
*Properties:* 35-mesh powd.; melt index 70 g/10 min; dens. 0.912 g/cm<sup>3</sup>; peak m.p. 102 C; soften. pt. (Vicat) 78 C; tens. str. 1000 psi (@ break); tens. elong. 200% (@ break); hardness (Shore D) 51
- Microthene® MN 710-20** [Equistar]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Powd. coating resin; binder for loose particles/fibers; sintering agent in ceramics, powd. metallurgy; cosmetic exfoliant for soaps/lotions/creams; extender in greases/lubricants; textile/paper/glass/metal coatings; waterproofing/stiffening heat-seal coatings for fabrics, paper; carrier/delivery system for pigments/oils/chems.; pigment dispersant  
*Properties:* 50-mesh powd.; melt index 22 g/10 min; dens. 0.915 g/cm<sup>3</sup>; peak m.p. 104 C; soften. pt. (Vicat) 83 C; tens. str. 1600 psi (@ break); tens. elong. 550% (@ break); hardness (Shore D) 52
- Microtrol 210** [Process Chems. LLC]  
*Chem. Descrip.:* Methylene bithiocyanate  
 CAS 6317-18-6  
*Uses:* Biocide for pulp/paper
- Microtrol 215** [Process Chems. LLC]  
*Chem. Descrip.:* Isothiazoline  
*Uses:* Biocide for pulp/paper
- Microtrol 230** [Process Chems. LLC]  
*Chem. Descrip.:* Carbamate  
*Uses:* Biocide for pulp/paper
- Micro-White® 10 Slurry** [IMERY'S]  
*Chem. Descrip.:* Calcium carbonate  
 CAS 1317-65-3  
*Uses:* Pigment, filler, reinforcing agent in coatings, paper, paints, polymers, food, caulks, etc.; ultrafine; exc. optical props.; low visc., low adhesive demand; good retention as filler  
*Properties:* Slurry, odorless; negligible sol. in water; sp.gr. 2.71; dens. 15.87 lb/gal; visc. 250 cps; surf. area 8 m<sup>2</sup>/g; pH 9-10; nonflamm.; 75% solids  
*Precaution:* Incompat. with acids
- Micro-White® 25 Slurry** [IMERY'S]  
*Chem. Descrip.:* Calcium carbonate

CAS 1317-65-3

*Uses:* Filler pigment, reinforcing agent for paper, paints, polymers, food, caulks, matte or dull coatings; med.-fine wet-ground*Properties:* Slurry, odorless; negligible sol. in water; sp.gr. 2.71; dens. 15.32 lb/gal; visc. 500 cps; surf. area 3.5 m<sup>2</sup>/g; pH 9-10; nonflamm.; 72% solids*Precaution:* Incompat. with acids**Micro-White® Superamide [IMERYs]***Chem. Descrip.:* Calcium carbonate

CAS 1317-65-3

*Uses:* Pigment, opacifier, and gloss aid in paints, coatings, paper; improved physical props. and surf. gloss in plastics and elastomers; extra fine ground*Properties:* Slurry; 1 μ mean particle size; oil absorp. 19-21**Miglo™ [Ciba Spec. Chems./Paper]***Uses:* Chroma value enhancer for paper coloration**Milldride® ODSA [Milliken]***Chem. Descrip.:* Octadecenyl succinic anhydride

CAS 19024-74-9

*Uses:* Curing agent for epoxy resins; corrosion inhibitor for nonaq. lubricating oils; intermediate for prep. of alkyl or unsat. polyester resins; intermediate in chem. reactions; detergent dispersant for lubricating oil; detergent builder; pour pt. depressant, visc. index improver; paper sizing; water repellent compositions*Properties:* Yel.-wh. waxy solid; m.w. 350; sp.gr. 0.9428; visc. 175-250 SUS (210 F); b.p. 251 C (4 mm Hg); solid. pt. 69 C; sapon. no. 320; flash pt. 210 C*Storage:* Avoid moisture during storage; undergoes slow hydrolysis to form corresponding alkenylsuccinic acid**Mill White 5™ [Michelman]***Uses:* Wh. coating for paper; economy-grade; general-purpose; glueable; repulpable*Regulatory:* FDA compliance**Miraclipse™ [Engelhard]***Chem. Descrip.:* Kaolin-based*Uses:* Pigment for papermaking; provides high gloss and runnability while maintaining opacity and other critical sheet parameters**Mirafilm™ [Engelhard]***Chem. Descrip.:* Kaolin-based*Uses:* Pigment, gloss aid for papermaking; promotes exc. runnability for size press operations**Miragloss™ [Engelhard]***Chem. Descrip.:* Hydrous kaolin-based pigments*Uses:* Pigment for papermaking; high solids, high runnability; five grades with props. ranging from high gloss to high brightness**Miramine® CC [Rhodia HPCI]***Chem. Descrip.:* Cocoyl hydroxyethyl imidazoline

CAS 61791-38-6; EINECS/ELINCS 263-170-7

*Uses:* Emulsifier, corrosion inhibitor, softener, antistat for textiles, asphalt, plastics, petrol. industry, cutting oils; water repellent treatment of cement, concrete, and plaster; antifungal agent for wood; tar emulsion breaker; slime control additive in paperboard**Mistofil® [Luzenac Am.]***Chem. Descrip.:* Talc

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Filler for paper applics.**Mistron® 100 [Luzenac Am.]***Chem. Descrip.:* Microcryst. platy talc

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Detackifier for control of pitch, stickies, other contaminants in pulp/paper mills*Properties:* Powd. or compacted; surf. area 13 m<sup>2</sup>/g; brightness (GE) 80**Mistron® 102 [Luzenac Am.]***Chem. Descrip.:* Microcryst. platy talc

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Detackifier for control of pitch, stickies, other contaminants in pulp/paper mills*Properties:* Compacted; surf. area 13 m<sup>2</sup>/g; brightness (GE) 75**Mistron® Slurry [Luzenac Am.]***Chem. Descrip.:* Talc

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Detackifier for pitch and stickies control in all types of pulp/paper mills*Properties:* High solids slurry; surf. area 13 m<sup>2</sup>/g; TAPPI brightness 79**Mistron® Vapor [Luzenac Am.]***Chem. Descrip.:* Talc

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Reinforcing pigment in rubber industry (extruded profiles, cable, proofed goods, complex molded shapes for all elastomers, foam and sponge nucleation); pitch control agent in pulp/paper industry; provides higher extrusion rates, good hot and grn. str., good elec. props., impermeability, fuel swell resist. in rubber*Properties:* Wh. soft ultra-fine platy powd.; 1.7 μ median particle size; sp.gr. 2.75; dens. 20 lb/ft<sup>3</sup> (tapped); surf. area 18 m<sup>2</sup>/g; brightness (GE) 85*Toxicology:* Nontoxic**Modacure® Resin [Solutia]***Chem. Descrip.:* Methylated melamine-formaldehyde modified styrene allyl alcohol resin in ethanol

UN No. 1866

*Uses:* Curing additive for thermoplastic and thermoset coating systems (appliances, automotive, metal furniture, wood furniture, paper, film, foil and container coatings); imparts improved low temperature catalyzed cure response, faster catalyzed cure response, better chemical, water and stain resistance*Regulatory:* DOT regulated; SARA §302, 313 reportable*Properties:* APHA 200 max. color; sharp formaldehyde and solv. odor; sol. in alcohols, ketones, and aromatic hydrocarbons; dens. 8.35-8.65 lb/gal; visc. (Gardner-Holdt) V-Z; flash pt. (PMCC) 19 C; 75-79% solids*Toxicology:* Eye, skin, and respiratory tract irritant; may cause allergic skin reaction; inh. cause coughing, chest tightness, runny nose, chest pain, and burning; ing. no more than sl. toxic; potential cancer hazard; TSCA listed*Precaution:* Flamm. liq. and vapor*Hazardous Decomp. Prods.:* Decomp. may produce formaldehyde, methanol, nitrogenous prods., and CO*Storage:* Keep closed and away from heat, sparks, and open flame**Modaflow® 2100 [Solutia]***Chem. Descrip.:* Ethyl acrylate/2-ethylhexyl acrylate copolymer

CAS 26376-86-3

*Uses:* Flow modifier improving leveling, eliminating craters and fisheyes, reducing pinholes, enhancing substrate wetting in automotive topcoats and high-solids systems; also suitable for coil, wood, water-borne, and conventional solids coatings, and inks; pigment disp. aid; provides high gloss; food pkg. adhesives, paper; compat. with polyester, acrylic, melamine, urethane, and other liq. coating systems*Use Level:* 0.1-2.0% on total resin solids*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; DOT nonregulated; SARA §302 and 313 nonreportable*Properties:* Gardner 2 max. pale yel. low-visc. liq.; odorless; sol. in butyl acetate, butyl alcohol, hexane, MEK, MIBK, propanol, IPA, toluene, xylene; insol. in water; sp.gr. 0.97-1.01; visc. 4000-12,000 cps; flash pt. (PMCC) 137 C; ref. index 1.465-1.466; 100% act.*Toxicology:* May sl. irritate skin and eyes; TSCA listed*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, smoke, and soot*Storage:* 3 yr shelf life stored @ 4-38 C; keep away from sparks and flame**Modaflow® Powder 2000 [Solutia]***Chem. Descrip.:* Ethyl acrylate/2-ethylhexyl acrylate copolymer (65%), amorphous silica (35%)*Uses:* Flow modifier, pigment dispersant for control of surf. cratering and orange peel defects in thermoset powd. coatings; food pkg. adhesives, paper; contains no silicone*Use Level:* 0.35-2.0 phr*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; DOT nonregulated; SARA §302,313 nonreportable*Properties:* Wh. free-flowing powd.; sl. char. odor; bulk dens. 0.58-0.64 g/cc; flash pt. 179 C; 65% min. act.*Toxicology:* Nonirritating to skin and eyes; TSCA listed*Precaution:* Combustible*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>*Storage:* 3 yr shelf life stored @ 4-38 C; keep away from sparks and flame**Modaflow® Powder III [Solutia]***Chem. Descrip.:* Ethyl acrylate/2-ethylhexyl acrylate copolymer (60-75%), hydrated amorphous silica (30-40%)*Uses:* Flow modifier, leveling agent, substrate wetting agent for control of pinholes, fisheyes, craters, orange peel in thermoset powd. coatings, epoxy-containing powd. coatings, polyester, acrylic urethane, polyester urethane systems; food pkg. adhesives, coatings, paper; enhanced initial adhesion; contains no silicone

- Use Level:* 0.35-2.0 phr  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180; DOT non-regulated; SARA §302.313 nonreportable  
*Properties:* Wh. very fine free-flowing powd.; sl. char. odor; emulsifiable in water; bulk dens. 0.58-0.64 g/cc; vapor pressure < 0.1 mm Hg; flash pt. (COC) 179.4 C; 65% min. act.  
*Toxicology:* Practically nonirritating to skin and eyes; TSCA listed  
*Precaution:* Combustible  
*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>  
*Storage:* 3 yr shelf life stored @ 4-38 C; keep away from sparks and flame
- Modaflow® Resin** [Solutia]  
*Chem. Descrip.:* Ethyl acrylate/2-ethylhexyl acrylate copolymer (≈ 100%)  
*Uses:* Flow modifier, leveling agent eliminating craters and fisheyes, reducing pinholes, enhancing substrate wetting in wood and general industrial coatings, auto topcoat, coil, conventional-, high-solids, and water-borne coatings, inks; pigment dispersant provides high gloss, air release; food pkg. adhesives, coatings, paper; compat. with epoxy, melamine, polyester, alkyd, acrylic, phenolic, urethane, etc.  
*Use Level:* 0.1-2.0% on total resin solids  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180; DOT non-regulated; SARA §313 nonreportable  
*Properties:* Gardner 3 max. pale yel. visc. liq.; odorless; tyl acetate, butyl alcohol, hexane, MEK, MIBK, propanol, IPA, toluene, xylene; insol. in water; sp.gr. 0.99-1.03; visc. 60,000-160,000 cps; b.p. 205 C (10 mm Hg); flash pt. (PMCC) 137 C; ref. index 1.465-1.467; 100% act.  
*Toxicology:* LD50 (oral, rat) > 7940 mg/kg, (skin, rabbit) > 7940 mg/kg; LC50 (inh., rat, 6 h) > 1.4 mg/m<sup>3</sup>; possibly sl. irritating to skin and eyes; sl. toxic if ing.; TSCA listed  
*Environmental:* LC50 (bluegill sunfish, 96 h) > 1000 mg/l, (rainbow trout, 96 h) > 1000 mg/l; practically nontoxic  
*Hazardous Decomp. Prods.:* Decomp. produces CO, CO<sub>2</sub>, smoke, and soot  
*Storage:* 3 yr shelf life stored @ 4-38 C; keep away from sparks and flame
- Modarez® WR** [Synthron SA]  
*Uses:* Water retention aid for paper sticking and coating applics.
- Modical® S** [Cognis/Coatings & Inks]  
*Chem. Descrip.:* Sulfated fatty acid  
*Uses:* Stabilizer for natural and syn. latexes during rubber compding., storage, and applic; stabilizer for printing inks, adhesives, waterborne architectural coatings; food pkg. adhesives; defoamer in food-contact paper coatings; ensures mechanical and chemical stability; prevents premature coagulation during high-speed agitation, acidification, or pigmentation  
*Use Level:* 0.25-1.0% on total wt.  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Dk. reddish-brn. liq.; fatty odor; sol. in water and sol. alcohols; hazy sol'n. in 4% sodium hydroxide, in toluol, and in min. and veg. oils; sp.gr. 1.1; dens. 9.2 lb/gal; visc. 800 cps; pH 7.5 (2%); VOC 2.2% (EPA Method 24); 55% act., 45% water; anionic
- Mogul® L** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black, aftertreated  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant, UV stabilizer for elec. resistivity in plastics, optimum flow in offset inks, carbon paper, and ribbons; good for dry toners  
*Properties:* Fluffy; 24 nm particle size; dens. 15 lb/ft<sup>3</sup>; surf. area 138 m<sup>2</sup>/g; pH 2.5-4.0; 5.0% volatile
- Monafax 1214** [Uniqema]  
*Chem. Descrip.:* Deceth-4 phosphate  
 CAS 52019-36-0  
*Uses:* Surfactant, surf. tens. reducer, wetting agent for mildew removers, tile cleaners, bowl cleaner, tire cleaners, bleaching of paper pulp and textiles, dairy cleaners, hard surf. cleaners; hydrotrope, detergent, wetting agent for lt. to mod. duty alkaline systems; hypochlorite-stable  
*Properties:* Amber clear visc. liq.; sol. @ 10% in water, ethanol, perchlorethylene, ethylene glycol butyl ether; disp. in min. oil, xylene; sp.gr. 1.22; dens. 10.1 lb/gal; acid no. 238 (pH 5); pH 2.0 (10%); 100% act.; anionic
- Monafax 1293** [Uniqema]  
*Chem. Descrip.:* Org. phosphate ester  
*Uses:* Detergent, wetting agent, hydrotrope, coupling agent for nonionics and other detergents which are only slightly sol. in high electrolyte concs.; surfactant, wetting agent, antistat, dispersant for household and industrial hard surf. detergents, metal cleaners, agric., textile, paper/pulp, dry cleaning, emulsion polymerization; agric. adjuvant for pesticides, fertilizers  
*Properties:* Gardner 3 clear liq.; sol. in water, ethanol, trichlorethylene, kero-

sene, toluene, hexane; disp. in min. oil, min. spirits; sp.gr. 1.07; dens. 8.9 lb/gal; acid no. 111 (@ pH 4.5), 185 (@ pH 9.4); pH < 2 (10%); 98% act.; anionic

*Environmental:* Biodeg.

**Monawet MB-45** [Uniqema]

*Chem. Descrip.:* Diisobutyl sodium sulfosuccinate  
 CAS 127-39-9; EINECS/ELINCS 204-839-5

*Uses:* Wetting agent, dispersant, emulsifier, penetrant, and solubilizer in emulsion polymerization of S/B for rug backing, paper coating, water treatment; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA §178.3400; EPA compliance

*Properties:* APHA 25 clear colorless liq.; sol. in water, fairly sol. in polar and nonpolar solvs.; m.w. 332; sp.gr. 1.12; dens. 9.3 lb/gal; cloud pt. 13 C; flash pt. 215 F (PMCC); surf. tens. 54 dynes/cm (0.1%); pH 6.0 (10%); Ross-Miles foam 30 mm (0.1%); 45% act. in water; anionic

**Monawet MM-80** [Uniqema]

*Chem. Descrip.:* Dihexyl sodium sulfosuccinate, 15% water, 5% IPA

*Uses:* Wetting agent, detergent for emulsion and suspension polymerization, rug backing, paper coating, textiles, paint, agric., cosmetic, detergent, mining, water treatment, electroplating baths, and food industries; emulsifier in mfg. of food-contact articles; food pkg. adhesives, paper, closures with sealing gaskets for food containers; electrolyte tolerant; suitable for styrene, S/B, acrylonitrile/vinyl chloride systems

*Regulatory:* FDA §175.105, 176.170, 177.1210, 178.3400; EPA compliance

*Properties:* Colorless clear liq.; sol. 33 g/100 g water, in polar and nonpolar solvs.; m.w. 388; sp.gr. 1.10; dens. 9.2 lb/gal; cloud pt. < 0 C; flash pt. (PMCC) 110 F; pH 6 ± 1 (10%); surf. tens. 46 dynes/cm (0.1%); Ross-Miles foam 60 mm (0.1%); 80% act.; anionic

*Toxicology:* Not a primary skin irritant

**Monawet MO-70** [Uniqema]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 20% water, 10% diethylene glycol butyl ether

*Uses:* Wetting agent, dispersant, emulsifier, penetrant, and solubilizer in emulsion and suspension polymerization of vinyl acetate for adhesives, paints, textile, fertilizer, mining, water treatment, fire fighting, cosmetic, food industries; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* Colorless clear liq.; sol. in polar and nonpolar solvs.; m.w. 444; sp.gr. 1.08; dens. 9.0 lb/gal; cloud pt. < -5 C; flash pt. (PMCC) 325 F; pH 6.0 (10%); surf. tens. 29 dynes/cm (0.1%); Ross-Miles foam 225 mm (0.1%); 70% act.; anionic

**Monawet MO-70E** [Uniqema]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 19% water, 11% ethanol

*Uses:* Wetting agent for industrial applics., emulsion polymerization of VA, adhesives, paints, textiles, agric., cosmetics, glass cleaners, mining, water treatment, wall paper removal, food pkg. plants; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* Colorless clear liq.; sol. in polar and nonpolar solvs.; m.w. 444; sp.gr. 1.08; dens. 9.0 lb/gal; cloud pt. < -5 C; flash pt. (PMCC) 82 F; pH 6.0 (10%); surf. tens. 29 dynes/cm (0.1%); Ross-Miles foam 220 mm (0.1%); 70% act.; anionic

**Monawet MO-70R** [Uniqema]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 15% water, 15% propylene glycol

*Uses:* Wetting agent, dispersant, emulsifier, penetrant, and solubilizer for textiles, printing, agric., paints, mining, water treatment, fire fighting, cosmetics, food industries; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* Colorless clear liq.; sol. in polar and nonpolar solvs.; m.w. 444; sp.gr. 1.06; dens. 8.8 lb/gal; cloud pt. < -5 C; flash pt. (PMCC) 280 F; pH 6.0 (10%); surf. tens. 29 dynes/cm (0.1%); Ross-Miles foam 210 mm (0.1%); 70% act.; anionic

**Monawet MO-70S** [Uniqema]

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 30% odorless mineral spirits

*Uses:* Wetting agent for dry cleaning soaps, spotting compds; wetting agent and emulsifier for agric., paints, mining, water treatment, cosmetics; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* APHA 25 clear liq.; oil and solv. sol.; sp.gr. 1.08; dens. 9.0 lb/gal; pH 5.5 (10%); Ross-Miles foam 190 mm (0.1%); 70% conc.; anionic

**Monawet MO-75E [Uniqema]**

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 18% water, 7% ethanol  
*Uses:* Wetting agent for industrial, agric., paints, mining, water treatment, cosmetics; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* Colorless clear liq.; sol. in polar and nonpolar solvs.; m.w. 444; sp.gr. 1.08; dens. 9.0 lb/gal; cloud pt. < -5 C; flash pt. (PMCC) 80 F; pH 6.0 (10%); surf. tens. 29 dynes/cm (0.1%); Ross-Miles foam 220 mm (0.1%); 75% act.; anionic

**Monawet MO-84R2W [Uniqema]**

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 16% propylene glycol

*Uses:* Wetting agent for general use, agric., paints, mining, water treatment, cosmetics; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* Lt. yel. clear visc. liq.; m.w. 444; sol. in polar and nonpolar solvs.; sp.gr. 1.10; dens. 9.16 lb/gal; b.p. 298 F; cloud pt. < -10 C; flash pt. (PMCC) 223 F; pH 5.5 (10%); surf. tens. 29 dynes/cm (0.1%); Ross-Miles foam 190 mm (0.1%); 84% act.; anionic

*Toxicology:* Severe eye and skin irritant on overexposure

**Monawet MO-85P [Uniqema]**

*Chem. Descrip.:* Dioctyl sodium sulfosuccinate, 15% sodium benzoate

*Uses:* Wetting for wettable powds., pigments, paints, mining, water treatment, cosmetics; food pkg. adhesives, coatings, paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA §175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.3400; EPA compliance

*Properties:* Wh. fine powd.; 0.85% sol. in water; pH 5.5 (10%); surf. tens. 26 dynes/cm (0.1%); Ross-Miles foam 200 mm (0.1%); 85% act.; anionic

**Monawet MT-70 [Uniqema]**

*Chem. Descrip.:* Ditridecyl sodium sulfosuccinate, 12% water, 18% hexylene glycol

*Uses:* Wetting agent, dispersant, emulsifier, penetrant, and solubilizer in emulsion and suspension polymerization of vinyl chloride and styrene for paints, coatings, indirect food additives; food-contact paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA §176.180, 178.3400 compliances

*Properties:* Lt. straw clear liq.; sol. in polar and nonpolar solvs.; m.w. 584; sp.gr. 1.02; dens. 8.5 lb/gal; cloud pt. -2 C; flash pt. (PMCC) 230 F; pH 6.0 (10%); surf. tens. 29 dynes/cm (0.1%); 70% act.; anionic

**Monawet MT-80H2W [Uniqema]**

*Chem. Descrip.:* Ditridecyl sodium sulfosuccinate, 20% hexylene glycol

*Uses:* Wetting agent, dispersant, emulsifier, penetrant, and solubilizer in printing inks; indirect food additive; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.180; EPA compliance

*Properties:* Lt. yel. clear liq.; m.w. 584; sol. in polar and nonpolar solvs.; sp.gr. 1.02; dens. 8.5 lb/gal; cloud pt. < 0 C; flash pt. (PMCC) 225 F; pH 5.5 (10%); surf. tens. 29 dynes/cm (0.1%); 80% act.; anionic

**Monawet SNO-35 [Uniqema]**

*Chem. Descrip.:* Tetrasodium dicarboxyethyl stearyl sulfosuccinamate  
CAS 3401-73-8; EINECS/ELINCS 222-273-7

*Uses:* Wetting agent, solubilizer, emulsifier, dispersant, visc. depressant, mild detergent used in emulsion polymerization of styrene for paints, coatings, textiles, cosmetics, agric. prods.; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; EPA compliance

*Properties:* Lt. amber clear liq.; m.w. 653; sol. in water, high electrolyte salt

sol'ns.; sp.gr. 1.14; dens. 9.5 lb/gal; visc. 16-18 s (#2 Zahn cup); f.p. 45 ± 5 F; acid no. 2.0; iodine no. 0.5; pH 7.5; surf. tens. 43 dynes/cm (0.1%); Draves wetting 232 s (0.25%, 30 C); Ross-Miles foam 185 mm (0.1%); 35% solids; anionic

*Toxicology:* Very low acute oral toxicity; mild eye irritant

*Environmental:* Biodeg.

**Monex® [Uniroyal]**

*Chem. Descrip.:* Tetramethylthiuram monosulfide

CAS 97-74-5

*Uses:* Accelerator for CR, IIR, NR, NBR, SBR, latexes, tire tread, wire insulation, druggist sundries, mech. goods, sponge, footwear; retarder in CR; activator for thiazoles; food pkg. adhesives; defoamer in food-contact paper coatings; delayed action; nondiscoloring, nonstaining; may be used as primary or sec. accelerator with aldehyde amines or guanidines; disperses readily, but masterbatching rec.

*Regulatory:* FDA 21CFR §175.105, 176.200

*Properties:* Yel. nuggets; sp.gr. 1.40; m.p. 104-107 C

*Toxicology:* Repeated minimal contact with skin may cause sensitization; exposure can produce adverse reaction when alcohol is consumed; can affect activity of certain prescription drugs

*Storage:* Exc. storage stability

**Monostearyl Citrate (MSC) [Morflex]**

*Chem. Descrip.:* Monostearyl citrate

CAS 1337-33-3; EINECS/ELINCS 215-654-4

*Uses:* Chelating agent; stabilizer for oils; sequestrant in food and feed applics.; plasticizer or component in food pkg. coatings, paper, closures with sealing gaskets for food containers; in surf. lubricants for mfg. of food-contact metallic articles; synergistic with antioxidants

*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 177.1210, 178.3910, 181.27, 182.685, 582.6851

*Properties:* Waxy solid; sol. ≈ 1% in olive oil, safflower oil, corn oil, peanut oil, veg. oil; sp.gr. 0.92 (85 C); m.p. 47 C min.; sapon. no. 140-170; neutral. no. 100-125; flash pt. (COC) > 400 F

**Morcryl® 535 [Rohm & Haas]**

*Chem. Descrip.:* Water-based resin sol'n. of Morez 500

*Uses:* Solvent, extender, gloss aid, rewetting agent, pigment dispersant for inks, coatings, overprints, food pkg. adhesives, paper; improves holdout; solv.-free; no VOC

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* Sl. yel. clear liq.; m.w. 3000-5000; dens. 8.8 lb/gal; visc. 2000 cps; acid no. 230; pH 8.5; 0% VOC; 34% solids

**Morez® 500 [Rohm & Haas]**

*Chem. Descrip.:* Water-based polymer resin

*Uses:* Extender, rewetting agent, gloss aid, pigment dispersant for inks, coatings, overprints, food pkg. adhesives, paper; low foam; environmentally safe; solv.-free; no VOC

*Use Level:* 57% (gravure ink)

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180 compliant

*Properties:* Sl. yel. clear solid; m.w. 3000-5000; acid no. 230; pH 8.5; 0% VOC; 100% solids

**Morflex® 190 [Morflex]**

*Chem. Descrip.:* > 90% n-Butyl phthalyl-n-butyl glycolate, < 10% dibutyl phthalate

*Uses:* Vinyl plasticizer in food pkg. coatings/paper, PVC tubing, dental cushions, food-contact resinous/polymeric coatings, food-contact zinc-silicon dioxide matrix coatings

*Regulatory:* FDA 21CFR §175.300, 175.320, 175.380, 175.390, 176.170, 177.1210, 181.27

*Properties:* APHA 50 max. clear liq.; mild, characteristic odor; negligible sol. in water; m.w. 336; sp.gr. 1.095-1.105; dens. 9.16 lb/gal; vapor pressure 3.9 mm Hg (200 C); b.p. 22 C (10 mm Hg); flash pt. (COC) 390 F; ref. index 1.487-1.491; 0.15% max. moisture

*Toxicology:* LD50 (oral, rat) 7 g/kg, (butyl phthalyl butyl glycolate); ACGIH TLV 5 mg/m<sup>3</sup> (dibutyl phthalate); avoid breathing vapors or mist

*Precaution:* Incompat. with water and oxidizing materials; hydrolyzes slowly; combustion will produce CO, CO<sub>2</sub>

*Storage:* Store in well ventilated area in tightly closed containers; protect from moisture

**Morflex® 1129 [Morflex]**

*Chem. Descrip.:* Dimethyl isophthalate

- CAS 1459-93-4; EINECS/ELINCS 215-951-9  
*Uses:* Plasticizer; chemical intermediate in prod. of syn. fibers in no-tear envelopes, wallpaper backing, and polyester bottles
- Moussex® 904 SE** [Synthron SA]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Antifoam for mech. pulp, deinking operations; effective at very low levels; very high dispersibility
- Moussex® 3029 HL** [Synthron SA]  
*Chem. Descrip.:* Min. oil-based  
*Uses:* Antifoam for pulp deinking
- Moussex® 9101 GE** [Synthron SA]  
*Uses:* Antifoam, deaerator for wet-end paper mfg.; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR§176.210; BGA XXXVI approved  
*Properties:* Aq. emulsion
- MP-12** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Imparts high degree of abrasion resist. and slip to solvent-based flexographic and gravure inks, paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Properties:* 10-12  $\mu$  (mean) particle size; fineness (Hegman) 5.5-6.0; sp.gr. 0.94; m.p. 102-106 C
- MP-22** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* In solvent-based flexographic and gravure inks; in paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; imparts high degree of abrasion resist. and slip; food-contact applics.; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Regulatory:* FDA 21CFR §175.250  
*Properties:* Powd.; 9-11  $\mu$  (mean) particle size; fineness (Hegman) 5.5-6.0; sp.gr. 0.94; m.p. 102-106 C
- MP-22C** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* In solvent-based flexographic and gravure inks; in paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; imparts high degree of abrasion resist. and slip; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Properties:* 6-8  $\mu$  (mean) particle size; fineness (Hegman) 6.0-6.5; sp.gr. 0.94; m.p. 102-106 C
- MP-22VF** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* In solvent-based flexographic and gravure inks; in paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; imparts high degree of abrasion resist. and slip; food-contact applics.; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Regulatory:* FDA 21CFR §175.250  
*Properties:* Powd.; 7-9  $\mu$  (mean) particle size; fineness (Hegman) 6.0-6.5; sp.gr. 0.94; m.p. 102-106 C
- MP-22XF** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* In solvent-based flexographic and gravure inks; in paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; imparts high degree of abrasion resist. and slip; food-contact applics.; readily dispersed without need for special processing equip.
- Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Regulatory:* FDA 21CFR §175.250  
*Properties:* Powd.; 6-6.5  $\mu$  (mean) particle size; fineness (Hegman) 5.0-6.0; sp.gr. 0.94; m.p. 102-106 C
- MP-26** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Imparts high degree of abrasion resist. and slip to solvent-based flexographic and gravure inks, paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Properties:* 9-11  $\mu$  (mean) particle size; fineness (Hegman) 5.5-6.0; sp.gr. 0.95; m.p. 102-106 C
- MP-26VF** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Imparts high degree of abrasion resist. and slip to solvent-based flexographic and gravure inks, paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Properties:* 7-9  $\mu$  (mean) particle size; fineness (Hegman) 6.0-6.5; sp.gr. 0.95; m.p. 102-106 C
- MP-28C** [Micro Powders]  
*Chem. Descrip.:* Micronized synthetic wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Imparts high degree of abrasion resist. and slip to solvent-based flexographic and gravure inks, paste inks, paints, coil coatings, paper coatings, and other types of surf. coatings; readily dispersed without need for special processing equip.  
*Use Level:* 0.25%-1.0% (solvent-metal/wood coatings, solv. and UV & EB lacquers); 1-2% (powd. coatings, aq. stains, solv. film/paper inks); 1-3% (solv. stains and heat set/sheet fed offset inks, aq. paper flexo/gravure inks)  
*Properties:* 6-8  $\mu$  (mean) particle size; fineness (Hegman) 6.0-6.5; sp.gr. 0.96; m.p. 104-110 C
- MPD-7** [Songkang Ind. Co.]  
*Chem. Descrip.:* Polyacrylamide  
 CAS 9003-05-8  
*Uses:* Dry str. agent for papermaking; drainage aid for papermaking in the wire and press; fixing agent for rosin size, starch, acid dyes, etc. in papermaking; retention aid for fibers and fillers; exc. performance at neutral pH; high charge density  
*Use Level:* 0.2-1.0% of dry stock  
*Properties:* Visc. < 2000 cps; pH 3-5; 11  $\pm$  1% solids; cationic
- MS-122DF** [Miller-Stephenson]  
*Chem. Descrip.:* Tetrafluoroethylene telomer (1%) with 1,1-dichloro-1-fluoroethane (92-95%), carbon dioxide (2-4%), isopropyl alcohol (2-4%)  
*Uses:* Release agent, dry lubricant for use on cold molds, esp. for epoxy potting/encapsulating, PU, nylon, acrylics, PP, PC phenolics, PS, foams, rubber molding, glass, wood, paper, gears, belts, wire and cable, metals  
*Properties:* Wh. milky liq., faint ethereal odor; negligible sol. in water; dens. 1.23 g/cc; b.p.  $\approx$  40 C; pH neutral; flash pt. none  
*Toxicology:* Mild eye irritant; inh. of high concs. of vapor may be harmful and may cause heart irregularities, unconsciousness, or death; inh. of vapors in presence of tobacco prods. causes polymer fume fever  
*Precaution:* Avoid heat, sparks, flame; incompat. with strong acids and alkalis, finely powd. Al, Mg, Zn, strong oxidizing agents, some desiccants; decomp. prods. incl. CO, CO<sub>2</sub>, HF, HCl; flamm. limits in air 7.4-15.5% by vol.  
*Storage:* Store in clean dry area; do not heat above 125 F; rotate stock to shelf life of 1 yr
- MS-290** [Songkang Ind. Co.]  
*Chem. Descrip.:* Polyacrylamide  
 CAS 9003-05-8  
*Uses:* Dry str. agent for sulfite and sulfuric acid pulp, recycled pulp; retention

aid for fibers and fillers; exc. performance at neutral pH

*Use Level:* 0.5-5.0% of dry stock

*Properties:* Microfloc; visc. < 3000 cps; pH 3-5; 11 ± 0.1% solids; amphoteric

**MSG-329** [Songkang Ind. Co.]

*Chem. Descrip.:* Polyacrylamide

CAS 9003-05-8

*Uses:* Dry str. agent for recycled pulp; retention aid for fibers and fillers; exc. performance at neutral pH; strong crosslinking

*Use Level:* 0.5-5.0% of dry stock

*Properties:* Visc. < 5000 cps; pH 10 ± 1; 15 ± 1% solids; amphoteric

**MT 15-120** [Rohm Tech]

*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate base

*Uses:* Used for nonwovens, textile coatings, and backcoatings, and paper coatings; self-crosslinking firm acrylic

*Properties:* 150 nm particle size; pH 2.0; 45 ± 0.5% solids; nonionic

**MT 1970-D** [Rohm Tech]

*Chem. Descrip.:* Ethyl acrylate, acrylonitrile base

*Uses:* Used for adhesives, textile backcoating, bonding in nonwovens, paper saturation, and coatings; self-crosslinking acrylic; forms med. film

*Properties:* 200 nm particle size; pH 5.0; 55 ± 1.0% solids; anionic

**MT 1971-D** [Rohm Tech]

*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate base

*Uses:* Used for nonwoven, textile and paper applics.; self-crosslinking firm acrylic; exc. lt. and heat stability and wash and dry clean fastness

*Properties:* 170 nm particle size; pH 2.5; 46 ± 0.5% solids; nonionic

**Mulsifan RT 110** [Zschimmer & Schwarz]

*Chem. Descrip.:* Fatty alcohol polyglycol ether

*Uses:* Emulsifier for paraffins, microparaffin waxes for textile, paper, ceramics, cleaning and polishing agents

*Properties:* Wh. wax; sol. in acetone, ethanol, IPA, benzene, toluene, xylene, chlorinated hydrocarbons; disp. in water; dens. 0.94 g/cc; HLB 10.0; cloud pt. 79-84 C (5 g/20 ml of 25% BDG); pH 6 (10%); 100% act., 0.5% water; nonionic

*Storage:* Protect from frost

**Mulsifan RT 258** [Zschimmer & Schwarz]

*Chem. Descrip.:* Fatty alcohol polyglycol ether

*Uses:* Emulsifier for paraffins for textile, paper, and ceramic industries and for polishing agents

*Properties:* Ylsh. wax; disp. in water, cloudy sol. in molten paraffin; dens. 0.94 g/cc; HLB 10.0; pH 6 (10%); 100% act., 0.5% water; nonionic

*Storage:* Protect from frost

**Multiflow® Resin** [Solutia]

*Chem. Descrip.:* Ethyl acrylate/2-ethylhexyl acrylate copolymer (50% in xylene (40%))

UN No. 1866

*Uses:* Flow modifier improving leveling, eliminating craters and fisheyes, reducing pinholes, enhancing substrate wetting in wood and general industrial coatings, auto topcoat, coil, conventional- and high solids coatings, and inks; pigment disp. aid; provides high gloss; defoamer and air release aid; food pkg. adhesives, paper; compat. with epoxy, melamine, polyester, alkyd, acrylic, phenolic, urethane, etc.

*Use Level:* 0.1-2.0% on total resin solids

*Regulatory:* FDA 21CFR §175.105, 176.180; DOT regulated; SARA §313 reportable

*Properties:* Gardner 3 max. lt. yel. liq.; aromatic odor; sol. < 0.1% in water; sol. in higher m.w. alcohols, aromatic, other polar and nonpolar solvs.; sp.gr. 0.93-0.95; visc. < 100 cps; vapor pressure < 20 mm Hg; flash pt. (PMCC) 27 C; ref. index 1.480-1.484; 50% act.

*Toxicology:* Causes eye, skin, and respiratory tract irritation

*Precaution:* Flamm. liq. and vapor

*Storage:* 3 yr shelf life stored @ 4-38 C; keep away from sparks and flame

**Multiwax® ML-445** [Crompton/Witco]

*Chem. Descrip.:* Microcryst. wax NF

CAS 63231-60-7; EINECS/ELINCS 264-038-1

*Uses:* Laminating agent for paper, film, foil; hot-melt adhesives; chewing gum base; elec. insulation; sealants; rustproofing compds.; waterproofing/protective coatings; crayons; dental waxes; candles; paraffin wax modifier; cosmetics and pharmaceuticals; food-contact applics.

*Regulatory:* FDA §172.886, 178.3710

*Properties:* Lt. yel.; misc. with petrol. prods., many essential oils, most animal and veg. fats, oils, and waxes; visc. 14.3-18.0 cSt (99 C); m.p. 77-

82 C; flash pt. (COC) 274 C min.

**Munox® XL Series 1** [Osprey Biotechnics]

*Chem. Descrip.:* Org. degrading mixed bacteria conc., *Pseudomonas putida* and *P. fluorescens*

*Uses:* Environmental bacterial inoculant system for biological removal of stubborn organics in industrial wastewater, incl. waste from carpet/textile mfg., pulp/paper mills, citrus processing, chem. mfg., transportation facilities, restaurants and institutions; bioremediation applics. (crude oil spills, chem./solv. leaks, fuel oil leaks, creosote contamination)

*Properties:* Turbid liq.; no odor; sol. in water; sp.gr. 1.0; vapor pressure 24 mm Hg; b.p. 212 F

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 2g/kg; (inh., rat, 6 hr) 1.2 mg/l, unknown long term effects

*Hazardous Decomp. Prods.:* Does not undergo spontaneous decomp.; typ. combustion prods.: C, CO<sub>2</sub>, N, H<sub>2</sub>O

*Storage:* Shelf life 180 days @ R.T. (liq.)

**Munox® XL Series 2** [Osprey Biotechnics]

*Chem. Descrip.:* Org. degrading mixed bacteria conc., *Pseudomonas putida* and *P. fluorescens*

*Uses:* Environmental bacterial inoculant system for biological removal of stubborn organics in industrial wastewater, incl. waste from carpet/textile mfg., pulp/paper mills, citrus processing, chem. mfg., transportation facilities, restaurants and institutions; bioremediation applics. (crude oil spills, chem./solv. leaks, fuel oil leaks, creosote contamination); rec. for biological removal of citrus-related oils (limonene, linalool, citronellol)

*Properties:* Turbid liq.; no odor; sol. in water; sp.gr. 1.0; vapor pressure 24 mm Hg; b.p. 212 F

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 2g/kg; (inh., rat, 6 hr) 1.2 mg/l, unknown long term effects

*Hazardous Decomp. Prods.:* Does not undergo spontaneous decomp.; typ. combustion prods.: C, CO<sub>2</sub>, N, H<sub>2</sub>O

*Storage:* Shelf life 180 days @ R.T. (liq.)

**Munox® XL Series 5** [Osprey Biotechnics]

*Chem. Descrip.:* Org. degrading mixed bacteria conc., *Pseudomonas putida* and *P. fluorescens*

*Uses:* Environmental bacterial inoculant system for biological removal of stubborn organics in industrial wastewater, incl. waste from carpet/textile mfg., pulp/paper mills, citrus processing, chem. mfg., transportation facilities, restaurants and institutions; bioremediation applics. (crude oil spills, chem./solv. leaks, fuel oil leaks, creosote contamination); rec. for biological removal of phenol and chlorinated aromatic hydrocarbons

*Properties:* Turbid liq.; no odor; sol. in water; sp.gr. 1.0; vapor pressure 24 mm Hg; b.p. 212 F

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 2g/kg; (inh., rat, 6 hr) 1.2 mg/l, unknown long term effects

*Hazardous Decomp. Prods.:* Does not undergo spontaneous decomp.; typ. combustion prods.: C, CO<sub>2</sub>, N, H<sub>2</sub>O

*Storage:* Shelf life 180 days @ R.T. (liq.)

**Myacide®** [Knoll MicroCheck; Economy Polymers & Chems.]

*Chem. Descrip.:* 2-Bromo-2-nitropropane-1,3-diol

CAS 52-51-7; EINECS/ELINCS 200-143-0

*Uses:* Antimicrobial in pulp/paper, oil and gas production, and water-based heat transfer systems; pharmaceutical grade

*Properties:* Wh. crystalline solid; faint char. odor; m.w. 200; m.p. ≈ 130 C; pH 5-7 (1% @ 20 C); < 0.5% 2-methyl-2-nitropropane-1,3-diol

*Precaution:* Decomposes @ 130 C

**Myacide® AS Plus** [ANGUS; Knoll MicroCheck]

*Chem. Descrip.:* 2-Bromo-2-nitropropane-1,3-diol

CAS 52-51-7; EINECS/ELINCS 200-143-0

*Uses:* Antimicrobial, preservative for papermaking, adhesives, coatings, cooling towers, process waters, oil field water-flooding operations, deodorizing, other aq. applics.; water-sol.

*Properties:* Powd.; sol. in water

**Myacide® Pharma® BP** [ANGUS; Knoll MicroCheck]

*Chem. Descrip.:* 2-Bromo-2-nitropropane-1,3-diol

CAS 52-51-7; EINECS/ELINCS 200-143-0

UN No. 3241

*Uses:* Preservative for cosmetics and pharmaceuticals (shampoo, hair conditioners, bath/shower gels, hand creams, body lotions, wet wipes, sun care prods.); food pkg. adhesives; simicide in food-contact paper/paperboard; long-term preservative

*Use Level:* 200 ppm (pharmaceutical applics.)



*Regulatory:* FDA21CFR§175.105, 176.300; BP, EU compliance; registered in France, Germany, India, Australia, Canada, Japan; food contact approved in U.S., France, Germany

*Properties:* Wh. or almost wh. cryst. powd.; faint char. odor; sol. in water, alcohol, glycols, and polyols; m.w. 200; dens. 1.1 g/cm<sup>3</sup>; m.p. 130 C; pH 5-7 (1%, 20 C); 99% min. purity

*Toxicology:* LD50 (oral, male rat) 307 mg/kg, (derma, rat) 1600 mg/kg; conc. sol'ns. are irritating to skin, eyes, respiratory system, harmful if swallowed; nonirritating to skin @ 0.01-0.1%; noncarcinogenic

*Environmental:* Rapidly biodeg.; EC50 (daphnia magna, 48 h) 1.4 ppm; LC50 (rainbow trout, 96 h) 41.2 ppm; very toxic to aquatic organisms

*Precaution:* Corrosive to metals (esp. aluminum) when wet; avoid temps. > 90 C to prevent risk of self-heating and rapid decomp.; decomp. temp. is lowered in presence of bases (esp. sodium hydroxide)

*Hazardous Decomp. Prods.:* Hydrogen bromide and NO<sub>x</sub>

*Storage:* 5 yr min. stability under good storage conditions; store in original container tightly closed

# N

**NACCONOL® 40G** [Stepan; Stepan Canada]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Foaming agent, dispersant, wetting agent, detergent for agric., cement, dyeing, emulsion polymerization, textiles, metal cleaning, metalworking, mining, paper industries

*Properties:* Cream gran. powd.; sol. 2 g/100 ml in water; dens. 35 lb/ft<sup>3</sup>; pH 6.4-7.6 (1% aq.); 38-42% act.; anionic

*Environmental:* Biodeg.

**NACCONOL® 90G** [Stepan; Stepan Canada; Stepan Europe]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Foaming agent, dispersant, wetting agent, detergent for agric., cement, dyeing, emulsion and latex polymerization, textiles, metal cleaning, laundry prods., metalworking, mining, paper industries

*Properties:* Wh. to beige gran.; sol. 15 g/100 ml in water; dens. 30 lb/ft<sup>3</sup>; pH 6.0-7.5 (1% aq.); 90% act.; anionic

*Environmental:* Biodeg.

**Nacrylic X 4280** [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking acrylic copolymer emulsion  
 CAS 25133-97-5

*Uses:* Imparts fold endurance, tear str., delamination resist., lightfastness, durability, and toughness to paper saturation (tag and label stock); food pkg. adhesives; component of paper/paperboard in contact with dry food; exc. adhesion to nat. and syn. substrates; exc. solv. resist.; firm and flexible; exc. compd. stability and stability in size press, saturation, and spray applics.

*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* 0.2 µ particle size; dens. 8.8 lb/gal; visc. 100 cps; pH 3.5; 50% solids; anionic

**Nacure® 2522** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid  
 CAS 104-15-4; EINECS/ELINCS 203-180-0

*Uses:* Blocked catalyst used in automotive and general industrial applics., electrostatic, paper, and wood coatings; low cure; for fast cure schedule with short dwell times

*Properties:* Gardner 1 color; sol. in alcohols, water, glycols; partially sol. in esters; insol. in ketones, aromatics, and aliphatics; dens. 7.85 lb/gal; pH 3-5; 25% act.

**Nacure® 2530** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid, methanol/isopropanol solv.

*Uses:* Blocked catalyst used in automotive, can, coil, electrostatic, paper, wood, and general industrial coatings; low cure, low tendency to yel. or wrinkle

*Properties:* Gardner 1 color; dens. 7.90 lb/gal; pH 5.75-6.5; 25% act.

**Nacure® 4054** [King Ind.]

*Chem. Descrip.:* Acid phosphate catalyst (50%), isobutanol

*Uses:* Catalyst for high NH/polymeric melamines and phenolic crosslinkers for use in coatings for appliances, automotive, can, coil, general industrial, paper, ink and wood; weak acid catalyst; exc. sol.; good pkg. stability, adhesion, salt spray, and water resist.

*Properties:* Gardner 1 color; dens. 7.49 lb/gal; acid no. 155-165; 50% act.

**Nacure® XC-2211** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid in water

CAS 104-15-4; EINECS/ELINCS 203-180-0

*Uses:* Blocked acid catalyst for waterborne thermosets, overprint varnish, general industrial, paper, wood coatings and inks; offers film hardness, high gloss, cure responses; 80 C min. cure

*Properties:* Gardner 1 color; dens. 9.80 lb/gal; acid no. 7.2-8.5; pH 7.5-8.5; 54% act.

**Nacure® XC-8224** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid

CAS 104-15-4; EINECS/ELINCS 203-180-0

*Uses:* Blocked catalyst used in wood and paper coatings, and laminates; fast cure response and sol. in waterborne coatings; 65 C min. cure

*Properties:* Gardner 1 color; dens. 9.08 lb/gal; acid no. 8-9; 25% act.

**Nacure® XP-386** [King Ind.]

*Chem. Descrip.:* p-Toluene sulfonic acid in water

CAS 104-15-4; EINECS/ELINCS 203-180-0

*Uses:* Blocked acid catalyst for water-borne general industrial, paper, and wood coatings and inks; offers film hardness, high gloss, low temp. cure

*Properties:* PH 6.1-6.4; 47% act.

**Nafol® 10 D** [Condea Vista]

*Chem. Descrip.:* C10 alcohol (90% C10, 10% C8)

CAS 112-30-1; EINECS/ELINCS 203-956-9

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

*Properties:* Hazen 10 max. color; m.w. 155-162; sp.gr. 0.829 (20/4 C); solid. pt. 3 C; b.p. 215-240 C; acid no. 0.05 max.; iodine no. 0.2 max.; hyd. no. 345-365; flash pt. 95 C; 99% min. act.

**Nafol® 20+** [Condea Vista]

*Chem. Descrip.:* C20-24 alcohol (50% C20, 29% C22, 14% C24); EINECS/ELINCS 307-145-1

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

*Properties:* Hazen 1800 max. color; sp.gr. 0.804 (80/4 C); solid. pt. 53-58 C; acid no. 1.0 max.; iodine no. 20 max.; hyd. no. 130-150; flash pt. 210 C; 80% act.

**Nafol® 810 D** [Condea Vista]

*Chem. Descrip.:* C8-10 alcohol (43% C8, 55% C10)

CAS 85566-12-7

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

*Properties:* Hazen 10 max. color; m.w. 143-148; sp.gr. 0.827 (20/4 C); b.p. 195-240 C; acid no. 0.05 max.; iodine no. 0.15 max.; hyd. no. 380-390; pour pt. 11 C; flash pt. 85 C; 99% min. act.

**Nafol® 1014** [Condea Vista]

*Chem. Descrip.:* C10-14 alcohol (15% C10, 47% C12, 38% C14); EINECS/ELINCS 283-066-5

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

*Properties:* Hazen 20 max. color; m.w. 187-193; sp.gr. 0.832 (20/4 C); solid. pt. 14-18 C; b.p. 230-285 C; acid no. 0.05 max.; iodine no. 0.2 max.; hyd. no. 290-300; flash pt. 118 C; 99% min. act.

**Nafol® 1218** [Condea Vista]

*Chem. Descrip.:* C12-18 alcohol (40% C12, 30% C14, 18% C16, 10% C18)

CAS 67762-25-8; EINECS/ELINCS 267-006-5

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

*Properties:* Hazen 30 max. color; m.w. 204-216; sp.gr. 0.823 (40/4 C); solid. pt. 25-28 C; b.p. 270-335 C; acid no. 0.1 max.; iodine no. 0.4 max.; hyd. no. 260-275; flash pt. 145 C; 98.5% min. act.

**Nafol® 1822** [Condea Chemie GmbH; Condea Vista]

*Chem. Descrip.:* 1-Octadecanol, 1-eicosanol, and 1-docosanol

*Uses:* Paper applics.

*Properties:* Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.804 (80 C); visc. 6.8 mPa·s (80 C); vapor pressure < 1.00 mbar; m.p. 58 C; solid. pt. 61 C; flash pt. 202 C

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg

*Environmental:* Biodeg.; do not allow to enter soil, waterways, or wastewater

*Precaution:* Incompat. with oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

*Storage:* Store in cool place away from sources of ignition

**Nafol® 1822 B** [Condea Chemie GmbH; Condea Vista]

*Chem. Descrip.:* 1-Octadecanol, 1-eicosanol, and 1-docosanol

*Uses:* Paper applics.

*Properties:* Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.804 (80 C); visc. 7.1 mPa·s (80 C); vapor pressure < 1.00 mbar; m.p. 69 C; solid. pt. 64 C; flash pt. 204 C

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg

*Environmental:* Biodeg.; do not allow to enter soil, waterways, or wastewater

*Precaution:* Incompat. with oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

*Storage:* Store in cool place away from sources of ignition

**Nafol® 1822 C** [Condea Chemie GmbH; Condea Vista]

*Chem. Descrip.:* 1-Octadecanol, 1-eicosanol, and 1-docosanol

*Uses:* Paper applics.

*Properties:* Colorless solid; char. odor; sl. sol. in water; sp.gr. 0.804 (80 C); visc. 6.8 mPa·s (80 C); vapor pressure < 1.00 mbar; m.p. 58 C; solid. pt. 61 C; flash pt. 202 C

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg

*Environmental:* Biodeg.; do not allow to enter soil, waterways, or wastewater

*Precaution:* Incompat. with oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

*Storage:* Store in cool place away from sources of ignition

**Nagellite® 3050** [Telechemische]

*Chem. Descrip.:* Tosylamide/epoxy resin

*Uses:* Nail enamel resin, gloss aid; plasticizer for nitrocellulose; food-contact paper/paperboard; patented; formaldehyde-free; provides superior clarity, brilliance, gloss, adhesion

*Regulatory:* FDA 21§CFR 175.105, 175.300, 176.170

**Nansa® HS80S** [Albright & Wilson UK]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Formulation of detergents, hard surface and bottle cleaners; metal treatment; paper processing; scouring agent and wetting agent for textiles; grinding agent, foaming agent, and mortar plasticizer in building industry; wetting agent for agric. suspension concs.

*Properties:* Cream powd.; sp.gr. 0.65; pH 9-11 (1%); 80% act.; anionic

**Nansa® HS85/S** [Albright & Wilson UK]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Formulation of detergents, hard surface and bottle cleaners; metal treatment; paper processing; scouring agent and wetting agent for textiles; foaming agent and mortar plasticizer in building industry; rubber/plastics emulsifier; wetting agent for agric. suspension concs.

*Properties:* Cream flake; dens. 0.5 g/cc; pH 9-11 (1%); 85 ± 3% act.; anionic

*Environmental:* Biodeg.

**Natrosol® 250** [Hercules/Aqualon]

*Chem. Descrip.:* Hydroxyethylcellulose

CAS 9004-62-0

*Uses:* Thickener, protective colloid, binder, stabilizer, suspending agent for coatings, cosmetics, pharmaceuticals, textile printing pastes, paints, inks,

adhesives, electroplating, ceramics, textile/paper sizing, acid thickening for acidizing oil wells

*Regulatory:* FDA compliance

*Properties:* Wh. to lt. tan gran. powd.; particle size 90% thru 40 mesh; water-sol.; avail. in various visc. grades; pH 6.0-8.5 (2%); nonionic

**Naugard® 10** [Uniroyal]

*Chem. Descrip.:* Tetrakis [methylene (3,5-di-*t*-butyl-4-hydroxyhydrocinna-mate)] methane

CAS 6683-19-8; EINECS/ELINCS 229-722-6

*Uses:* Antioxidant for polyolefins, styrenics, elastomers, adhesives, lubricants, oils, PP, LDPE, LLDPE, HDPE, HIPS, ABS, polyester, EVA, cellulose, nylon, polyester, PS, PVC, acetal, EPDM, PU; food-contact pressure-sensitive adhesives, coatings, paper, wood preservatives; antioxidant for food-grade polymers; nondiscoloring; effective against thermal oxidative degradation during long term heat aging

*Regulatory:* FDA 21CFR §175.125, 175.300, 175.300(b)(2,3), 175.320(b)(3), 176.170(a)(5), 176.170(b)(2), 176.180, 177.2470 (b), 178.2010, 178.3800, 178.3850

*Properties:* Wh. free-flowing powd. or gran.; sol. (g/100 ml): 100 g acetone, chloroform, benzene; m.w. 1178; sp.gr. 1.05; m.p. 110-125 C; flash pt. 299 C

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; LD50 (dermal, rabbit) > 3160 mg/kg; nonirritating to eyes, skin

*Storage:* 1 yr storage life in sealed containers in cool, dry areas; avoid extended storage at elevated temps.

**Naugex® MBT** [Uniroyal]

*Chem. Descrip.:* 2-Mercaptobenzothiazole

CAS 149-30-4; EINECS/ELINCS 205-736-8

*Uses:* General-purpose accelerator for NR, SR, EPDM, tire treads, carcass, wire insulation, footwear, mech. goods, food-contact rubber articles; food pkg. adhesives; slimicide in food-contact paper/paperboard; retarder for CR cures, esp. G types at all temps.; used in many sulfur-curable elastomers; nondiscoloring, nonstaining; broad curing range; fast curing above 240 F; mod. low activation temp.; may scorch during processing; disperses readily

*Regulatory:* FDA 21CFR §175.105, 176.300, 177.2600

*Properties:* Lt. yel. to tan free-flowing powd.; distinct odor; sol. in acetone and alkaline sol'ns.; sl. sol. in alcohol; insol. in water; sp.gr. 1.50; m.p. 170-180 C

*Toxicology:* Repeated minimal contact with skin may cause sensitization

*Storage:* Exc. storage stability (> 4 yrs when stored in cool, dry place away from direct sources of heat and light)

**N® Clear Sodium Silicate** [PQ]

*Chem. Descrip.:* Sodium silicate

CAS 1344-09-8; EINECS/ELINCS 215-687-4

*Uses:* Corrosion inhibitor for water systems; peroxide bleaching of textiles; detergent, deflocculant, bleaching enhancer, alkalinity agent in deinking paper stock; peroxide stabilizer in repulping and postbleaching; peroxide bleaching textiles

*Properties:* Syrupy liq.; sp.gr. 1.38 (20 C); dens. 11.6 lb/gal; visc. 180 cps; pH 11.3; 28.7% SiO<sub>2</sub>, 8.9% Na<sub>2</sub>O

*Toxicology:* Alkalinity can irritate eyes and skin

*Environmental:* Environmentally friendly

*Storage:* For extended storage, use tightly closed drums, steel containers, or containers of nonreactive materials

**NC Size C-25** [Nicca Chem. Co Ltd]

*Chem. Descrip.:* Styrene-acrylic type copolymer

CAS 9010-92-8

*Uses:* Surf. sizing agent for paper impregnation and coating; outstanding sizing effect compared to that of existing sizing agents

*Use Level:* 5-10 times diluted sol'n. for total of 1-4% per paper

*Properties:* Wh. semi-transparent liq.; pH 5; cationic

**Necco Fire Retardant 2750** [Northern Prods.]

*Chem. Descrip.:* Ammonium sulfamate unmodified sol'n.

CAS 7773-06-0; EINECS/ELINCS 231-871-7

*Uses:* Fire retardant for use on paper, nonwovens, and textile fabrics

*Properties:* Colorless clear to sl. hazy liq.; dilutable with water; sp.gr. 1.263 (30 C); dens. 10.5 lb/gal; pH 5.8; 50% solids

*Storage:* 6 mos stability

**Necco Fire Retardant 2758** [Northern Prods.]

*Chem. Descrip.:* Ammonium sulfamate modified sol'n.

CAS 7773-06-0; EINECS/ELINCS 231-871-7

*Uses:* Fire retardant for use on paper, nonwovens, textile fabrics; modified to

prevent afterglow, to resist discoloration on heating or storage, to have good compat. with latex binders, and to eliminate crystallization of salts on surf. of treated goods

*Properties:* Colorless clear to sl. hazy liq.; dilutable with water; sp.gr. 1.254 (30 C); dens. 10.44 lb/gal; pH 6.2; 50% solids

*Storage:* 6 mos stability

#### Necco Fire Retardant 2762 [Northern Prods.]

*Chem. Descrip.:* Ammonium sulfamate modified sol'n.

CAS 7773-06-0; EINECS/ELINCS 231-871-7

*Uses:* Fire retardant for use on paper, nonwovens, textile fabrics; specifically for use with chrome complex-type water repellents

*Properties:* Colorless clear to sl. hazy liq.; dilutable with water; sp.gr. 1.312 (30 C); dens. 10.93 lb/gal; pH 4.1; 58.5% solids

*Storage:* 6 mos stability

#### Necco Fire Retardant 3000DM [Northern Prods.]

*Uses:* Flame retardant for use on paper, textile, and nonwovens, esp. in decorative crepe or tissue, match board, box board textiles, and nonwovens which do not require permanent fire protection

*Properties:* Clear liq.; water-sol.; sp.gr. 1.28 ± 0.02; dens. 10.4 lb/gal; pH 5.8; 50 ± 1% act.

*Storage:* 6 mos storage stability; keep drums closed; store @ R.T.; some settling or crystallization may occur at freezing temps.; warm to 90 F to restore

#### Necco Fire Retardant K-6 [Northern Prods.]

*Uses:* Fire retardant for use on paper, nonwovens, textile fabrics

*Properties:* Colorless clear to sl. hazy liq.; dilutable with water; sp.gr. 1.318 (30 C); dens. 10.98 lb/gal; pH 6.2; 58.5% solids

*Storage:* 6 mos stability

#### Necco FR 682 [Northern Prods.]

*Uses:* Flame retardant for woven fabrics, paper, and other nonwovens incl. filter media, carpets, tent fabric, fiberfill for insulation, automotive fabric, flocked fabric, sleeping bags, and upholstery; durable; can be used in conjunction with water repellents, fungicides, and pigments for use on natural and syn. substrates; low smoke generation; nonmigrating in most instance

*Properties:* Disp. in water in all proportions; sp.gr. 2.00; dens. 16.6 lb/gal; pH 7.5; 70% solids; nonionic

#### Necco FR 7065D [Northern Prods.]

*Uses:* Flame retardant for industrial fabrics and papers; durable; for use with select water repellents, fungicides, pigments, and polymers

*Properties:* Disp. in water; sp.gr. 1.59; dens. 13.25 lb/gal; pH 7.5 ± 0.5; 66 ± 1% solids; nonionic

#### Necon SOG [Alzo]

*Chem. Descrip.:* Soyamidopropyl dimethylamino glycolate

*Uses:* Surfactant, emulsifier, conditioner with exc. hair substantivity, fly-away control, softening props., and enhanced wet and dry combing; emulsifier for pulp/paper industry

*Properties:* Dk. yel. sl. visc. liq., mild ammoniacal odor; water-sol.; sp.gr. 0.99; pH 7.0; 70% NV in propylene glycol; cationic

#### Necon SOGU [Alzo]

*Chem. Descrip.:* Soyamidopropyl dimethylamino gluconate

*Uses:* Surfactant, emulsifier, conditioner with exc. hair substantivity, fly-away control, softening props., and enhanced wet and dry combing; emulsifier for pulp/paper industry

*Properties:* Dk. amber visc. liq., mild ammoniacal odor; water-sol.; sp.gr. 1.06; pH 7.0; 70% NV in propylene glycol; cationic

#### Necon SOLC [Alzo]

*Chem. Descrip.:* Linoleamido dimethylamino lactate

*Uses:* Surfactant, emulsifier, conditioner with exc. skin and hair substantivity, fly-away control, softening props., and enhanced wet and dry combing; emulsifier for pulp/paper industry

*Properties:* Dk. amber visc. liq., mild ammoniacal odor; water-sol.; sp.gr. 1.00; pH 7.0; 70% NV in propylene glycol; cationic

#### Neobor® [U.S. Borax]

*Chem. Descrip.:* Sodium tetraborate pentahydrate

CAS 12179-04-3; EINECS/ELINCS 215-540-4

*Uses:* Source of boric oxide for insulation fiber glass, textile fiberglass, and borosilicate glasses; flame retardant for cellulose; peptizing agent in adhesives; pH buffer, abrasive in cleaning prods.; wax and oil emulsifier; food pkg. adhesives; food-contact paper; ceramic wares; bleaching agent in laundry powds.; water softener; visc. control; corrosion inhibitor; enzyme stabilizer; lubricant carrier in wire drawing; bonding agent in refractories; metallurgical flux; inc. str., scratch and chem. resist. of ceramic wares

*Regulatory:* FDA 21CFR §175.105, 176.180, 181.30; SARA nonreportable, DOT nonregulated

*Properties:* Wh. cryst. gran. or powd.; odorless; sol. in water, glycols; m.w. 291.35; sp.gr. 1.81; vapor pressure negligible (20 C); m.p. < 200 C; pH 9.3 (3%); nonflamm.; > 99% act.

*Toxicology:* OSHA PEL 10 mg/m<sup>3</sup> total dust; LD50 (oral, rat) 3200-3400 mg/kg; (skin, rabbit) > 2000 mg/kg; LC50 (inh., rat) > 2.0 mg/l; low acute oral and dermal toxicity; inh. @ > 10 mg/m<sup>3</sup> may cause mild irritation to nose and throat; TSCA listed

*Environmental:* EC50 (Daphnia magna, 24 h) 242 mg; lg. amts. can be harmful to plants and other species

*Precaution:* Reacts as weak acid which may cause corrosion of base metals; incompat. with strong reducing agents which will generate hydrogen gas

NFPA: Health 0; Flammability 0; Reactivity 0

*Storage:* Rec. dry indoor storage @ R.T.

#### Neocin™-HSC [Dr. W. Kolb AG]

*Chem. Descrip.:* Sulfuric acid and low-foaming surfactants

*Uses:* Cleaner, dispersant for removal of inorganic deposits with org. constituents in paper processing

*Properties:* Nonionic

#### NeoCryl® A-630 [NeoResins]

*Chem. Descrip.:* Acrylic copolymer

CAS 25133-97-5

*Uses:* Used in high gloss coatings for metal, paper, and plastics; water-borne, air-dry acrylic; can be flow coated, dipped, or sprayed

*Properties:* Dens. 8.6 lb/gal; visc. 600 cps; pH 7.5-8.0; Sward hardness 50 (7 days); 44% NV

#### NeoCryl® B-728 [NeoResins]

*Chem. Descrip.:* Methacrylate homopolymer

*Uses:* Used in lacquers for vinyl films, tiles, fabrics, metals, paper, and wood, barrier coats, inks, adhesives; used with sol'n. vinyls, NC; solid, thermoplastic acrylic; hard and durable film

*Properties:* Beads; sp.gr. 1.19; visc. 1200 cps (35% MEK); R&B soften. pt. > 200 C; Sward hardness 60 (7 days); 98% NV

#### NeoCryl® BT-175 [NeoResins]

*Chem. Descrip.:* Acrylic polymer

CAS 25133-97-5

*Uses:* Used in flexographic and gravure inks for paper, film, foil, and board coatings; grinding vehicle for aq. coatings; water-borne, heat cured acrylic; exc. pigment wetting

*Properties:* Alkali soluble; dens. 8.8 lb/gal; visc. 100 cps; pH 4.0; 40% NV

#### Neodene® 12/14 [Shell]

*Chem. Descrip.:* C12-C14 alpha olefin blend

CAS 64743-02-8; EINECS/ELINCS 272-492-7

*Uses:* Intermediate for biodeg. surfactants and specialty industrial chems.; for lube additives and paper sizing

*Properties:* Liq.; 100% conc.

*Environmental:* Biodeg.

#### Neodene® 14/16 [Shell]

*Chem. Descrip.:* C14-C16 alpha olefin blend

CAS 64743-02-8; EINECS/ELINCS 272-493-2

*Uses:* Intermediate for biodeg. surfactants and specialty industrial chems.; for lube additives and paper sizing

*Properties:* Liq.; 100% conc.

*Environmental:* Biodeg.

#### Neodene® 15/18 [Shell]

*Chem. Descrip.:* Internal olefin

*Uses:* Intermediate for paper sizing, drilling muds

#### Neodene® 16/18 [Shell]

*Chem. Descrip.:* C16-C18 alpha olefin blend

CAS 64743-02-8; EINECS/ELINCS 272-494-8

*Uses:* Intermediate for biodeg. surfactants, specialty industrial chems., lube additives, and paper sizing

*Properties:* Liq.; 100% conc.

*Environmental:* Biodeg.

#### Neodene® 20/22/24 [Shell]

*Chem. Descrip.:* C20-C24 alpha olefin blend

CAS 64743-02-8

*Uses:* Intermediate for biodeg. surfactants, specialty industrial chems., lube additives, and paper sizing

*Properties:* Liq.; 100% conc.

*Environmental:* Biodeg.

**Neonal™-HSC** [Dr. W. Kolb AG]

*Chem. Descrip.:* Soda lye and low-foaming surfactants

*Uses:* Cleaner, dispersant for removal of organic deposits with inorg. constituents in paper processing

*Properties:* Nonionic

**Neoprene Latex 654** [DuPont; DuPont Canada]

*Chem. Descrip.:* Anionic, high solids, colloidal system containing a low-modulus polychloroprene homopolymer

CAS 9010-98-4

*Uses:* For heat activated and laminating adhesives, coatings, impregnated paper, and bonded batts

*Properties:* 59% solids

**Neoprene Latex 735A** [DuPont; DuPont Canada]

*Chem. Descrip.:* Anionic colloidal system containing a low-modulus, slow crystallizing polychloroprene homopolymer

CAS 9010-98-4

*Uses:* For mfg. of cellulose and asbestos paper, blending with other Neoprene latexes to improve wet-gel strength; used for adhesives, bonded batts, coatings, saturants

*Properties:* Visc. 5 cps; pH 11.5; 45% solids; 38.5% chlorine

**Neoprene Latex 842A** [DuPont; DuPont Canada]

*Chem. Descrip.:* Anionic colloidal system containing chloroprene copolymer

CAS 9010-98-4

*Uses:* Used for sat. cellulose paper, coatings, curled hair, laminating adhesives, elasticized aluminous cement, dipped goods; versatile latex

*Properties:* Visc. 15 cps; pH 12.0; 50% solids; 37.5% chlorine

**NeuRoz® 426** [Plasmine Tech.]

*Chem. Descrip.:* Rosin aq. disp.

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for papermaking incl. wh. papers, deep colors, virgin linerboard, and 100% OCC furnishes; component of paper/paperboard in contact with aq./fatty/dry foods; effective at pH 4.0-7.5; cost effective; exc. stability

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Milky wh. disp.; sl. odor; disp. in water; sp.gr. 1.07; dens. 8.9 lb/gal; visc. 50 cps; m.p. 0 C; b.p. 100 C; flash pt. nonflamm.; pH 3.0; 40% total solids; cationic

*Toxicology:* May cause eye irritation and reddening, itching, inflamm. of skin and eyes; prolonged skin contact may cause irritation and dermatitis; inh. may cause respiratory tract irritation, coughing; ing. may irritate digestive tract

*Precaution:* Avoid contact with strong oxidizers

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, trace NO<sub>x</sub>

HMIS: Health 2; Flammability 0; Reactivity 0

*Storage:* 6 mos shelf life; store @ 40-90 F; keep from freezing, but if accidentally frozen, mix thoroughly

**NeuRoz® 540** [Plasmine Tech.]

*Chem. Descrip.:* Rosin aq. emulsion

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for acid papermaking; component of paper/paperboard in contact with aq./fatty/dry foods; effective at pH 4.5-5.5; exc. stability

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Milky wh. emulsion; odorless; disp. in water; sp.gr. 1.05; dens. 8.7 lb/gal; visc. < 100 cps; b.p. 212 F; flash pt. nonflamm.; pH 5.5-6.5; 40% total solids; anionic

*Toxicology:* No health hazards known; avoid skin and eye contact

*Precaution:* Keep away from heat, strong alkali and strong acid

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 6 mos shelf life; store @ 40-90 F; keep from freezing, but if accidentally frozen, mix thoroughly

**NeuRoz® 700** [Plasmine Tech.]

*Chem. Descrip.:* Rosin emulsion

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Internal sizing agent for neutral papermaking incl. recycled fiber; component of paper/paperboard in contact with aq./fatty/dry foods; suitable with and without calcium carbonate; exc. mech. stability

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Milky wh. emulsion; odorless; disp. in water; sp.gr. 1.05; dens. 8.7 lb/gal; visc. < 100 cps; b.p. 212 F; flash pt. nonflamm.; pH 6-7; 40% total solids; anionic

*Toxicology:* No health hazards known; avoid skin and eye contact

*Precaution:* Keep away from heat, strong alkali and strong acid

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 6 mos shelf life; store @ 40-90 F away from heat

**NeuRoz® XC-7** [Plasmine Tech.]

*Chem. Descrip.:* Rosin disp.

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Internal sizing agent for papermaking; component of paper/paperboard in contact with aq./fatty/dry foods; effective from pH 4.5-8.5, with or without CaCO<sub>3</sub> in furnish; exc. stability; patented

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Milky wh. disp.; odorless; disp. in water; sp.gr. 1.05; dens. 8.67 lb/gal; visc. 500 cps; b.p. 212 F; flash pt. nonflamm.; 35% total solids; cationic

*Toxicology:* No health hazards known; avoid skin and eye contact

*Precaution:* Keep away from heat, strong alkali and strong acid

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 6 mos shelf life; store @ 40-90 F; keep from freezing; if accidentally frozen, mix thoroughly

**Neutros®** [Eka Chems.]

*Chem. Descrip.:* Rosin disp., casein-stabilized

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for internal sizing of all kinds of paper and board in pH range of 4-6

*Properties:* Anionic

**Neutros® Extra** [Eka Chems.]

*Chem. Descrip.:* Rosin disp., casein-stabilized

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for internal sizing of all kinds of paper and board; formulated for sizing in neutral or sl. alkaline conditions in presence of CaCO<sub>3</sub> and under elevated stock temps.

*Properties:* Anionic

**Nevchem® 70** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot-melt pressure-sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable); inks; rubber (cements, mechanical and molded goods, tires); concrete-curing compds.; caulking compds.; processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 430; sp.gr. 1.02; soften. pt. (R&B) 72 C; iodine no. (Wijs) 70; flash pt. (COC) 415 F

**Nevchem® 100** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot-melt pressure-sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable); inks; rubber (cements, mechanical and molded goods, tires); concrete-curing compds.; caulking compds.; plasticizer, softener, processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 640; sp.gr. 1.063; soften. pt. (R&B) 103 C; iodine no. (Wijs) 100; flash pt. (COC) 455 F

**Nevchem® 110** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot melt pressure sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable), inks, rubber (cements, mechanical and molded goods, tires), concrete-curing compds., caulking compds.; processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 715; sp.gr. 1.064; soften. pt. (R&B) 110 C; iodine no. (Wijs) 100; flash pt. (COC) 465 F

**Nevchem® 120** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot melt pressure sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable), inks, rubber (cements, mechanical and molded goods, tires), concrete-curing compds., caulking compds.; processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 880; sp.gr. 1.070; soften. pt. (R&B) 120 C; iodine no. (Wijs) 100; flash pt. (COC) 475 F

**Nevchem® 130** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot melt pressure sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable), inks, rubber (cements, mechanical and molded goods, tires), concrete-curing compds., caulking compds.; processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1092; sp.gr. 1.076; soften. pt. (R&B) 130 C; iodine no. (Wijs) 107; flash pt. (COC) 510 F

**Nevchem® 140** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot melt pressure sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable), inks, rubber (cements, mechanical and molded goods, tires), concrete-curing compds., caulking compds.; processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1110; sp.gr. 1.080; soften. pt. (R&B) 140 C; iodine no. (Wijs) 107; flash pt. (COC) 520 F

**Nevchem® 150** [Neville]

*Chem. Descrip.:* Alkylated petrol. hydrocarbon resin

*Uses:* Adhesives (hot melt pressure sensitive, mastic); coatings (aluminum, emulsion, industrial, marine, paper, traffic, wire/cable), inks, rubber (cements, mechanical and molded goods, tires), concrete-curing compds., caulking compds.; processing aid in rubber compds.; food-contact adhesives, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1200; sp.gr. 1.09; soften. pt. (R&B) 150 C; iodine no. (Wijs) 107; flash pt. (COC) 550 F

**Nevex® 100** [Neville]

*Chem. Descrip.:* Modified hydrocarbon resin

*Uses:* Compatibilizer for wax and ethylene-vinyl acetate systems; in adhesives (hot-melt, hot-melt pressure-sensitive, mastic, pressure-sensitive); coatings (can & drum, industrial, paper); rubber (cements, mechanical and molded goods, tires); reinforcing agent, processing aid, dispersant, softener for NR, SBR; food-contact adhesives, coatings, paper, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 12 (50% in toluene) solid, flake; sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 640; sp.gr. 1.120; soften. pt. (R&B) 100 C; acid no. < 1; iodine no. (Wijs) 55; flash pt. (COC) 410 F

**Nevpene® 9500** [Neville]

*Chem. Descrip.:* Modified hydrocarbon resin

*Uses:* Tackifier, plasticizer, softener, process aid for NR, SR, latexes, adhesives (hot-melt, hot-melt pressure-sensitive, mastic, pressure-sensitive), coatings (emulsion, fabric, paper), rubber (cements, mech. goods, molded goods, tires), caulks; food-contact adhesives, coatings, paper, rubber articles, wood preservatives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Gardner 8 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1040; sp.gr. 1.050; soften. pt. (R&B) 95 C; acid no. < 1; iodine no. (Wijs) 97; flash pt. (COC) 450 F

**Nevtac® 10°** [Neville]

*Chem. Descrip.:* Syn. polyterpene resin

CAS 9003-74-1

*Uses:* Tackifier for PP, PE, NR, SIS block copolymers, EVA, polyisoprene,

and butyl rubber used in solv. and hot-melt adhesives, coatings, rubber prods., concrete-curing compds., and caulking compds.; food pkg. pressure-sensitive adhesives, coatings, paper, rubber articles

*Regulatory:* FDA 21 CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 6 (50% in toluene) liq.; sol. in esters, ethers, ketones (except acetone), aromatic, naphthenic, chlorinated, and terpene hydrocarbons; m.w. 363; sp.gr. 0.99; soften. pt. (R&B) 10 C; flash pt. (COC) 400 F

**Nevtac® 80** [Neville]

*Chem. Descrip.:* Syn. polyterpene resin

CAS 9003-74-1

*Uses:* Tackifier for PP, PE, NR, SIS block copolymers, EVA, polyisoprene, and butyl rubber used in solv. and hot-melt adhesives, coatings, rubber prods., concrete-curing compds., and caulking compds.; food pkg. pressure-sensitive adhesives, coatings, paper, rubber articles

*Regulatory:* FDA 21 CFR §175.125, 175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 5 (50% in toluene) solid; sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1070; sp.gr. 0.97; soften. pt. (R&B) 81 C; flash pt. (COC) 440 F

**Nevtac® 100** [Neville]

*Chem. Descrip.:* Syn. polyterpene resin

CAS 9003-74-1

*Uses:* Tackifier for PP, PE, NR, SIS block copolymers, EVA, polyisoprene, and butyl rubber used in solv. and hot-melt adhesives, coatings, rubber prods., concrete-curing compds., and caulking compds.; food pkg. pressure-sensitive adhesives, coatings, paper, rubber articles

*Regulatory:* FDA 21 CFR §175.125, 175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 3+ (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1215; sp.gr. 0.97; soften. pt. (R&B) 101 C; flash pt. (COC) 450 F

**Nevtac® 115** [Neville]

*Chem. Descrip.:* Syn. polyterpene resin

CAS 9003-74-1

*Uses:* Tackifier for PP, PE, NR, SIS block copolymers, EVA, polyisoprene, and butyl rubber used in solv. and hot-melt adhesives, coatings, rubber prods., concrete-curing compds., and caulking compds.; food pkg. pressure-sensitive adhesives, coatings, paper, rubber articles

*Regulatory:* FDA 21 CFR §175.125, 175.105, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2600

*Properties:* Gardner 6 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1405; sp.gr. 0.99; soften. pt. (R&B) 114 C; flash pt. (COC) 460 F

**Newpelt-1000** [NOF]

*Chem. Descrip.:* Alkyl ketene dimer

*Uses:* Sizing agent for paper industry; neutral

*Properties:* Lt. yellowish solid

**Newrex Paste H** [NOF]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent for textile scouring, industrial cleaners, food industry; dispersant for pulp/paper, dyestuffs, pigments, petrol. and tar; anticaking agent in agric.; molding additive in ceramics; emulsifier for plastics and rubber; antidust agent for mining industry

*Properties:* Lt. yel. paste; anionic

**Newrex Powd. F** [NOF]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent for textile scouring, industrial cleaners, food industry; dispersant for pulp/paper, petrol. and tar industries; anticaking agent in agric.; molding additive in ceramics; antidust agent for mining industry

*Properties:* Wh. powd.; anionic

**Newrex R** [NOF]

*Chem. Descrip.:* Sodium n-dodecylbenzene sulfonate (soft type)

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent for cosmetic shampoos, textile scouring, industrial cleaners, food industry; dispersant for pulp/paper, petrol. and tar industries; anticaking agent in agric.; molding additive in ceramics; emulsifier for plastics and



- rubber; additive in coal mining  
*Properties:* Lt. yel. paste; anionic
- Niccadine 400** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special polyamide resin  
*Uses:* Drier adhering agent for paper making process for thin papers such as tissues and toilet rolls  
*Use Level:* Mod. diluted sol'n. to riffer, head box, etc. for total of 0.1-0.5% per pulp or spray mod. diluted sol'n. to dryer  
*Properties:* Straw colored transparent liq.; pH 6.5
- Niccasolt FT-1** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Pitch control agent for pulp making process; prevents pitch trouble when applied to continuous washing to felt  
*Properties:* Colorless transparent liq.; pH 6.5 (5%); cationic
- Niccasolt O-2** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Special activator  
*Uses:* Pitch control agent for pulp making process; prevents pitch trouble by removing resins in oxygen bleaching tower  
*Use Level:* > 0.05% to pulp during oxygen mixing  
*Properties:* Yellowish transparent liq.; pH 10 (5%); nonionic
- Niccasolt PTOL** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Acrylic polymer  
*Uses:* Pitch control agent for pulp making process; prevents re-coagulation of pitch and lowers its tackiness; proves effective at low concs., and more so when talc, etc. are jointly used  
*Use Level:* 0.02-0.1% per pulp to mixing chest and machine chest  
*Properties:* Lt. brownish wh. visc. liq.; pH 5 (5%); cationic
- Niccasunclean FP-100** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Nat. extracts, activator  
*Uses:* Felt detergent for papermaking process; of surfactant and nat. solv. type, provides outstanding results used in continuous and intermittent washing  
*Use Level:* Shower 0.03-0.1% diluted sol'n. continuously  
*Properties:* Straw colored limpid visc. liq.; pH 12; nonionic
- Niccasunclean TA** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Compd. of inorg. acid, activator  
*Uses:* Felt detergent for papermaking process; of acid type for blended felts, low foaming; provides outstanding results used in continuous washing  
*Use Level:* Shower 0.03-0.1% diluted sol'n. continuously  
*Properties:* Straw colored transparent liq.; pH 2 (1%); nonionic
- Nipabenzyl** [Nipa Inc; Nipa Labs]  
*Chem. Descrip.:* Benzylparaben  
 CAS 94-18-8; EINECS/ELINCS 202-311-9  
*Uses:* Preservative, bactericide, fungicide for pharmaceuticals, cosmetics, foods, medicinal preps., industrial applics.; chemical intermediate; color developing agent for heat-sensitive recording papers  
*Regulatory:* BP, NF, Eur.Ph., FCC compliance  
*Properties:* Wh. fine cryst. powd., odorless, tasteless; sol. (g/100 g solv.) 102 g acetone, 79 g methanol, 72 g ethanol, 60 g lanolin, 42 g ether; m.w. 228.25; m.p. 110-112 C; 99% assay  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; nonirritating to skin, sl. harmful by ingestion, sl. irritating to eyes
- Nipacide® BIT 10** [Nipa Inc]  
*Chem. Descrip.:* 1,2-Benzisothiazolin-3-one sol'n. (9.5%)  
 CAS 2634-33-5; EINECS/ELINCS 220-120-9  
*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; glycol-based; effective against yeast; stable to light and at pH 2-12; nonflamm.; nonexplosive  
*Use Level:* 0.2-0.4%  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA reg. no. 49403-26; BGA XIV, XXXVI  
*Properties:* Beige to brn. clear liq.; misc. with water and oil; pH 8-9 (0.1% aq.)  
*Toxicology:* Low toxicity  
*Storage:* Store @ 4-40 C away from direct sunlight
- Nipacide BIT 10A** [Nipa Inc; Nipa Labs]  
*Chem. Descrip.:* 1,2-Benzisothiazolin-3-one  
 CAS 2634-33-5; EINECS/ELINCS 220-120-9  
*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions, fountain sol'n.s., metalworking fluids, and latexes, emulsion paints, water-based adhesives, casein and rosin disp., textile spin-finish sol'n.s., metalworking fluids, fountain sol'n.s., min. slurries, pigment disp., water treatment, textile coatings and sol'n.s., leather applics.; food pkg. adhesives, paper; slimicide in food-contact paper; effective against yeast; stable to light and at pH 2-12; nonflamm.; nonexplosive  
*Use Level:* 0.04-0.09% (latexes), 0.04-0.18% (o/w emulsions), 0.04-0.26% (emulsion paint, in-can preservation), 0.02-0.09% (adhesives), 0.03-0.09% (paper coatings)  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA reg. no. 49403-14; BGA XIV, XXXVI  
*Properties:* Beige to brn. clear or faintly turbid liq.; misc. with water and oil; sp.gr. 1.18; visc. 225 cps; flash pt. (Seta) > 93.3 C; pH 8-9 (0.1% aq.)  
*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; low toxicity; components are known sensitizers; in conc. form may cause chem. burns, skin and eye irritation and/or skin sensitization; harmful if swallowed or absorbed thru skin  
*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate  
*Precaution:* Corrosive  
*Storage:* Store @ 4-40 C away from direct sunlight in dry place in closed containers; do not store @ elevated temps.; keep from freezing
- Nipacide® BIT AS** [Nipa Inc; Nipa Labs]  
*Chem. Descrip.:* 1,2-Benzisothiazolin-3-one (33%) aq. sol'n.  
 CAS 2634-33-5; EINECS/ELINCS 220-120-9  
*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; water-based; effective against yeast; stable to light and at pH 2-12; nonflamm.; nonexplosive  
*Use Level:* 0.1-0.2%  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; BGA XIV, XXXVI  
*Properties:* Buff opaque liq.; sol. in water @ 10% (disperses above this level); insol. in oil; pH 6.6-7.5 (0.1% aq.)  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; low toxicity; components are known sensitizers  
*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate  
*Precaution:* Corrosive  
*Storage:* Store @ 4-40 C away from direct sunlight
- Nipacide® BKX** [Nipa Inc; Nipa Labs]  
*Chem. Descrip.:* Chlorinated/nonchlorinated isothiazolinones and bromonitropropanediol  
*Uses:* Biocide, bactericide, fungicide for aq. prods. incl. adhesives, polymer emulsions, metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; water-based; stable to light and at pH 4-9; nonflamm.; nonexplosive  
*Use Level:* 0.1-0.2%  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; BGA XIV, XXXVI  
*Properties:* Pale yel. clear liq.; misc. with water; insol. in oil; pH 7 (0.1% aq.)  
*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; low toxicity; components are not known sensitizers  
*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate  
*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® CBX A** [Nipa Inc]

*Chem. Descrip.:* Benzisothiazolinone, chlormethyl isothiazolinone, and methyl isothiazolinone aq. disp.

*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; effective against yeast; stable to light and at pH 4-10; nonflamm.; nonexplosive

*Use Level:* 0.1-0.2%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; BGA XIV, XXXVI

*Properties:* Buff opaque liq.; misc. with water; insol. in oil; pH 7 (0.1% aq.)

*Toxicology:* LD50 (oral, rat) 2000 mg/kg; low toxicity; components are known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Precaution:* Corrosive

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® CFX2** [Nipa Labs]

*Chem. Descrip.:* Chlorinated and nonchlorinated isothiazolinones plus ethyl glycol bis hemiformal

*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact polymer emulsions; slimicide for food-contact paper mfg.; water-based; effective against yeast; esp. rec. for use at high ambient temps.; stable to light and at pH 4-10; nonflamm.; nonexplosive

*Use Level:* 0.1-0.3%

*Regulatory:* BGA XIV, XXXVI

*Properties:* Yel. clear liq.; misc. with water; insol. in oil; pH 7.5 (0.1% aq.)

*Toxicology:* LD50 (oral, rat) 2531 mg/kg; low toxicity; components are known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Precaution:* Corrosive

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® CFX3** [Nipa Labs]

*Chem. Descrip.:* Chlorinated and nonchlorinated isothiazolinones plus ethyl glycol bis hemiformal

*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact polymer emulsions; slimicide for food-contact paper mfg.; water-based; effective against yeast; esp. rec. for use at high ambient temps.; stable to light and at pH 4-10; nonflamm.; nonexplosive

*Use Level:* 0.1-0.3%

*Regulatory:* BGA XIV, XXXVI

*Properties:* Yel. clear liq.; misc. with water; insol. in oil; pH 7.5 (0.1% aq.)

*Toxicology:* LD50 (oral, rat) 3965 mg/kg; low toxicity; components are known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Precaution:* Corrosive

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® CI** [Nipa Inc]

*Chem. Descrip.:* Chlormethyl isothiazolinone and methyl isothiazolinone

*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; water-based; effective against yeast; stable to light and at pH 4-9; nonflamm.; nonexplosive

*Use Level:* 0.01-0.03%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; BGA XIV, XXXVI

*Properties:* Yel. clear liq.; misc. with water; insol. in oil; pH 7.5 (0.1% aq.); 14% act.

*Toxicology:* LD50 (oral, rat) 3965 mg/kg; low toxicity; components are known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Precaution:* Corrosive

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® CI 15** [Nipa Inc]

*Chem. Descrip.:* Chlormethyl isothiazolinone and methyl isothiazolinone, stabilized sol'n.

*Uses:* Industrial biocide, preservative, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; water-based; effective against yeast; stable to light and at pH 4-9; nonflamm.; nonexplosive

*Use Level:* 0.1-0.3%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; BGA XIV, XXXVI

*Properties:* Yel. clear liq.; misc. with water; insol. in oil; pH 7.5 (0.1% aq.); 1.5% act.

*Toxicology:* LD50 (oral, rat) 3965 mg/kg; low toxicity; components are known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® FC** [Nipa Labs]

*Chem. Descrip.:* 1,2-Ethanedithiolbis (oxy) bismethanol conc.

*Uses:* Biocide, bactericide, fungicide for adhesives, polymer emulsions, fountain sol'n.s., metalworking fluids, and paints; preservative for food-contact polymer emulsions; slimicide for food-contact paper mfg.; stable to light and at pH 6-10; nonflamm.; nonexplosive

*Use Level:* 0.1-0.3%

*Regulatory:* BGA XIV, XXXVI

*Properties:* Clear liq.; misc. with water; insol. in oil; pH 7.0 (0.1% aq.)

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; low toxicity; components are not known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Precaution:* Corrosive

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipacide® OPP** [Nipa Inc]

*Chem. Descrip.:* o-Phenyl phenol

CAS 90-43-7; EINECS/ELINCS 201-993-5

*Uses:* Disinfectant, preservative for detergents, cooling lubricants, textile/leather finishing, adhesives, paper, citrus fruit, polishes, wax emulsions, ceramic glazes, soap sol'n.s.

*Use Level:* 0.15-1.3% (citrus dips); 10-15% (disinfectant concs.), 0.1-0.2% (cooling lubricants), 0.08-2% (adhesives)

*Properties:* Cream to wh. flakes, sl. phenolic odor; sol. (g/100 g): 800 g in methanol, 660 g acetone, 590 g ethanol, 490 g ether, 300 g propylene glycol, 275 g ethylene glycol, 270 g benzene; m.w. 170; bulk dens. 0.60-0.65; m.p. 56-58 C; b.p. 286 C; flash pt. (COC) 138 C; 99.5% min. purity

*Toxicology:* LD50 (rats) 2000 mg/kg; harmful by ingestion; corrosive to skin and eyes

*Storage:* Unlimited shelf life if protected from light and moisture; keep containers tightly closed

**Nipacide® XRP** [Nipa Inc; Nipa Labs]

*Chem. Descrip.:* Chlorinated/nonchlorinated isothiazolinones and bromonitropropanediol

*Uses:* Biocide, bactericide, fungicide for water-based prods. incl. adhesives, polymer emulsions, metalworking fluids, and paints; preservative for food-contact adhesives, paper, polymer emulsions; slimicide for food-contact paper mfg.; water-based; effective against yeast; stable to light and at pH 4-9; nonflamm.; nonexplosive

*Use Level:* 0.1-0.2%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; BGA XIV, XXXVI

*Properties:* Pale yel. clear liq.; misc. with water; insol. in oil; pH 7.0 (0.1% aq.)

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; low toxicity; components are not known sensitizers

*Environmental:* Biodeg. when diluted below the min. inhibitory conc.; does not bioaccumulate

*Precaution:* Corrosive

*Storage:* Store @ 4-40 C away from direct sunlight

**Nipolon** [Tosoh]

*Chem. Descrip.:* LDPE

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* For blown film (pkg., heavy-duty bags, agric. film, diaper backings,

stretch film, shrink film), extrusion coating and laminating (kraft papers, milk carton stocks, box liners), blow molding, inj. molding (housewares, artificial flowers); offers superior elasticity, transparency, shock resist., and processing chars.

**Nipolon-L** [Tosoh]

*Chem. Descrip.:* LLDPE  
CAS 9002-88-4

*Uses:* For blown film (pkg., heavy-duty bags, agric. film, diaper backings, stretch film, shrink film), extrusion coating and laminating (kraft papers, milk carton stocks, box liners), blow molding, inj. molding (housewares, artificial flowers); offers superior elasticity, transparency, shock resist., and processing chars.

**Nipolon®-Z** [Tosoh]

*Chem. Descrip.:* LLDPE  
CAS 9002-88-4

*Uses:* For blown film (general purpose pkg., heavy duty bags, agric. film, diaper backings, stretch film, shrink film), extrusion coating and laminating (kraft papers, milk carton stocks, polymeric film, box liners), blow molding (box liners); inj. molding (housewares, artificial flowers)

**Nirez® 7042** [Arizona]

*Chem. Descrip.:* Terpene phenolic resin

*Uses:* Tackifier for food-contact adhesives/pressure-sensitive adhesives/resinous and polymeric coatings/paper/paperboard, and closures with sealing gaskets; environmentally friendly

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 5 color; soften. pt. (R&B) 147 C

**Nissan Cation AB** [NOF]

*Chem. Descrip.:* Octadecyl trimethyl ammonium chloride  
CAS 112-03-8; EINECS/ELINCS 203-929-1

*Uses:* Germicide (duckweed killer), dispersant, coagulant in water treatment, petrol., paper, and textile industries; antistat in plastics, pulp/paper industries; pigment coating agent; textile softener; emulsifier in photography; germicide in foods, fermentation

*Properties:* Lt. yel. liq.; 23% min. act.; cationic

**Nissan Cation BB** [NOF]

*Chem. Descrip.:* Dodecyl trimethyl ammonium chloride  
CAS 112-00-5; EINECS/ELINCS 203-927-0

*Uses:* Germicide (duckweed killer) for water treatment, petroleum industry; antistat, softener, germicide for textiles, pulp/paper; plastics antistat; detergent sanitizer; rinse agent; pigment coating agent; germicide for food prep., fermentation; emulsifier for photography

*Properties:* Lt. yel. liq.; 30% min. act.; cationic

**Nissan Cation F2-20R** [NOF]

*Chem. Descrip.:* Coco-alkyl dimethyl benzyl ammonium chloride

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in water treatment, petroleum, textile, and paper industries; antistat in plastics, pulp/paper; germicide in foods and fermentation

*Properties:* Colorless liq.; 19-21% act.; cationic

**Nissan Cation F2-40E** [NOF]

*Chem. Descrip.:* Coco-alkyl dimethyl benzyl ammonium chloride

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in water treatment, petroleum, textile, and paper industries; antistat in plastics, pulp/paper; germicide in foods and fermentation

*Properties:* Colorless liq.; 40-44% min. act.; cationic

**Nissan Cation F2-50** [NOF]

*Chem. Descrip.:* Coco-alkyl dimethyl benzyl ammonium chloride

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in water treatment, petroleum, textile, and paper industries; antistat in plastics, pulp/paper; germicide in foods and fermentation

*Regulatory:* JP compliance

*Properties:* Lt. yel. liq.; 50% min. act.; cationic

**Nissan Cation F2-50E** [NOF]

*Chem. Descrip.:* Coco-alkyl dimethyl benzyl ammonium chloride

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in water treatment, petroleum, textile, and paper industries; antistat in plastics, pulp/paper; germicide in foods and fermentation

*Regulatory:* JP compliance

*Properties:* Colorless liq.; 48-52% min. act.; cationic

**Nissan Cation F2-CONC.** [NOF]

*Chem. Descrip.:* Coco-alkyl dimethyl benzyl ammonium chloride

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in

water treatment, petroleum, textile, and paper industries; antistat in plastics, pulp/paper; germicide in foods and fermentation

*Properties:* Lt. yel. visc. liq.; 93% min. act.; cationic

**Nissan Cation FB** [NOF]

*Chem. Descrip.:* Coco-alkyl trimethyl ammonium chloride

CAS 61789-18-2; EINECS/ELINCS 263-038-9

*Uses:* Germicide (duckweed killer) for water treatment, petroleum industry; antistat, softener, germicide for textiles, pulp/paper; plastics antistat; detergent sanitizer; rinse agent; pigment coating agent; germicide for food prep., fermentation; emulsifier for photography

*Properties:* Lt. yel. liq.; 30% min. act.; cationic

**Nissan Cation M2-100** [NOF]

*Chem. Descrip.:* Tetradecyl dimethyl benzyl ammonium chloride

CAS 139-08-2; EINECS/ELINCS 205-352-0

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in water treatment, petroleum, textile, and paper industries; antistat in plastics, pulp/paper; germicide in foods

*Properties:* Wh. or lt. yel. cryst. powd.; 85% min. act.; cationic

**Nissan Cation MA** [NOF]

*Chem. Descrip.:* Tetradecylamine acetate

*Uses:* Corrosion inhibitor and germicide (duckweed killer) in water treatment and petrol. industries; pigment dispersant in paints; corrosion inhibitor in metals; asphalt emulsifier; antistat, germicide for textiles; powd. coating agent; mold release for rubber; ore flotation; plastics antistat; softener, germicide for pulp/paper

*Properties:* Wh. to lt. yel. flake; solid. pt. 60-72 C; amine no. 195 ± 12; 1% max. moisture; cationic

**Nissan Cation PB-40** [NOF]

*Chem. Descrip.:* Hexadecyl trimethyl ammonium chloride

CAS 112-02-7; EINECS/ELINCS 203-928-6

*Uses:* Germicide (duckweed killer), dispersant, coagulant for water treatment; germicide for petrol. industry, textiles; cosmetic rinses; plastics antistat; antistat, germicide for pulp/paper; emulsifier for photography; germicide for food prep., fermentation

*Properties:* Lt. yel. liq.; 40% min. act.; cationic

**Nissan Cation PB-300** [NOF]

*Chem. Descrip.:* Hexadecyl trimethyl ammonium chloride

CAS 112-02-7; EINECS/ELINCS 203-928-6

*Uses:* Germicide (duckweed killer), dispersant, coagulant for water treatment; germicide for petrol. industry, textiles; cosmetic rinses; plastics antistat; antistat, germicide for pulp/paper; emulsifier for photography; germicide for food prep., fermentation

*Properties:* Lt. yel. liq.; 26-29% act.; cationic

**Nissan Cation S2-100** [NOF]

*Chem. Descrip.:* Octadecyl dimethyl benzyl ammonium chloride

CAS 122-19-0; EINECS/ELINCS 204-527-9

*Uses:* Intermediate for cationic surfactants; germicide (duckweed killer) in water treatment; pigment dispersant in paints; germicide in petrol., textiles; textile softener; cosmetics rinses; antistat in plastics, pulp/paper; germicide in food prep.

*Properties:* Wh. or lt. yel. cryst. powd.; 85% min. act.; cationic

**Nissan Cation SA** [NOF]

*Chem. Descrip.:* Octadecylamine acetate

CAS 2190-04-7

*Uses:* Corrosion inhibitor and germicide (duckweed killer) in water treatment and petrol. industries; pigment dispersant in paints; corrosion inhibitor in metals; asphalt emulsifier; antistat, germicide for textiles; powd. coating agent; mold release for rubber; ore flotation; plastics antistat; softener, germicide for pulp/paper

*Properties:* Wh. to lt. yel. flake; solid. pt. 72-82 C; amine no. 159 ± 9; 1% max. moisture; cationic

**Nissan Cation VB** [NOF]

*Chem. Descrip.:* Docosyl trimethyl ammonium chloride

CAS 17301-53-0; EINECS/ELINCS 241-327-0

*Uses:* Germicide (duckweed killer) for water treatment; germicide for petroleum, textiles, foods, and pulp/paper industries; cosmetics rinse; plastics antistat; softener for textiles

*Properties:* Yellowish paste; 80% min. act.

**Nofluor** [3V/Paper]

*Chem. Descrip.:* Polycationic condensation prod.

*Uses:* Fluorescence quencher for recycled paper, in backwater, or in size-press sol'n.; removes residual fluorescence coming from optical brighteners

*Use Level:* 0.2-0.4%

*Regulatory:* DOT nonregulated; SARA §394.313 nonreportable

*Properties:* Brn. liq.; char. odor; misc. with water; sp.gr. 1.09-1.17; visc. 20-60 mPa·s; vapor pressure 15 mm Hg (20 C); m.p. < 0 C; b.p. ≈ 100 C; flash pt. > 100 C; pH 5.0-6.0

*Toxicology:* Nonirritating to skin/eyes; TSCA listed

*Environmental:* Do not discharge into drains or waterways

*Precaution:* Incompat. with oxidizers

*Hazardous Decomp. Prods.:* On burning, nitrogen and carbon oxides can be produced

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Keep containers tightly closed

#### Nofluor CA [3V/Paper; 3V Sigma]

*Chem. Descrip.:* Polycationic condensation prod.

*Uses:* Fluorescence quencher for recycled paper, or in backwater or size press sol'n.

*Use Level:* 0.25-0.60%

*Regulatory:* DOT nonregulated; SARA nonreportable

*Properties:* Brn. liq.; char. odor; misc. with water; sp.gr. 1.06-1.14; visc. 20-60 cps (20 C); vapor pressure 15 mm Hg (20 C); b.p. 100 C; flash pt. > 100 C; pH 5-6

*Toxicology:* Nonirritating to skin, eyes; TSCA listed

*Environmental:* LC50 (48 h, cararius auratus) 450 mg/l; do not empty into drains, watercourses

*Precaution:* Incompat. with oxidizers

*Hazardous Decomp. Prods.:* On burning, nitrogen and carbon oxides and HCl can form

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Keep tightly closed; freezing may damage prod.

#### Nofluor N [3V/Paper; 3V Sigma]

*Chem. Descrip.:* Polycationic condensation prod.

*Uses:* Fluorescence quencher for recycled paper, or in backwater or size press sol'n.

*Use Level:* 0.2-0.4%

*Regulatory:* DOT nonregulated; SARA nonreportable

*Properties:* Dk. brn. liq.; char. odor; misc. with water; sp.gr. 1.11-1.19; visc. 20-60 cps (20 C); vapor pressure 15 mm Hg (20 C); b.p. 100 C; flash pt. > 100 C; pH 5-6

*Toxicology:* Nonirritating to skin, eyes; TSCA listed

*Environmental:* LC50 (48 h, cararius auratus) 450 mg/l; do not empty into drains, watercourses

*Precaution:* Incompat. with oxidizers

*Hazardous Decomp. Prods.:* On burning, nitrogen and carbon oxides and HCl can form

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Keep tightly closed; freezing may damage prod.

#### Nonatell™ 1052 [Shell]

*Chem. Descrip.:* Proprietary

*Uses:* Deinking surfactant for use on groundwood finish

*Properties:* Liq.; 100% conc.

#### Nonatell™ 1061, 1075, 1088, 1089, 1092 [Shell]

*Chem. Descrip.:* Proprietary

*Uses:* Deinking surfactants

*Properties:* Liqs. (exc. 1075, paste); 100% conc.

#### Nonatell™ 1123 [Shell]

*Chem. Descrip.:* Proprietary

*Uses:* Pulp/paper deinking surfactant for use with newsprint, magazine, and telephone directory furnishes in wash, flotation/wash, and short sequence deinking systems

*Properties:* Liq.; 100% conc.; nonionic

#### Nonionic 1017-R [Lambent Tech.]

*Chem. Descrip.:* Meroxapal 171

CAS 9003-11-6

*Uses:* Surfactant for detergents, textiles, gelatin, wetting agents, antistats, water treatment, antifoams, cosmetics, demulsifiers, pharmaceutical, visc. control, emulsifiers, dedusters, dispersants, pulp/paper, lubricants, agric., dishwashing rinse aids, cutting and grinding oils, paints; low foaming

*Properties:* Colorless clear liq.; sol. in oil; m.w. 1900; sp.gr. 1.02; visc. 300 cP; HLB 2.5; cloud pt. 33 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1025-R [Lambent Tech.]

*Chem. Descrip.:* EO/PO block polymer

CAS 9003-11-6

*Uses:* Surfactant, detergent, antifoam, visc. control agent, dispersant, demulsifier for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment, rinse aids (dishwashing); low foaming

*Properties:* Colorless clear liq.; sol. in oil; m.w. 2700; sp.gr. 1.02; visc. 460 cP; HLB 2.1; cloud pt. 27 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1035-L [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 105

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier, visc. modifier, deduster, gellant, dispersant for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints

*Properties:* Liq.; m.w. 1900; sp.gr. 1.06; visc. 375 cP; HLB 18.5; pour pt. 7 C; cloud pt. 77 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1044-L [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 124

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier, visc. modifier, deduster, gellant, dispersant for metalworking lubricants, personal care prods., paints, paper, pharmaceuticals, agric., etc.

*Properties:* Liq.; m.w. 2200; sp.gr. 1.05; visc. 400 cP; HLB 16.0; pour pt. 16 C; cloud pt. 67 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1061-L [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 181

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier, visc. modifier, deduster, gellant, dispersant for metalworking lubricants, personal care prods., paints, paper, agric., textiles, etc.

*Properties:* Liq.; m.w. 2000; sp.gr. 1.02; visc. 300 cP; HLB 3.0; pour pt. -29 C; cloud pt. 24 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1062-L [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 182

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier, visc. modifier, deduster, gellant, dispersant for metalworking lubricants, personal care prods., paints, paper, agric., textiles, etc.

*Properties:* Liq.; m.w. 2500; sp.gr. 1.03; visc. 450 cP; HLB 7.0; pour pt. -4 C; cloud pt. 32 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1064-L [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 184

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier, visc. modifier, deduster, gellant, dispersant for metalworking lubricants, personal care prods., paints, paper, agric., textiles, etc.

*Properties:* Liq.; m.w. 2900; sp.gr. 1.05; visc. 700 cP; HLB 15.0; pour pt. 16 C; cloud pt. 58 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1068-F [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 188

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier, visc. modifier, deduster, gellant, dispersant for metalworking lubricants, personal care prods., paints, paper, agric., textiles, etc.

*Properties:* Flake; m.w. 8400; visc. 1000 cP (77 C); HLB 29.0; pour pt. 52 C; cloud pt. > 100 C (1% aq.); 100% conc.; nonionic

#### Nonionic 1077-F [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 217

CAS 9003-11-6

*Uses:* Surfactant for personal care applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives

*Properties:* Flake; m.w. 6600; visc. 480 cP (77 C); HLB 24.5; pour pt. 48 C; cloud pt. > 100 C (1% aq.); nonionic

#### Nonionic 1087-F [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 237

CAS 9003-11-6

*Uses:* Surfactant for personal care applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives

*Properties:* Flake; m.w. 7700; visc. 700 cP (77 C); HLB 24.0; pour pt. 49 C; cloud pt. > 100 C (1% aq.); nonionic

#### Nonionic 1088-F [Lambent Tech.]

*Chem. Descrip.:* Poloxamer 238

CAS 9003-11-6

*Uses:* Detergent, antifoam, wetting agent, emulsifier, antistat, demulsifier,

- visc. modifier, deduster, gellant, dispersant for metalworking lubricants, personal care prods., paints, paper, agric., textiles, etc.  
*Properties:* Flake; m.w. 11,400; visc. 2300 cP (77 C); HLB 28.0; pour pt. 54 C; cloud pt. > 100 C (1% aq.); 100% conc.; nonionic
- Nonionic 1108-F** [Lambent Tech.]  
*Chem. Descrip.:* Poloxamer 338  
 CAS 9003-11-6  
*Uses:* Surfactant for personal care applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Flake; m.w. 14,600; visc. 2800 cP (77 C); HLB 27.0; pour pt. 57 C; cloud pt. > 100 C (1% aq.); nonionic
- Nonionic 1127-F** [Lambent Tech.]  
*Chem. Descrip.:* Poloxamer 407  
 CAS 9003-11-6  
*Uses:* Surfactant for personal care applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Flake; m.w. 12,600; visc. 3100 cP (77 C); HLB 22.0; pour pt. 56 C; cloud pt. > 100 C (1% aq.); nonionic
- Nonionic 2017-R** [Lambent Tech.]  
*Chem. Descrip.:* Meroxapal 172  
 CAS 9003-11-6  
*Uses:* Detergent, antifoam, dispersant, demulsifier, visc. control agent for personal care prods., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment, dishwashing rinses; low foaming  
*Properties:* Colorless clear liq.; sol. in oil; m.w. 2150; sp.gr. 1.03; visc. 400 cP; HLB 4.1; cloud pt. 38 C (1% aq.); 100% conc.; nonionic
- Nonionic 2025-R** [Lambent Tech.]  
*Chem. Descrip.:* EO/PO block polymer  
 CAS 9003-11-6  
*Uses:* Detergent, antifoam, dispersant, demulsifier, visc. control agent for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, dishwashing rinses  
*Properties:* Liq.; m.w. 3100; sp.gr. 1.04; visc. 680 cP; HLB 3.5; cloud pt. 29 C (1%); 100% conc.; nonionic
- Nonionic 4017-R** [Lambent Tech.]  
*Chem. Descrip.:* EO/PO block polymer  
 CAS 9003-11-6  
*Uses:* Detergent, antifoam, dispersant, demulsifier, visc. control agent for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, dishwashing rinses  
*Properties:* Liq.; m.w. 2650; sp.gr. 1.05; visc. 600 cP; HLB 6.7; cloud pt. 46 C (1%); 100% conc.; nonionic
- Nonionic 4025-R** [Lambent Tech.]  
*Chem. Descrip.:* EO/PO block polymer  
 CAS 9003-11-6  
*Uses:* Detergent, antifoam, dispersant, demulsifier, visc. control agent for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment, dishwashing rinses  
*Properties:* Colorless clear liq.; sol. in oil; liq.; m.w. 3600; sp.gr. 1.05; visc. 1110 cP; HLB 6.0; cloud pt. 40 C (1% aq.); 100% conc.; nonionic
- Nonionic 5025-R** [Lambent Tech.]  
*Chem. Descrip.:* EO/PO block polymer  
 CAS 9003-11-6  
*Uses:* Detergent, antifoam, dispersant, demulsifier, visc. control agent for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment, dishwashing rinses  
*Properties:* Paste; sol. in oil; m.w. 4250; sp.gr. 1.04 (60 C); HLB 9.0; cloud pt. 44 C (1% aq.); 100% conc.; nonionic
- Nonionic 8017R** [Lambent Tech.]  
*Chem. Descrip.:* EO/PO block polymer  
 CAS 9003-11-6  
*Uses:* Surfactant for pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment; low foaming  
*Properties:* Flake; sol. in oil; m.w. 7000; sp.gr. 1.06 (77 C); HLB 13.4; cloud pt. 81 C (1% aq.); nonionic
- Nonionic 8025R** [Lambent Tech.]  
*Chem. Descrip.:* EO/PO block polymer  
 CAS 9003-11-6  
*Uses:* Surfactant for detergents, pulp/paper, cosmetics, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment; low foaming  
*Properties:* Flake; sol. in oil; m.w. 8000; sp.gr. 1.06; cloud pt. 45 C (1% aq.); nonionic
- Nonionic GR-25** [Lambent Tech.]  
*Chem. Descrip.:* PEG-25 castor oil  
 CAS 61791-12-6  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Sol. hazy in water; sp.gr. 1.05; dens. 8.6 lb/gal; HLB 13.0; pour pt. 5 C; nonionic
- Nonionic GR-40** [Lambent Tech.]  
*Chem. Descrip.:* PEG-40 castor oil  
 CAS 61791-12-6  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Sol. in water; sp.gr. 1.05; dens. 8.7 lb/gal; HLB 14.5; pour pt. 14 C; cloud pt. 59-64 C (1%); nonionic
- Nonionic GR-52** [Lambent Tech.]  
*Chem. Descrip.:* PEG-52 castor oil  
 CAS 61791-12-6  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Sol. in water; sp.gr. 1.07; dens. 8.9 lb/gal; HLB 16.0; pour pt. 18 C; cloud pt. 72-76 C (1%); nonionic
- Nonionic L-4** [Lambent Tech.]  
*Chem. Descrip.:* Laureth-4  
 CAS 9002-92-0; EINECS/ELINCS 226-097-1  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Disp. in water; sp.gr. 0.94; dens. 7.9 lb/gal; HLB 9.7; pour pt. 12 C; nonionic
- Nonionic L-12** [Lambent Tech.]  
*Chem. Descrip.:* Laureth-12  
 CAS 9002-92-0; EINECS/ELINCS 221-286-5  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Sol. in water; sp.gr. 1.00; dens. 8.3 lb/gal; HLB 14.7; pour pt. 29 C; cloud pt. 65-68 C (1% in 10% NaCl); nonionic
- Nonionic L-23** [Lambent Tech.]  
*Chem. Descrip.:* Laureth-23  
 CAS 9002-92-0  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Sol. in water; sp.gr. 1.05; dens. 8.7 lb/gal; HLB 16.9; pour pt. 33 C; cloud pt. 75-78 C (1% in 10% NaCl); nonionic
- Nonionic S-2** [Lambent Tech.]  
*Chem. Descrip.:* Steareth-2  
 CAS 9005-00-9  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Nondisp. in water; sp.gr. 0.98; dens. 8.1 lb/gal; HLB 4.9; pour pt. 43 C; cloud pt. 55 C (1%); nonionic
- Nonionic S-10** [Lambent Tech.]  
*Chem. Descrip.:* Steareth-10  
 CAS 9005-00-9  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Disp. in water; sp.gr. 1.02; dens. 8.5 lb/gal; HLB 12.4; pour pt. 38 C; cloud pt. 44 C (1%); nonionic
- Nonionic S-20** [Lambent Tech.]  
*Chem. Descrip.:* Steareth-20  
 CAS 9005-00-9  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Sol. hot in water; sp.gr. 1.04; dens. 8.7 lb/gal; HLB 15.3; pour pt. 38 C; cloud pt. 47 C (1%); nonionic
- Nonionic TD-6** [Lambent Tech.]  
*Chem. Descrip.:* Trideceth-6  
 CAS 24938-91-8  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives  
*Properties:* Disp. in water; sp.gr. 0.99; dens. 8.1 lb/gal; HLB 11.4; pour pt. 16 C; nonionic

**Nonionic TD-12** [Lambent Tech.]*Chem. Descrip.:* Trideceth-12

CAS 24938-91-8

*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives*Properties:* Sol. in water; sp.gr. 1.02; dens. 8.5 lb/gal; HLB 14.5; pour pt. 13 C; cloud pt. 53-60 C (1% in 10% NaCl); nonionic**Nonionic TD-15** [Lambent Tech.]*Chem. Descrip.:* Trideceth-15

CAS 24938-91-8

*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives*Properties:* Sol. in water; sp.gr. 1.04; dens. 8.7 lb/gal; HLB 15.4; pour pt. 16 C; cloud pt. 65-70 C (1%); nonionic**Nonipax AAO** [Pax Group]*Chem. Descrip.:* Alkyl phenol ethoxylate*Uses:* Surfactant, detergent, cleaner, degreaser, emulsifier, dispersant, wetting agent, solubilizer, deinking agent in paper/pulp; high HLB; exc. compat.*Properties:* Liq.; water-sol.; 99% act.; nonionic**Nonipax OP 10** [Pax Group]*Chem. Descrip.:* Octoxynol-10

CAS 9002-93-1

*Uses:* Surfactant, detergent, cleaner, degreaser, emulsifier, dispersant, wetting agent, solubilizer, deinking agent in paper/pulp; high HLB; exc. compat.*Properties:* Liq.; water-sol.; 99% act.; nonionic**Nonipax X 100** [Pax Group]*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* Surfactant, detergent, cleaner, degreaser, emulsifier, dispersant, wetting agent, solubilizer, deinking agent in paper/pulp; high HLB; exc. compat.*Properties:* Liq.; water-sol.; 99% act.; nonionic**Nonipax X 150** [Pax Group]*Chem. Descrip.:* Nonoxynol-15

CAS 9016-45-9

*Uses:* Surfactant, detergent, cleaner, degreaser, emulsifier, dispersant, wetting agent, solubilizer, deinking agent in paper/pulp; high HLB; exc. compat.*Properties:* Liq.; water-sol.; 99% act.; nonionic**Nopalcol 1-L** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-2 laurate

CAS 9004-81-3; EINECS/ELINCS 205-468-1

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; plasticizer, softener for NR, SR, latexes; latex stabilizer, emulsifier; general purpose*Properties:* Straw to amber-colored liq.; faint odor; sp.gr. 0.96; HLB 6.0; acid no. 8-10; iodine no. 9-11; sapon. no. 170-180; 98% act.; nonionic**Nopalcol 4-C** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-8 cocoate

CAS 61791-29-5

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 13.9; 99% act.; nonionic**Nopalcol 4-CH** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-8 cocoate (hyd.)

CAS 61791-29-5

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 13.9; 99% act.; nonionic**Nopalcol 4-L** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-8 laurate

CAS 9004-81-3; EINECS/ELINCS 253-458-0

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 13.1; 99% act.; nonionic**Nopalcol 4-O** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-8 oleate

CAS 9004-96-0

*Uses:* Emulsifier; dispersant for leather pigments; paper coating defoamer, plasticizer and leveling agent; emulsion polymerization*Properties:* Liq.; HLB 11.7; 95% act.; nonionic**Nopalcol 4-S** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-8 stearate

CAS 9004-99-3

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Paste; HLB 11.3; 99% act.; nonionic**Nopalcol 6-DO** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-12 dioleate

CAS 9005-07-6; EINECS/ELINCS 288-459-5

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 12.7; 98% act.; nonionic**Nopalcol 6-DTW** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-12 ditallowate*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Paste; HLB 11.2; 99% act.; nonionic**Nopalcol 6-L** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-12 laurate

CAS 9004-81-3

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 15.0; 99% act.; nonionic**Nopalcol 6-R** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-12 ricinoleate

CAS 9004-97-1

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 13.9; 99% act.; nonionic**Nopalcol 6-S** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-12 stearate

CAS 9004-99-3

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Paste; HLB 13.2; 99% act.; nonionic**Nopalcol 10-COH** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-20 hydrogenated castor oil

CAS 61788-85-0

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 10.3; 99% act.; nonionic**Nopalcol 12-CO** [Cognis/Chems. Group]*Chem. Descrip.:* PEG 1200 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 11.3; 99% act.; nonionic**Nopalcol 12-COH** [Cognis/Chems. Group]*Chem. Descrip.:* PEG 1200 hydrogenated castor oil

CAS 61788-85-0

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 11.3; 99% act.; nonionic**Nopalcol 19-CO** [Cognis/Chems. Group]*Chem. Descrip.:* PEG 1900 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose*Properties:* Liq.; HLB 14.9; 99% conc.; nonionic**Nopalcol 30-TWH** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-60 hydrogenated tallowate



Uses: Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose  
 Properties: Solid; HLB 18.0; 99% act.; nonionic

**Nopalcol 200** [Cognis/Chems. Group]

Chem. Descrip.: PEG 200

CAS 25322-68-3; EINECS/ELINCS 203-989-9

Uses: Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose

Properties: Liq.; 99% act.; nonionic

**Nopalcol 400** [Cognis/Chems. Group]

Chem. Descrip.: PEG 400

CAS 25322-68-3; EINECS/ELINCS 225-856-4

Uses: Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose

Properties: Liq.; 99% act.; nonionic

**Nopalcol 600** [Cognis/Chems. Group]

Chem. Descrip.: PEG 600

CAS 25322-68-3; EINECS/ELINCS 229-859-1

Uses: Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, and thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solv. emulsions; general purpose

Properties: Paste; 99% act.; nonionic

**Nopco® NDW** [Cognis]

Chem. Descrip.: Proprietary organic mineral oil-based blend

Uses: Defoamer for SBR, PVAc, acrylic, water-sol. resins, architectural paints, adhesives, printing inks, latexes, pigment preps., polymerization, cleaners, wallpaper removers; food pkg. adhesives; defoamer in food-contact coatings; broad-spectrum, general-purpose

Use Level: 0.2-1.0% on total wt.

Regulatory: FDA 21CFR §175.105, 176.200; DOT regulated; SARA §311/312 reportable

Properties: Amber slightly hazy liq.; hydrocarbon odor; easily disp. in aq. systems; disp. in all latex and adhesive systems; sp.gr. 0.90; dens. 7.5 lb/gal; visc. 1100 cps; pH 6.5 (2%); flash pt. (PMCC) 79 C; VOC 27.8% (EPA Method 24); 100% act.

Toxicology: May cause skin, eye, and respiratory tract irritation, central nervous system depression; harmful if swallowed or inhaled; TSCA listed

Precaution: Combustible; avoid strong oxidizing agents

Hazardous Decomp. Prods.: CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 2; Reactivity 0

Storage: Store in dry place away from direct heat; may congeal or stratify if cold; allow to warm to R.T., mix well

**Nopco® NXZ** [Cognis]

Chem. Descrip.: Proprietary organic mineral oil-based blend

Uses: Defoamer for use with latex emulsions, waterborne architectural paints, plasters, adhesives (SBR, PVAc, acrylic, water-sol. resins), coating and latex printing; defoamer in atmospheric dyeing, printing and textile finishing processes; defoamer in food-contact paper coatings; food pkg. adhesives; broad-spectrum

Use Level: 0.2-1.0% on total wt.

Regulatory: FDA 21CFR §175.105, 176.200; SARA §311/312 reportable

Properties: Amber hazy liq.; hydrocarbon odor; forms stable wh. emulsions in water; sp.gr. 0.91; dens. 7.6 lb/gal; visc. 1100 cps; pH 7.0 (10%); flash pt. (PMCC) > 93 C; VOC 46.9% (EPA Method 24); 100% act.

Toxicology: May cause skin and eye irritation; harmful if swallowed or inhaled; TSCA listed

Environmental: BOD<sub>5</sub> 265 mg O<sub>2</sub>/g (5.1 mg/l sol'n.); COD 680 mg O<sub>2</sub>/g

Precaution: Avoid strong oxidizing agents

Hazardous Decomp. Prods.: CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

Storage: Stratifies @ ambient temps.; mix well

**Nopco® Color-Sperse® 188A** [Cognis/Coatings & Inks; Cognis KGaA/Coatings; Sidobre-Sinnova SA]

Chem. Descrip.: Ethoxylated fatty acid

Uses: Low-foam surfactant/emulsifier, pigment wetting/dispersing agent; color acceptance agent for industrial coating systems, esp. latex paints; also for solvent-borne architectural paints, printing inks, adhesives, latex; food pkg. adhesives; defoamer in food-contact paper coatings; remedies defoamer-induced film defects; suitable for PVAc, acrylics, S/B, PVC/PVdC, alkyds,

HC resins, NC, PU, epoxy, polyesters

Use Level: 0.1-0.4% on total wt.

Regulatory: FDA 21CFR §175.105, 176.200

Properties: Amber clear liq.; dens. 8.3 lb/gal; visc. 100 cps; VOC 0.4% (EPA Method 24); 100% act.; nonionic

**Nopcogen 22-O** [Cognis/Chems. Group]

Chem. Descrip.: Oleyl imidazoline

CAS 95-38-5

Uses: Emulsifier for min. oil, kerosene, acidic systems; wetting agent, corrosion inhibitor used in textiles, asphalt, paper, agric., car wax formulations, acid detergents

Properties: Amber visc. liq.; sol. in water, acetic acid, HCl; misc. with pine oil and min. oil; cloud pt. 0 C; 90% act.; cationic

**Nopcosant® L** [Cognis/Polymer Surf.]

Chem. Descrip.: Sulfated naphthalene

Uses: Dispersant for aq. systems, NR and SR latex, paints, paper coatings, textiles, and leather; nonfoaming; stable to UV light

Properties: Lt. yel. liq., odorless; water-sol.; sp.gr. 1.18; dens. 9.8 lb/gal; pH 9.6 (5%); 25% solids; anionic

**Nopcosperse® 44** [Cognis/Coatings & Inks; Cognis KGaA/Coatings]

Chem. Descrip.: Sodium polyacrylate

CAS 9003-04-7

Uses: Pigment dispersant for aq. industrial paint systems, printing inks, adhesives, latex; dispersant in PVAc, acrylics, S/B, PVC/PVdC systems; defoamer in food-contact paper coatings; food pkg. adhesives; low foaming; effective without aux. wetting aids

Use Level: 0.5-3.0% based on pigment solids

Regulatory: FDA 21CFR §175.105, 176.200

Properties: Lt. amber clear liq.; sol. in water and glycols; dens. 10.3 lb/gal; visc. 90 cps; pH 7.8; VOC 3.5% (EPA Method 24); 35% act., 65% water; anionic

**Nopcote® 1675** [Geo Spec. Chems./Paper]

Chem. Descrip.: Glyoxal-based

Uses: Coating insolubilizer for use in pigmented paper coatings and size press applics.; renders coating binders more hydrophobic, resulting in improved paper surf. str.; allows reduction of starch solids resulting in improved bulk, opacity, smoothness; component of paper/paperboard in contact with dry foods; formaldehyde-free; stable at ambient temps.

Use Level: 2-4% dry resin on dry binder; 5% dry resin on dry binder (syn. binders)

Regulatory: FDA 21CFR §176.180

Properties: Yel. clear liq.; dens. 10.6 lb/gal; visc. 20-50 cps; pH 4-6; 55% solids

Storage: 6 mos shelf life at ambient temps.; store at 4 C min.; keep containers tightly closed when not in use to avoid loss due to evaporation

**Nopcote® 1680** [Geo Spec. Chems./Paper]

Chem. Descrip.: Ammonium zirconium carbonate

CAS 68309-95-5

Uses: Coating insolubilizer for use in pigmented paper coatings and size press applics.; inc. water resist. of finished sheet, resulting in improved paper surf. str.; food pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; formaldehyde-free; esp. effective in coating colors containing natural binders such as protein and casein; stable at ambient temps.; usable @ 5-70 C

Use Level: 6% dry resin on dry protein/casein; 4% dry resin on dry starch/PVOH/gum; 2% dry resin on dry latex

Regulatory: FDA 21CFR §175.105, 176.170, 176.180

Properties: Clear liq.; ammoniacal odor (dissipates on drying); dens. 10.8 lb/gal; visc. 40 cps; pH 9-9.5; 40% solids

Precaution: Avoid copper contg. alloys in storage/delivery systems

Storage: 6 mos shelf life at ambient temps.; protect from freezing which causes serious damage to prod.

**Nopcote® 3560** [Geo Spec. Chems./Paper]

Chem. Descrip.: LDPE emulsion

CAS 9002-88-4; EINECS/ELINCS 200-815-3

Uses: Lubricant for all pigmented paper coatings and nonpigmented surf. applics. such as size press and calender box; gloss aid for paper; reduces picking and blocking; lowers coeff. of friction; component of paper/paperboard in contact with aq./fatty/dry foods; defoamer in food-contact paper coatings, paper/paperboard; thermally and mechanically stable

Use Level: 0.4-1.2% on wt. of dry coating color solids

Regulatory: FDA 21CFR §176.170, 176.180, 176.200, 176.210

*Properties:* Sl. translucent liq.; readily disp. in hot or cold water; dens. 8.8 lb/gal; visc. 700 cps; pH 8.8; 60% solids

*Storage:* Freezing does not damage prod., but if frozen, warm to R.T. and mix well before use

**Nopcote® 6510 Free** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Calcium stearate aq. disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant, flow control agent, leveling agent for pigmented paper coatings; plasticizer for dry paper coatings to promote highest sheet gloss and smoothness after finishing; prevents dusting at supercalenders and during slitting/printing; food-pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; alkyl phenol ethoxylate-free; stable at ambient temps. and at pH 7.0-10.5; usable @ 32-160 F

*Use Level:* 0.5-1.0% on wt. of dry coating color solids

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Off-wh. opaque liq.; 0.005% max. on 325 mesh; water-disp.; dens. 9.3 lb/gal; visc. 25-100 cps; pH 10.5-12.5; 65% solids

*Storage:* 6 mos min. shelf life at ambient temps.; protect from freezing; if freezing occurs, warm to 20 C and mix well before use

**Nopcote C-104** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Calcium stearate aq. disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant, flow control agent, leveling agent for pigmented paper coatings; plasticizer for dry paper coatings to promote highest sheet gloss and smoothness after finishing; prevents dusting at supercalenders and during slitting/printing; food-pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; urea-free; stable at ambient temps. and at pH 7.0-10.5; usable @ 32-160 F

*Use Level:* 0.5-1.5% on wt. of dry coating color solids

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Wh. opaque liq.; 0.005% max. on 325 mesh; water-disp.; dens. 8.4 lb/gal; visc. 100-300 cps; pH 11-12; 50% solids

*Storage:* 6 mos min. shelf life at ambient temps.; protect from freezing

**Nopcote® C-104-HS** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Calcium stearate aq. disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant, flow control agent, leveling agent for pigmented paper coatings; plasticizer for dry paper coatings to promote highest sheet gloss and smoothness after finishing; prevents dusting at supercalenders and during slitting/printing; food-pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; urea-free; stable at ambient temps. and at pH 7.0-10.5; usable @ 32-160 F

*Use Level:* 0.5-1.5% on wt. of dry coating color solids

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Wh. opaque liq.; 0.005% max. on 325 mesh; water-disp.; dens. 8.6 lb/gal; visc. 150-600 cps; pH 11-12; 55% solids

*Storage:* 6 mos min. shelf life at ambient temps.; protect from freezing

**Nopcote® C-104-HS Free** [Geo Spec. Chems./Paper]

*Chem. Descrip.:* Calcium stearate aq. disp.

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant, flow control agent, leveling agent for pigmented paper coatings; plasticizer for dry paper coatings to promote highest sheet gloss and smoothness after finishing; prevents dusting at supercalenders and during slitting/printing; food-pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods; alkyl phenol ethoxylate-free; urea-free; stable at ambient temps. and at pH 7.0-10.5; usable @ 32-160 F

*Use Level:* 0.5-1.5% on wt. of dry coating color solids

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Wh. opaque liq.; 0.005% max. on 325 mesh; water-disp.; dens. 8.4 lb/gal; visc. 150-600 cps; pH 11-12.5; 55% solids

*Storage:* 6 mos min. shelf life at ambient temps.; protect from freezing

**Nopcote® DC-1153** [Geo Spec. Chems./Paper]

*Uses:* Lubricant for size press or calender stack applics.; corrosion inhibitor for steel rolls; prevents sticking, picking, and blocking of surf. sizing formulations; release agent for Yankee dryers; reduces coeff. of friction (static and dynamic) on all paper and board; component of paper/paperboard in contact with dry foods; defoamer in food-contact paper/paperboard; forms stable emulsions; compat. with all types of starch; for use at neutral to alkaline pH at temps. below 165 F

*Use Level:* 1-10% on dry starch

*Regulatory:* FDA 21CFR §176.180, 176.210

*Properties:* Amber clear liq.; dens. 7.5 lb/gal; visc. 50-100 cps; pH 5-7 (2%

aq.); 98% solids

*Storage:* May congeal or stratify if kept below cloud pt. (32 F) for prolonged periods; warm to R.T. and mix well before use

**Norfox® 90** [Norman, Fox]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Base for industrial and agric. wetting agents and detergents; also used in paper industry

*Properties:* Flakes, gran.; HLB 20.0; 90% conc.; anionic

**Norfox® 92 Granules** [Norman, Fox]

*Chem. Descrip.:* Sodium tallowate

*Chem. Analysis:* Anhyd. sodium tallowate (92%); moisture (6%)

CAS 8052-48-0; EINECS/ELINCS 232-491-4

*Uses:* Base for high temp. laundry soap and soft water cleaning prods.; emulsifier for textile processing; lubricant base in metal stamping and paper coating

*Properties:* Granules; bulk dens. 26.5 lb/ft<sup>3</sup>

*Environmental:* Biodeg.

**Norfox® C-75** [Norman, Fox]

*Chem. Descrip.:* Sulfated castor oil

CAS 8002-33-3; EINECS/ELINCS 232-306-7

*Uses:* Defoamer for oils, waxes, fats, dyes, and pigments; lubricant for metalworking; textile penetrant and leveling agent; defoamer for paper coatings; plasticizer for starch, glues; emulsifier for insol. org. compds.; in cosmetics; assistant for alizarin dyes

*Use Level:* 0.5-1% (paper coatings); 1-2% (paints); 3% (textiles, milling aid and dispersant for pigments)

*Properties:* Amber clear liq.; sol. in water; dens. 8.8 lb/gal; pH 7.3 (5-10%); 25% moisture; 12-15% free fatty acid; anionic

**Norfox® DCS** [Norman, Fox]

*Chem. Descrip.:* Alkylaryl sulfonate modified coconut oil DEA condensate

CAS 61791-31-9; EINECS/ELINCS 263-163-9

*Uses:* Wetting agent and detergent base for textiles, paper, auto and home care prods., shampoos, bubble bath, liq. dishwash, hand soap, car wash; dye dispersant; demulsifier

*Properties:* Straw-colored visc. liq.; bland odor; sp.gr. 1.05; pour pt. 40 F; pH 9.0 (1-5%); 100% act.; anionic/nonionic

*Environmental:* Biodeg.

**Norfox® Sulfated Castor Oil #75** [Norman, Fox]

*Chem. Descrip.:* Sulfated castor oil

CAS 8002-33-3; EINECS/ELINCS 232-306-7

*Uses:* Textile penetrant/leveling agent; defoamer and leveling agent for paper coatings; fat liquor for suede leather; cosmetics additive; plasticizer for starch, glues, etc.; emulsifier for insol. org. compds.

*Properties:* Straw colored liq.; sol. in water; dens. 8.64 lb/gal; pH 7.3 (10%); moisture (30%); free fatty acid (12%); combined sulfur as sulfur trioxide (5%); anionic

**Norpar® 12** [Exxon]

*Chem. Descrip.:* Normal paraffin hydrocarbon solv.

CAS 64771-72-8

*Uses:* Solvent used in aluminum rolling oils; diluent solvent in carbonless copy paper and in spark erosion machining; as clean fuel in lamp oil and barbecue lighter fluids; in pesticides; cleaning and degreasing formulations; food-contact paper/paperboard, rubber articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b); 40CFR §180.1001(c)(e)

*Properties:* Little/no odor; m.w. 163; sp.gr. 0.749 (60/60 F); dens. 6.24 lb/gal (60 F); visc. 1.26 cps; b.p. 192-217 C; flash pt. (ATSM D 93) 73 C; surf. tens. 26.9 dynes/cm; KB value 23; < 0.01% aromatics

*Toxicology:* OEL 300 ppm

*Precaution:* Combustible

**Norpar® 13** [Exxon]

*Chem. Descrip.:* Normal paraffin hydrocarbon solv.

CAS 64771-72-8

*Uses:* Solvent used in aluminum rolling oils; diluent solvent in carbonless copy paper and in spark erosion machining; as clean fuel in lamp oil and barbecue lighter fluids; in pesticides, furniture polishes, cleaning and degreasing formulations; food pkg. rubber articles; defoamer in food-contact paper/paperboard; complies with criteria for LVP solvent

*Regulatory:* FDA 21CFR §176.210, 177.2600, 178.3570, 178.3620(b); 40CFR §180.1001(c)(e)

- Properties:* Little/no odor; m.w. 189; sp.gr. 0.764 (60/60 F); dens. 6.35 lb/gal (60 F); visc. 1.84 cps; b.p. 225-243 C; flash pt. (ATSM D 93) 95 C; surf. tens. 26.7 dynes/cm; KB value 22; < 0.01% aromatics  
*Toxicology:* OEL 300 ppm
- Norpar® 15** [Exxon]  
*Chem. Descrip.:* Normal paraffin hydrocarbon solv.  
CAS 64771-72-8  
*Uses:* Solvent used in aluminum rolling oils; diluent solvent in carbonless copy paper and in spark erosion machining; as clean fuel in lamp oil and barbecue lighter fluids; in pesticides, floor polishes/cleaners, liq. candles, cleaners/degreasers; solv. for waxes; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; complies with criteria for LVP solvent  
*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2600, 178.3570, 178.3620(b); 40CFR §180.1001(c)(e)  
*Properties:* Little/no odor; m.w. 212; sp.gr. 0.773 (60/60 F); dens. 6.44 lb/gal (60 F); visc. 2.53 cps; b.p. 251-275 C; flash pt. (ATSM D 93) 120 C; surf. tens. 28.9 dynes/cm; KB value 28; 0.01% aromatics  
*Toxicology:* OEL 300 ppm; low acute toxicity
- Norsocryl® 2EHA** [Atofina]  
*Chem. Descrip.:* 2-Ethylhexyl acrylate  
CAS 103-11-7; EINECS/ELINCS 203-080-7  
*Uses:* Copolymer intermediate for resins and dispersions for fabrics, inks, glues, and adhesives; cleaning and waxing prods.; org. synthesis; aq. disp. for nonwoven fabrics, textiles, and paper; additives for fuel oils and lubricants; syn. rubber and latexes; plastics and syn. resins  
*Properties:* APHA 10 max. clear liq.; m.w. 184; sp.gr. 0.880; visc. 1.52 mPa·s; vapor pressure < 1 mbar (20 C); f.p. - 90 C; b.p. 213.5 C (@ 1013 mbar); flash pt. (OC) 92 C; ref. index 1.433  
*Precaution:* Flamm.  
*Storage:* 6 mos storage life when stored inhibited at < 25 C, away from light
- Norsocryl® BA** [Atofina]  
*Chem. Descrip.:* Butyl acrylate  
CAS 141-32-2; EINECS/ELINCS 205-480-7  
*Uses:* Copolymer intermediate for resins and dispersions for paints, varnishes, inks, glues, and adhesives; cleaning and waxing prods.; org. synthesis; aq. disp. for nonwoven fabrics, textiles, paper, and leather; syn. rubber and latexes; plastics and syn. resins  
*Properties:* APHA 10 max. clear liq.; m.w. 128; sp.gr. 0.894; visc. 0.808 mPa·s; vapor pressure 5.3 mbar (20 C); f.p. - 64 C; b.p. 147 C (@ 1013 mbar); flash pt. (OC) 48 C; ref. index 1.416  
*Precaution:* Flamm.  
*Storage:* 6 mos storage life when stored inhibited at < 25 C, away from light
- Norsocryl® MA** [Atofina]  
*Chem. Descrip.:* Methyl acrylate  
CAS 96-33-3; EINECS/ELINCS 202-500-6  
*Uses:* Copolymer intermediate for acrylic and modacrylic fibers; resins and dispersions for paints, varnishes, inks, papers, adhesives, and glues; aq. disp. for nonwoven fabrics, textiles, and paper; cleaning and waxing prods.; plastics and syn. resins; syn. rubber and latexes; org. synthesis  
*Properties:* APHA 10 max. clear liq.; m.w. 86; sp.gr. 0.950; visc. 0.461 mPa·s; vapor pressure 91 mbar (20 C); f.p. - 75 C; b.p. 80 C (@ 1013 mbar); flash pt. (OC) 3 C; ref. index 1.400  
*Precaution:* Highly flamm.  
*Storage:* 3 mos storage life when stored inhibited at < 25 C, away from light
- Noslip®** [Vinings Ind.]  
*Uses:* Antiskid agent providing inc. surf. friction in recycled linerboard and corrugated board
- Noslip® NP** [Vinings Ind.]  
*Uses:* Antiskid agent providing inc. surf. friction in newsprint
- No Stik 806** [ROSS Chem]  
*Chem. Descrip.:* Silicone compd.  
*Uses:* Mold release agent for plastic, paper, and other molded articles in contact with foods  
*Properties:* 35% act.
- NovaBond® 150** [Georgia-Pacific Resins]  
*Uses:* Surf. str. agent improving wet rub and scuff resist. of paper for offset/opaque communication paper grades, uncoated sides of printing papers and boards; enhances wax pick, Z-direction tensile, and internal bond; reduces linting and dusting  
*Properties:* Straw to grn. opaque liq.; visc. 400 cps; pH 7; 15% NV; anionic
- NovaCote™ 1905** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Modified acrylic copolymer  
*Uses:* Surf. sizing agent for bleached fine papers, copy, ink-jet, communication and offset grades, coated and uncoated paper and paperboard, copier toner adhesion, coating holdout; film-former; improved offset printability  
*Properties:* Translucent hazy wh.; visc. 350 cps; pH 7; 20% NV; anionic
- NovaCote™ 1933** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Modified styrene acrylate copolymer  
CAS 9010-92-8  
*Uses:* Surf. sizing agent for bleached fine papers, copy, ink-jet, communication and offset grades, coated and uncoated paper and paperboard, coating holdout, toner adhesion; high efficiency; improved offset printability; high salt tolerance  
*Properties:* Milky wh.; visc. 70 cps; pH 7.8; 30.5% NV; anionic
- NovaCote™ 1936** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Styrene maleic anhydride-based  
CAS 9011-13-6  
*Uses:* Surf. sizing agent for bleached fine papers, copy, ink-jet, communication and offset grades, coated and uncoated paper and paperboard, copier toner adhesion, coating holdout; low visc.; easy-to-handle  
*Properties:* Sl. hazy to milky wh.; visc. 50 cps; pH 10; 10% NV; anionic
- NovaCote™ 2000** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Styrene maleic anhydride-based  
CAS 9011-13-6  
*Uses:* Surf. sizing agent for bleached fine papers, copy, ink-jet, communication and offset grades, coated and uncoated paper and paperboard, copier toner adhesion, coating holdout; high m.w.; low visc.; easy-to-handle  
*Properties:* Sl. hazy to milky wh.; visc. 50 cps; pH 10; 10% NV; anionic
- NovaCote® PC 1906** [Georgia-Pacific Resins]  
*Uses:* Boxboard base coating for 'double-bump' coating operations; waxable; provides a layer to keep the second coat on the surf. for improved appearance (printability, gloss, brightness) of finished board
- NovaCote® PC 1911** [Georgia-Pacific Resins]  
*Uses:* Boxboard high gloss base coating; waxable; provides exc. hot-melt and water-based adhesive gluability and exc. printability  
*Properties:* Wh. liq.; visc. (Zahn #3) 13 s; pH 8.5; 64% NV
- NovaCote® PC 3050** [Georgia-Pacific Resins]  
*Uses:* Boxboard moderate to low gloss base coating; waxable; provides exc. hot-melt and water-based adhesive gluability and exc. printability  
*Properties:* Wh. liq.; visc. (Zahn #3) 13 s; pH 8.5; 64% NV
- NovaCote™ SCD** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Modified styrene copolymer disp.  
*Uses:* Surf. sizing agent for bleached fine papers, copy, ink-jet, communication and offset grades, coated and uncoated paper and paperboard, copier toner adhesion, coating holdout; patented; low visc.; easy-to-handle; low foaming  
*Properties:* Cloudy to milky wh.; visc. 400 cps; pH 10.5; 20% NV; anionic
- NovaFlo® 50** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Pale tall oil rosin sol'n.  
CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent giving water resist. to low to med.-sized bleached and unbleached paper and paperboard, incl. paper in contact with aq./fatty foods; highly efficient; easy-to-handle; ready-to-use; high shear tolerance; stable to hot and freezing temps.; exc. replacement for paste size  
*Regulatory:* FDA 21CFR §176.170(a)(5), 178.3870  
*Properties:* Pale amber translucent liq.; easily diluted in cold water; dens. 9.35 lb/gal; visc. 125 cps; acid no. 0-3; pH 10; 50% NV; anionic  
*Storage:* Indefinite shelf life
- NovaFlo® HW** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Rosin  
CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent for low to med.-sized bleached and unbleached paper and paperboard; highly efficient; easy-to-handle; ready-to-use; exc. replacement for paste size; designed to be used in conjunction with hard water  
*Properties:* Translucent amber liq.; dilutable in hard water; visc. 125 cps; pH 10; 50% NV; anionic
- NovaPlus®** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Neutral rosin size  
CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent for neutral and acid papermaking systems, recycled fine papers; for use with and without CaCO<sub>3</sub>; ready-to-use; wide pH flexibility; highly efficient

- Properties:* Wh. opaque liq.; visc. 10 cps; pH 6.1; 35% NV; anionic
- NovaPlus® HS** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Neutral rosin size  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent for neutral and acid papermaking systems, recycled fine papers; for use with and without CaCO<sub>3</sub>; ready-to-use; wide pH flexibility; highly efficient; high solids
- Properties:* Wh. opaque liq.; visc. 35 cps; pH 6.1; 50% NV; anionic
- Novapol® HD-2100-A** [NOVA Chems.]  
*Chem. Descrip.:* MDPE with antioxidants and processing stabilizers  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Extrusion resin for pipes for pressure and nonpressure service (25 mm-1600 mm), municipal potable water pipe, fuel gas pipe, relining, industrial and mining pipe, and storm and sanitary pipe; food-contact paper, polymers; exc. ESCR, toughness, processability; high str.  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.14 g/10 min.; sp.gr. 0.940; m.p. 128 C; tens. str. 20 MPa (@ yield); ultimate elong. 800%; hardness (Shore D) 60; soften. pt. (Vicat) 119 C  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® LC-0522-A** [Nova Ltd; NOVA Chems.]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Extrusion resin for food pkg., milk cartons, paperboard containers, liq. pkg., woven fabrics, lumber wrap, and heavy duty bags; high stiffness, good barrier  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Melt flow 4.5 g/10 min.; sp.gr. 0.922
- Novapol® LC-0717-A** [Nova Ltd; NOVA Chems.]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Extrusion resin for sugar pouch stock, popsicle wrap, multi-wall bags, high speed/low coating wt. paper coating, flexible and snack food pkg.; coating of nonporous substrates; exc. adhesion, drawdown, and sealability; high speeds; low coating wts.  
*Regulatory:* FDA 21CFR §177.1520  
*Properties:* Melt index 7.0; dens. 0.917  
*Storage:* Store in clean, dry place @ ambient temps.
- Novapol® LF-0717-A** [NOVA Chems.]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Extrusion resin for sugar pouch stock, popswall bags, high speed/low coating wt. paper coating, flexible and snack food pkg., coating of nonporous substrates  
*Regulatory:* FDA 21CFR §177.1520 compliant  
*Properties:* Melt flow 7.0 g/10 min.; sp.gr. 0.917  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® PD-2115-A** [NOVA Chems.]  
*Chem. Descrip.:* LLDPE with antioxidants and processing stabilizers  
 CAS 9002-88-4  
*Uses:* Extrusion resin for pipes for pressure and nonpressure service from 12 mm to 100 mm, potable water pipe and tubing, underground sprinkler systems, and irrigation pipe; food-contact paper, polymers; high str. and flexibility; exc. toughness, ESCR, and processability  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.8 g/10 min.; sp.gr. 0.922; tens. str. 13 MPa (@ yield); ultimate elong. 890%; hardness (Shore D) 47; soften. pt. (Vicat) 95 C  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® PF-Y821-BP** [NOVA Chems.]  
*Chem. Descrip.:* Butene LLDPE with process stabilizer, process aid, med. slip and antiblock  
 CAS 9002-88-4  
*Uses:* Film resin for general purpose pkg., bags requiring moderate clarity, and bread bags; food-contact paper/paperboard; good stiffness and machinability  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.80 g/10 min.; sp.gr. 0.921; Film props.: tens. str. 30 MPa (MD); elong. 660% (MD); tear str. 5.1 g/μm (MD); Dart drop str. 3.7 g/μm  
*Storage:* Store in clean, dry place @ ambient temps.
- Novapol® PF-Y821-CP** [NOVA Chems.]  
*Chem. Descrip.:* Butene LLDPE with antiblock and process aid

- CAS 9002-88-4  
*Uses:* Film resin for industrial pkg. and heavy duty sacks; food-contact paper/paperboard; good stiffness and machinability  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.80 g/10 min.; sp.gr. 0.921; Film props.: tens. str. 30 MPa (MD); elong. 660% (MD); tear str. 5.1 g/μm (MD); Dart drop str. 3.7 g/μm  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TF-Y534-IP** [NOVA Chems.]  
*Chem. Descrip.:* Hexene MDPE with process stabilizer, process aid, slip and antiblock  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Film resin for industrial pkg., overwrap, and narrow die gap extrusion; food-contact paper, polymer; exc. stiffness; high str. and toughness  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.50 g/10 min.; sp.gr. 0.934; Film props.: tens. str. 44 MPa (MD); elong. 520% (MD); tear str. 2.0 g/μm (MD); Dart drop str. 2.8 g/μm  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TF-Y822-BP** [NOVA Chems.]  
*Chem. Descrip.:* Hexene LLDPE with process aid and med. slip and antiblock  
 CAS 9002-88-4  
*Uses:* Film resin for industrial pkg. and high str. liners; food-contact paper, polymer; good stiffness and machinability; exc. toughness  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.80 g/10 min.; sp.gr. 0.921; Film props.: tens. str. 32 MPa (MD); elong. 650% (MD); tear str. 13.0 g/μm (MD); Dart drop str. 6.3 g/μm  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TF-Y822-CP** [NOVA Chems.]  
*Chem. Descrip.:* Hexene LLDPE with antiblock and process aid  
 CAS 9002-88-4  
*Uses:* Film resin for heavy duty sacks and high str. pkg.; food-contact paper, polymer; good stiffness and machinability; exc. toughness  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 0.80 g/10 min.; sp.gr. 0.921; Film props.: tens. str. 32 MPa (MD); elong. 650% (MD); tear str. 13.0 g/μm (MD); Dart drop str. 6.3 g/μm  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TR-0338-U** [NOVA Chems.]  
*Chem. Descrip.:* MDPE with antioxidants and UV stabilizers  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Rotational molding resin for lg. parts and agric. storage tanks; food-contact paper, polymer; exc. impact and ESCR  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Melt flow 3.5 g/10 min.; sp.gr. 0.938; m.p. 129 C  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TR-0338-UG** [NOVA Chems.]  
*Chem. Descrip.:* MDPE with antioxidants and UV stabilizers  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Rotational molding resin for lg. parts and agric. storage tanks; food-contact paper, polymer; exc. impact and ESCR  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Ground powd.; melt flow 3.5 g/10 min.; sp.gr. 0.938; m.p. 129 C  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TR-0535-U** [NOVA Chems.]  
*Chem. Descrip.:* Hexene MDPE with antioxidants and UV stabilizers  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Rotational molding resin for lg. parts and agric. storage tanks; food-contact paper, polymer; exc. impact and ESCR  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Pellet; melt flow 5.0 g/10 min.; sp.gr. 0.935; m.p. 128 C  
*Storage:* Store in clean, dry place @ R.T.
- Novapol® TR-0535-UG** [NOVA Chems.]  
*Chem. Descrip.:* Hexene MDPE with antioxidants and UV stabilizers  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Rotational molding resin for lg. parts and agric. storage tanks; food-contact paper, polymer; exc. impact and ESCR  
*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant  
*Properties:* Ground powd.; melt flow 5.0 g/10 min.; sp.gr. 0.935; bulk dens. 37 g/100 cc; m.p. 128 C  
*Storage:* Store in clean, dry place @ R.T.

- NovaSize® AKD** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Alkyl ketene dimer wax disp.  
*Uses:* Alkaline reactive sizing agent for alkaline papermaking systems, recycled OCC and specialty grades; for use with and without CaCO<sub>3</sub>; ready-to-use; high efficiency  
*Properties:* Wh. opaque liq.; visc. 100 cps; pH 3.5; 30% NV; cationic  
*Storage:* 3 mos shelf life
- NovaSize® ASA** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Alkenyl succinic anhydride  
 CAS 70983-55-0  
*Uses:* Alkaline reactive sizing agent for neutral and alkaline papermaking systems; must be emulsified with a suitable emulsifier, e.g., NovaSize EML; high solids  
*Properties:* Amber liq.; visc. 200 cps; 100% NV  
*Storage:* Extended shelf life
- NovaSize® EML** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Modified aq. carbohydrate emulsion  
*Uses:* Emulsifier for NovaSize ASA for optimal sizing performance in neutral and alkaline papermaking systems  
*Properties:* Opaque liq.; visc. 600 cps; pH 3.0; 15.5% NV; cationic
- NovaSize, Dark Fortified** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Tall oil rosin  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent to give water resistance to paper and paperboard  
*Properties:* USDA N-M color, translucent paste; dens. 9.2 lb/gal (70 C); visc. 2500 cps max. (70 C); acid no. 10-18 (70%), 12-20 (77%); 70 ± 1% and 77 ± 1% solids
- NovaSize, Dark Unfortified** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Tall oil rosin  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent to give water resistance to paper and paperboard  
*Properties:* USDA N-M color, translucent paste; dens. 9.2 lb/gal (70 C); visc. 2500 cps max. (70 C); acid no. 10-18 (70%), 12-20 (77%); 70 ± 1% and 77 ± 1% solids
- NovaSize, Pale Fortified** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Tall oil rosin  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent to give water resistance to paper and paperboard  
*Properties:* USDA N min. color, translucent paste; dens. 9.2 lb/gal (70 C); visc. 2500 cps max. (70 C); acid no. 10-18 (70%), 12-20 (77%); 70 ± 1% and 77 ± 1% solids
- NovaSperser™** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Rosin aq. disp.  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Internal sizing agent to give water resist. to paper/paperboard incl. paper for contact with aq./fatty foods; efficient over wide pH range; exc. mech. stability; heat- and freeze/thaw-stable; not shear sensitive  
*Regulatory:* FDA 21CFR §176.170, 178.3870  
*Properties:* Wh. opaque liq.; dens. 8.6 lb/gal; visc. 20 cps; pH 6.2-6.5; 35 ± 1% solids  
*Storage:* 12 mos shelf life
- Novus™** [Hercules]  
*Chem. Descrip.:* Emulsion polymers  
*Uses:* Clarifier for wastewater, sludge dewatering agent, and air flotation agent for pulp/paper industry  
*Properties:* Cationic
- NP4** [Mosselman NV]  
*Chem. Descrip.:* Nonylphenol ethoxylates  
 CAS 9016-45-9; EINECS/ELINCS 230-770-5  
*Uses:* Surfactant, wetting agent, emulsifier, detergent, dispersant for cleaners and detergents, leather, textiles; emulsifier for emulsion polymerization; wetting agent for paper industry  
*Properties:* Sp.gr. 1.02; visc. 350 mPas; HLB 9; hyd. no. 140; cloud pt. 55 (10% in 25% BDG); pH 7 (1%); nonionic
- NP6** [Mosselman NV]  
*Chem. Descrip.:* Nonylphenol ethoxylates  
 CAS 9016-45-9  
*Uses:* Surfactant, wetting agent, emulsifier, detergent, dispersant for cleaners and detergents, leather, textiles; emulsifier for emulsion polymerization; wetting agent for paper industry  
*Properties:* Sp.gr. 1.04; visc. 350 mPas; HLB 11; hyd. no. 115; cloud pt. 67 (10% in 25% BDG); pH 7 (1%); nonionic
- NP8** [Mosselman NV]  
*Chem. Descrip.:* Nonylphenol ethoxylates  
 CAS 9016-45-9  
*Uses:* Surfactant, wetting agent, emulsifier, detergent, dispersant for cleaners and detergents, leather, textiles; emulsifier for emulsion polymerization; wetting agent for paper industry  
*Properties:* Sp.gr. 1.06; visc. 350 mPas; HLB 12.3; hyd. no. 95; cloud pt. 32 (1% aq.); pH 7 (1%); nonionic
- NP9** [Mosselman NV]  
*Chem. Descrip.:* Nonylphenol ethoxylates  
 CAS 9016-45-9  
*Uses:* Surfactant, wetting agent, emulsifier, detergent, dispersant for cleaners and detergents, leather, textiles; emulsifier for emulsion polymerization; wetting agent for paper industry  
*Properties:* Sp.gr. 1.06; visc. 350 mPas; HLB 12.8; hyd. no. 90; cloud pt. 54 (1% aq.); pH 7 (1%); nonionic
- NP10** [Mosselman NV]  
*Chem. Descrip.:* Nonylphenol ethoxylates  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* Surfactant, wetting agent, emulsifier, detergent, dispersant for cleaners and detergents, leather, textiles; emulsifier for emulsion polymerization; wetting agent for paper industry  
*Properties:* Sp.gr. 1.06; visc. 360 mPas; HLB 13.2; hyd. no. 85; cloud pt. 64 (1% aq.); pH 7 (1%); nonionic
- NP12** [Mosselman NV]  
*Chem. Descrip.:* Nonylphenol ethoxylates  
 CAS 9016-45-9  
*Uses:* Surfactant, wetting agent, emulsifier, detergent, dispersant for cleaners and detergents, leather, textiles; emulsifier for emulsion polymerization; wetting agent for paper industry  
*Properties:* Sp.gr. 1.07; visc. 370 mPas; HLB 13.9; hyd. no. 75; cloud pt. 81 (1% aq.); pH 7 (1%); nonionic
- N® Sodium Silicate** [PQ]  
*Chem. Descrip.:* Sodium silicate  
 CAS 1344-09-8; EINECS/ELINCS 215-687-4  
*Uses:* Corrosion inhibitor in cleaning compds.; hardening/waterproofing concrete; binder in cements; deflocculant in ceramics; deflocculant, buffer in liq. detergents; buffer in textile pad-batch dyeing; binder in metal processing; petrol. processing; paper coatings; detergent, deflocculant, bleaching enhancer, alkalinity agent in deinking paper stock; metal deactivator in peroxide or oxygen bleaching of pulp; flocculant, corrosion inhibitor in water treatment; binder in waste treatment  
*Regulatory:* SARA nonreportable  
*Properties:* Nearly clear to opalescent syrupy liq.; odorless; completely sol. in water; sp.gr. 1.38 (20 C); dens. 11.6 lb/gal; visc. 180 cps; pH 11.3; noncombustible; 37.6% solids; 28.7% SiO<sub>2</sub>, 8.9% Na<sub>2</sub>O  
*Toxicology:* CEL 5 mg/m<sup>3</sup>; alkalinity can irritate eyes and skin; inh. irritates respiratory tract; ing. can cause irritation to esophagus and stomach  
*Environmental:* High alkalinity of undiluted or unneutralized material is harmful to aquatic life  
*Precaution:* Incompat. with gels when mixed with acid, metals, e.g., aluminum, tin, lead, zinc (may produce flamm. hydrogen gas); spills are very slippery; dries to glassy film which can cut skin and etch glass  
*Hazardous Decom. Prods.:* Hydrogen  
*Storage:* For extended storage, use tightly closed drums, steel containers, or containers of nonreactive materials
- Nucrel® 0407** [DuPont]  
*Chem. Descrip.:* Ethylene-methacrylic acid copolymer resin  
 CAS 25053-53-6  
*Uses:* For extrusion coating and laminating; applics. incl. foil-containing shampoo, toothpaste, towelette, condiment, and misc. non-food pouches and sachets, snack structures; other foil, metalized film, or paper coatings as heat seal or tie layer; food-contact polymers  
*Regulatory:* FDA 21CFR §177.1330 compliant  
*Properties:* Pellets; sp.gr. 0.93; melt flow 7.0 dg/min; f.p. 84 C; m.p. 109 C; Vicat soften. pt. 90 C; 4% methacrylic acid  
*Precaution:* Do not use in medical applics. involving permanent implantation in human body
- Nucrel® 0609HS** [DuPont]  
*Chem. Descrip.:* Ethylene-methacrylic acid copolymer resin  
 CAS 25053-53-6  
*Uses:* Adhesive and sealant resin for extrusion coating; applics. incl. foil-

containing shampoo, toothpaste, towelette, condiment, and misc. non-food pouches and sachets, medical/pharmaceutical pkg., snack structures, toothpaste tubes; aseptic and hot-filled liq. cartons; other foil, metalized film, or paper coatings as heat seal or tie layer; food-contact polymers; high speed grade

*Regulatory:* FDA 21CFR §177.1330 compliant

*Properties:* Melt flow 9.0 dg/min; f.p. 83 C; m.p. 104 C; Vicat soften. pt. 88 C; 6% methacrylic acid

*Precaution:* Do not use in medical applics. involving permanent implantation in human body

#### Nucrel® 0908HS [DuPont]

*Chem. Descrip.:* Ethylene-methacrylic acid copolymer resin  
CAS 25053-53-6

*Uses:* For extrusion coating; applics. incl. foil-containing shampoo, toothpaste, towelette, condiment, and misc. non-food pouches and sachets, snack structures; other foil, metalized film, or paper coatings as heat seal or tie layer; food-contact polymers

*Regulatory:* FDA 21CFR §177.1330 compliant

*Properties:* Pellets; sp.gr. 0.93; melt flow 8.0 dg/min; f.p. 84 C; m.p. 103 C; Vicat soften. pt. 86 C; 8.7% methacrylic acid

*Precaution:* Do not use in medical applics. involving permanent implantation in human body

#### Nucrel® 0910HS [DuPont]

*Chem. Descrip.:* Ethylene-methacrylic acid copolymer resin  
CAS 25053-53-6

*Uses:* For extrusion coating; applics. incl. foil-containing shampoo, toothpaste, towelette, condiment, and misc. non-food pouches and sachets, snack structures, toothpaste tubes, cable shield wrap, aseptic and hot-filled cartons; other foil, metalized film, or paper coatings as heat seal or tie layer; food-contact polymers

*Regulatory:* FDA 21CFR §177.1330 compliant

*Properties:* Pellets; sp.gr. 0.93; melt flow 10.0 dg/min; f.p. 84 C; m.p. 103 C; Vicat soften. pt. 86 C; 8.7% methacrylic acid

*Precaution:* Do not use in medical applics. involving permanent implantation in human body

#### Nucrel® 1214 [DuPont]

*Chem. Descrip.:* Ethylene-methacrylic acid copolymer resin  
CAS 25053-53-6

*Uses:* Adhesive and sealant resin for extrusion coating; applics. incl. foil-containing shampoo, toothpaste, towelette, condiment, and misc. non-food pouches and sachets, medical/pharmaceutical pkg., snack structures; other foil, metalized film, or paper coatings as heat seal or tie layer; food-contact polymers

*Regulatory:* FDA 21CFR §177.1330 compliant

*Properties:* Melt flow 13.5 dg/min; f.p. 71 C; m.p. 97 C; Vicat soften. pt. 75 C; 12% methacrylic acid

*Precaution:* Do not use in medical applics. involving permanent implantation in human body

#### Nucrel® 3990 [DuPont]

*Chem. Descrip.:* Ethylene-acrylic acid copolymer resin  
CAS 9010-77-9

*Uses:* For extrusion coating; applics. incl. foil-containing shampoo, toothpaste, towelette, condiment, and misc. non-food pouches and sachets, snack structures; other foil, metalized film, or paper coatings as heat seal or tie layer; food-contact polymers

*Regulatory:* FDA 21CFR §177.1330 compliant

*Properties:* Pellets; sp.gr. 0.94; melt flow 10.0 dg/min; f.p. 78 C; m.p. 97 C; Vicat soften. pt. 79 C; 9% acrylic acid

*Precaution:* Do not use in medical applics. involving permanent implantation in human body

#### NuDry™ 30 [Crompton/Witco]

*Chem. Descrip.:* Reactive silicone emulsion

*Uses:* Combining lubricant that enhances durable hydrophobic props. of PP webs; hydrophobic finish for spunbonded PP nonwovens; water-based; exc. bulk and dilution stability; nonyellowing; low VOCs

*Properties:* Milky aq. emulsion; visc. 80-100 cps; pH 9.0-9.5; 50% act.; nonionic

#### Nuosept® 95 [Creanova]

*Chem. Descrip.:* Mix. of bicyclic oxazolidines

*Uses:* Preservative for water-based coatings; food pkg. adhesives, paper; nonyel., exc. compat.

*Use Level:* 0.2-0.3% based on total wt. of coating

*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Liq.; 50% act.

#### Nuosept® 120 [Creanova]

*Chem. Descrip.:* Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione  
CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Preservative for coatings, slurries, and adhesives; recirculating water systems; food pkg. adhesives; slimicide in food-contact paper; dispersed form of Nuosept S

*Use Level:* 0.1-0.5% based on total wt. of coating

*Regulatory:* FDA 21CFR§ 175.105, 176.230, 176.300

*Properties:* Liq. disp.; 20% act.

#### Nuosept® 166 [Creanova]

*Chem. Descrip.:* 4,4-Dimethyloxazolidine (66%)  
CAS 51200-87-4; EINECS/ELINCS 257-048-2

*Uses:* Algicide for high pH water-based applics., paints and coatings, adhesives, caulks and joint compds., cosmetics, drilling muds, inks, metalworking fluids, oil field water treatment, paper coatings, pigment disp., plastics/vinyl, roof coatings, slurries, recirculating water systems, wood preservatives

*Use Level:* 0.2-0.3%

*Properties:* Liq.

#### Nuosept® S [Creanova]

*Chem. Descrip.:* Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione (99%)  
CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Preservative for coatings, slurries, adhesives, starch- and casein-based systems; recirculating water systems; food pkg. adhesives; slimicide in food-contact paper; esp. effective at pH ≥ 7

*Use Level:* 0.04-0.11% based on total wt. of coating

*Regulatory:* FDA 21CFR §175.105, 176.230, 176.300

*Properties:* Powd.

#### Nyacol® 215 [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.  
EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 4 nm particle size; dens. 1.10 g/cm<sup>3</sup>; visc. 5 mPa·s; pH 11; 15% SiO<sub>2</sub>

#### Nyacol® 830 [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.  
EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 10 nm particle size; dens. 1.22 g/cm<sup>3</sup>; visc. 8 mPa·s; pH 10.5; 30% SiO<sub>2</sub>

#### Nyacol® 1430 [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.  
EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 14 nm particle size; dens. 1.21 g/cm<sup>3</sup>; visc. 7 mPa·s; pH 10.3; 30% SiO<sub>2</sub>

#### Nyacol® 1440 [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.  
EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 14 nm particle size; dens. 1.30 g/cm<sup>3</sup>; visc. 16 mPa·s; pH 10.4; 40% SiO<sub>2</sub>

#### Nyacol® 2034D1 [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.  
EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 20 nm particle size; dens. 1.23 g/cm<sup>3</sup>; visc. 7 mPa·s; pH 3; 34% SiO<sub>2</sub>

#### Nyacol® 2040 [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.  
EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 20 nm particle size; dens. 1.30 g/cm<sup>3</sup>; visc. 13 mPa·s; pH 10; 40% SiO<sub>2</sub>



**Nyacol® 2040NH<sub>4</sub>** [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.

EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 20 nm particle size; dens. 1.30 g/cm<sup>3</sup>; visc. 15 mPa·s; pH 9; 40% SiO<sub>2</sub>

**Nyacol® 2050** [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.

EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from recycled fibers

*Properties:* 20 nm particle size; dens. 1.40 g/cm<sup>3</sup>; visc. 50 mPa·s; pH 10; 50% SiO<sub>2</sub>

**Nyacol® 9950** [Eka Chems.]

*Chem. Descrip.:* Colloidal silica disp.

EINECS/ELINCS 231-545-4

*Uses:* Antiskid agent for paper to frictionize linerboard, esp. that made from

recycled fibers

*Properties:* 100 nm particle size; dens. 1.40 g/cm<sup>3</sup>; visc. 15 mPa·s; pH 9; 50% SiO<sub>2</sub>

**Nyacol® A-1530 [PQ]**

*Chem. Descrip.:* Colloidal disp. of antimony pentoxide in water

CAS 1314-60-9; EINECS/ELINCS 215-237-7

*Uses:* Flame retardant for latex emulsions, FR adhesives; durable flame retardant treatment for fabrics, nonwovens, fiberfill, paper, fiberglass, vinyls

*Properties:* Disp. particle size 15-30 μm; sp.gr. 1.37; visc. 5 cps; 30% antimony pentoxide; anionic

**Nyacol® A-1550 [PQ]**

*Chem. Descrip.:* Colloidal disp. of antimony pentoxide in water

CAS 1314-60-9; EINECS/ELINCS 215-237-7

*Uses:* Flame retardant for latex emulsions, FR adhesives; durable flame retardant treatment for fabrics, nonwovens, fiberfill, paper, fiberglass, vinyls

*Properties:* Disp. particle size 15-30 μm; sp.gr. 1.81; visc. 10 cps; 50% antimony pentoxide; anionic

# O

**Oakite® Defoamant** [Oakite Prods.]

*Chem. Descrip.:* O/w emulsion containing org. esters, alcohols, silicone, hydrocarbons, and stabilizers

*Uses:* Foam control agent for industrial applics., e.g., paper mill stock systems, gas dehydration units, amine scrubbing units, propane deasphalting units

*Properties:* Milky wh. visc. liq., bland odor; sp.gr. 1.002; dens. 8.4 lb/gal; visc. 1000 cps; flash pt. none; pH 9.6

**Oakite® Defoamant RC** [Oakite Prods.]

*Chem. Descrip.:* Silicone/nonionic emulsifiers

*Uses:* Foam control agent for plastic recycling systems, food processing, textile, pulp/paper, other industrial applics.

*Properties:* Milky wh. emulsion, mild odor; disp. in cold or hot water; sp.gr. 1.010; dens. 8.4 lb/gal; flash pt. none; nonionic

**Octomer DOM** [Tiarco]

*Chem. Descrip.:* Dioctyl maleate

CAS 2915-53-9

*Uses:* Intermediate for surfactants and wetting agents; in copolymerization of PVC and vinyl acetates; plasticizer for vinyl resins; internal plasticizer in copolymer films; also in latex paints, paper and textile coatings, adhesives

*Properties:* Colorless clear oily liq.; sp.gr. 0.938-0.942; b.p. 209 C; acid no. < 0.25; flash pt. 360 F; 100% conc.

*Storage:* Keep containers tightly closed when not in use; protect from freezing

**Octospense 662** [Tiarco]

*Chem. Descrip.:* Proprietary mixt.

*Uses:* Antiwebbing agent used in latex dipping and coating compds.; food-contact paper/paperboard

*Use Level:* 0.2-1.6%

*Regulatory:* FDA 21CFR §176.170, 177.2600 approved

*Properties:* Liq. emulsion; dens. 7.7-7.9 lbs/gal; visc. > 3000 cps; pH 8-9.5; 46-50% solids

*Storage:* Keep containers tightly closed; protect from freezing

**Octotint 120** [Tiarco]

*Chem. Descrip.:* Ultramarine blue

CAS 57455-37-5; EINECS/ELINCS 309-928-3

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic; for whitening applics.

*Properties:* 55% solids

**Octotint 138** [Tiarco]

*Chem. Descrip.:* Anatase titanium dioxide

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic

*Properties:* Wh. dispersion; 65% solids; nonionic

**Octotint 150** [Tiarco]

*Chem. Descrip.:* Diarylide yellow, Pigment yellow 14

CAS 5468-75-7

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic

*Properties:* 25% solids

**Octotint 155** [Tiarco]

*Chem. Descrip.:* Phthalocyanine blue, Pigment blue 15:1

CAS 147-14-8; EINECS/ELINCS 205-685-1

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic

*Properties:* 62% solids

**Octotint 572** [Tiarco]

*Chem. Descrip.:* Ultramarine blue

CAS 57455-37-5; EINECS/ELINCS 309-928-3

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic

*Properties:* 55% solids

**Octotint 601** [Tiarco]

*Chem. Descrip.:* Anatase titanium dioxide

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic

*Properties:* 70% solids; anionic

**Octotint 825** [Tiarco]

*Chem. Descrip.:* Jute color, iron oxide

CAS 1309-37-1; EINECS/ELINCS 215-168-2

*Uses:* Color dispersion for use in paper and wood coatings, sizing, textile lubrication, and as processing aid in latex foams; strong anti-ozone characteristic

*Properties:* 50% solids

**Octowax 321** [Tiarco]

*Chem. Descrip.:* Refined paraffin wax aq. emulsion

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Wax emulsion for use in paper and wood coating, sizing, textile lubrication; as processing aid in latex foams; antiozonant chars.; modifier improving water resist. and aging chars. in latex compds.; food pkg. adhesives, rubber articles; heat-stable, nondiscoloring

*Use Level:* 1-2% (latex)

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3710

*Properties:* Wh. emulsion; visc. 200-1600 cps; m.p. 125-130 F; pH 8.5-9.5; 49-51% solids

*Storage:* Store in tightly closed containers; protect from freezing; stir before use

**Octowax 437** [Tiarco]

*Chem. Descrip.:* Blend of microcrystalline wax and paraffin wax

*Uses:* Processing aid in latex foams; antiozonant in latex rubber; for use in paper and wood coatings, sizing, textile lubrication

*Properties:* Wh. emulsion; m.p. 150 F; pH 8.5-9.5; 52-54% solids

**Octowax 518** [Tiarco]

*Chem. Descrip.:* HDPE emulsion

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Wax emulsion for use in paper and wood coating, sizing, textile lubrication; processing aid in latex foams; antiozonant chars.; improves sewability, tear str. and abrasion resist. of cotton, syn. and blended fibers and fabrics

*Properties:* Lt. tan liq.; dissolves easily in cold water; dens. 8.26 lb/gal; pH 8.5-9.5; 25% conc.; nonionic

**Octowax 695** [Tiarco]

*Chem. Descrip.:* Paraffin wax

- CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Water absorp. barrier used in hardboard, paper sizing and paperboard applics., food-contact adhesives/paper; chem. stability to acids, alkalis, and inorg. salts  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180 approved  
*Properties:* Aq. emulsion; visc. < 1000 cps; m.p. 120-130 F; pH 6.5-7.5; 49-51% solids; anionic  
*Storage:* Keep containers tightly closed; protect from freezing
- Octowet 40** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, penetrant for textile washing and dyeing operations, agric., mining, paper, printing  
*Properties:* Colorless liq.; m.w. 444.63; dens. 8.6 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 120 F; pH 5-7; Draves wetting < 5 s (0.075%); 39-41% act. in water, alcohol, glycol; anionic
- Octowet 55** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, penetrant for textile washing and dyeing operations, agric., mining, paper, printing  
*Properties:* Colorless liq.; m.w. 444.63; dens. 8.7 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 120 F; pH 5-7; Draves wetting < 5 s (0.075%); 54-56% act. in water, alcohol, glycol; anionic
- Octowet 60** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, penetrant for textile dyeing and washing operations, agric., mining, paper, printing  
*Properties:* Colorless liq.; m.w. 444.63; dens. 8.8 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 120 F; pH 5-7; Draves wetting < 5 s (0.075%); 59-61% act. in water, alcohol, glycol; anionic
- Octowet 60-I** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, penetrant, emulsifier for coatings, textile finishing, agric., mining, paper, printing; high speed wetting agent effective at low concs.  
*Properties:* Colorless liq.; m.w. 444.63; dens. 8.6 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. < 100 F; pH 5-7; Draves wetting < 5 s (0.075%); 59-61% act. in water, 20% IPA; anionic
- Octowet 65** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, penetrant for textile dyeing and washing operations, agric., mining, paper, printing  
*Properties:* Colorless liq.; m.w. 444.63; dens. 9.0 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 120 F; pH 5-7; Draves wetting < 5 s (0.075%); 64-66% act. in water, alcohol, glycol; anionic
- Octowet 70** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, penetrant, emulsifier for textile dyeing and washing operations, agric., mining, paper, printing, paints and coatings, latex dipped goods, rubber and latex polymerization, industrial applics.  
*Properties:* Colorless liq.; m.w. 444.63; dens. 9.06 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 120 f; pH 4-7; Draves wetting < 5 s (0.075%); 69-71% act. in water, alcohol, glycol; anionic
- Octowet 70A** [Tiarco]  
*Chem. Descrip.:* Ammonium dioctyl sulfosuccinate  
*Uses:* Wetting agent, solubilizer, penetrant for textile processing, agric., mining, paper, printing, paints and coatings, latex dipped goods, rubber and latex polymerization; high speed wetting  
*Properties:* Colorless liq.; pH 7-9; 69-71% act. in water, alcohol, glycol; anionic
- Octowet 70BC** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, penetrant, emulsifier for paints and coatings, polymerization, textiles, agric., mining, paper, printing, and industrial applics.; high speed wetting; effective at low concs.; rec. where high flash is important  
*Properties:* Colorless liq.; m.w. 444.63; dens. 9.08 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 212 F; pH 5-7; Draves wetting < 5 s (0.075%); 69-71% act. in water, butyl Carbitol; anionic
- Octowet 70D** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate in water, glycol, and isopropyl alcohol  
*Uses:* Wetting agent in textile dyeing and washing; penetrant, emulsifier for textiles; food pkg. adhesives; defoamer in food-contact paper/paperboard; food-contact paper, cellophane, textiles; emulsifier in mfg. of food-contact articles; high speed  
*Use Level:* 0.50-1.5%  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2800, 178.3400 approved  
*Properties:* APHA < 100 liq.; dens. 8.9-9.1 lbs/gal; visc. 200-400 cps; acid no. < 4.0; iodine no. < 0.15; pH 5-7; Draves wetting < 5 sec @ 0.75%; 67-68% act.; anionic  
*Toxicology:* TSCA listed  
*Storage:* Store away from high heat, open flame
- Octowet 70PG** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, penetrant for textile processing, paints, coatings, polymerization, agric., mining, paper, printing, industrial applics.; high speed wetting; rec. where high flash is important  
*Properties:* Colorless liq.; m.w. 444.63; dens. 9.08 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 212 F; pH 5-7; Draves wetting < 5 s (0.075%); 69-71% act. in water, propylene glycol; anionic
- Octowet 75** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, penetrant, emulsifier for textile dyeing and washing operations, agric., mining, paper, printing, paints and coatings, latex dipped goods, rubber and latex polymerization, industrial applics.  
*Properties:* Colorless liq.; m.w. 444.63; dens. 9.18 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; pH 5-7; flash pt. > 105 F; Draves wetting < 5 s (0.075%); 74-76% act. in water, alcohol, glycol; anionic
- Octowet 75E** [Tiarco]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, emulsifier, penetrant for textile dyeing and washing operations, agric., mining, paper, printing, paints and coatings, latex dipped goods, rubber and latex polymerization, industrial applics.; emulsifier and stabilizer for NR and SR latexes  
*Properties:* Colorless liq.; m.w. 444.63; dens. 9.18 lb/gal; visc. 200-400 cps; acid no. < 2; iodine no. < 0.15; flash pt. > 105 F; pH 5-7; Draves wetting < 5 s (0.075%); 74-76% act. in water, ethanol, glycol; anionic
- ODSA** [Dixie]  
*Chem. Descrip.:* Octadecenylsuccinic anhydride  
 CAS 28777-98-2  
*Uses:* Sizing agent for alkaline paper; ease of handling; suitable in both cationic starch and polymer emulsion systems and in paper mills where hood deposits are a problem  
*Properties:* Amber clear liq.; neutralization no. 305-335; 3% max. residual olefin  
*Toxicology:* Mild primary skin irritant; avoid contact with skin, eyes, clothing  
*Storage:* Store out of contact with moisture to avoid hydrolysis of the anhydride to acid
- Ombrelub® CD** [Münzing Chemie GmbH]  
*Chem. Descrip.:* Calcium stearate  
 CAS 1592-23-0; EINECS/ELINCS 216-472-8  
*Uses:* Release agent for use in coating colors; gloss aid during calendering; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings, paper/paperboard; improves dimensional stability and printability; inc. flexibility and reduces coating brittleness during mfg.; improves smoothness during calendering  
*Use Level:* 1-5%  
*Regulatory:* FDA 21CFR 175.105, 175.300, 176.170, 176.180, 176.200, 176.210; BGA approved  
*Properties:* Wh. disp.; misc. with water; sp.gr. 1.01 (20 C); m.p. 120 C; pH 9 (2%); nonionic  
*Storage:* 6 mos shelf life in closed package @ 15-25 C; sensitive to freezing
- Opacarb® PCC** [Specialty Mins.]  
*Chem. Descrip.:* Precipitated calcium carbonate  
 CAS 471-34-1; EINECS/ELINCS 207-439-9

## Opacimite™

*Uses:* Filler, opacifier, brightener for paper coatings

*Properties:* Acicular shape

### Opacimite™ [IMERYS]

*Chem. Descrip.:* Calcium carbonate

*Chem. Analysis:* CaCO<sub>3</sub> (97.6%), MgCO<sub>3</sub> (1.5%), moisture (0.2% max.)  
CAS 1317-65-3

*Uses:* Pigment, filler, reinforcing agent for use in paper filling and coating; finely ground; engineered particle size distribution

*Properties:* Wh. powd., odorless; 1.1 μ mean particle size; fineness (Hegman) 6-7; negligible sol. in water; sp.gr. 2.71; dens. 32 lb/ft<sup>3</sup> (loose); surf. area 5 m<sup>2</sup>/g; oil absorp. 18-20; pH 9.3-9.9 (5% slurry); nonflamm.

*Toxicology:* TLV/TWA 10 mg/m<sup>3</sup>, considered nuisance dust

*Precaution:* Incompat. with acids

### Opacitex [IMERYS]

*Chem. Descrip.:* Calcined kaolin clay

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Pigment, opacifier for paper coatings and for filling newsprint and other groundwood specialties; imparts improved print props.

*Properties:* Pulverized, slurry; 0.015% 325-mesh residue; 80% finer than 2 μ particle size; sp.gr. 2.72; visc. 500 cps (50% solids); brightness (GE) 80-83; ref. index 1.56; pH 4-7 (20% aq.); hardness (Mohs) 2; 0.5-1.0% moisture (pulverized), 47-51% moisture (slurry)

### Opazil® [Süd-Chemie AG]

*Chem. Descrip.:* Bentonite

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* For deinking plants and paper machine retention; clean circulation water, adsorb substances that can cause mfg. problems

### Optiblanc® BRC [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv.

*Uses:* Optical brightener for paper surf. applics.; blue-violet shade allows for production of higher whiteness papers; can substitute for hexasulfonated chems. in certain mill applics.; does not harm internal sizing

*Regulatory:* DOT nonregulated; SARA §304/313 nonreportable

*Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.12-1.16; visc. 60 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. ≈ 100 C; flash pt. none to 100 C; pH 8.0-9.0; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg; nonirritating to skin/eyes; TSCA listed

*Environmental:* Do not discharge into drains or waterways; 20-40% biodeg.

*Precaution:* Incompat. with oxidizers

*Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store tightly closed @ 5-30 C; avoid freezing

### Optiblanc® BRC 70 [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv.

*Uses:* Optical brightener for paper surf. applics.; blue-violet shade allows for production of higher whiteness papers; can substitute for hexasulfonated chems. in certain mill applics.; does not harm internal sizing

*Regulatory:* DOT nonregulated; SARA nonreportable

*Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.12-1.16; visc. 60 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. ≈ 100 C; flash pt. none to 100 C; pH 8.0-9.0; anionic

*Toxicology:* LD50 (oral, rat) > 2500 mg/kg; nonirritating to skin/eyes; TSCA listed

*Environmental:* Do not discharge into drains or waterways; 20-40% biodeg.

*Precaution:* Incompat. with oxidizers and water-reacting materials

*Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store tightly closed @ 5-30 C; avoid freezing

### Optiblanc® CL 300 [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv.

*Uses:* Optical brightener for paper coating colors based on all syn. binders; high brightness may be achieved in coating applics.

*Use Level:* 2% on dry pigment

*Regulatory:* DOT nonregulated; SARA §304/313 nonreportable

*Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.16-1.20; visc. 250 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. ≈ 100 C; flash pt. none to 100 C; pH 9-10.5; anionic

*Toxicology:* LD50 (oral, rat) > 10,000 mg/kg; sl. irritant to skin/eyes, mucous membranes; TSCA listed

*Environmental:* Do not discharge into drains or waterways; > 60% biodeg.

*Precaution:* Incompat. with oxidizers, water-reacting materials, and hypochlorites

*Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Very long shelf life in tightly closed containers; protect from frost; store away from light

### Optiblanc® HL 400 [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv.

*Uses:* Optical brightener for paper; high brightness may be achieved in size-press treatments with starch; does not affect alkaline or rosin sizing; good lightfastness

*Use Level:* 2.5-3.0% in size-press sol'n.

*Regulatory:* DOT nonregulated; SARA §304/313 nonreportable

*Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.16-1.20; visc. 45 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. ≈ 100 C; pH 10-11; anionic

*Toxicology:* Irritant to skin, eyes, possible corneal damage; vapors can be irritating; repeated/excessive exposures can damage liver and kidneys; TSCA listed

*Precaution:* Incompat. with oxidizers, strong acids, water-reacting substances; do not use in preparations containing nitration agents as nitrosamines (carcinogens) can form

*Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* Very long shelf life in tightly closed containers; protect from frost; store away from light

### Optiblanc® KLN [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv. in water

*Uses:* Optical brightener for paper; very high sat. pt.; esp. suited for achieving high degree of brightness in pigmented size-press applics. and in coating colors containing nat. and syn. binders; very effective in coating colors containing 100% latex binder systems

*Regulatory:* DOT nonregulated; SARA §304/313 nonreportable

*Properties:* Yel.-brn. liq.; no odor; misc. with water; sp.gr. 1.16-1.20; visc. 300 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. ≈ 100 C; pH 9-10; anionic

*Toxicology:* TSCA listed

*Environmental:* Do not discharge into streams, waterways

*Precaution:* Incompat. with oxidizers

*Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store in tightly closed containers @ 5-30 C; protect from frost

### Optiblanc® NF 120 [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv.

*Uses:* Optical brightener for many nondemanding paper stock and surf. applics., particularly suitable for paper mills with stringent effluent discharge requirements; low str.; organically stabilized; rec. where low to mod. brightness gains are required

*Regulatory:* DOT nonregulated; SARA §303/313 nonreportable

*Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.11-1.15; visc. 25 mPa·s; vapor pressure 15 mm Hg (20 C); m.p. < -10 C; b.p. 100 C; pH 9-11; anionic

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; irritating to eyes, respiratory system, and skin; harmful by inh.; TSCA listed

*Environmental:* Do not discharge into streams, waterways; < 20% biodeg.

*Precaution:* Incompat. with oxidizers, acids, water-reacting materials, hypochlorites, halogenated org. compds.; do not use in preparations containing nitrosation agents as nitrosamines (carcinogens) may form

*Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* Store in tightly closed containers @ 5-30 C; protect from frost

### Optiblanc® NF 140 [3V/Paper]

*Chem. Descrip.:* Stilbene-triazine deriv.

*Uses:* Optical brightener for many paper stock and surf. applics., particularly suitable for paper mills with stringent effluent discharge requirements; low str.; organically stabilized

*Regulatory:* DOT nonregulated; SARA §304/313 nonreportable

- Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.11-1.15; visc. 20 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9-11; anionic
- Toxicology:* LD50 (oral, rat) 5000 mg/kg; may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains, waterways
- Precaution:* Incompat. with oxidizers, water-reacting materials, hypochlorites
- Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced
- NFPA: Health 2; Flammability 1; Reactivity 0
- Storage:* Store in tightly closed containers @ 5- 30 C; protect from frost
- Optiblanc® NF 200** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv.
- Uses:* Optical brightener for many paper stock and surf. applics., particularly suitable for paper mills with stringent effluent discharge requirements; conc.; organically stabilized
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.11-1.15; visc. 25 mPa·s; vapor pressure 15 mm Hg (20 C); m.p. < -10 C; b.p. 100 C; pH 9-11; anionic
- Toxicology:* LD50 (oral, rat) > 5000 mg/kg; may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into streams, waterways; < 20% biodeg.
- Precaution:* Incompat. with oxidizers, acids, water-reacting materials, hypochlorites, halogenated org. compds.; do not use in preparations containing nitrosation agents as nitrosamines (carcinogen) may form
- Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced
- NFPA: Health 2; Flammability 1; Reactivity 0
- Storage:* Store in tightly closed containers @ 5- 30 C; protect from frost
- Optiblanc® NL** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv. (disodium 2,2'-(1,2-ethenediyl) bis[[4-[bis(2-hydroxyethyl)amino]-6-(phenylamine)-1,3,5-triazin-2-yl]amino] benzenesulfonate and urea)
- Uses:* Optical brightener for alkaline paper stock conditions and for paper coatings based on casein, casein/latex, and all-syn. binders; conc.; suitable for furnishes with unbleached pulp and groundwood
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.17-1.21; visc. 40-80 mPa·s; vapor pressure 15 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9-10.5; anionic
- Toxicology:* LD50 (oral, rat) > 10,000 mg/kg; may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains, waterways; > 60% biodeg.
- Precaution:* Incompat. with oxidizers
- Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced
- NFPA: Health 1; Flammability 1; Reactivity 0
- Storage:* Very long shelf life in tightly closed containers; store away from light
- Optiblanc® NL 70** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv.
- Uses:* Optical brightener for alkaline paper stock conditions and for paper coatings based on casein, casein/latex, and all-syn. binders; suitable for furnishes with unbleached pulp and groundwood
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.10-1.14; visc. 25 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9-10.5; anionic
- Toxicology:* LD50 (oral, rat) > 10,000 mg/kg; may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains, waterways; > 60% biodeg.
- Precaution:* Incompat. with oxidizers, water-reacting materials, hypochlorites
- Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced
- NFPA: Health 1; Flammability 1; Reactivity 0
- Storage:* Very long shelf life in tightly closed containers; store away from light
- Optiblanc® PLC** [3V/Paper]
- Chem. Descrip.:* Benzoxazole
- Uses:* Optical brightener for paper
- Optiblanc® RL 120** [3V/Paper]
- Chem. Descrip.:* Tetrasulfonated stilbene
- Uses:* Optical brightener for paper
- Optiblanc® RL 140** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv.
- Uses:* Optical brightener for broad range of paper applics., size-press with starch and other prods., and coatings based on latex, starch, CMC, and PVOH
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Brn. liq.; char. odor; misc. with water; sp.gr. 1.10-1.14; visc. 15 mPa·s; vapor pressure 15 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9.5-10.5; anionic
- Toxicology:* LD50 (oral, rat) 5000 mg/kg; may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains, waterways
- Precaution:* Incompat. with oxidizers, water-reacting materials, hypochlorites
- Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced
- NFPA: Health 2; Flammability 1; Reactivity 0
- Storage:* Very long shelf life in tightly closed containers; store away from light; protect from frost
- Optiblanc® RL 140T** [3V/Paper]
- Chem. Descrip.:* Tetrasulfonated, amine-free stilbene
- Uses:* Optical brightener for paper
- Optiblanc® RL 200** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv.
- Uses:* Optical brightener for broad range of paper applic., paper stock even at low pH, size-press with starch and other prods., and paper coatings based on latex, starch, CMC, and PVOH; conc.
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Brn. liq.; char. odor; misc. with water; sp.gr. 1.16-1.20; visc. 20 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9.5-10.5; anionic
- Toxicology:* LD50 (oral, rat) 5000 mg/kg; may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains, waterways
- Precaution:* Incompat. with oxidizers, water-reacting materials, and hypochlorites
- Hazardous Decom. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced
- NFPA: Health 2; Flammability 1; Reactivity 0
- Storage:* Very long shelf life in tightly closed containers; store away from light; protect from frost
- Optiblanc® SL 250** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv.
- Uses:* Optical brightener for paper coating applics.; high gray point; suitable for coating colors based on latex only or contg. a limited amt. of cobinder; no inc. in visc. when CMC is used in the coating color; good lightfastness
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.14-1.18; visc. 400 cp (20 C); vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 8-9
- Toxicology:* LD50 (oral, rat) 5000 mg/kg; prolonged contact may cause sl. irritation to eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains or waterways
- Precaution:* Do not store or mix with oxidizers
- Hazardous Decom. Prods.:* Burning may produce nitrogen, sulfur, and carbon oxides
- NFPA: Health 1; Flammability 1; Reactivity 0
- Storage:* Very long shelf life; stable if stored away from light; keep containers tightly closed; avoid freezing
- Optiblanc® XL 30** [3V/Paper]
- Chem. Descrip.:* Stilbene-triazine deriv.
- Uses:* Optical brightener for paper; esp. suitable for obtaining high degree of brightness by size press treatment, even at low pH and by coating with nat. and syn. binders; does not harm sizing
- Regulatory:* DOT nonregulated; SARA §304/313 nonreportable
- Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.11-1.15; visc. 20 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9-10 (1%); anionic
- Toxicology:* LD50 (oral, rat) > 10,000 mg/kg; prolonged contact may sl. irritate eyes, skin, and mucous membranes; TSCA listed
- Environmental:* Do not discharge into drains, waterways
- Precaution:* Incompat. with oxidizers, acids, water-reacting materials, and hypochlorites

- Hazardous Decomp. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* Store in tightly closed containers; store away from light; protect from frost
- Optiblanc® XLN** [3V/Paper; 3V Sigma]  
*Chem. Descrip.:* Stilbene-triazine deriv.  
*Uses:* Optical brightener for paper; conc.; very high sat. pt.; esp. suitable for obtaining high degree of brightness by size press treatment and in coatings containing nat. and syn. binders; does not harm internal sizing  
*Regulatory:* DOT nonregulated; SARA §304/313 nonreportable  
*Properties:* Yel.-brn. liq.; char. odor; misc. with water; sp.gr. 1.16-1.20; visc. 20 mPa·s; vapor pressure 20 mm Hg (20 C); m.p. < 10 C; b.p. 100 C; pH 9.5-10.5; anionic  
*Toxicology:* Prolonged contact may sl. irritate eyes, skin, and mucous membranes; TSCA listed  
*Environmental:* Do not discharge into drains, waterways  
*Precaution:* Incompat. with oxidizers; do not use with nitrosation agents as nitrosamines (carcinogens) may form  
*Hazardous Decomp. Prods.:* On burning, nitrogen, sulfur, and carbon oxides can be produced  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* Store in tightly closed containers @ 5-30 C; protect from frost
- Opticoll 23** [EPC Papierchemie GmbH]  
*Chem. Descrip.:* Alkyl ketene dimer aq. disp.  
*Uses:* Internal sizing agent for paper, paperboard, cardboard, esp. for sizing of pulp contng. chalk, food pkg. (Germany); rec. for neutral to sl. alkaline pH range (pH 7-8.5)  
*Use Level:* 0.3-2%  
*Regulatory:* BgVV XXXVI compliant  
*Properties:* Wh. disp.; sp.gr. 1.02 g/cc; pH 3.5 ± 1; 22 ± 0.5% act.; cationic  
*Storage:* 3 mos min. shelf life stored at 5-35 C in upright sealed SS tanks
- OptiGuard™** [Hercules]  
*Uses:* Corrosion inhibitor, deposit inhibitor, oxygen control agent, condensate protectant for pulp/paper mill boiler systems; all-in-one program
- OptiSperse™** [Hercules]  
*Uses:* Corrosion inhibitor in papermaking
- Optiwhite®** [Burgess Pigment]  
*Chem. Descrip.:* Aluminum silicate, thermo-optic  
*Chem. Analysis:* SiO<sub>2</sub> (51.0-52.4%), Al<sub>2</sub>O<sub>3</sub> (42.1-44.3%), moisture (0.5% max.)  
 CAS 1327-36-2; EINECS/ELINCS 215-475-1  
*Uses:* Pigment for paper coatings, paints, rubber, and plastics to extend TiO<sub>2</sub> or other costly pigments; reinforcing filler for NR, SR, resins, flooring, molded and extruded goods, heels, soles, wire and cable, sundries, footwear; retains whiteness and hiding when embedded in binders; exc. dispersion, good electricals, high hiding, improved film props.; U.S. patent 3,309,214  
*Properties:* Amorphous particles; 0.15% max. on 325 mesh; sp.gr. 2.2; oil absorp. 57; ref. index 1.62; pH 5.5-6.2
- Organopol®** [Ciba Spec. Chems./Paper]  
*Uses:* Retention aid, drainage aid in mech. furnishes for newsprint, ground-wood specialties, and paperboard; developed for DIP/TMP/CTMP and highly contaminated stock where normal retention aids have no effect
- Orlene® 1340** [Nalco]  
*Chem. Descrip.:* Polyacrylic acid  
 CAS 9003-01-4  
*Uses:* Dispersant that controls pulp/paper mill scale and inorg. deposits; food-contact paper/paperboard; effective over wide pH range and at high temps.  
*Regulatory:* FDA 21CFR §176.170, 176.180 approved  
*Properties:* Wh. to pale yel. liq.; sp.gr. 1.18-1.20; dens. 9.9 lb/gal; visc. < 40 cps; f.p. 32 F; flash pt. > 200 F; pH 2.8-3.2; anionic  
*Toxicology:* Causes eye irritation  
*Storage:* Store @ R.T.
- O® Sodium Silicate** [PQ]  
*Chem. Descrip.:* Sodium silicate aq. sol'n.  
*Chem. Analysis:* Na<sub>2</sub>O (9.1%), SiO<sub>2</sub> (29.5%)  
 CAS 1344-09-8; EINECS/ELINCS 215-687-4  
*Uses:* Buffer, alkali stabilizer for pad-batch dyeing; detergent, deflocculant, bleaching enhancer, alkalinity agent in deinking paper stock; peroxide stabilizer in repulping and postbleaching; hardening/waterproofing concrete; slurry thinner in ceramics; slime control in mining
- Regulatory:* DOT nonregulated  
*Properties:* Syrupy liq.; dens. 11.8 lb/gal (20 C); visc. 400 cps; pH 11.3
- Oxetal 500/85** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol polyglycol ether (5 EO)  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, ceramic, and leather industries  
*Properties:* Colorless liq.; sol. gives weakly opaque sol'n. in water; sp.gr. 1.0 (20 C); cloud pt. 65-68 C (5 g/20 ml BDG 25%); pH 6 (10%); 85% act. in water; nonionic
- Oxetal 800/85** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol polyglycol ether (8 EO)  
*Uses:* Basic material for formulation of detergents and cleansers for washing, wetting, rinsing, and cleaning in textile, leather, paper, and ceramic industries  
*Properties:* Colorless liq.; sol. in water; sp.gr. 1.03 (20 C); cloud pt. 66-70 C (1% aq.); pH 6 (10%); 85% act. in water; nonionic
- Oxetal D 104** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Deceth-4  
 CAS 26183-52-8  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, and leather industries  
*Properties:* Liq.; sol. cloudy @ 10% in DW; cloud pt. 58-61 C (5 g/10 ml butyl diglycol 25%); pH 6 (10%); 100% act.; nonionic
- Oxetal ID 104** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Isodeceth-4  
 CAS 61827-42-7  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, and leather industries  
*Properties:* Colorless liq.; sol. cloudy @ 10% in DW; cloud pt. 50-53 C (5 g/20 ml butyl diglycol 25%); pH 6 (10%); 100% act.; nonionic  
 Custom prod.
- Oxetal O 108** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Oleth-8  
 CAS 9004-98-2  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, and leather industries  
*Properties:* Wh. paste; sol. @ 10% in DW; cloud pt. 45-50 C (1% aq.); pH 6 (10%); 100% act.; nonionic
- Oxetal O 112** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Oleth-12  
 CAS 9004-98-2  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, and leather industries  
*Properties:* Wh. paste; sol. @ 10% in DW; cloud pt. 83-87 C (1% aq.); pH 6 (10%); 100% act.; nonionic
- Oxetal TG 111** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Cetareth-11  
 CAS 68439-49-6  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, and leather industries  
*Properties:* Wh. wax; sol. cloudy @ 10% in water, clear @ 40 C; cloud pt. 70-75 C (1% aq.); pH 6 (10%); 100% act.; nonionic
- Oxetal TG 118** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Cetareth-18  
 CAS 68439-49-6  
*Uses:* Detergent, dispersant, emulsifier, wetting agent for household and industrial use, textile, paper, and leather industries  
*Properties:* Wh. wax; sol. @ 10% in DW; cloud pt. 72-76 C (1% in 10% NaCl); pH 6 (10%); 100% act.; nonionic
- Oxicol®** [Ciba Spec. Chems./Paper]  
*Chem. Descrip.:* PEO-based  
*Uses:* Retention aid for newsprint and paperboard
- Oxirez®** [Ciba Spec. Chems./Paper]  
*Chem. Descrip.:* PEO resin  
*Uses:* Retention aid for newsprint and paperboard



# P

## PAC-300 [Summit Research Labs]

*Chem. Descrip.:* Polyaluminum chloride sol'n.  
 CAS 1327-41-9; EINECS/ELINCS 215-477-2

*Uses:* Coagulant/flocculant for wastewater and potable water treatment, in pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities

*Regulatory:* NSF approved up to 250 mg/l

*Properties:* Colorless clear liq.; sp.gr. 1.19-1.21 (15 C); pH 2.3-2.8; 10-11.9% Al<sub>2</sub>O<sub>3</sub>, 5.3-6.3% aluminum

## Pace® 381 [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Vinyl acetate homopolymer made in a polyvinyl alcohol colloidal system

*Uses:* Adhesive base for wood, uncoated paper, corrugated board, cotton cloth, and construction prods.; rec. where low VOC content is required; good wet tack; low residual monomer level (< 0.1%)

*Properties:* 0.2-3.0 µ particle size; dens. 8.8-9.2 lb/gal; visc. 1600-2000 cps; surf. tens. 51-54 dynes/cm; pH 4.0-5.5; 54-56% min. solids

*Storage:* > 180 days shelf life at 72 F; protect from freezing

## Pace® 382 [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Vinyl acetate homopolymer made in a polyvinyl alcohol colloidal system

*Uses:* Adhesive base for wood, uncoated paper, corrugated board, cotton cloth, and construction prods.; rec. where low VOC content is required; good wet tack; low residual monomer level (< 0.1%)

*Properties:* 0.2-3.0 µ particle size; dens. 8.95-9.25 lb/gal; visc. 2000-2600 cps; surf. tens. 51-54 dynes/cm; pH 4.0-5.5; 54-56% min. solids

*Storage:* > 180 days shelf life at 72 F; protect from freezing

## Pace® 383 [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Vinyl acetate homopolymer made in a polyvinyl alcohol colloidal system

*Uses:* Adhesive base for wood, uncoated paper, corrugated board, cotton cloth, and construction prods.; rec. where low VOC content is required; good wet tack; low residual monomer level (< 0.1%)

*Properties:* 0.2-3.0 µ particle size; dens. 8.8-9.2 lb/gal; visc. 2900-3700 cps; surf. tens. 51-54 dynes/cm; pH 4.0-5.5; 54-56% min. solids

*Storage:* > 180 days shelf life at 72 F; protect from freezing

## Pace® 385 [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Vinyl acetate homopolymer made in a polyvinyl alcohol colloidal system

*Uses:* Adhesive base for adhesives and coatings; rec. where low VOC content is required; good wet tack; low residual monomer levels (< 0.1%)

*Properties:* 0.2-2.5 µ particle size; dens. 9.0-9.2 lb/gal; visc. 800-1200 cps; surf. tens. 47.5-50.5 dynes/cm; pH 4.0-5.5; 54-56% min. solids

*Storage:* > 180 days shelf life at 72 F; protect from freezing

## Pamolyn® 200 [Hercules/Resins]

*Chem. Descrip.:* Linoleic acid  
 CAS 60-33-3; EINECS/ELINCS 200-470-9

*Uses:* For the protective coating industry for prod. of pale, color-retentive, fast-drying alkyds, and epoxy resin ester coatings; for printing ink vehicles and caulking and sealing compds.; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; defoamer in food-contact coatings; highly resist. to discoloration on exposure to heat and light

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 175.390, 176.170b, 176.180, 176.200, 177.1200, 177.1210, 177.2600, 177.2800

*Properties:* Gardner 3+ max., pale oily liq., low odor; sp.gr. 0.9040; dens.

0.90 kg/l; acid no. 193; iodine no. 162; sapon. no. 195; 78% total linoleic acid, 22% oleic acid

## Pamolyn® 240 [Hercules]

*Chem. Descrip.:* Linoleic acid

CAS 60-33-3; EINECS/ELINCS 200-470-9

*Uses:* For the protective coating industry for prod. of pale, color-retentive, fast-drying alkyds, and epoxy resin ester coatings; for printing ink vehicles and caulking and sealing compds.; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; defoamer in food-contact coatings; highly resist. to discoloration on exposure to heat and light

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 175.390, 176.170b, 176.180, 176.200, 177.1200, 177.1210, 177.2600, 177.2800

*Properties:* Gardner 3+ max.; low odor; sp.gr. 0.9010; dens. 0.90 kg/l; acid no. 194; iodine no. 148; sapon. no. 195; 67% total linoleic acid, 31% oleic acid

## Papermaker's Alum [Delta]

*Chem. Descrip.:* Aluminum sulfate

CAS 10043-01-3; EINECS/ELINCS 233-135-0

*Uses:* Coagulant, flocculant for drinking water treatment, paper processing

*Regulatory:* NSF certified

## Paper-PAC-N® [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Polyaluminum hydroxide chloride sulfate

CAS 39290-78-3; EINECS/ELINCS 254-400-7

UN No. 3264

*Uses:* Flocculant, fixing agent, alum replacement for neutral sizing process of paper and cardboard mfg.; reduces or eliminates gypsum precipitation

*Properties:* Colorless to yllsh. translucent liq.; unlimited sol. in water; sp.gr. 1.2 (20 C); visc. 20 mPa·s (20 C); vapor pressure 103 hPa (20 C); f.p. -12 C; b.p. > 100 C; flash pt. not applicable; pH 2.7; 33% act.

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; irritating to eyes and skin

*Environmental:* LC0 (leuciscus idus melonatus, 48 h) 750 mg/l; contains no substances or heavy metals in ecologically critical concs.; sl. harmful to water

*Precaution:* Corrosive; acidic; observe usual precautions for handling weak acids; keep away from acid-sensitive materials

*Storage:* 12 mos storage stability; store dry at < 40 C; acid-resist. materials should be used for storage and dosing equip.

## PAPHEN® PKFE [Phenoxy Assoc.]

*Chem. Descrip.:* Phenoxy resin

*Uses:* Resin for structural adhesives, film extrusion, inj. molding, plastics modifiers, and polymer alloys; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Translucent pellets; low odor; m.w. 10-16,000; sp.gr. 1.17-1.19; visc. 535-895 cps; melt index 2-3 g/10 min.; 99% min. NV (2 hrs. @ 135 C + 1 hr. @ 220 C)

*Storage:* Store indefinitely in cool place in sealed container

## PAPHEN® PKHC® [Phenoxy Assoc.]

*Chem. Descrip.:* Phenoxy resin

*Uses:* Resin for adhesives, primers and coatings; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers; exc. adhesion, chem., and salt-spray resist., impact and abrasion resist., and flexibility; may be used on metal, wood, paper, glass, and polymer substrates; resist. to staining

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Wh. translucent pellets; m.w. 45-60,000; sp.gr. 1.17-1.19; visc. 410-525 cps; 99% min. NV (2 hrs. @ 135 C)

*Storage:* Indefinite shelf life in cool place (50-90 F, 30-70% relative humidity) in sealed containers

**PAPHEN® PKHH** [Phenoxy Assoc.]

*Chem. Descrip.:* Phenoxy resin

*Uses:* Resin for adhesives, primers and coatings for use on metal, wood, paper, glass, and polymer substrates; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers; exc. adhesion, chem., and salt-spray resist., impact and abrasion resist., and flexibility; resist. to staining

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Wh. translucent pellets; m.w. 45-60,000; sp.gr. 1.17-1.19; visc. 525-715 cps; 99% min. NV (2 hrs. @ 135 C)

*Storage:* Indefinite shelf life in cool place (50-90 F, 30-70% relative humidity) in sealed containers

**PAPHEN® PKHJ** [Phenoxy Assoc.]

*Chem. Descrip.:* Phenoxy resin

*Uses:* Resin for adhesives, primers and coatings; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers; exc. adhesion, chem., and salt-spray resist., impact and abrasion resist., and flexibility; may be used on metal, wood, paper, glass, and polymer substrates; resist. to staining

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Wh. translucent pellets; m.w. 45-60,000; sp.gr. 1.17-1.19; visc. 600-775 cps; 99% min. NV (2 hrs. @ 135 C)

*Storage:* Indefinite shelf life in cool place (50-90 F, 30-70% relative humidity) in sealed containers

**PAPHEN® PKHM-301** [Phenoxy Assoc.]

*Chem. Descrip.:* Modified phenoxy resin

*Uses:* Resin for coil coating primers; can, coil, and clear coatings; specialty coatings; hot-melt and laminating adhesives; film extrusion; plastics modifiers; epoxy modification; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Opaque pellets; sp.gr. 1.15-1.19; visc. 100-300 cps; 99% min. NV (2 hrs. @ 135 C)

*Storage:* Store @ < 75 F to avoid sintering and agglomeration

**PAPHEN® PKHS-40** [Phenoxy Assoc.]

*Chem. Descrip.:* Phenoxy resin (40%) in MEK

*Uses:* Resin for maintenance primers, can and clear coatings, heat-sealable and flexible substrate coatings; adhesive primers; epoxy modification; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Straw-colored clear liq.; visc. 4500-7000 cps; f.p. -37 C; b.p. 80 C; flash pt. (TCC) -6 C; 40% total solids; 1% max. water content

*Precaution:* Flamm.; keep away from heat

*Storage:* 1 yr shelf life in tightly closed upright containers @ < 49 C; stir prior to use

**PAPHEN® PKHW-35** [Phenoxy Assoc.]

*Chem. Descrip.:* Amine-neutralized carboxylated phenoxy resin in water (avail. with butoxyethanol (8-10%) or methyl propylene glycol ether as co-solv.)

*Uses:* Resin for general-purpose metal primers; flexible modifier for epoxy and phenolic baking primers; coil/drum/pail/heat sealable/wire/strippable coatings; laminating adhesives; rigid adhesive flexibilizing modifier; food-contact adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Cream colored liq.; 1.5 µ median particle size; dens. 9.0 lb/gal; visc. 1500-4000 cps; pH 7; 30-32% solids; 57% water

*Storage:* > 6 mos shelf life stored @ < 90 F; avoid freezing

**Paracol® 404C** [Hercules]

*Chem. Descrip.:* Refined microcrystalline wax emulsion

CAS 63231-60-7; EINECS/ELINCS 264-038-1

*Uses:* Sizing agent for improving surf. properties of paper/paperboard; detackifier; antiblocking agent; in coatings and printing inks; mold release in rubber and plastics; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Lt. amber emulsion; 1.5 µ particle size; dens. 8.0 lb/gal; m.p. 79 C; 47% solids; sl. anionic

*Storage:* Protect from freezing (breaks the emulsion)

**Paracol® 404G** [Hercules]

*Chem. Descrip.:* Fully refined paraffin wax emulsion

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Sizing agent for paper and paperboard; increases lactic acid resist. in milk cartons, blood resist. in butcher papers, meat trays, picnic plates; moisture barrier for coatings; mold release in rubber and plastics; protective coatings on fruit; food pkg. adhesives, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Properties:* Wh. emulsion, 1.5 µ particle size; dens. 0.96 kg/l; m.p. 61-67 C; 47% total solids; sl. anionic

*Storage:* Protect from freezing (breaks the emulsion)

**Paracol® 802A** [Hercules]

*Chem. Descrip.:* Refined paraffin wax emulsion

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Sizing agent for internal applics. in conjunction with rosin size and for surf.-sizing applics. in food-contact paper/paperboard; economical moisture barrier; antiblocking agent in paper coatings

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Wh. to lt. amber emulsion; 1.5 µ particle size; dens. 0.96 kg/l; m.p. 49-54 C; 50% total solids; anionic

*Storage:* Protect from freezing (breaks the emulsion)

**Paracol® 802N** [Hercules]

*Chem. Descrip.:* Semirefined paraffin wax emulsion

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Controls water absorp. in insulating board and hardboard and sizing applics. in nonfood-pkg. grades of paper and paperboard; also for moisture protection in wood coatings

*Properties:* Emulsion; < 1 µ avg. particle size; dens. 0.96 kg/l; m.p. 49-57 C; 50% total solids; anionic

*Storage:* Protect from freezing (breaks the emulsion)

**Paracol® 2370** [Hercules]

*Chem. Descrip.:* Semirefined paraffin wax emulsion

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Used for latex-based protective coating systems, wood coatings; internal sizing applics. for wet processing; provides exc. moisture barrier to paper, paperboard, building prods.; acid-breaking emulsion

*Properties:* Lt. amber emulsion; 1.5 µ avg. particle size; dens. 7.6 lb/gal; m.p. 52-57 C; pH 8.8; 58% total solids; sl. anionic

*Storage:* Protect from freezing (breaks the emulsion)

**Paracum® 56** [Dr. W. Kolb AG]

*Uses:* Antifoam for wastewater treatment, paper processing; hydrophobic; spreads quickly over foam surf.; destabilizes and destroys air bubbles; effective over wide temp. range; no VOCs

**Paracum® 66** [Dr. W. Kolb AG]

*Uses:* Antifoam for paper processing; effective over wide range of pH and temps.; exc. entrained air removal

*Properties:* 100% act.

**Paradene® No. 2** [Neville]

*Chem. Descrip.:* Petrol. hydrocarbon resin

*Uses:* Plasticizer, softener, extender for NR, SR; aids processing and filler and pigment disp.; also used for inks, adhesives, coatings, and concrete cures; food-contact adhesives, coatings, paper/paperboard, rubber articles, wood preservatives; suitable for high loadings

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3800

*Properties:* Dk. brn. solid, flakes; m.w. 710; sp.gr. 1.10; R&B soften. pt. 102 C; iodine no. (Wijs) 112; flash pt. (COC) 525 F

**ParCell™ A** [Hercules/Aqualon]

*Chem. Descrip.:* Nitrocellulose

CAS 9004-70-0; EINECS/ELINCS 239-069-9

*Uses:* Film-forming resin for wood and metal coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, polymers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1200, 177.1210, 177.1630, 181.30

*Properties:* Avail. in various visc. grades; 11.3-11.7% N

**ParCell™ R** [Hercules/Aqualon]

*Chem. Descrip.:* Nitrocellulose

CAS 9004-70-0; EINECS/ELINCS 239-069-9

*Uses:* Film-forming resin for wood and metal coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, polymers; most commonly used type due to its sol. in lean solvs.

- Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1200, 177.1210, 177.1630, 181.30  
*Properties:* Avail. in various visc. grades; 11.7-12.2% N
- ParCell™ S** [Hercules/Aqualon]  
*Chem. Descrip.:* Nitrocellulose  
 CAS 9004-70-0; EINECS/ELINCS 239-069-9  
*Uses:* Film-forming resin for wood and metal coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, polymers; used when substantial alcohol sol. is required  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1200, 177.1210, 177.1630, 181.30  
*Properties:* Avail. in various visc. grades; 10.9-11.3% N
- Particol®** [DuPont]  
*Chem. Descrip.:* Polysilicic acid  
*Uses:* Retention aid, drainage aid for papermaking; flocculant for water treatment
- Parvan® 127** [Exxon]  
*Chem. Descrip.:* Petroleum hydrocarbon wax  
*Uses:* For food, health, and cosmetic applics.; suited for barbecue lighter bricks, butcher wrap, candles, cheese coating, corrugated paperboard, lumber end coating; fully refined wax with enhanced oxidation resist.  
*Regulatory:* FDA compliance  
*Properties:* Saybolt +30 color; dens. 6.78 lb/gal (60 F); kinematic visc. 3.5 cSt (210 F); m.p. 127 F; flash pt. 420 F  
*Toxicology:* May cause skin irritation on prolonged/repeated contact  
*Precaution:* Trace materials constitute explosive hazard
- Parvan® 131** [Exxon]  
*Chem. Descrip.:* Petroleum hydrocarbon wax  
*Uses:* For food, health, and cosmetic applics.; suited for butcher wrap, corrugated paperboard, cups, drinking straws, shoe polish, wax paper; fully refined wax with enhanced oxidation resist.  
*Regulatory:* FDA compliance  
*Properties:* Saybolt +30 color; dens. 6.79 lb/gal (60 F); kinematic visc. 3.7 cSt (210 F); m.p. 131 F; flash pt. 425 F  
*Toxicology:* May cause skin irritation on prolonged/repeated contact  
*Precaution:* Trace materials constitute explosive hazard
- Parvan® 137** [Exxon]  
*Chem. Descrip.:* Petroleum hydrocarbon wax  
*Uses:* For food, health, and cosmetic applics.; suited for candles, corrugated paperboard, cups, glassine, paste wax, tires, wax paper; fully refined wax with enhanced oxidation resist.  
*Regulatory:* FDA compliance  
*Properties:* Saybolt +30 color; dens. 6.81 lb/gal (60 F); kinematic visc. 4.1 cSt (210 F); m.p. 137 F; flash pt. 440 F  
*Toxicology:* May cause skin irritation on prolonged/repeated contact  
*Precaution:* Trace materials constitute explosive hazard
- Parvan® 154** [Exxon]  
*Chem. Descrip.:* Petroleum hydrocarbon wax  
*Uses:* For food, health, and cosmetic applics.; suited for hot-melt adhesives, candles, paper plates, paste wax, tires; fully refined wax with enhanced oxidation resist.  
*Regulatory:* FDA compliance  
*Properties:* Saybolt +30 color; dens. 6.91 lb/gal (60 F); kinematic visc. 6.6 cSt (210 F); congeal pt. 154 F; flash pt. 500 F  
*Toxicology:* May cause skin irritation on prolonged/repeated contact  
*Precaution:* Trace materials constitute explosive hazard
- Pass®-55** [Handy Chems.]  
*Chem. Descrip.:* Aluminum hydroxide sulfate sol'n.  
 CAS 53810-32-5  
*Uses:* Coagulant used in potable water treatment for removal of Giardia and Crypto; coagulant in industrial wastewater and sewage treatment for BOD, COD and PO<sub>4</sub> reduction and in wet-end papermaking  
*Properties:* Colorless clear liq.; odorless; hydrolyzes in water; sp.gr. 1.26-1.35; f.p. < 0 C; b.p. dec. @ 90 C; pH 2.8-3.8; noncombustible  
*Toxicology:* ACGIH TLVTWA 2 mg/m<sup>3</sup> (Al, sol. salts); LD50 (oral, rat) > 5000 mg/kg; inh. of mist causes respiratory tract irritation; may cause irritation to skin, eyes, mouth, and digestive tracts; chronic exposure may cause dermatitis  
*Precaution:* Avoid strong alkalis, oxidizers, and hydroreactive materials  
*Hazardous Decomp. Prods.:* Sulfur and aluminum oxides when heated above 200 C  
*Storage:* Store @ > 15 C; spills can be slippery
- Pass®-70** [Handy Chems.]  
*Chem. Descrip.:* Aluminum hydroxide sulfate sol'n.  
 CAS 53810-32-5  
*Uses:* Coagulant used in potable water treatment for removal of Giardia and Crypto; coagulant in industrial wastewater and sewage treatment for BOD, COD and PO<sub>4</sub> reduction and in wet-end papermaking  
*Properties:* Colorless clear liq.; odorless; hydrolyzes in water; sp.gr. 1.26-1.35; f.p. < 0 C; b.p. dec. @ 90 C; pH 2.8-3.8; noncombustible  
*Toxicology:* ACGIH TLVTWA 2 mg/m<sup>3</sup> (Al, sol. salts); LD50 (oral, rat) > 5000 mg/kg; inh. of mist causes respiratory tract irritation; may cause irritation to skin, eyes, mouth, and digestive tracts; chronic exposure may cause dermatitis  
*Precaution:* Avoid strong alkalis, oxidizers, and hydroreactive materials  
*Hazardous Decomp. Prods.:* Sulfur and aluminum oxides when heated above 200 C  
*Storage:* Store @ > 15 C; spills can be slippery
- Pass®-80** [Handy Chems.]  
*Chem. Descrip.:* Aluminum hydroxide sulfate sol'n.  
 CAS 53810-32-5  
*Uses:* Coagulant used in potable water treatment for removal of Giardia and Crypto; coagulant in industrial wastewater and sewage treatment for BOD, COD and PO<sub>4</sub> reduction and in wet-end papermaking  
*Properties:* Colorless clear liq.; odorless; hydrolyzes in water; sp.gr. 1.26-1.35; f.p. < 0 C; b.p. dec. @ 90 C; pH 2.8-3.8; noncombustible  
*Toxicology:* ACGIH TLVTWA 2 mg/m<sup>3</sup> (Al, sol. salts); LD50 (oral, rat) > 5000 mg/kg; inh. of mist causes respiratory tract irritation; may cause irritation to skin, eyes, mouth, and digestive tracts; chronic exposure may cause dermatitis  
*Precaution:* Avoid strong alkalis, oxidizers, and hydroreactive materials  
*Hazardous Decomp. Prods.:* Sulfur and aluminum oxides when heated above 200 C  
*Storage:* Store @ > 15 C; spills can be slippery
- PASS®-100** [Handy Chems.]  
*Chem. Descrip.:* Polyaluminum silicate sulfate  
 CAS 53810-32-5  
*Uses:* Coagulant in potable water treatment, wastewater treatment, pulp/papermaking for removal of Giardia and Crypto, industrial wastewater and sewage treatment for BOD, COD and PO<sub>4</sub> reduction; used in all processes requiring conventional cationic metallic salts; extremely effective in cold waters (16 C or less); precipitates faster than alum; works over wide pH range  
*Regulatory:* NSF certified; Health and Welfare Canada approved  
*Properties:* Lt. amber liq.; odorless; hydrolyzes in water; sp.gr. 1.34; visc. 17 cps; f.p. < 0 C; b.p. dec. @ 90 C; pH 3.0; noncombustible; 34% total solids; 10.1% Al<sub>2</sub>O<sub>3</sub>  
*Toxicology:* ACGIH TLVTWA 2 mg/m<sup>3</sup> (Al, sol. salts); LD50 (oral, rat) > 5000 mg/kg; mildly acidic sol'n. which dehydrates skin; inh. of mist causes respiratory tract irritation; may cause irritation to skin, eyes, mouth, and digestive tracts  
*Precaution:* Corrosive; avoid contact with strong alkalis, oxidizers, and hydro-reactive materials; hydrolyzes rapidly @ 90 C  
*Hazardous Decomp. Prods.:* May liberate SO<sub>2</sub> and aluminum oxides when boiled to dryness or heated > 200 C  
*Storage:* Store in PVC @ 10-25 C
- Patcote® 801** [Am. Ingreds./Patco]  
*Chem. Descrip.:* Nonsilicone silica-organic  
*Uses:* Defoamer for use in PVA-acrylic copolymers and terpolymer emulsions for trade sales, urethane and S/B systems; defoamer in food-contact coatings; food pkg. adhesives, coatings, paper  
*Use Level:* 5-10 lb/100 gal  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200  
*Properties:* Wh. opaque liq.; fineness (Hegman) ≥ 6; sp.gr. 0.894 ± 0.012; dens. 7.45 ± 0.1 lb/gal; pour pt. -5 F; flash pt. (PMCC) 300 F; VOC < 1.5%; 100% act.  
*Toxicology:* Eye or skin irritant on prolonged contact; do not take internally; TSCA listed  
*Storage:* If stored outside, bring to R.T. before use; prod. does not settle
- Patcote® 806** [Am. Ingreds./Patco]  
*Chem. Descrip.:* Nonsilicone silica-organic  
*Uses:* Defoamer for acrylic and terpolymer emulsions in trade sales and some industrial applics., alkyd, epoxy, PVAc, and urethane systems; food pkg. adhesives, coatings, paper/paperboard

*Use Level:* 5-10 lb/100 gal

*Regulatory:* FDA §175.105, 175.300, 176.170, 176.180

*Properties:* Lt. amber liq.; fineness (Hegman)  $\geq 6$ ; sp.gr. 0.8787; dens. 7.32 lb/gal; pour pt. 5 F; flash pt. (PMCC) > 300 F; 100% act.

*Toxicology:* Eye or skin irritant on prolonged contact; do not take internally  
*Storage:* If stored outside, bring to R.T. before use; prod. settles, stir before use

**Patcote® 814** [Am. Ingreds./Patco]

*Chem. Descrip.:* Nonsilicone silica-organic

*Uses:* Defoamer for acrylic emulsions, PVAc, S/B, terpolymer, alkyd, polyester, and PU systems; food pkg. adhesives, coatings, paper/paperboard; defoamer in food-contact coatings; exc. persistency and color acceptance

*Use Level:* 2-10 lb/100 gal

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200

*Properties:* Amber opaque; fineness (Hegman)  $\geq 6$ ; sp.gr. 0.909  $\pm$  0.012; dens. 7.57  $\pm$  0.1 lb/gal; pour pt. > 30 F; flash pt. (PMCC) > 300 F; VOC < 1.5%; 100% act.

*Toxicology:* Eye or skin irritant on prolonged contact; do not take internally; TSCA listed

*Storage:* If stored outside, bring to R.T. before use; prod. may settle; stir before use

**Patcote® 8060** [Am. Ingreds./Patco]

*Chem. Descrip.:* Nonsilicone silica-organic

*Uses:* Defoamer for use in acrylic, terpolymer, and PVC systems for trade sale and industrial paints, screen printing inks, alkyd, epoxy, polyester, PU, PVAc, and S/B systems; food pkg. adhesives, coatings, paper/paperboard; defoamer in food-contact coatings; exc. persistency and color acceptance

*Use Level:* 3-6 lb/100 gal

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200

*Properties:* Amber opaque.; fineness (Hegman)  $\geq 6$ ; sp.gr. 0.904  $\pm$  0.012; dens. 7.50  $\pm$  0.1 lb/gal; pour pt. -5 F; flash pt. (PMCC) > 300 F; VOC < 1.5%

*Toxicology:* Eye or skin irritant on prolonged contact; do not take internally; TSCA listed

*Storage:* If stored outside, bring to R.T. before use; may show sl. separation on extended storage; stir before use

**Path® 9** [Huber Engineered Materials]

*Chem. Descrip.:* Alumina trihydrate

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Extender/partial replacement for TiO<sub>2</sub> in coating applics.; flame retardant

*Properties:* Wh. free-flowing fine powd.; 100% thru 325 mesh; 2  $\mu$  median particle size; sp.gr. 2.42; dens. 20.19 lb/gal; bulk dens. (loose) 0.35, (packed) 0.5; surf. area 13 m<sup>2</sup>/g; oil absorp. 38; TAPPI brightness 95

**Paxgard BD 20** [Pax Group]

*Chem. Descrip.:* 2-Bromo-2-nitropropane-1,3-diol

CAS 52-51-7; EINECS/ELINCS 200-143-0

*Uses:* Biocide, algicide for complete wet-state preservation of aq. systems; slimicide, fungicide, bactericide for paper/pulp

*Properties:* Liq.; 20% act.

**Paxgard BD 88** [Pax Group]

*Chem. Descrip.:* 2-Bromo-2-nitropropane-1,3-diol

CAS 52-51-7; EINECS/ELINCS 200-143-0

*Uses:* Biocide, algicide for complete wet-state preservation of aq. systems; slimicide, fungicide, bactericide for paper/pulp; microbicide for prod. of industrial biocide formulations; broad spectrum

*Properties:* Powd.; 87% act.

**Paxgard BK 20** [Pax Group]

*Chem. Descrip.:* Alkyl dimethyl benzyl ammonium chloride

*Uses:* Biocide, algicide for formulation of disinfectants, cleansers, sterilants, algicidal washes; preservative, slimicide, fungicide, bactericide, disinfectant, sterilant for paper/pulp

*Properties:* Liq.; 20% act.

*Toxicology:* Low toxicity

**Paxgard BKC** [Pax Group]

*Chem. Descrip.:* Alkyl dimethyl benzyl ammonium chloride

*Uses:* Biocide, algicide for formulation of disinfectants, cleansers, sterilants, fungicidal/algicidal washes; preservative, slimicide, fungicide, bactericide, disinfectant, sterilant for paper/pulp

*Properties:* Liq.; 50% act.

*Toxicology:* Low toxicity

**Paxgard BSL** [Pax Group]

*Chem. Descrip.:* 2-Thiocyanomethylthiobenzothiazole and methylenebis (thiocyanate)

*Uses:* Biocide, fungicide for long-term protection of leather and timber from bacterial and fungal growth; biocide, slimicide, fungicide, bactericide for paper/pulp; good penetration props.

*Properties:* Liq.; 20% act.

**Paxgard BU 30** [Pax Group]

*Chem. Descrip.:* 2-Thiocyanomethylthiobenzothiazole

CAS 21564-17-0

*Uses:* Biocide, fungicide for protection of leather and timber from bacterial and fungal growth; biocide, slimicide, fungicide, bactericide for paper/pulp; phenol-free

*Properties:* Liq.; water-disp.; 30% act.

**Paxgard BU 30 L** [Pax Group]

*Chem. Descrip.:* 2-Thiocyanomethylthiobenzothiazole

CAS 21564-17-0

*Uses:* Biocide, fungicide, algicide for protection of leather and timber from bacterial and fungal growth; biocide, slimicide, fungicide, bactericide for paper/pulp; phenol-free

*Properties:* Liq.; water-disp.; 30% act.

**Paxgard BU 60** [Pax Group]

*Chem. Descrip.:* 2-Thiocyanomethylthiobenzothiazole

CAS 21564-17-0

*Uses:* Biocide, fungicide, algicide for protection of leather and timber from bacterial and fungal growth; biocide, slimicide, fungicide, bactericide for paper/pulp; prod. of various industrial biocide formulations; phenol-free

*Properties:* Liq.; insol. in water; 60% act.

**Paxgard DB 10** [Pax Group]

*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide

CAS 10222-01-2

*Uses:* Biocide, algicide, fungicide, bactericide for paper/pulp; cost-effective; broad spectrum; halogen-releasing

*Properties:* Liq.; 10% act.

**Paxgard DB 20** [Pax Group]

*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide

CAS 10222-01-2

*Uses:* Biocide, algicide, fungicide, bactericide for paper/pulp; cost-effective; broad spectrum; halogen-releasing

*Properties:* Liq.; 20% act.

**Paxgard DB 99** [Pax Group]

*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide

CAS 10222-01-2

*Uses:* Biocide, algicide, fungicide, bactericide for paper/pulp; prod. of various industrial biocide formulations; broad spectrum; halogen-releasing

*Properties:* Powd.; 99% act.

**Paxgard EM** [Pax Group]

*Chem. Descrip.:* Hexahydro-1,3,5-tris (2-hydroxyethyl)-s-triazine

CAS 4719-04-4; EINECS/ELINCS 225-208-0

*Uses:* Biocide for wet-state protection of aq. metalworking fluids and other alkaline prods.; biocide, slimicide, fungicide, bactericide, disinfectant, sterilant for paper/pulp

*Properties:* Liq.; 100% act.

**Paxgard GDA** [Pax Group]

*Chem. Descrip.:* Glutaraldehyde

CAS 111-30-8; EINECS/ELINCS 203-856-5

*Uses:* Biocide, fungicide for wet-state protection of aq. formulations; preservative, biocide, bactericide for paper/pulp; prod. of various industrial biocide formulations; wide spectrum; protects against bacteria, yeasts, fungi

*Properties:* Water-sol.

**Paxgard GT 10** [Pax Group]

*Chem. Descrip.:* Glutaraldehyde

CAS 111-30-8; EINECS/ELINCS 203-856-5

*Uses:* Biocide, fungicide for wet-state protection of aq. formulations; preservative, biocide, bactericide for paper/pulp; prod. of various industrial biocide formulations; wide spectrum; protects against bacteria, yeasts, fungi

*Properties:* Water-sol.

**Paxgard GT 20** [Pax Group]

*Chem. Descrip.:* Glutaraldehyde

CAS 111-30-8; EINECS/ELINCS 203-856-5

*Uses:* Biocide, fungicide for wet-state protection of aq. formulations; preservative, biocide, bactericide for paper/pulp; prod. of various industrial biocide

- formulations; wide spectrum; protects against bacteria, yeasts, fungi  
*Properties:* Water-sol.
- Paxgard MB 10** [Pax Group]  
*Chem. Descrip.:* Methylenebisthiocyanate  
 CAS 6317-18-6  
*Uses:* Biocide, fungicide for industrial water systems; biocide, slimicide, fungicide, bactericide for paper/pulp; nonoxidizing; stable in and suited for neutral to acidic conditions; exc. penetration chars.  
*Properties:* Liq.; 10% act.
- Paxgard MBT** [Pax Group]  
*Chem. Descrip.:* Methylenebisthiocyanate  
 CAS 6317-18-6  
*Uses:* Biocide, fungicide, algicide for industrial water systems; biocide, slimicide, fungicide, bactericide, antifoulant for paper/pulp; prod. of various industrial biocide formulations; stable in and suited for neutral to acidic conditions; exc. penetration chars.  
*Properties:* Powd.; 99% act.
- Paxgard PDC** [Pax Group]  
*Chem. Descrip.:* Potassium dimethyldithiocarbamate  
 CAS 128-03-0  
*Uses:* Biocide, fungicide, algicide, bactericide for paper/pulp; low-cost; broad spectrum; halogen- and aldehyde-free; nonfoaming; noncorrosive  
*Properties:* Liq.; 40% act.  
*Storage:* Exc. storage stability
- Paxgard SDC** [Pax Group]  
*Chem. Descrip.:* Sodium dimethyldithiocarbamate  
 CAS 128-04-1; EINECS/ELINCS 204-876-7  
*Uses:* Biocide, fungicide, algicide, bactericide for paper/pulp; low-cost; broad spectrum; halogen- and aldehyde-free; nonfoaming; noncorrosive  
*Properties:* Liq.; 40% act.  
*Storage:* Exc. storage stability
- Paxgard ST** [Pax Group]  
*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, bromonitropropanediol  
*Uses:* Biocide, fungicide for complete wet-state protection of aq. prods.; biocide, slimicide, fungicide, bactericide for paper/pulp; broad spectrum  
*Properties:* Liq.
- Paxgard TC** [Pax Group]  
*Chem. Descrip.:* 2-Thiocyanomethylthiobenzothiazole aq. sol'n.  
 CAS 21564-17-0  
*Uses:* Microbicide, algicide for water treatment, paper mill applics.; biocide, slimicide, fungicide, bactericide for paper/pulp; cost-effective  
*Properties:* Liq.
- Paxgard WT** [Pax Group]  
*Chem. Descrip.:* 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one  
*Uses:* Biocide, fungicide, bactericide for water treatment, paper mill applics.; formaldehyde-free  
*Properties:* Liq.; 1.5% act.  
*Toxicology:* Low toxicity
- Paxnol ALES** [Pax Group]  
*Chem. Descrip.:* Ammonium lauryl ether sulfate aq. sol'n.  
 CAS 32612-48-9  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foam booster/stabilizer, wetting agent, visc. builder for shampoos, bubble baths, hand soaps, paper/pulp; hydrolytically stable in low pH formulas  
*Properties:* Liq.; 26% act.; anionic
- Paxnol ALS** [Pax Group]  
*Chem. Descrip.:* Ammonium lauryl sulfate aq. sol'n.  
 CAS 2235-54-3; EINECS/ELINCS 218-793-9  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent, visc. booster in liq. shampoos, bath gels, cleansers, paper/pulp; gives very stable visc. response and consistency  
*Properties:* Liq.; 27% act.; anionic
- Paxnol LES** [Pax Group]  
*Chem. Descrip.:* Sodium lauryl ether sulfate  
 CAS 9004-82-4; EINECS/ELINCS 221-416-0  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foam booster/stabilizer, wetting agent for paper/pulp, other applics.; relatively more stable than sodium lauryl sulfate in electrolytic media; superior hard water tolerance  
*Properties:* Liq.; 27% act.; anionic
- Paxnol PLES** [Pax Group]  
*Chem. Descrip.:* Sodium alkyl ether sulfate  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foam booster/stabilizer, wetting agent for shampoos, detergents, industrial formulations, paper/pulp; low-cost  
*Properties:* Liq.; 27% act.; anionic
- Paxnol PSLs** [Pax Group]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent for cosmetics, industrial cleaners, paper/pulp; low-cost  
*Properties:* Powd.; 87% act.; anionic
- Paxnol SLS Liq.** [Pax Group]  
*Chem. Descrip.:* Sodium lauryl sulfate aq. sol'n.  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent for detergents, personal care, paper/pulp  
*Properties:* Liq.; 28% act.; anionic
- Paxnol SLS Powd.** [Pax Group]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent for shampoos, shaving creams, paper/pulp; high purity  
*Properties:* Powd.; 90% act.; anionic
- Paxnol SLS Pure** [Pax Group]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent for shampoos, shaving creams, dentifrices, paper/pulp; extra pure grade  
*Properties:* Powd.; 95% act.; anionic
- Paxnol TLS** [Pax Group]  
*Chem. Descrip.:* TEA-lauryl sulfate  
 CAS 139-96-8; EINECS/ELINCS 205-388-7  
*Uses:* Surfactant, emulsifier, detergent, degreaser, dispersant, foaming agent, wetting agent for clear formulations, paper/pulp; rec. for prods. requiring low temp. stability and low irritability; gives very fine lathering even in hard water  
*Properties:* Liq.; 40% act.; anionic
- Paxogen COB** [Pax Group]  
*Chem. Descrip.:* Cocobetaine  
 EINECS/ELINCS 270-329-4  
*Uses:* Surfactant, emulsifier, foam booster/stabilizer, visc. builder, anti-irritant in personal care prods.; surfactant, wetting agent, solubilizer, antistat, thickener, conditioner in paper/pulp; cost-effective; exc. foaming in acid, alkali, and electrolyte systems  
*Properties:* Liq.; 34% act.; amphoteric  
*Environmental:* Completely biodeg.
- Paxogen LAO** [Pax Group]  
*Chem. Descrip.:* Alkyl dimethyl amine oxide  
*Uses:* Surfactant, emulsifier, foam booster/stabilizer, dispersant, conditioner, visc. builder in personal care, industrial formulations; surfactant, wetting agent, thickener, antistat, conditioner in paper/pulp  
*Properties:* Liq.; 25% act.; amphoteric
- Paxonic CO 40** [Pax Group]  
*Chem. Descrip.:* Castor oil ethoxylate (36-40 mole EO)  
 CAS 61791-12-6  
*Uses:* Surfactant; dispersant; lubricant; dye leveling agent; emulsion stabilizer in pesticides; surfactant, wetting agent, solubilizer, degreaser, lubricant in paper/pulp; high HLB; forms exc. binary emulsification systems with other nonionic and anionic emulsifiers  
*Properties:* Liq.; 99% act.; nonionic  
*Environmental:* Biodeg.
- Paxonic CO 60** [Pax Group]  
*Chem. Descrip.:* Castor oil ethoxylate (56-60 mole EO)  
 CAS 61791-12-6  
*Uses:* Surfactant; dispersant; lubricant; dye leveling agent; emulsion stabilizer in pesticides; surfactant, wetting agent, solubilizer, degreaser, lubricant in paper/pulp; high HLB; forms exc. binary emulsification systems with other nonionic and anionic emulsifiers  
*Properties:* Paste; 99% act.; nonionic  
*Environmental:* Biodeg.
- Paxsolv PC** [Pax Group]

*Chem. Descrip.:* Dibasic ester

*Uses:* Solvent, solubilizer, leveling agent, plasticizer, lubricant in paper/pulp; very high purity; high b.p. permits VOC-free formulations; replacement for toxic and hazardous chlorinated hydrocarbons

*Properties:* Liq.; 98% act.

*Environmental:* Biodeg.

**Paxsorbate 20** [Pax Group]

*Chem. Descrip.:* Polysorbate-20

CAS 9005-64-5

*Uses:* Solubilizer, emulsifier for industrial applics.; dye leveling agent; surfactant, solubilizer, thickener, antistat, softener, stabilizer, lubricant in paper/pulp; high HLB

*Properties:* Liq.; very good water sol.; 97% act.; nonionic

**Paxsorbate 60** [Pax Group]

*Chem. Descrip.:* Polysorbate-60

CAS 9005-67-8

*Uses:* Solubilizer, emulsifier for industrial applics.; dye leveling agent; surfactant, solubilizer, thickener, antistat, softener, stabilizer, lubricant in paper/pulp; high HLB

*Properties:* Semisolid; very good water sol.; 97% act.; nonionic

**Paxsorbate 80** [Pax Group]

*Chem. Descrip.:* Polysorbate-80

CAS 9005-65-6

*Uses:* Solubilizer, emulsifier for industrial applics.; dye leveling agent; surfactant, solubilizer, thickener, antistat, softener, stabilizer, lubricant in paper/pulp; high HLB

*Properties:* Liq.; very good water sol.; 97% act.; nonionic

**PD-23** [Crompton/Witco]

*Chem. Descrip.:* Deodorized kerosene

CAS 8008-20-6; EINECS/ELINCS 232-366-4

*Uses:* Solvent used as defoamer, dust control agent, quench oil, diluent for fiber lubricants, metal foil and sheet rolling oils, in froth flotation of vegetables, mfg. of paper/paperboard, in waterless hand cleaners, liq. candles, charcoal lighter fluid, polishes, cleaners, cosmetic/pharmaceutical creams and lotions, water treatment, food-contact applics.; pesticide diluent; non-VOC

*Regulatory:* FDA 21CFR §172.884, 178.3650

*Properties:* Colorless clear liq., nearly odorless; sp.gr. 0.800 (60/60 C); visc. 2.6 cSt (40 C); vapor pressure < 0.01 mm Hg (20 C); b.p. 452 F; pour pt. 0 F; flash pt. (COC) 230 F; ref. index 1.442

**PD-25** [Crompton/Witco]

*Chem. Descrip.:* Petroleum distillates

EINECS/ELINCS 232-298-5

*Uses:* Solvent used as defoamer, dust control agent, quench oil, diluent for fiber lubricants, metal foil and sheet rolling oils, in froth flotation of vegetables, mfg. of paper and board, in waterless hand cleaners, liq. candles, charcoal lighter fluid, polishes, cleaners, pharmaceutical creams and lotions, water treatment, food-contact applics.; pesticide diluent; non-VOC

*Regulatory:* FDA 21CFR §172.884, 178.3650

*Properties:* Colorless clear liq., nearly odorless; sp.gr. 0.810 (60/60 C); visc. 3.9 cSt (40 C); vapor pressure < 0.01 mm Hg (20 C); b.p. 510 F; pour pt. 20 F; flash pt. (COC) 260 F; ref. index 1.446

**PD-28** [Crompton/Witco]

*Chem. Descrip.:* Petroleum distillates

EINECS/ELINCS 232-298-5

*Uses:* Solvent used as defoamer, dust control agent, quench oil, diluent for fiber lubricants, metal foil and sheet rolling oils, in froth flotation of vegetables, mfg. of paper and board, in waterless hand cleaners, liq. candles, charcoal lighter fluid, polishes, cleaners, pharmaceutical creams and lotions, water treatment, food-contact applics.; pesticide diluent; non-VOC

*Regulatory:* FDA 21CFR §172.878, 178.3620a

*Properties:* Colorless liq., nearly odorless; sp.gr. 0.820 (60/60 C); visc. 4.6 cSt (40 C); vapor pressure < 0.01 mm Hg (20 C); b.p. 526 F; pour pt. 30 F; flash pt. (COC) 285 F; ref. index 1.450

**Pearl** [Tate & Lyle N. Am.]

*Chem. Descrip.:* Unmodified dent corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Paper aux. for size press and paper coatings

**Pearl AP, R** [Tate & Lyle N. Am.]

*Chem. Descrip.:* Unmodified dent corn starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Paper aux. for size press and paper coatings

**Peerless® No. 1** [R.T. Vanderbilt]

*Chem. Descrip.:* Sec. kaolin clay

*Chem. Analysis:* SiO<sub>2</sub> (43.9%), Al<sub>2</sub>O<sub>3</sub> (40%), TiO<sub>2</sub> (1.2%)

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Filler used in adhesives, wallboard, paints, caulks, paper, fertilizer, roofing gran., crayons, powd. soaps, pharmaceuticals, ceramics, sanitaryware, artware, generalware, floor tile, elec. and chemical porcelain, and special refractories; extender pigment in coatings (traffic paints, barn paints, floor coverings, metal primers), crack fillers, caulking compds.; imparts more plasticity to cast piece; no ozone-depleting substances

*Properties:* Wh. particulate; 0.6 μ median particle size, 99.6% thru -325-mesh screen; dens. 2.6 mg/m<sup>3</sup>, 16 lb/ft<sup>3</sup>; oil absorp. 30; brightness 75; pH 4.6 (10%)

**Peerless® No. 2** [R.T. Vanderbilt]

*Chem. Descrip.:* Sec. kaolin clay

*Chem. Analysis:* SiO<sub>2</sub> (44.6%), Al<sub>2</sub>O<sub>3</sub> (39.5%)

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Filler used in adhesives, wallboard, paints, primers, caulks, paper, fertilizer, roofing gran., crayons, powd. soaps, pharmaceuticals, ceramics, sanitaryware, artware, generalware, floor tile, elec. and chemical porcelain, and special refractories; extender pigment in coatings (traffic paints, barn paints, floor coverings, metal primers), crack fillers, caulking compds.; imparts more plasticity to cast piece; no ozone-depleting substances

*Properties:* Lt. cream particulate; particle size 1.2 μ, 99.6% thru -325 mesh; dens. 2.5 mg/m<sup>3</sup>, 16 lb/ft<sup>3</sup>; oil absorp. 30; brightness 71; pH 4.8

**Peerless® No. 3** [R.T. Vanderbilt]

*Chem. Descrip.:* Sec. kaolin clay

*Chem. Analysis:* SiO<sub>2</sub> (43.9%), Al<sub>2</sub>O<sub>3</sub> (40%), TiO<sub>2</sub> (1.2%)

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Filler used in adhesives, wallboard, paints, primers, caulks, paper, fertilizer, roofing gran., crayons, powd. soaps, pharmaceuticals, ceramics, sanitaryware, artware, generalware, floor tile, elec. and chemical porcelain, and special refractories; extender pigment in coatings (traffic paints, barn paints, floor coverings, metal primers), crack fillers, caulking compds.; imparts more plasticity to cast piece; no ozone-depleting substances

*Properties:* Cream particulate; 0.6 μ median particle size, 99.6% thru -200-mesh screen; dens. 2.6 mg/m<sup>3</sup>, 16 lb/ft<sup>3</sup>; oil absorp. 33; brightness 65; pH 4.6 (10%)

**Pegospense® 100 L** [Lonza]

*Chem. Descrip.:* PEG-2 laurate SE

CAS 141-20-8

*Uses:* Surfactant, w/o or o/w emulsifier for cosmetic creams and lotions, textile spin finishes and lubricants, solv. and solventless coatings, paper defoamer formulations; internal antistat for PP; indirect food additive; self-dispersing

*Regulatory:* FDA approved as indirect food additive

*Properties:* Straw clear liq.; sol. in ethanol, toluol, naphtha, min. oil; disp. in water; sp.gr. 0.97; HLB 7; solid. pt. < 13 C; acid no. < 4; sapon. no. 160-170; pH 9 (5% aq.); 100% conc.; anionic

**Pegospense® 400 DOT** [Lonza]

*Chem. Descrip.:* PEG-8 ditallate

CAS 61791-01-3

*Uses:* Surfactant, emulsifier for paper defoamers, solv. and solventless coatings; emulsifier, dispersant, opacifier, visc. control agent, defoamer for cosmetic, household prods., textiles, paper, water treatment

*Properties:* Yel. liq.; HLB 8; acid no. 16 max.; iodine no. 75-85; sapon. no. 115-125; pH 4 (5%); nonionic

**Pegospense® 400 MS** [Lonza]

*Chem. Descrip.:* PEG-8 stearate

CAS 9004-99-3

*Uses:* Surfactant, o/w emulsifier, thickener, pigment grinding aid in hair, skin, and makeup prods., household polishes, cleaners, silicone-based lubricants; emulsifier, lubricant, and softener for textile processing oils and finishes; component of diamond abrasive pastes; anti-gel agent in starch sol'ns. for paper industry; internal antistat for PS

*Properties:* Wh. soft solid; sol. in methanol, ethanol, acetone, ethyl acetate, toluol, naphtha, min. and veg. oils; disp. in water; sp.gr. 1.0; m.p. 30 C min.; HLB 11; acid no. 3 max.; sapon. no. 83-94; pH 5 (5% aq.); 100% conc.; nonionic

**Pegospense® 600 DO** [Lonza]

*Chem. Descrip.:* PEG-12 dioleate

CAS 9005-07-6; EINECS/ELINCS 288-459-5

*Uses:* Surfactant; emulsifier for paper defoamers, solv. and solventless coat-



- ings; lubricant for textile spin finishes  
*Regulatory:* Avail. as kosher certified  
*Properties:* Yel. liq.; water-sol.; HLB 9; acid no. 7 max.; sapon. no. 90-100; 100% act.; nonionic
- Pegospense® 600 DOT** [Lonza]  
*Chem. Descrip.:* PEG-12 ditallate  
 CAS 61791-01-3  
*Uses:* Emulsifier, dispersant, opacifier, visc. control agent, defoamer for cosmetic, household prods., textiles, paper, coatings, water treatment  
*Properties:* Gardner 10 max. liq.; water-sol.; HLB 9; acid no. 16 max.; sapon. no. 95-105; 0.5% max. moisture; 100% act.; nonionic
- Pencat® Cationic Starches** [Penford Prods.]  
*Chem. Descrip.:* Corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Wet str. agent, retention aid for paper and paperboard; alkaline size emulsion stabilizer  
*Properties:* Cationic
- Pen-cote® Starch** [Penford Prods.]  
*Chem. Descrip.:* Hydroxyethyl starch deriv.  
 CAS 9005-25-8; EINECS/ELINCS 232-686-4  
*Uses:* Provides visc. stability, water retention, and binding power for specialty paper coatings, size press; extremely low visc.; can be cooked at very high solids for use in high solids coating colors; exc. compat. with other coating ingreds.
- PenCP® Binder** [Penford Prods.]  
*Chem. Descrip.:* Starch/latex copolymer  
*Uses:* Binder for coating paper; for use alone or with other binders; no cooking required; ready-to-use liq.  
*Properties:* Liq.
- Penetron OT-30** [Hart Prods.]  
*Chem. Descrip.:* 2-Ethylhexyl sulfosuccinate  
*Uses:* Penetrant, wetting agent, surf. tens. depressant for textiles, paper, paint, plastic, rubber and metal industries  
*Properties:* Liq.; 25-30% conc.; anionic
- PenExcel™ Sizing Agent** [Penford Prods.]  
*Chem. Descrip.:* Carbohydrate-based  
*Uses:* Binder, water absorbent, sizing agent for ink jet printing papers; enhances internal bond development; batch or jet cooked  
*Properties:* Dry powder.
- PenFilm™ Binder** [Penford Prods.]  
*Chem. Descrip.:* Modified starch  
 CAS 9005-25-8; EINECS/ELINCS 232-686-4  
*Uses:* Binder, sizing agent, surf. strengthener for paper and board applics. on size press or as coating additive, incl. food pkg.; reduces total starch usage  
*Regulatory:* FDA compliant
- Penford® Gum** [Penford Prods.]  
*Chem. Descrip.:* Hydroxyethyl ether derivatized corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Paper additive for use at the size press in clear size and pigmented formulas, coating, and calender stack; uniform visc.; high gloss and ink holdout; flexible water-holding films
- Penreco 2251 Oil** [Penreco]  
*Chem. Descrip.:* Petroleum distillates  
 CAS 64742-14-9; EINECS/ELINCS 232-298-5  
*Uses:* Solvent for carbonless copy paper for office forms, industrial cleaning solvs., waterless hand cleaners, fragrance bases, automotive and furniture polishes, insecticide bases, lamp oils, food processing; defoamers in paper and coatings industries; froth flotation of vegetables, electrostatic discharge machine fluids, magnetic particle inspection fluids; food-contact applics.  
*Regulatory:* FDA 21CFR §172.884, 178.3650, 573.740  
*Properties:* Sp.gr. 0.786 (60/60 F); dens. 6.56 lb/gal (60 F); visc. 1.66 cSt (100 F); i.b.p. 191 C min.; pour pt. -40 C; flash pt. 74 C; KB value 28; < 1% aromatics  
*Precaution:* DOT: combustible liq.
- Penreco 2257 Oil** [Penreco]  
*Chem. Descrip.:* Sat. hydrocarbon  
 CAS 64742-46-7  
*Uses:* Solvent for carbonless copy paper for office forms, industrial cleaning solvs., waterless hand cleaners, fragrance bases, automotive and furniture polishes, insecticide bases, lamp oils, food processing; defoamers in paper and coatings industries; froth flotation of vegetables, electrostatic discharge machine fluids, magnetic particle inspection fluids; food-contact applics.

- Regulatory:* FDA 21CFR §172.884, 178.3650, 573.740  
*Properties:* Sp.gr. 0.795 (60/60 F); dens. 6.64 lb/gal (60 F); visc. 2.18 cSt (100 F); vapor pressure < 0.1 mm Hg; i.b.p. 221 C min.; pour pt. -26 C; flash pt. 99 C; KB value 26.5; < 1% aromatics
- Penreco 2259 Oil** [Penreco]  
*Chem. Descrip.:* Mineral oil  
 CAS 8042-47-5; EINECS/ELINCS 232-384-2  
*Uses:* Solvent for carbonless copy paper for office forms, industrial cleaning solvs., waterless hand cleaners, fragrance bases, automotive and furniture polishes, insecticide bases, lamp oils, defoamers in paper and coatings industries; froth flotation of vegetables, electrostatic discharge machine fluids, magnetic particle inspection fluids; food-contact applics.  
*Regulatory:* FDA 21CFR §172.884, 178.3650, 573.740  
*Properties:* Sp.gr. 0.804 (60/60 F); dens. 6.69 lb/gal (60 F); visc. 2.28 cSt (100 F); vapor pressure < 0.1 mm Hg; i.b.p. 235 C min.; pour pt. -18 C; flash pt. 102 C; KB value 24.5; < 1% aromatics
- Penreco 2260 Oil** [Penreco]  
*Chem. Descrip.:* Mineral oil  
 CAS 8042-47-5; EINECS/ELINCS 232-384-2  
*Uses:* Solvent for carbonless copy paper for office forms, industrial cleaning solvs., waterless hand cleaners, fragrance bases, automotive and furniture polishes, insecticide bases, lamp oils, defoamers in paper and coatings industries; froth flotation of vegetables, electrostatic discharge machine fluids, magnetic particle inspection fluids; food-contact applics.  
*Regulatory:* FDA 21CFR §172.884, 178.3650, 573.740  
*Properties:* Sp.gr. 0.812 (60/60 F); dens. 6.76 lb/gal (60 F); visc. 4.3 cSt (100 F); vapor pressure < 0.1 mm Hg; i.b.p. 266 C min.; pour pt. -4 C; flash pt. 127 C; KB value 22.6; < 1% aromatics
- Penreco 2263 Oil** [Penreco]  
*Chem. Descrip.:* Petroleum distillates  
 CAS 64742-47-8; EINECS/ELINCS 232-298-5  
*Uses:* Solvent for carbonless copy paper for office forms, industrial cleaning solvs., waterless hand cleaners, fragrance bases, automotive and furniture polishes, insecticide bases, lamp oils, defoamers in paper and coatings industries; froth flotation of vegetables, electrostatic discharge machine fluids, magnetic particle inspection fluids; food-contact applics.  
*Regulatory:* FDA 21CFR §172.884, 178.3650, 573.740  
*Properties:* Sp.gr. 0.786 (60/60 F); dens. 6.56 lb/gal (60 F); visc. 1.68 cSt (100 F); i.b.p. 191 C min.; pour pt. -40 C; flash pt. 74 C; KB value 29; < 1% aromatics  
*Precaution:* DOT: combustible liq.
- Penreco Amber** [Penreco]  
*Chem. Descrip.:* Petrolatum USP  
 CAS 8027-32-5; EINECS/ELINCS 232-373-2  
*Uses:* Emollient, base for cosmetic and pharmaceutical preparations; waterproofing agent for butcher paper; lubricant, water repellent, moisture barrier for textile and paper; carrier for modeling clays, soldering paste and flux; pigment carrier for carbon paper; binder and conditioner for crayons; animal feed supplements; fruit/veg. coatings; food pkg. materials; external lube for PVC; rubber processing aid  
*Regulatory:* FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous  
*Properties:* Yel. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60 F); visc. 68-82 SUS (210 F); m.p. 122-135 F; congeal pt. 123 F; solid. pt. 122 F; flash pt. (COC) 400 F  
*Toxicology:* Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed  
*Precaution:* Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents  
*Storage:* Store in closed containers away from heat, sparks, open flame, oxidizers
- Penreco Blond** [Penreco]  
*Chem. Descrip.:* Petrolatum USP  
 CAS 8027-32-5; EINECS/ELINCS 232-373-2  
*Uses:* Emollient, base for cosmetic and pharmaceutical preparations; lubricant, water repellent, moisture barrier for textile and paper; food additive; food-contact applics.  
*Regulatory:* FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous  
*Properties:* Yel. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60 F); visc. 68-82 SUS (210 F); m.p. 122-135 F; congeal pt. 123 F; solid. pt. 122

## Penreco Cream

F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Cream [Penreco]

**Chem. Descrip.:** Wh. petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, and carrier for cosmetic and pharmaceutical preparations; lubricant for textile and paper; food additive; food-contact applics.

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Cream visc. semisolid, odorless; sol. in hydrocarbons; insol. in water; sp.gr. 0.87 (60/60 F); visc. 64-75 SUS (210 F); m.p. 122-125 F; b.p. 650 F; congeal pt. 125 F; solid. pt. 122 F; flash pt. (COC) 445 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Lily [Penreco]

**Chem. Descrip.:** Wh. petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, and carrier for cosmetic and pharmaceutical preparations; lubricant for textile and paper; food additive; food-contact applics.

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Wh. visc. material, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 64-75 SUS (210 F); m.p. 122-135 F; b.p. 650 F; congeal pt. 124 F; solid. pt. 123 F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Red [Penreco]

**Chem. Descrip.:** Tech. petrolatum

CAS 8009-03-8; EINECS/ELINCS 232-373-2

**Uses:** Base and binder for buffing compds., polishes, shoe polishes; rubber processing aids; carbon papers; corrosion preventatives; general-purpose lubricants; printing inks; solder pastes; tech.-grade

**Regulatory:** OSHA nonhazardous; DOT nonhazardous

**Properties:** Red; visc. 70-82 SUS (210 F); m.p. 120-135 F

## Penreco Regent [Penreco]

**Chem. Descrip.:** Wh. petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, and carrier for cosmetic and pharmaceutical preparations (creams, lotions, petrol. jellies, makeup, absorp. base, ophthalmic and topical ointments, dental adhesives); water repellent, moisture barrier, lubricant for textile and paper; plasticizer and softener for putty; shoe polishes; food additive; food-contact applics.

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Wh. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 57-70 SUS (210 F); m.p. 125-130 F; b.p. 650 F; congeal pt. 120 F; solid. pt. 119 F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Royal [Penreco]

**Chem. Descrip.:** Petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, and carrier for cosmetic and pharmaceutical preparations; lubricant for textile and paper; food additive; food-contact applics.

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Yel. semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60 F); visc. 57-70 SUS (210 F); m.p. 118-130 F; congeal pt. 118 F; solid. pt. 115 F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Snow [Penreco]

**Chem. Descrip.:** Wh. petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, solvent, and carrier for cosmetic and pharmaceutical preparations (creams, lotions, petrol. jellies, ointments, dental adhesives); foods (animal feed supplement, fruit/veg. coatings); sanitary lubricant in food prod. machinery; rust-preventive coating in food processing equipment; carrier in adhesive tapes and compds.; lubricant for textile, paper, PVC; shoe polishes; food-contact applics.

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Wh. opaque semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 64-75 SUS (210 F); vapor pressure < 1 mm Hg (70 F); m.p. 122-135 F; b.p. 650 F; congeal pt. 123 F; solid. pt. 121 F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Super [Penreco]

**Chem. Descrip.:** Wh. petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, and carrier for cosmetic and pharmaceutical preparations; lubricant for textile and paper; food additive; food-contact applics.

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Wh. opaque semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 60-75 SUS (210 F); m.p. 122-135 F; b.p. 650 F; congeal pt. 125 F; solid. pt. 124 F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame, oxidizers

## Penreco Ultima [Penreco]

**Chem. Descrip.:** Wh. petrolatum USP

CAS 8027-32-5; EINECS/ELINCS 232-373-2

**Uses:** Emollient, base, and carrier for cosmetic and pharmaceutical preparations (creams, lotions, hair prods., lip prods., lip balms, makeup, absorp. bases, ophthalmic and topical ointments, dental adhesives); foods (fruit/veg. coatings, food pkg.); lubricant for textile and paper

**Regulatory:** FDA 21CFR 172.880, 178.3700, 573.720; OSHA nonhazardous; DOT nonhazardous

**Properties:** Wh. opaque semisolid, odorless; sol. in hydrocarbons; sp.gr. 0.86 (60/60 F); visc. 60-70 SUS (210 F); m.p. 130-140 F; b.p. 650 F; congeal pt. 130 F; solid. pt. 128 F; flash pt. (COC) 400 F

**Toxicology:** Pract. nontoxic by ingestion, but laxative props. may cause abdominal cramps, diarrhea; minimally irritating to eyes and skin on direct contact; STEL 10 mg/m<sup>3</sup> (as oil mist); TSCA listed

**Precaution:** Combustion may produce dense smoke, CO, CO<sub>2</sub>, other oxides; may react with strong oxidizing agents

**Storage:** Store in closed containers away from heat, sparks, open flame,

oxidizers

**Pensize® Binder** [Penford Prods.]*Chem. Descrip.:* Starch styrene/butadiene copolymer*Uses:* Binder for pigmented and clear formulations on conventional and metering size presses; for use alone or with other binders; no cooking required; ready-to-use liq.; readily pumpable*Properties:* Liq.**Pen-sprae® Starch** [Penford Prods.]*Chem. Descrip.:* Starch

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Uses:* Wet str. agent for papermaking; sprayed in uncooked slurry form on already formed sheet; improves lining resist. and plybond**PenStack™ Calender Size** [Penford Prods.]*Uses:* Surf. treatment for recycled board for use in water box formulations to be applied at the calender stack; exc. replacement for polyvinyl alcohol, CMC, and starch prods.; easily batch or jet cooked; provides exc. machine runnability*Properties:* Dry powd.**Pentalyn® 856** [Hercules/Resins]*Chem. Descrip.:* Pentaerythrityl rosinatate, modified

CAS 8050-26-8; EINECS/ELINCS 232-479-9

*Uses:* Thermoplastic resin for modifying compositions based on alcohol- and water-sol. film-formers; replacement or extender for shellac; contributes high gloss, block resistance, fast solv. release, and good adhesion in formulating water-based inks, and paper coatings, adhesives, wax emulsions, and water-reducible paints; food-contact applics.*Properties:* USDA Rosin WG flakes; sol. in aq. sol'n.s. of alkalis, ethanol, and IPA, ethers, alcohol-ethers, esters, ketones, aromatic and chlorinated hydrocarbons, and to 25-39% solids in diethylene glycol; sp.gr. 1.10; dens. 1.09 kg/l; soften pt. 131 C; acid no. 140**Pentalyn® A** [Hercules/Resins]*Chem. Descrip.:* Pentaerythrityl rosinatate

CAS 8050-26-8; EINECS/ELINCS 232-479-9

*Uses:* Tackifier for CR, NR, SBR, NBR, chlorinated rubber, reclaim rubber, and their latexes, paper, cloth, leather laminates, tapes, hot-melt adhesives and coatings, pressure-sensitive adhesives; varnish resin; in enamel applics.; linoleum cements; contributes adhesion, high aliphatic solubility, gloss, solv. release, stability with reactive pigments, and good pigment wetting to printing inks; food-contact use; hard, pale, thermoplastic resin*Properties:* Gardner 9.5 (60% in min. spirits) solid, flakes; sol. in esters, ketones, aromatic and aliphatic hydrocarbons, and higher alcohols; water-insol.; dens. 1.07 kg/l; G-H visc. G (60% in min. spirits); soften pt. 111 C; acid no. 12; ref. index 1.544**Pentalyn® H** [Hercules/Resins]*Chem. Descrip.:* Pentaerythrityl hydrogenated rosinatate

CAS 64365-17-9; EINECS/ELINCS 264-848-5

*Uses:* Tackifier for NR, SBR, CR, NBR, chlorinated rubbers, EVA, reclaim rubber, and their latexes, paper, cloth, leather laminates, adhesives, tapes; food-pkg. and processing operations; hard, thermoplastic resin; contributes improved resist. to oxidation, greater heat stability, better color retention*Properties:* USDA Rosin N flakes; sol. in aromatic and aliphatic hydrocarbons, esters, and ethers; dens. 1.07 kg/l; G-H visc. D (60% in min. spirits); soften. pt. 104 C; acid no. 12**Pentasize 8** [Haltermann GmbH]*Chem. Descrip.:* Octadecenyl succinic anhydride

CAS 28777-98-2; 249-210-6

*Uses:* Neutral sizing agent for paper and board industry; effective @ pH 4-9*Properties:* Amber clear liq.; sapon. no. 300-325; 100% act.; nonionic  
*Storage:* Store @ < 40 C to minimize color degradation; store in very dry place with adequate ventilation; keep away from sparks and flames**Pentasize 68** [Haltermann GmbH]*Chem. Descrip.:* Alkenyl C16/C18 succinic anhydride

CAS 70983-55-0

*Uses:* Neutral sizing agent for paper and board industry; effective at pH 4-9*Properties:* Amber clear liq.; sapon. no. 320-350; 100% act.  
*Storage:* Store @ < 40 C to minimize color degradation; store in very dry place with adequate ventilation; keep away from sparks and flames**Pentastack DO-70PG** [Haltermann GmbH]*Chem. Descrip.:* Sodium dioctyl sulfosuccinate in propylene glycol/water*Uses:* Wetting agent; emulsion polymerization surfactant; wetting agent for pulp/paper; dispersant in oil industry*Properties:* Clear to pale yel. liq.; sp.gr. 1.090-1.110; pH 5-7; 68-72% total

solids; anionic

**Pentex® 99** [Rhodia]*Chem. Descrip.:* Sodium dioctyl sulfosuccinate

CAS 577-11-7; EINECS/ELINCS 209-406-4

*Uses:* Surfactant, wetting agent for adhesives, flexo and gravure inks, paints, high-gloss paints, paper, textiles, emulsion polymerization, agric. sprays; good color acceptance*Properties:* Liq.; 75% conc.; anionic**Pentonium S70** [Haltermann GmbH]*Chem. Descrip.:* 3-Chloro-2-hydroxypropyl trimethyl ammonium chloride aq. sol'n.

CAS 3327-22-8; EINECS/ELINCS 222-048-3

*Uses:* Paper starch cationizing agent*Properties:* Colorless clear liq.; sp.gr. 1.170 (20 C); pH 3-6; 69% min. act.**Perbunan N Latex 2818** [Bayer AG; Bayer/Fiber, Addits., Rubber]*Chem. Descrip.:* NBR latex without reactive groups

CAS 9003-18-3

*Uses:* Used in oil- and petrol-resistant proofings and coatings for fabrics and paper; dipped goods; binders for nonwoven fabric, brake and clutch linings, gasket materials, etc.; nonstaining; similar to corresponding solid grades of Perbunan N*Properties:* Dens. 0.98 g/cc; pH 10-12; 27% ACN content; 45% solids**Perbunan N Latex 3310** [Bayer AG; Bayer/Fiber, Addits., Rubber]*Chem. Descrip.:* NBR latex without reactive groups

CAS 9003-18-3

*Uses:* Used in oil- and petrol-resistant proofings and coatings for fabrics and paper; dipped goods; binders for nonwoven fabric, brake and clutch linings, gasket materials, etc.*Properties:* Dens. 0.99 g/cc; pH 10-12; 32% ACN content; 45% solids**Perbunan N Latex 3415 M** [Bayer AG; Bayer/Fiber, Addits., Rubber]*Chem. Descrip.:* NBR latex with reactive groups

CAS 9003-18-3

*Uses:* Used in oil- and petrol-resistant proofings and coatings for fabrics and paper; dipped goods; binders for nonwoven fabric, brake and clutch linings, gasket materials, etc.; for impregnation of nonwoven fabrics (e.g., in prod. of base materials for syn. leathers)*Properties:* Dens. 0.98 g/cc; pH 5.5-6.5; 33% ACN content; 4% methacrylic acid; 47.5% solids**Perbunan N Latex T** [Bayer AG; Bayer/Fiber, Addits., Rubber]*Chem. Descrip.:* NBR latices with reactive groups

CAS 9003-18-3

*Uses:* Used in oil- and petrol-resistant proofings and coatings for fabrics and paper; dipped goods; binders for nonwoven fabric, brake and clutch linings, gasket materials, etc.; for impregnation of nonwoven fabrics (e.g., in prod. of base materials for syn. leathers), and for dipped goods*Properties:* Dens. 0.98 g/cc; pH 5.5-6.5; 35% ACN content; 2% methacrylic acid; 50% solids**Perbunan N Latex VT** [Bayer AG; Bayer/Fiber, Addits., Rubber]*Chem. Descrip.:* NBR latices with reactive groups

CAS 9003-18-3

*Uses:* Used in oil- and petrol-resistant proofings and coatings for fabrics and paper; dipped goods; binders for nonwoven fabric, brake and clutch linings, gasket materials, etc.*Properties:* Dens. 0.998 g/cc; pH 8.0-9.0; 30% ACN content; 4% methacrylic acid; 45% solids**Percol® 368** [Ciba Spec. Chems./Water Treatment]*Chem. Descrip.:* Acrylamide copolymers*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective at pH 4-9*Properties:* Bead; m.w. 500,000-1,000,000; 100% act.; cationic*Storage:* Dry polymers should be stored in cool, dry place; avoid temps. below 50 F**Percol® 370** [Ciba Spec. Chems./Water Treatment]*Chem. Descrip.:* Acrylamide copolymers*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9*Properties:* Bead; m.w. 1,000,000-5,000,000; 100% act.; cationic*Storage:* Dry polymers should be stored in cool, dry place; avoid temps.





flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 775** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 775 FS25** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 775 FS40** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 778** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-10

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 778 FS25** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 778 FS40** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-9

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 780** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 5-11

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; nonionic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 787** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening,

flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-10

*Properties:* Bead; m.w. 5,000,000-10,000,000; 100% act.; cationic

*Storage:* Dry polymers should be stored in cool, dry place; avoid temps. below 50 F

**Percol® 788N** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 4-10

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 790** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 5-11

*Properties:* Liq. disp.; m.w. 10,000,000-15,000,000; 50% act.; anionic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® 919** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 5-11

*Properties:* Granular solid; m.w. 15,000,000-20,000,000; 100% act.; non-ionic

*Storage:* Dry polymers should be stored in cool, dry place; avoid temps. below 50 F

**Percol® E24** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* Provides primary and secondary sedimentation, sludge thickening, flotation, and dewatering for use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; effective @ pH 5-11

*Properties:* Bead; m.w. 10,000,000-15,000,000; 100% act.; anionic

*Storage:* Dry polymers should be stored in cool, dry place; avoid temps. below 50 F

**Percol® LT22** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* For use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; for potable water clarification; effective @ pH 4-9

*Properties:* Granular solid; m.w. 5,000,000-10,000,000; 100% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® LT22S** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* For use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; for potable water clarification; effective @ pH 4-9

*Properties:* Granular solid; m.w. 15,000,000-20,000,000; 100% act.; cationic

*Storage:* Store in cool location where temp. extremes are avoided; avoid temps. below 50 F

**Percol® LT24** [Ciba Spec. Chems./Water Treatment]

*Chem. Descrip.:* Acrylamide copolymers

*Uses:* For use in water and industrial waste treatment incl. chem., dairy, food, leather, pulp/paper, pharmaceutical, textile, and other industries; for potable water clarification; effective @ pH 4-9

*Properties:* Granular solid; m.w. 1,000,000-5,000,000; 100% act.; cationic

*Storage:* Dry polymers should be stored in cool, dry place; avoid temps. below 50 F

**Peregal® ST** [ISP]

*Chem. Descrip.:* PVP polymer

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Dispersant, stripping assistant, detergent used for dyes; fulling soap additive; rag-stripping assistant in paper industry; detergent and soil-sus-



- pending agent for washing yarns; used in long liquors, pkg. machines, or jigs  
*Properties:* VCS 5 max. liq.; water-sol.; pH 5-7 (5% aq.); 30-32% act.; cationic
- PerForm™** [Hercules]  
*Uses:* Retention aid, drainage aid, clarifier for pulp, paper, and paperboard mfg.
- Pergasol®** [Ciba Spec. Chems./Paper]  
*Uses:* Direct dye for paper and board coloration  
*Properties:* Anionic/cationic
- Perglutin® 204** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent suitable for highly loaded size press circulations; high tolerance of electrolytes and trash; support of optical brightening  
*Properties:* Disp.; 40% act.; amphoteric
- Perglutin® 395** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent suitable for highly loaded press circulations; high tolerance of electrolytes and trash; support of optical brightening  
*Properties:* Disp.; 30% act.; amphoteric
- Perglutin® 450/220** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Internal sizing agent for neutral pH range; good initial sizing; compat. with cationic and anionic processing aids  
*Properties:* 24% act.
- Perglutin® 450/240** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Internal sizing agent for neutral pH range; good initial sizing  
*Properties:* 22% act.
- Perglutin® 450/280** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Internal sizing agent for paper; rec. at neutral pH range
- Perglutin® A 200** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-methacrylate copolymer  
*Uses:* Surf. sizing agent for graphic papers; support for optical brightening; high tolerance of electrolytes  
*Properties:* Liq.; 16% act.; anionic
- Perglutin® A 281** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent suitable for graphic and total office papers, ink jet; very good tolerance of electrolytes; support of optical brightening  
*Properties:* Disp.; 25% act.; anionic
- Perglutin® K 175 EP** [BK Giulini Chemie]  
*Chem. Descrip.:* Acrylate copolymer  
 CAS 25133-97-5  
*Uses:* Surf. sizing agent very effective with all raw papers; very high affinity to fiber  
*Properties:* Liq.; 17% act.; cationic
- Perglutin® K 333** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent for paper; very effective with all raw papers esp. in highly electrolyte-charged size press circuits
- Perglutin® K 418** [BK Giulini Chemie]  
*Chem. Descrip.:* Methacrylate copolymer  
*Uses:* Internal sizing agent for all types of paper; high retention and dewatering  
*Properties:* Liq.; 18% act.; cationic
- Perglutin® K 440** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent very effective with all raw papers; very good initial sizing  
*Properties:* Disp.; 25% act.; cationic
- Perglutin® K 485** [BK Giulini Chemie]  
*Chem. Descrip.:* Styrene-acrylate copolymer  
 CAS 9010-92-8
- Uses:* Surf. sizing agent for paper; very effective with all raw papers
- Pergopak M2** [Omya Croxton+Garry]  
*Chem. Descrip.:* Urea-formaldehyde condensation prod.  
 CAS 9011-05-6  
*Uses:* Org. wh. pigment blended with stock during production of paper and board; inc. pore vol. of paper, speeding up drying and reducing chance of strike-through  
*Properties:* Wh. fine powd.; 0.1-0.15 µ particle size; sp.gr. 1.41-1.45; bulk dens. 55-65 g/l; surf. area > 22 m<sup>2</sup>/g; TAPPI whiteness 97 ± 1%
- Pericide® EF** [Vinings Ind.]  
*Chem. Descrip.:* Mixt. of peracetic acid, hydrogen peroxide, acetic acid, and water  
*Uses:* Biocide for pulp/paper controlling growth of bacteria, fungi, fresh water organisms, and spore formers; breaks down to water, oxygen, and acetic acid so the finished paper and effluent streams contain no biocidal residue  
*Environmental:* Environmentally friendly
- Perkacit® DPG** [Flexsys]  
*Chem. Descrip.:* N,N-Di-phenylguanidine  
 CAS 102-06-7; EINECS/ELINCS 203-002-1  
*Uses:* Sec. accelerator in NR and SR for sulfenamide and thiazole accelerators; accelerator in tire and industrial rubber applics.; metal complexing agent for ore flotation; codeveloper in water-resist. security inks; fixing agent in thermal printing inks; stabilizer for methacrylamide copolymer aq. sol'ns.; food-contact rubber articles; good 'green' storage stability; with sulfenamide primary accelerator, gives fast cure rates, good reversion and fatigue resist.  
*Use Level:* 0.1-1.0 phr  
*Regulatory:* FDA 21CFR §177.2600; BgVV XXI compliant  
*Properties:* Cream to lt. pink powd., oil-coated powd., or 2 mm pellets; m.w. 211.3; sp.gr. 1.2; dens. 1180 kg/m<sup>3</sup> (20 C); m.p. 144 C; 96-97% act.  
*Storage:* 12 mos shelf life; store in single-stacked pallets in cool, dry, well-ventilated area away from direct sunlight
- Permanax™ PTBC** [Flexsys]  
*Chem. Descrip.:* Reaction prod. of 6-t-butyl-3-methylphenol and sulfur dichloride  
 CAS 57062-46-1  
*Uses:* Antioxidant for thermoplastic elastomers, urethanes, ABS, PVC, PE, PP, adhesives, caulks, fiber finish nat. and syn. oils; stabilizer, antigellant for drying oils; rec. for applics. requiring heat resist.; provides protection against degradation catalyzed by heavy metals; low volatility; nonstaining; non-discoloring  
*Use Level:* 0.05-0.1% (stabilizer during processing), 0.1-1.5% (stabilizer for end-use), 0.05-5% (antioxidant for fiber finish oils)  
*Properties:* Yel. to med. amber highly visc. liq.; sp.gr. 1060 kg/m<sup>3</sup> (25/15 C)  
*Storage:* Store under cool, dry conditions in unopened pkgs. in well-ventilated area; avoid direct sunlight; gentle warming may be required to ensure material properly discharges from storage drums
- Persoft NK-60, NK-100** [NOF]  
*Chem. Descrip.:* Ethoxylated fatty alcohols  
*Uses:* Detergent; emulsifier; wetting agent; textile detergent; dyeing assistant; base for liq. detergents; dispersant for pulp pitch; lubricant for bottle cleaning processing  
*Properties:* Liq.; 90% conc.; nonionic  
*Environmental:* Biodeg.
- Petrac® Calcium Stearate CP-11** [Ferro]  
*Chem. Descrip.:* Calcium stearate  
 CAS 1592-23-0; EINECS/ELINCS 216-472-8  
*Uses:* Mold release agent, lubricant, pigment suspending agent, and flow control agent for plastics (PVC, phenolics), paints, inks, foundry, industrial cleaners, waterproofing of cement and clay tile, lubrication and glossing in paper coatings, wire drawing compds.  
*Properties:* Wh. powd., 97% thru 100 mesh; sp.gr. 1.03; dens. 26 lb/ft<sup>3</sup>; m.p. 151 C; acid no. 205; 9.8% CaO
- Petrac® Calcium Stearate CP-11 LS** [Ferro]  
*Chem. Descrip.:* Calcium stearate  
 CAS 1592-23-0; EINECS/ELINCS 216-472-8  
*Uses:* Mold release agent, lubricant, pigment suspending agent, and flow control agent for plastics (PVC, phenolics), paints, inks, foundry, industrial cleaners, waterproofing of cement and clay tile, lubrication and glossing in paper coatings, wire drawing compds.  
*Properties:* Powd., 90% thru 200 mesh; sp.gr. 1.03; dens. 26 lb/ft<sup>3</sup>; m.p. 154 C; soften. pt. 150 C; 9.4% CaO
- Petrac® GMS** [Ferro]

*Chem. Descrip.:* Glyceryl stearate  
CAS 123-94-4

*Uses:* Internal/external lubricant, mold release for rigid PVC inj. molding, film, sheet, bottle compds.; pigment suspending agent in paints and inks; water-proofing agent for cement, clay tile; lubricant, gloss aid in paper coatings; foundry resins; lubricant, antistat, and antifog in polyolefins

*Properties:* Off-wh. flake; m.p. 140 F; acid no. 2; iodine no. 2.5; sapon. no. 167; 43% alpha monoglycerides

**Petrolatum RPB** [Crompton/Witco]

*Chem. Descrip.:* Petrolatum tech.  
CAS 8009-03-8; EINECS/ELINCS 232-373-2

*Uses:* Binder, carrier, lubricant, moisture barrier, plasticizer, protectant, softener for tech. applics., (elec., paper and pkg., plastics, rubber, textiles, industrial use)

*Properties:* Dk. brn.; m.p. 71-77 C

**Petrolite® C-3500** [Baker Petrolite]

*Chem. Descrip.:* Oxidized polymer

*Uses:* For use in adhesives, textiles, and high-wax polish applics.; lubricant for PVC extrusion; food pkg. adhesives, textiles; defoamer in food-contact paper/paperboard; general-purpose polymer

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Solid; visc. 152 SUS (116 C); m.p. 107 C; congeal pt. 93 C; acid no. 24; sapon. no. 42

**Petrolite® C-7500** [Baker Petrolite]

*Chem. Descrip.:* Oxidized PE wax  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Used in the formulation of emulsions having hard films with good gloss and dry-bright polish props.; oil binder in solv.-based polishes, release agents, textile finish softeners; food pkg. adhesives, textiles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Color 0.5 (D1500) wax; m.p. 97 C; acid no. 15; sapon. no. 32

**Petrolite® C-9500** [Baker Petrolite]

*Chem. Descrip.:* Oxidized polyethylene  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Used in the formulation of emulsions having hard films with good gloss and dry-bright polish props.; oil binder in solv.-based polishes, release agents, textile finish softeners; food pkg. adhesives, textiles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* Color 0.5 (D1500) wax; m.p. 94 C; acid no. 31; sapon. no. 50

**Petrolite® E-1040** [Baker Petrolite]

*Chem. Descrip.:* Oxidized polyethylene  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Used in the formulation of emulsions, textile finish softeners, floor, auto, and liq. solv.-based polishes; food pkg. adhesives, textiles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* M.p. 106 C; acid no. 40; sapon. no. 65

**Petrolite® E-2020** [Baker Petrolite]

*Chem. Descrip.:* Oxidized HDPE  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Wax producing emulsions for formulating textile lubricants and softeners, floor, auto polishes, mold release agents, lubricants, and antiblocking agents; in ceramic binders; processing aid in the fabrication of thermoplastic resins; external and internal lubricant; food pkg. adhesives, textiles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800

*Properties:* M.p. 116 C; acid no. 22; sapon. no. 41

**Petrolite® WB-5** [Baker Petrolite]

*Chem. Descrip.:* Urethane deriv. of oxidized wax

*Uses:* Wax with dye solubility, pigment dispersing, and oil and dye binding properties for use in one-time carbon paper

*Properties:* Brn. wax; m.w. 650; m.p. 89 C; acid no. 16; sapon. no. 60

**Petrothene® NA 204-000** [Equistar]

*Chem. Descrip.:* LDPE resin  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion coating and inj. molding resin for general purpose and food contact applics.; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Sp.gr. 0.918; melt index 7.0 g/10 min; Vicat soften. pt. 84 C; tens. str. 1700 psi; elong. 550%; hardness (Shore D) 50

**Petrothene® NA 214-000** [Equistar]

*Chem. Descrip.:* LDPE  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion coating grade for sugar pouches, industrial and multiwall bags, treated and primed films and laminations; food-contact paper, polymer

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Sp.gr. 0.918; melt index 10.0 g/10 min; Vicat soften. pt. 86 C; tens. str. 1580 psi; elong. 580%; hardness (Shore D) 54

**Petrothene® NA 216-000** [Equistar]

*Chem. Descrip.:* LDPE resin  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion coating resin for flexible pkg., milk cartons, set-up cartons, food boards, food-contact paper

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Sp.gr. 0.923; melt index 3.7 g/10 min; tens. str. 1750 psi; elong. 550%; Vicat soften. pt. 92 C; hardness (Shore D) 53 C

**Petrothene® NA 217-000** [Equistar]

*Chem. Descrip.:* LDPE resin  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion coating resin for flexible pkg., milk cartons, industrial papers and foil mounting, single-ply bags, pouch bags, board trays, fiber drums, corrugated boxes, fiberboard containers, food-contact paper

*Regulatory:* FDA 21CFR §176.170, 177.1350 compliant

*Properties:* Sp.gr. 0.923; melt index 5.5 g/10 min; tens. str. 1800 psi; elong. 550%; Vicat soften. pt. 92 C; hardness (Shore D) 53

**Petrothene® NA 219-000** [Equistar]

*Chem. Descrip.:* LDPE  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion coating grade for use with paper, films, and other base stocks for flexible pkg., milk cartons, single-ply bags, board trays, fiber drums, corrugated boxes, fiberboard containers, food-contact paper

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Sp.gr. 0.923; melt index 10.0 g/10 min; Vicat soften. pt. 95 C; tens. str. 1700 psi; elong. 226%; hardness (Shore D) 51

**Petrothene® NA 957** [Equistar]

*Chem. Descrip.:* LDPE  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Liner film resin for multiwall paper bag liners, general pkg., industrial liners, food containers, and trash bags; good heat seal, drawdown

*Properties:* 1.25-mil film; dens. 0.924 g/cc; melt index 2.6 g/10 min; haze 15%; tens. str. 2500 psi (break, MD); tens. elong. 300% (break, MD); Vicat soften. pt. 80 C; hardness (Shore D) 42; Dart drop impact 120 g

**Pexite® Wood Rosins** [Hercules]

*Chem. Descrip.:* Refined natural resins obtained from pine trees  
*Uses:* Thermoplastic acidic resin for paper sizes, soaps, emulsifiers, and greases, and for mfg. of syn. resins for adhesives, paints, varnishes, etc.; wax modification; as chem. intermediate; in solder fluxes; for food-pkg. and -processing

*Properties:* USDA Rosin WG, N, M, and K grades solid; sol. in most alcohols, esters, ketones, hydrocarbons, chlorinated solvs., plasticizers, and min. oils; dens. 1.067 kg/l; Drop soften. pt. 82 C (WG and N), 81 C (M and K); flash pt. (COC) 216 C; acid no. 162 (WG), 161 (N and M), 160 (K); sapon no. 168 (WG), 167 (N and M), 166 (K)

**Phosflex® 4** [Akzo Nobel]

*Chem. Descrip.:* Tributyl phosphate  
CAS 126-73-8; EINECS/ELINCS 204-800-2

*Uses:* Flame retardant primary plasticizer for nitrocellulose, cellulose acetate, chlorinated rubber, and vinyls; antifoam for paper coatings, water-based adhesives, inks, textile sizes, detergent sol'ns.; high boiling solv. for lithographic inks; latex paints; also suitable for epoxy, PS, PVAc

*Properties:* Colorless liq.; sp.gr. 0.980 (20/20 C); visc. 6 mPa·s; 11.7% P

**Phosflex® 61B** [Akzo Nobel]

*Chem. Descrip.:* t-Butylated triphenyl phosphate ester mixt.  
CAS 56803-37-3

*Uses:* Flame retardant plasticizer for phenolic resins, paper coatings, PVC and PVC foams, acrylic, cellulose, epoxy, phenolic, and PVAc polymers

*Properties:* Straw-colored liq.; sp.gr. 1.165 (20/20 C); visc. 77 mPa·s; 8.0% P

**Phosflex® 71B** [Akzo Nobel]

*Chem. Descrip.:* t-Butyl phenyl diphenyl phosphate  
CAS 56803-37-3

*Uses:* Flame retardant plasticizer for PVC, PVC foams, vinyl nitrile foams,

- PVAc emulsions, cellulose, acrylic, epoxy, paper, phenolic, PS, ABS, engineering resins, polyesters, alloys  
*Properties:* Colorless liq.; sp.gr. 1.180 (20/20 C); visc. 32 mPa·s; 8.5% P
- Phosflex® TBEP** [Akzo Nobel]  
*Chem. Descr.:* Tributoxylethyl phosphate  
 CAS 78-51-3; EINECS/ELINCS 201-122-9  
*Uses:* Flame retardant plasticizer for plastisols, acrylics, cellulose, epoxy, nitrile rubber, PVAc; floor polish emulsions; leveling agent in latex paints and polishes; imparts low temp. flexibility to syn. rubbers; antifoam in paper coatings, inks, textile sizes, detergents, and paints  
*Properties:* Colorless liq.; sp.gr. 1.35 (20/20 C); visc. 12 mPa·s; 7.8% P
- Photomer® 51** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Benzil dimethyl ketal  
 CAS 24650-42-8; EINECS/ELINCS 246-386-6  
*Uses:* Photoinitiator for UV curable coatings and inks for paper, plastics, wood, and elec. applics.
- Photomer® 3015** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Bisphenol A epoxy diacrylate  
*Uses:* Used for paper/paperboard, metal/deco clear and pigmented systems; low visc. oligomer with wide range of radiation curable props.; greater ease in handling, exhibits good cure  
*Properties:* 100% solids
- Photomer® 3016** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Bisphenol A epoxy diacrylate  
*Uses:* Base resin in radiation-curing overprint varnishes for paper/board and wood varnishes; good litho props. in wet offset inks; high visc. oligomer with good cure speed; provides high surf. hardness, high gloss, exc. solv. resist.  
*Properties:* 100% solids
- Photomer® 3016-20T** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Epoxy acrylate/monomer blend  
*Uses:* Used in paper/paperboard, overprints, wood coatings, and inks; dilution of Photomer® 3016 with Photomer® 4006 (TMPTA) to facilitate easier handling and applic.
- Photomer® 3016-40R** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Epoxy acrylate/monomer blend  
*Uses:* Used in paper/paperboard and wood coatings and inks; dilution of Photomer® 3016 with Photomer® 4061 (TPGDA) to facilitate easier handling and applic.
- Photomer® 3016-40T** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Epoxy acrylate/monomer blend  
*Uses:* Used in paper/paperboard, overprints, wood coatings, and inks; dilution of Photomer® 3016 with Photomer® 4006 (TMPTA) to facilitate easier handling and applic.
- Photomer® 3038** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Acrylated epoxy resin with Photomer® 461 (tripropylene glycol diacrylate)  
*Uses:* Used in radiation-curable paper/paperboard, overprints, rigid plastics, wood, and chipboard coatings
- Photomer® 4015** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Aromatic alkoxyate monoacrylate  
*Uses:* Flexibilizer in coatings and inks for flexible substrates, and for paper, metal and photopolymer applics.; low irritancy replacement for 2-PEA
- Photomer® 4025** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Bisphenol A ethoxylate diacrylate  
*Uses:* Film-former for paper/paperboard and photopolymer applics.; higher ethoxylate analog of Photomer® 4028; water disp. monomer which is fast curing, exhibits exc. flexibility and cured film props.  
*Properties:* Med. m.w.
- Photomer® 4028** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Bisphenol A ethoxylate diacrylate  
*Uses:* Film-former for radiation-cured inks and coatings, esp. overprint varnishes on paper/paperboard, litho inks, screen inks; as base oligomer in low visc. systems; fast curing, mod. visc. monomer; forms tough abrasion-resist. films of high tens. str. and good elong.  
*Toxicology:* Low skin irritancy
- Photomer® 4155** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Ethoxylated trimethylolpropane triacrylate  
*Uses:* Film-former in aq./solv. systems such as photopolymers, screen printing, textiles, and paper/paperboard coatings; higher ethoxylate homologue of Photomer® 4149; water disp. monomer with good cure response and film forming char.  
*Properties:* Med. m.w.
- Photomer® 4158** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Ethoxylated trimethylolpropane triacrylate  
*Uses:* Used in aq./solv. developable photopolymers, paper, textiles coatings and other porous substrates; very high ethoxylate homologue of Photomer® 4149; partially water sol. MFA which cures to a flexible, soft homopolymer  
*Properties:* High m.w.
- Photomer® 4160** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Neopentyl glycol ethoxylate diacrylate  
*Uses:* Film-former for paper/paperboard, wood varnishes, and flexible plastics; patented low visc., fast curing ester with good solvency props.; forms flexible films of high tensile, mod. elong., and mod. shrinkage
- Photomer® 4204** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Aliphatic alkoxyate diacrylate  
*Uses:* Used for paper, wood, and metal prods.; low irritancy, mod. cure monomer; exhibits good flexibility, solv. resist., and adhesion props.; developmental  
*Properties:* Low odor
- Photomer® 5018** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Polyester acrylate  
*Uses:* Good wetting chars. make it esp. suitable in multicolor printing/coating systems where interfacial adhesion is a problem; for clear coatings on wood, glass, paper, and plastics; low visc. oligomer for radiation-curing applics.
- Photomer® 6010** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Aliphatic urethane diacrylate  
*Uses:* Film-former for coatings and inks for paper and plastic substrates; nonyellowing, flexible film-forming oligomer exhibiting outstanding humidity resist.
- Photomer® 6140** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Aliphatic urethane diacrylate  
*Uses:* Used for radiation-curing overprint varnishes and inks for flexible or semirigid substrates like paper and plastics; high visc. nonyel. oligomer; good flexibility and toughness
- Photomer® 6210** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Aliphatic urethane diacrylate  
*Uses:* Used in coatings and inks on rigid and flexible plastics, paper, and metals; premium oligomer with very low visc., exc. light stability, chem. and abrasion resist.
- Photomer® 8061** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Monomethoxy tripropylene glycol monoacrylate  
*Uses:* Reactive diluent for use in UV/EB adhesives, with good adhesion to aluminum, paper, paperboard, and selected plastics; comparable in cure to TPGDA with exc. solvating props.  
*Properties:* Low visc.
- Photomer® 8127** [Cognis/Coatings & Inks]  
*Chem. Descr.:* Monomethoxy neopentyl glycol propoxylate monoacrylate  
*Uses:* Exhibits good adhesion to aluminum, paper, plastics, and glass; useful in RC laminating and structural adhesives; reactive monomer comparable in cure to NPG(PO) diacrylate  
*Properties:* Very low visc.
- Phthalopal®** [BASF AG]  
*Chem. Descr.:* Phthalate resins, sat. and unsat.  
*Uses:* Resin for paint and varnish industry; oil-free for NC finishes; binder for aq. flexographic inks and lightfast paper varnishes; saponified form
- Picconol® A100** [Hercules/Resins]  
*Chem. Descr.:* Aliphatic hydrocarbon resin emulsions  
*Uses:* Resin emulsion used in combination with other aq. thermoplastic and/or elastomeric systems to produce coatings, paints, and adhesives; extender, tackifier for NR, SR; waterproof finishes for paper, textiles; esp. suitable for use in high-styrene SBR, EVA resin, and polyacrylic-based latex paints, and in adhesives for bonding films, fibers, and granular materials; food-pkg. and processing operations  
*Properties:* Gardner 9 (50% in toluene) liq.; dens. 0.97 kg/l; visc. 3000 cps; soften. pt. (R&B) 63 C; pH 8.5; 50% aq. disp.; anionic
- Piccopale® 100** [Hercules/Resins]  
*Chem. Descr.:* Aliphatic hydrocarbon resin, stabilized with 0.1% antioxidant (tetrakis [methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate)] methane)  
*Uses:* Tackifier, binder for rubber, adhesives, construction materials; saturant/waterproofing agent for paper, textiles; replacement for gloss oils in paints, varnishes, and coatings  
*Properties:* Gardner 3 color; sp.gr. 0.91-0.97; dens. 0.97 kg/l; melt. visc. 230

C (1 poise); soften. pt. (R&B) 100 C; flash pt. (COC) 259 C; acid no. < 1; sapon. no. < 2

**Piccopale® 100-70M66** [Hercules/Resins]

*Chem. Descrip.:* Hydrocarbon resin sol'n.

*Uses:* Tackifier, binder for rubber, adhesives, construction materials; saturant/waterproofing agent for paper, textiles; replacement for gloss oils in paints, varnishes, and coatings

*Properties:* Visc. 17-36 stokes; soften. pt. (R&B) 100 C; flash pt. (TCC) 40 C min.; 70% solids in min. spirits

**Piccotac® 95T** [Hercules/Resins]

*Chem. Descrip.:* Aliphatic C5 hydrocarbon resin

*Uses:* Tackifier for hot-melt adhesives; saturant and waterproofing agent in various paper, paperboard, and textile prods.; hot-melt road marking compds.; food pkg. adhesives, paper/paperboard; compat. with most popular elastomers and polymers

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180 compliant

*Properties:* Gardner 2 pastilles; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, MIBK, and ethyl ether; insol. in lower alcohols and glycols; m.w. 1800; sp.gr. 0.940; soften. pt. (R&B) 98 C; acid no. < 1; flash pt. (COC) 500 F

*Precaution:* May fuse/block/lump during hot weather, if stored near steam pipes or sources of heat, and upon prolonged storage; gradually oxidize and darken, affecting sol.

**Pigmosol®** [BASF AG]

*Uses:* Org. and inorg. pigments for building materials, crop protection agents, artists' colors; papermaking for highly lightfast paper coloring and wallpapers; colorants for pigmenting glues; for coloring detergents (speckles), soaps

**Pilot® SXS-40** [Pilot]

*Chem. Descrip.:* Sodium xylene sulfonate

CAS 1300-72-7; EINECS/ELINCS 215-090-9

*Uses:* Coupling agent, hydrotrope, solubilizer, solvent in org. polymers and dyestuffs, petrol. industry, pulping, animal glues; solubilizer, hydrotrope for textiles; dispersant and stabilizer for lowering cloud pt. and visc. in liq. detergents

*Properties:* Lt. yel. clear liq.; dens. 9.9 lb/gal; pH 7.5; 42% total solids; anionic

**Piosafe 30** [Vinings Ind.]

*Uses:* Surf. sizing agent for safety and security papers such as checks and stock certificates for size press; treated sheet turns dk. brn. if alterations in printed material or signatures are attempted with bleaching chems.

*Properties:* Liq.

**Pittclor®** [PPG Ind.]

*Chem. Descrip.:* Calcium hypochlorite

CAS 7778-54-3; EINECS/ELINCS 231-908-7

*Uses:* Algicide, antimicrobial, fungicide for municipal water treatment, sewage treatment, in textile and paper mills, tanneries, wastewater effluent treatment in petrochemical industries; chlorinating agent for swimming pools; disinfectant for cleaning pool parts, locker room floors, etc.

*Properties:* Wh. gran. powd.; m.w. 142.994; sol. in water; dens. 61.1 lb/ft<sup>3</sup>; 65% act.

**Plasmine KN-500** [Plasmine Tech.]

*Chem. Descrip.:* Styrene acrylic copolymer ammonium salt sol'n.

CAS 35209-54-2

*Uses:* Surf. size for acid or alkaline papermaking for size press and calender operations; component of paper/paperboard in contact with aq./fatty/dry foods; imparts exc. ink jet printability to alkaline fine papers and offset printability to wh. papers and board grades; reduces ink feathering and show through; minimizes fugitive sizing effects of internal size

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Water-wh. clear sol'n.; trace odor; completely sol. in water; sp.gr. 1.04; dens. 8.8 lb/gal; visc. 15-35 cps; b.p. 212 F; pH 8-10; 19-21% solids

*Toxicology:* May cause skin/eye irritation, permanent eye injury

*Precaution:* Avoid strong oxidizing agents, acids, strong bases; strong bases may cause release of ammonia

*Hazardous Decomp. Prods.:* Elevated temps. will cause release of sm. amts. of ammonia

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 12 mos shelf life; store @ 40-90 F in closed containers in well-ventilated area; avoid brass, copper, and aluminum fittings/vessels

**Plasmine® N-750-P** [Plasmine Tech.]

*Chem. Descrip.:* Pale highly fortified rosin soap in water

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for papermaking; component of paper/paperboard in contact with aq./fatty/dry foods; for use in wet end at pH range of 4.5-5.5; not shear-sensitive; exc. stability

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Amber liq.; ammonia odor; sol. in cold water; sp.gr. 1.142; dens. 9.51 lb/gal; visc. 120-450 cps; b.p. 105 C; flash pt. nonflamm.; pH 10.5; 50% total solids

*Toxicology:* Alkaline soap; avoid long-term contact; may cause skin and eye irritation or damage

*Precaution:* Keep away from acids

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 1 yr+ shelf life; store in closed container in cool, well-ventilated area; avoid brass and copper fittings

**Plasmine® PLH-50** [Plasmine Tech.]

*Chem. Descrip.:* Pale fortified rosin

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for papermaking; component of paper/paperboard in contact with aq./fatty/dry foods; exc. stability; not shear-sensitive

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Amber liq.; ammonia odor; sol. in cold water; sp.gr. 1.14; dens. 9.54 lb/gal; visc. 18 cps; b.p. 105 C; flash pt. nonflamm.; pH 10.5; 50% solids

*Toxicology:* May cause skin and eye irritation, permanent eye injury; vapor may cause skin and eye irritation; inh. may cause coughing

*Precaution:* Keep away from acids

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 1 yr+ shelf life; store @ 70-85 F in closed containers in well-ventilated area; keep from freezing, but if accidentally frozen, mix thoroughly; avoid brass and copper fittings

**Plasmine® PLH-55** [Plasmine Tech.]

*Chem. Descrip.:* Pale fortified rosin

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for papermaking, bleached and unbleached sulfate pulp, recycled fiber furnish; component of paper/paperboard in contact with aq./fatty/dry foods; for use in wet end at pH range of 4.5-5.5; reduces rosin buildup on presses and felts; freeze-thaw stable

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Amber liq.; ammonia odor; sol. in cold water; sp.gr. 1.158; dens. 9.65 lb/gal; visc. 75 cps; b.p. 105 C; flash pt. nonflamm.; pH 10.5; 50% total solids

*Toxicology:* May cause skin and eye irritation, permanent eye injury; vapor may cause skin and eye irritation; inh. may cause coughing

*Precaution:* Keep away from acids

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* 1 yr+ shelf life; store @ R.T.; avoid brass and copper fittings

**Plasthall® 7041** [C.P. Hall]

*Chem. Descrip.:* Long chain alkyl alkylether diester

*Uses:* Plasticizer, softener for rubber, CR, SBR, NBR, nitrile-PVC, PVAc; peptizing agent; transfer aid on correctable ribbon; penetrant and tackifier for computer ribbons, carbon paper

*Properties:* Yel. liq.; sol. in hexane, toluene, kerosene, ethanol, acetone, min. oil; insol. in water; m.w. 492; sp.gr. 0.925; visc. 15 cps; f.p. -51 C; acid no. 0.5; iodine no. nil; sapon. no. 228; flash pt. 182 C; ref. index 1.449; 0.08% moisture

**Plasthall® 7049** [C.P. Hall]

*Chem. Descrip.:* Alkyl oleate

*Uses:* Plasticizer for SBR; transfer aid on correctable ribbon; penetrant and tackifier for computer ribbons, carbon paper

*Properties:* Gardner 5 clear oily liq.; sol. in hexane, toluene, kerosene, ethanol, acetone, min. oil; insol. in water; sp.gr. 0.874; visc. 25 cps; f.p. -55 C; acid no. 1.3; iodine no. 69; sapon. no. 145; flash pt. 191 C; ref. index 1.4590; 0.10% moisture

**Plasthall® R-9** [C.P. Hall]

*Chem. Descrip.:* Octyl tallate

*Uses:* Transfer aid on correctable ribbon; penetrant and tackifier for computer ribbons, carbon paper; plasticizer for SBR, CR; imparts good low temp. flexibility

*Properties:* Yel. to amber liq.; sol. in hexane, toluene, kerosene, min. oil; insol. in water; m.w. 398; sp.gr. 0.873; visc. 17 cps; f.p. -10 C; acid no. 0.2; sapon. no. 141; flash pt. 213 C; ref. index 1.459; 0.10% moisture

**Plioliute® AC** [Goodyear]

*Chem. Descrip.:* Styrene/acrylate emulsion copolymer

CAS 9010-92-8

*Uses:* UV-resist. resin for solv.-based masonry and concrete coatings, swimming pool paints, waterproof texture and masonry coatings, concrete curing membranes and sealers, aluminum, metallic, and high-build maintenance coatings, paper coatings, metallic and silk screen inks, dry electrophotographic toners

*Properties:* Sol. in aromatic solvs., aliphatic blends, chlorinated HC, esters, ketones; sp.gr. 1.04; dens. 8.66 lb/gal; ref. index 1.546; hardness (Sward) 46 (24 h); dissip. factor 0.0089 (100 Hz); dielec. const. 2.61 (100 Hz); vol. resist.  $7.8 \times 10^{15}$  ohm-cm

**Pliolite® AC-3** [Goodyear]

*Chem. Descrip.:* Vinyltoluene/acrylate

*Uses:* Rheological modifier used in masonry paints, concrete floor enamels, waterproof masonry coatings, fill coats, paper coatings (barrier coatings, gloss overlacquers), metallic and gravure inks

*Properties:* Wh. friable gran., odorless, tasteless; sp.gr. 1.028; dens. 8.56 lb/gal; bulk dens. 25.7 lb/ft<sup>3</sup>; ref. index 1.562

**Pliolite® AC-L** [Goodyear]

*Chem. Descrip.:* Styrene/acrylate emulsion copolymer

CAS 9010-92-8

*Uses:* Resin for solv.-based masonry and concrete coatings, swimming pool paints, waterproof texture and masonry coatings, concrete sealers, aluminum, metallic, and high-build maintenance coatings, paper coatings, gloss overlacquers, metallic and silk screen inks

*Properties:* Sp.gr. 1.04; dens. 8.66 lb/gal; ref. index 1.546; hardness (Sward) 40 (24 h)

**Pliolite® S-5D** [Goodyear]

*Chem. Descrip.:* S/B emulsion copolymer

CAS 9003-55-8

*Uses:* Resin for solv.-based coatings, concrete stains, waterproof texture and masonry coatings, concrete curing membranes, aluminum and metallic maintenance coatings, paper coatings, dry electrophotographic toners, silk screen inks

*Properties:* Sol. in aromatic solvs., aliphatic blends, chlorinated HC, esters, ketones; sp.gr. 1.05; dens. 8.74 lb/gal; ref. index 1.585; hardness (Sward) 12 (24 h); dissip. factor 0.0007 (100 Hz); dielec. const. 2.60 (100 Hz); vol. resist.  $3 \times 10^{15}$  ohm-cm

**Pliolite® S-5E** [Goodyear]

*Chem. Descrip.:* S/B emulsion copolymer

CAS 9003-55-8

*Uses:* Resin for solv.-based coatings, concrete stains, waterproof texture and masonry coatings, concrete sealers, traffic paints, aluminum and metallic maintenance coatings, paper coatings, metallic inks, dry electrophotographic toners

*Properties:* Sol. in aromatic solvs., aliphatic blends, chlorinated HC, esters, ketones; sp.gr. 1.05; dens. 8.74 lb/gal; ref. index 1.585; hardness (Sward) 9 (24 h); dissip. factor 0.0007 (100 Hz); dielec. const. 2.60 (100 Hz); vol. resist.  $3 \times 10^{15}$  ohm-cm

**Pliolite® VT** [Goodyear]

*Chem. Descrip.:* Vinyl-toluene/butadiene emulsion copolymer

*Uses:* Film-former for solv.-based traffic paints, block fillers, paper coatings, adhesives, laminates, printing inks, hot melts, abrasion-resist. coatings, masonry and concrete paints, waterproof coatings; produces films with clarity, str., hardness and chem. resist.

*Properties:* Sol. in aromatic solvs., aliphatic blends, chlorinated HC, esters, ketones; sp.gr. 1.026; dens. 8.56 lb/gal; ref. index 1.57; hardness (Sward) 20 (24 h); dissip. factor 0.0010 (100 Hz); dielec. const. 2.58 (100 Hz); vol. resist.  $6.97 \times 10^{15}$  ohm-cm

**Pliolite® VTAC** [Goodyear]

*Chem. Descrip.:* Vinyl-toluene/acrylate emulsion copolymer

*Uses:* Resin used for solv.-based coatings, waterproof texture and masonry coatings, intumescent fire-retardant paints, concrete curing membranes and sealers, paper coatings, gloss overlacquers, silk screen inks, dry electrophotographic toners

*Properties:* Sol. in aromatic solvs., aliphatic blends, chlorinated HC, esters, ketones; sp.gr. 1.026; dens. 8.56 lb/gal; ref. index 1.57; hardness (Sward) 20 (24 h); dissip. factor 0.0019 (100 Hz); dielec. const. 2.60 (100 Hz); vol. resist.  $6.91 \times 10^{15}$  ohm-cm

**Pliolite® VT-L** [Goodyear]

*Chem. Descrip.:* Vinyl-toluene/butadiene emulsion copolymer

*Uses:* Resin used in solv.-based coatings, concrete floor enamels, waterproof

texture and masonry coatings, paper coatings (gloss overlacquers)

*Properties:* Sp.gr. 1.03; dens. 8.57 lb/gal; ref. index 1.558; hardness (Sward) 32 (24 h)

**Plonon 102** [NOF]

*Chem. Descrip.:* POE-POP ether

*Uses:* Emulsifier, solubilizer, dispersant, detergent, antifoam, wetting agent used in soaps, syn. resins, metal cleaning, emulsion polymerization, fermentation, paper industries

*Properties:* Colorless liq.; odorless and tasteless; m.w. 1250; sol. in water, ethanol, acetone, benzol, dioxane; visc. 105 cs (37.8 C); HLB 7; cloud pt. 22 C (10% aq.); surf. tens. 41.1 dynes/cm (0.1%); 100% conc.; nonionic

**Plonon 104** [NOF]

*Chem. Descrip.:* POE-POP ether

*Uses:* Emulsifier, solubilizer, dispersant, detergent, antifoam, wetting agent used in soaps, syn. resins, metal cleaning, emulsion polymerization, fermentation, paper industries

*Properties:* Colorless liq.; odorless and tasteless; m.w. 1650; sol. in water, ethanol, acetone, benzol, dioxane; visc. 105 cs (37.8 C); HLB 15.0; cloud pt. 64 C (10% aq.); surf. tens. 43.5 dynes/cm (0.1%); 100% conc.; nonionic

**Plonon 201** [NOF]

*Chem. Descrip.:* POE-POP ether

*Uses:* Emulsifier, solubilizer, dispersant, detergent, antifoam, wetting agent used in soaps, syn. resins, metal cleaning, emulsion polymerization, fermentation, paper industries

*Properties:* Colorless liq.; odorless and tasteless; m.w. 2200; sol. in ethanol, acetone, benzol, dioxane; visc. 190 cs (37.8 C); HLB 3; cloud pt. 21 C (10% aq.); surf. tens. 38 dynes/cm (0.1%); 100% conc.; nonionic

**Plonon 204** [NOF]

*Chem. Descrip.:* POE-POP ether

*Uses:* Emulsifier, solubilizer, dispersant, detergent, antifoam, wetting agent used in soaps, syn. resins, metal cleaning, emulsion polymerization, fermentation, paper industries

*Properties:* Colorless paste; odorless and tasteless; m.w. 3400; sol. in water, ethanol; visc. 370 cs (37.8 C); HLB 13.5; cloud pt. 64 C (10% aq.); surf. tens. 39.8 dynes/cm (0.1%); 100% conc.; nonionic

**Plonon 208** [NOF]

*Chem. Descrip.:* POE-POP ether

*Uses:* Emulsifier, solubilizer, dispersant, detergent, antifoam, wetting agent used in soaps, syn. resins, metal cleaning, emulsion polymerization, fermentation, paper industries

*Properties:* Colorless paste; odorless and tasteless; m.w. 8000; sol. in water; HLB 28; cloud pt. 100 C (10% aq.); surf. tens. 44.1 dynes/cm (0.1%); 100% conc.; nonionic

**Pluracol® E400 NF** [BASF]

*Chem. Descrip.:* PEG-8

CAS 25322-68-3; EINECS/ELINCS 225-856-4

*Uses:* Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditioner, antistat, sizing agent, dispersant for cosmetic and oral care preps., metal polishing and cleaning formulations, rubber prods., paper and wood prods., textile processing, ink formulations; excipient, carrier, solvent in pharmaceuticals; chemical intermediate

*Properties:* Liq.; m.w. 400; visc. 7.4 cs (99 C); pour pt. 5 C; flash pt. (COC) 182 C; nonionic

**Pluracol® E600 NF** [BASF]

*Chem. Descrip.:* PEG-12

CAS 25322-68-3; EINECS/ELINCS 229-859-1

*Uses:* Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditioner, antistat, sizing agent, dispersant for cosmetics, oral care preps., metal polishing and cleaning formulations, rubber prods., paper and wood prods., textile processing, ink formulations; excipient, carrier, solvent for pharmaceuticals; chemical intermediate

*Properties:* Liq.; m.w. 600; visc. 10.8 cs (99 C); pour pt. 20 C; flash pt. (COC) 249 C; nonionic

**Pluracol® E1450** [BASF]

*Chem. Descrip.:* PEG-32

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Chemical intermediate, base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditioner, antistat, sizing agent, dispersant for pharmaceutical, cosmetic, and oral care preparations, in metal polishing and cleaning formulations, rubber prods., paper and wood prods., textile processing, ink formulations

*Properties:* Solid; m.w. 1450; visc. 28.5 cs (99 C); m.p. 45 C; flash pt. (COC) 255 C

**Pluracol® E2000 [BASF]**

*Chem. Descrip.:* PEG-40

CAS 25322-68-3

*Uses:* Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditioner, antistat, sizing agent, dispersant for pharmaceuticals, cosmetics, oral care preps., metal polishing and cleaning formulations, rubber prods., paper and wood prods., textile processing, ink formulations; chemical intermediate

*Properties:* Solid; m.w. 2000; visc. 43.5 cs (99 C); m.p. 52 C; flash pt. (COC) > 260 C; nonionic

**Pluracol® E4500 [BASF]**

*Chem. Descrip.:* PEG

*Uses:* Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditioner, antistat, sizing agent, dispersant for pharmaceuticals, cosmetics, oral care preps., metal polishing and cleaning formulations, rubber prods., paper and wood prods., textile processing, ink formulations; chemical intermediate

*Properties:* Solid; m.w. 4500; visc. 170 cs (99 C); m.p. 60 C; flash pt. (COC) > 260 C

**Pluracol® E8000 [BASF]**

*Chem. Descrip.:* PEG-150

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Base, coupling agent, thickener, lubricant, mold release agent, defoamer, softener, conditioner, antistat, sizing agent, dispersant for pharmaceuticals, cosmetics, oral care preps., metal polishing and cleaning formulations, rubber prods., paper and wood prods., textile processing, ink formulations; chemical intermediate

*Properties:* Solid; m.w. 8000; visc. 750 cs (99 C); m.p. 61 C; flash pt. (COC) > 260 C; nonionic

**Pluriol® E 200 [BASF AG]**

*Chem. Descrip.:* PEG

*Uses:* Solubilizer; impregnating agent; humectant; mold release agent; flow improver; thermal and hydraulic fluid; org. intermediate; detergent and cleaner; dye and pigment dispersant; inks; textile and coatings industry; coloring ceramics; softener in paper industry; plasticizer in adhesives industry and in prod. of cellulose film; ceramics and metalworking lubricant

*Properties:* Clear colorless liq.; m.w. 200; water-sol.; dens. 1.12 g/cc; visc. 55-65 cs.; m.p. < -40 C; flash pt. > 150 C; pH 6.0-7.5 (1% aq.); 100% conc.; nonionic

**Pluriol® E 1500 [BASF AG]**

*Chem. Descrip.:* PEG

*Uses:* Solubilizer; humectant; binder and hardener in personal care prods.; dispersant for dyes and pigments; inks; textiles; coatings; coloring ceramics; paper industry softener; plasticizer in adhesives industry and prod. of cellulose film; ceramics and metalworking lubricants; aux. for copper and nickel electroplating baths; electrolytic polishing of steel

*Properties:* Wh. fine powder; m.w. 1500; water-sol.; bulk dens. 0.6 kg/l; visc. 25-35 cs (99 C); m.p. 45 C; flash pt. > 230 C; pH 6.0-7.5 (1% aq.); 100% conc.; nonionic

**Pluriol® E 4000 [BASF AG]**

*Chem. Descrip.:* PEG

*Uses:* Solubilizer; humectant; binder and hardener in personal care prods.; dispersant for dyes and pigments; inks; textiles; coatings; coloring ceramics; paper industry softener; plasticizer in adhesives industry and prod. of cellulose film; lubricant, dispersant, mold release for rubbers; cure activator in min.-filled compds.

*Properties:* Wh. fine powder; m.w. 4000; water-sol.; bulk dens. 0.6 kg/l; visc. 80-130 cs (99 C); m.p. 55 C; flash pt. > 240 C; pH 6.0-7.5 (1% aq.); 100% conc.; nonionic

**Pluriol® E 6000 [BASF AG]**

*Chem. Descrip.:* PEG

*Uses:* Solubilizer; humectant; binder and hardener in personal care prods.; dispersant for dyes and pigments; inks; textiles; coatings; coloring ceramics; paper industry softener; plasticizer in adhesives and prod. of cellulose film

*Properties:* Wh. fine powder; m.w. 6000; water-sol.; bulk dens. 0.6 kg/l; visc. 300 cs (99 C); m.p. 60 C; flash pt. > 240 C; pH 6.0-7.5 (1% aq.); 100% conc.; nonionic

**Pluriol® E 8000 [BASF AG]**

*Chem. Descrip.:* PEG

*Uses:* Solubilizer, humectant; binder/hardener in personal care prods.; dispersant for dyes/pigments; inks; textiles; coatings; ceramics; paper industry softener; plasticizer in adhesives industry and prod. of cellulose film; mold release for rubbers

*Properties:* Nonionic

**Pluriol® E 9000 [BASF AG]**

*Chem. Descrip.:* PEG

*Uses:* Solubilizer, humectant; binder/hardener in personal care prods.; dispersant for dyes/pigments; inks; textiles; coatings; ceramics; paper industry softener; plasticizer in adhesives industry and prod. of cellulose film; mold release for rubbers

*Properties:* Wh. fine powder; m.w. 9000; water-sol.; bulk dens. 0.6 kg/l; visc. 1900 cs (99 C); m.p. 65 C; flash pt. > 240 C; pH 6.0-7.5 (1% aq.); 100% conc.; nonionic

**Pluronic® 10R5 [BASF]**

*Chem. Descrip.:* Merxapol 105

CAS 9003-11-6

*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paints, latexes, cosmetics, pulp, paper, and petrol. industries, agric. prods., in iodophors, water treating systems, fermentation, cutting and grinding fluids

*Properties:* Liq.; sol. in water, propylene glycol, xylene, IPA, ethyl acetate, perchloroethylene, IPM; m.w. 1970; sp.gr. 1.058; visc. 400 cps; HLB 21.0; cloud pt. 69 C (1% aq.); flash pt. (COC) > 450 F; pour pt. 15 C; ref. index. 1.4587; surf. tens. 50.9 dynes/cm; 100% act.; nonionic

*Toxicology:* LD50 (oral) 3 to > 10 g/kg, (dermal) > 1 to > 10 g/kg; minimal to mild eye and skin irritation

**Pluronic® 17R2 [BASF]**

*Chem. Descrip.:* Merxapol 172

CAS 9003-11-6

*Uses:* Detergent, oil emulsifier for hard surface detergents, textile processing, paints, latexes; defoamer; wetting agent; deduster; demulsifier; dispersant; dye leveling agent; gellant; antistat; syn. lubricant base fluid for metalworking and textile lubricants, chem. intermediates; pulp/paper additive; low-foam

*Properties:* Liq.; sol. in water, xylene, IPA; ethyl acetate, perchloroethylene, IPM, trichlorotrifluoroethane; m.w. 2100; sp.gr. 1.030; visc. 350 cps; HLB 4.0; pour pt. -25 C; cloud pt. 39 C (1% aq.); flash pt. (COC) > 450 F; ref. index 1.4535; surf. tens. 41.9 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 3 to > 10 g/kg, (dermal) > 1 to > 10 g/kg; minimal to mild eye and skin irritation

**Pluronic® 25R2 [BASF]**

*Chem. Descrip.:* Merxapol 252

CAS 9003-11-6

*Uses:* Low-foam detergent, oil emulsifier, wetting agent, defoamer for hard surf. detergents, rinse aids, automatic dishwashing, textile processing, paints, latexes; wetting and rinse aid; lubricant and leveling agent for paper coating

*Properties:* Liq.; sol. in xylene, IPA, ethyl acetate, perchloroethylene, IPM, trichlorotrifluoroethane; m.w. 3120; sp.gr. 1.039; visc. 680 cps; HLB 6.3; pour pt. -5 C; cloud pt. 33 C (1% aq.); flash pt. (COC) > 450 F; ref. index 1.4541; surf. tens. 37.5 dynes/cm (0.1%); Draves wetting 38 s (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 3 to > 10 g/kg, (dermal) > 1 to > 10 g/kg; minimal to mild eye and skin irritation

**Pluronic® F38 [BASF]**

*Chem. Descrip.:* Poloxamer 108

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, propylene glycol, water, toluene; m.w. 5000; dens. 8.9 lb/gal (77 C); sp.gr. 1.07 (77 C); visc. 260 cps (77 C); m.p. 48 C; HLB 30.5; cloud pt. > 100 C (1% aq.); flash pt. (COC) 505 F; surf. tens. 52.2 dynes/cm (0.1% conc.); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® F68 [BASF]**

*Chem. Descrip.:* Poloxamer 188

CAS 9003-11-6



*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, water; m.w. 8350; dens. 8.8 lb/gal (77 C); sp.gr. 1.06 (77 C); visc. 1000 cps (77 C); m.p. 52 C; HLB 29.0; cloud pt. > 100 C (1% aq.); flash pt. (COC) 500 F; surf. tens. 50.3 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F68LF [BASF]

*Chem. Descrip.:* Poloxamer 108

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Flake; m.w. 7700; sol. in toluene; sp.gr. 1.06 (77 C); dens. 8.7 lb/gal (77 C); visc. 850 cps (77 C); m.p. 50 C; cloud pt. 32 C (1% aq.); 100% conc.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F77 [BASF]

*Chem. Descrip.:* Poloxamer 217

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, water, toluene; m.w. 6600; dens. 8.7 lb/gal (77 C); sp.gr. 1.04 (77 C); m.p. 48 C; HLB 24.5; cloud pt. > 100 C (1% aq.); flash pt. (COC) 485 F; surf. tens. 47.0 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F87 [BASF]

*Chem. Descrip.:* Poloxamer 237

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, water, toluene; m.w. 7700; dens. 8.7 lb/gal (77 C); sp.gr. 1.04 (77 C); visc. 700 cps. (77 C); m.p. 49 C; HLB 24.0; cloud pt. > 100 C (1% aq.); flash pt. (COC) 472 F; surf. tens. 44.0 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F88 [BASF]

*Chem. Descrip.:* Poloxamer 238

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Prilled; sol. in ethanol and water; m.w. 10,800; dens. 8.8 lb/gal (77 C); sp.gr. 1.06 (77 C); visc. 2300 cps (77 C); m.p. 54 C; HLB 28.0; cloud pt. > 100 C (1% aq.); surf. tens. 48.5 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F98 [BASF]

*Chem. Descrip.:* Poloxamer 288

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, water, perchloroethylene; m.w. 13,000; dens. 8.8 lb/gal (77 C); sp.gr. 1.06 (77 C); visc. 2700 cps (77 C); m.p. 55 C; HLB 27.5; cloud pt. > 100 C (1% aq.); flash pt. (COC) 491 F; surf. tens. 43.0 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F108 [BASF]

*Chem. Descrip.:* Poloxamer 338

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, water; m.w. 14,000; dens. 8.8 lb/gal (77 C); sp.gr. 1.06 (77 C); visc. 8000 cps (77 C); m.p. 57 C; HLB 27.0; cloud pt. > 100 C (1% aq.); flash pt. (COC) 495 F; surf. tens. 41.2 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® F127 [BASF]

*Chem. Descrip.:* Poloxamer 407

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints

*Properties:* Prilled; sol. in ethanol, water, toluene, perchloroethylene; m.w. 12,500; dens. 8.8 lb/gal (77 C); sp.gr. 1.05 (77 C); visc. 3100 cps (77 C); m.p. 56 C; HLB 22.0; cloud pt. > 100 C (1% aq.); surf. tens. 40.6 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® L10 [BASF]

*Chem. Descrip.:* PO/EO block copolymer

CAS 9003-11-6

*Uses:* Surfactant, defoamer, emulsifier, demulsifier, solubilizer, detergent, dispersant, binder, stabilizer, gellant, wetting agent, rinse aid, chemical intermediate in cosmetics, textiles, paper, petrol., paints, metal cleaning; low-foam

*Properties:* Liq.; m.w. 3200; visc. 660 cps; HLB 14.0; pour pt. -5 C; cloud pt. 32 C (1% aq.); surf. tens. 41 dynes/cm (0.1%); Draves wetting > 360 s (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® L31 [BASF]

*Chem. Descrip.:* Poloxamer 101

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 1100; dens. 8.5 lb/gal; sp.gr. 1.02; visc. 165 cps; HLB 4.5; cloud pt. 37 C (1% aq.); flash pt. 439 F (COC); pour pt. -32 C; ref. index 1.4515; surf. tens. 46.9 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® L35 [BASF]

*Chem. Descrip.:* Poloxamer 105

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 1900; dens. 8.8 lb/gal; sp.gr. 1.06; visc. 340 cps; HLB 18.5; cloud pt. 77 C (1% aq.); pour pt. 7 C; surf. tens. 48.8 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

#### Pluronic® L43 [BASF]

*Chem. Descrip.:* Poloxamer 123

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 1850; dens. 8.7 lb/gal; sp.gr. 1.04; visc. 310 cps; HLB 12.0; cloud pt. 42 C (1% aq.); pour pt. -1 C; ref. index 1.4563; surf. tens. 47.3 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L44 [BASF]**

*Chem. Descrip.:* Poloxamer 124

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; m.w. 2200; dens. 8.8 lb/gal; sp.gr. 1.05; visc. 440 cps; HLB 16.0; cloud pt. 65 C (1% aq.); flash pt. (COC) 464 F; pour pt. 16 C; ref. index 1.4580; surf. tens. 45.3 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L61 [BASF]**

*Chem. Descrip.:* Poloxamer 181

CAS 9003-11-6

*Uses:* Low-foam detergent, defoamer, oil emulsifier for machine dishwasher and rinse aids, laundry detergents, hard surf. cleaners, fermentation, emulsion polymerization, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 2000; sp.gr. 1.01; dens. 8.4 lb/gal; visc. 285 cps; HLB 3.0; pour pt. -29 C; cloud pt. 24 C (1% aq.); flash pt. (COC) 455 F; ref. index 1.4520; 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L62 [BASF]**

*Chem. Descrip.:* Poloxamer 182

CAS 9003-11-6

*Uses:* Low-foam detergent, oil emulsifier for machine dishwasher and rinse aids, laundry detergents, emulsion polymerization, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 2500; sp.gr. 1.03; dens. 8.6 lb/gal; visc. 400 cps; HLB 7.0; pour pt. -4 C; cloud pt. 32 C (1% aq.); flash pt. (COC) 466 F; surf. tens. 42.8 dynes/cm (0.1%); Draves wetting 78 s (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L62D [BASF]**

*Chem. Descrip.:* Poloxamer 108

CAS 9003-11-6

*Uses:* Low-foam detergent, oil emulsifier for laundry detergents, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 2350; sp.gr. 1.04; dens. 8.7 lb/gal; visc. 385 cps; HLB 7; pour pt. -1 C; cloud pt. 35 C (1% aq.); ref. index 1.4557; surf. tens. 43 dynes/cm (0.1%); Draves wetting 206 s (0.1%); 100% conc.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L62LF [BASF]**

*Chem. Descrip.:* Poloxamer 108

CAS 9003-11-6

*Uses:* Detergent, oil emulsifier for rinse aids, laundry detergents, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; low-foam

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 2450; sp.gr. 1.03; dens. 8.6 lb/gal; visc. 400 cps; HLB 7; pour pt. -10 C; cloud pt. 28 C (1% aq.); ref. index 1.4546; surf. tens. 39 dynes/cm (0.1%); Draves wetting 118 s (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L64 [BASF]**

*Chem. Descrip.:* Poloxamer 184

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent,

dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, latexes, paints

*Properties:* Liq.; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 2900; dens. 8.8 lb/gal; sp.gr. 1.05; visc. 550 cps; HLB 15.0; cloud pt. 61 C (1% aq.); flash pt. (COC) 485 F; pour pt. 16 C; ref. index 1.4575; surf. tens. 43.2 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L81 [BASF]**

*Chem. Descrip.:* Poloxamer 231

CAS 9003-11-6

*Uses:* Detergent, oil emulsifier, defoamer for hard surf. cleaners, fermentation, emulsion polymerization, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; low-foam

*Properties:* Liq.; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 2750; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 475 cps; HLB 2.0; pour pt. -37 C; cloud pt. 20 C (1% aq.); ref. index 1.4526; 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L92 [BASF]**

*Chem. Descrip.:* Poloxamer 282

CAS 9003-11-6

*Uses:* Detergent, wetting agent, oil emulsifier for hard surf. cleaners, emulsion polymerization, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; low-foam

*Properties:* Liq.; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 3650; sp.gr. 1.03; dens. 8.6 lb/gal; visc. 700 cps; HLB 5.5; pour pt. 7 C; cloud pt. 26 C (1% aq.); flash pt. (COC) 445 F; ref. index 1.4547; surf. tens. 35.9 dynes/cm (0.1%); Draves wetting 15 s (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L101 [BASF]**

*Chem. Descrip.:* Poloxamer 331

CAS 9003-11-6

*Uses:* Detergent, oil emulsifier, defoamer for fermentation, emulsion polymerization, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; low-foam

*Properties:* Liq.; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 3800; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 800 cps; HLB 1.0; pour pt. -23 C; cloud pt. 15 C (1% aq.); ref. index 1.4524; 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® L121 [BASF]**

*Chem. Descrip.:* Poloxamer 401

CAS 9003-11-6

*Uses:* Detergent, oil emulsifier for emulsion polymerization, agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; low-foam

*Properties:* Liq.; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 4400; sp.gr. 1.01; dens. 8.4 lb/gal; visc. 1200 cps; HLB 5.0; pour pt. 5 C; cloud pt. 14 C (1% aq.); ref. index 1.4527; surf. tens. 33.0 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P84 [BASF]**

*Chem. Descrip.:* Poloxamer 234

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

*Properties:* Paste; m.w. 4200; dens. 8.6 lb/gal (60 C); sp.gr. 1.03 (60 C); visc. 265 cps (60 C); m.p. 34 C; HLB 14.0; cloud pt. 74 C (1% aq.); flash pt. (COC) 442 F; pour pt. 18 C; surf. tens. 42.0 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P85 [BASF]**

*Chem. Descrip.:* Poloxamer 235

CAS 9003-11-6

*Uses:* Wetting agent, emulsifier, demulsifier, foam and visc. control agent,

dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

**Properties:** Paste; sol. in ethanol, propylene glycol, water, toluene, xylene, perchloroethylene; m.w. 4600; dens. 8.7 lb/gal (60 C); sp.gr. 1.04 (60 C); visc. 310 cps (60 C); m.p. 40 C; HLB 16.0; cloud pt. 85 C (1% aq.); pour pt. 29 C; surf. tens. 42.5 dynes/cm (0.1%); 100% act.; nonionic

**Toxicology:** LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P103 [BASF]**

**Chem. Descrip.:** Poloxamer 333

CAS 9003-11-6

**Uses:** Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

**Properties:** Paste; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 4950; dens. 8.7 lb/gal (60 C); sp.gr. 1.04 (60 C); visc. 285 cps (60 C); m.p. 30 C; HLB 9.0; cloud pt. 86 C (1% aq.); pour pt. 21 C; surf. tens. 34.4 dynes/cm (0.1%); 100% act.; nonionic

**Toxicology:** LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P104 [BASF]**

**Chem. Descrip.:** Poloxamer 334

CAS 9003-11-6

**Uses:** Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

**Properties:** Paste; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 5850; dens. 8.7 lb/gal (60 C); sp.gr. 1.04 (60 C); visc. 550 cps (60 C); m.p. 37.5; HLB 13.0; cloud pt. 81 C (1% aq.); flash pt. (COC) 448 F; pour pt. 32 C; surf. tens. 33.1 dynes/cm (0.1%); 100% act.; nonionic

**Toxicology:** LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P105 [BASF]**

**Chem. Descrip.:** Poloxamer 335

CAS 9003-11-6

**Uses:** Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

**Properties:** Paste; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 6500; dens. 8.8 lb/gal (60 C); sp.gr. 1.05 (60 C); visc. 800 cps (60 C); m.p. 42 C; HLB 15.0; cloud pt. 91 C (1% aq.); pour pt. 35 C; surf. tens. 39.1 dynes/cm (0.1%); 100% act.; nonionic

**Toxicology:** LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P123 [BASF]**

**Chem. Descrip.:** Poloxamer 403

CAS 9003-11-6

**Uses:** Wetting agent, emulsifier, demulsifier, foam and visc. control agent, dispersant, antistat, gellant, dyeing assistant, leveling agent, lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes

**Properties:** Paste; sol. in ethanol, toluene, xylene, perchloroethylene; m.w. 5750; dens. 8.5 lb/gal (60 C); sp.gr. 1.02 (60 C); visc. 350 cps (60 C); m.p. 31 C; HLB 8.0; cloud pt. 90 C (1% aq.); pour pt. 31 C; surf. tens. 34.1 dynes/cm (0.1%); 100% act.; nonionic

**Toxicology:** LD50 (oral) 2 to > 15 g/kg, (dermal) > 5 g/kg; non to sl. eye and skin irritation

**Pluronic® P-2000 [BASF]**

**Chem. Descrip.:** PPG-2

CAS 25322-69-4

**Uses:** Skin softener, nonoily emollient for cosmetic creams/lotions, bath oils, blushers, skin fresheners, aftershaves, nail enamel removers; binder; lubricant; dispersant; emulsifier; food pkg. adhesives, coatings, paper, polymers; defoamer for aq. systems, food contact, mold release applics., paints, ceramics, grinding fluids, hydraulic fluids; lubricant base for textiles, paper, metalworking formulations; chemical intermediate for fatty acid esters; component for urethanes

**Regulatory:** FDA 21CFR §173.310, 173.340(a)(3), 175.105, 175.300, 175.380,

175.390, 176.170(a)(5), 176.180, 176.200, 176.210, 177.1680, 178.3740

**Properties:** APHA 40 max. liq., polyol odor; sol. @ 5% in min. oils, min. spirits, aromatic solvs., perchloroethylene; insol. in water; m.w. 2000; sp.gr. 1.002; visc. 150-175 cst (100 F); vapor pressure < 0.1 mm Hg; b.p. > 300 F; acid no. 1 max.; pour pt. -31 C; flash pt. (PMCC) > 350 F; ref. index 1.450; 100% act.; nonionic

**Toxicology:** LD50 (dermal, rabbit) > 30,000 mg/kg, (IP, rat) 4470 mg/kg, (IV, rat) 710 mg/kg; contact with skin and eyes may cause temporary irritation

**Precaution:** Incompat. with strong oxidizing materials

**Hazardous Decomp. Prods.:** Thermal decomp. may produce CO<sub>2</sub>

**Storage:** Store in well-ventilated area below 120 F

**Plyamul® 40305-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Vinyl acetate homopolymer emulsion

CAS 9003-20-7

**Uses:** Adhesive base for high-speed applics., suitable for coated and uncoated paper, corrugated board, and cotton cloth substrates; fast breaking; exc. visc. build with plasticizer or solv. addition

**Properties:** Dens. 8.85-9.15 lb/gal; visc. 1000-2000 cps; pH 4.5-5.5; 54-56% NV

**Storage:** > 3 mos shelf life @ 72 F; protect from freezing

**Plyamul® 40315-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Vinyl acetate homopolymer emulsion

CAS 9003-20-7

**Uses:** Adhesive base suitable for uncoated paper, corrugated board, and cotton cloth substrates; multipurpose; remoistenable; good machinability

**Properties:** 1 μ particle size; dens. 9.1 lb/gal; visc. 1000 cps; surf. tens. 49.5 dynes/cm; pH 5.0; 55% solids; nonionic

**Plyamul® 40351-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Vinyl acetate homopolymer emulsion

CAS 9003-20-7

**Uses:** Adhesive base suitable for wood, uncoated paper, corrugated board, and cotton cloth substrates; hand modifier for textiles; multipurpose

**Properties:** 0.2-3.0 μ particle size; dens. 8.8-9.2 lb/gal; visc. 1400-2000 cps; pH 4.0-5.5; surf. tens. 51-54 dynes/cm; 54-56% solids

**Plyamul® 40354-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Vinyl acetate homopolymer emulsion

CAS 9003-20-7

**Uses:** Adhesive base suitable for wood, uncoated paper, corrugated board, and cotton cloth substrates; multipurpose; higher visc. version of Plyamul 40351-00

**Properties:** 1.75 μ particle size; dens. 9.1 lb/gal; visc. 2300 cps; surf. tens. 52.5 dynes/cm; pH 4.75; 55% solids; nonionic

**Plyamul® 40359-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Vinyl acetate homopolymer emulsion

CAS 9003-20-7

**Uses:** Adhesive base suitable for wood, uncoated paper, corrugated board, and cotton cloth substrates; multipurpose; higher visc. version of Plyamul 40354-00

**Properties:** 1.75 μ particle size; dens. 9.0 lb/gal; visc. 3300 cps; surf. tens. 52.5 dynes/cm; pH 4.75; 55% solids; nonionic

**Plyamul® 40656-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Polyvinyl acetate stabilized with polyvinyl alcohol

**Uses:** Adhesive base designed to provide improved water resist. and fiber tear in paper and pkg. applics.; good wet tack

**Properties:** Visc. 2000-3000 cps

**Plyamul® 97825-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Self crosslinking vinyl acetate copolymer latex

CAS 9003-20-7

**Uses:** Base for wood adhesives, wood binders, and functional coatings, suitable for wood, uncoated paper, and cotton cloth substrates; good cold set, wet tack, and heat resist.; suitable for RF cure applics.; freeze-thaw stable

**Properties:** 1.6 μ particle size; dens. 9.0 lb/gal; visc. 4000 cps; surf. tens. 39.5 dynes/cm; pH 5.0; 50% solids; nonionic

**Storage:** < 3 mos shelf life @ 72 F; protect from freezing; material will crosslink on storage

**Plyamul® 97897-00 [Reichhold/Emulsion Polymers]**

**Chem. Descrip.:** Vinyl acetate homopolymer

CAS 9003-20-7

**Uses:** Adhesive base or binder for tape joint compds.; provides clear water resist. films for uncoated paper and corrugated board; borax stable

**Properties:** 0.2-1.5 μ particle size; dens. 8.8-9.2 lb/gal; visc. 1000-2200 cps; surf. tens. 48-51 dynes/cm; pH 4.5-5.5; 57-59% NV

*Storage:* > 3 mos shelf life @ 72 F; protect from freezing

**PM 3082** [Hercules/Resins]

*Chem. Descrip.:* Aliphatic hydrocarbon resin

*Uses:* Resin used in pressure-sensitive adhesives, hot-melt adhesives and coatings, waterproofing, paints/varnishes; tackifying resin in rubber compounding; thermoplastic road-marking applics.; food-contact adhesives, paper, rubber articles, wood preservatives; chem. and moisture resist.; UV stable

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.2600, 178.3800 compliant

*Properties:* Gardner 4 pastilles; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, MIBK, and ethyl ether; insol. in alcohols and glycols; sp.gr. 0.950; visc. 6.1 stokes (70% resin solids in toluene); soften. pt. (R&B) 101 C; acid no. < 1; flash pt. (COC) 520 F

*Precaution:* May fuse/block/lump during hot weather, if stored near steam pipes or sources of heat, and upon prolonged storage; gradually oxidize and darken, affecting sol.

**PMO Ashless 150** [Texaco]

*Chem. Descrip.:* Min. oil with inhibitors

*Uses:* Antiwear circulating oil providing corrosion/rust protection to paper machine lubrication systems, gear drive units, pumps, self-contained bearings in industrial applics.; metal-free; environmentally friendly; exc. water separation, oxidation and deposit resist., filterability

*Properties:* Lt. red color; visc. 150 cSt (40 C), 14.2 cSt (100 C); flash pt. (COC) 485 F

**PMO Ashless 220** [Texaco]

*Chem. Descrip.:* Min. oil with inhibitors

*Uses:* Antiwear circulating oil providing corrosion/rust protection to paper machine lubrication systems, gear drive units, pumps, self-contained bearings in industrial applics.; metal-free; environmentally friendly; exc. water separation, oxidation and deposit resist., filterability

*Properties:* Very dk. red color; visc. 220 cSt (40 C), 18.4 cSt (100 C); flash pt. (COC) 490 F

**PMO Ashless 320** [Texaco]

*Chem. Descrip.:* Min. oil with inhibitors

*Uses:* Antiwear circulating oil providing corrosion/rust protection to paper machine lubrication systems, gear drive units, pumps, self-contained bearings in industrial applics.; metal-free; environmentally friendly; exc. water separation, oxidation and deposit resist., filterability

*Properties:* Very dk. red color; visc. 320 cSt (40 C), 23.4 cSt (100 C); flash pt. (COC) 495 F

**PMO Ashless 460** [Texaco]

*Chem. Descrip.:* Min. oil with inhibitors

*Uses:* Antiwear circulating oil providing corrosion/rust protection to paper machine lubrication systems, gear drive units, pumps, self-contained bearings in industrial applics.; metal-free; environmentally friendly; exc. water separation, oxidation and deposit resist., filterability

*Properties:* Very dk. red color; visc. 437 cSt (40 C), 28.4 cSt (100 C); flash pt. (COC) 500 F

**Pogol® 600** [Huntsman]

*Chem. Descrip.:* PEG 600

CAS 25322-68-3; EINECS/ELINCS 229-859-1

*Uses:* Surfactant intermediate; intermediate for fatty acid esters; solubilizer, lubricant used in paper coating mixes; antisticking agent; oil resistor; antistat, softener, humectant, and lubricant for textiles, metalworking

*Properties:* Pt-Co < 50 color; clear paste; m.w. 570-630; dens. 1.1257 g/ml (20 C); visc. 64 cps; f.p. 20-25 C; flash pt. (PMCC) 210 C; ref. index 1.4699; pH 5.5-7.0 (5% aq.); 100% act.; nonionic

**Polelectron® 430** [ISP]

*Chem. Descrip.:* Styrene/PVP copolymer

CAS 25086-29-7

*Uses:* Binder and adhesive for wood, cotton, paper, glass fiber, flour, concrete; laundry processing; stabilizer for detergents; surf., textile, and paper coatings; latex rug backings; floor wax emulsions; opacifier and thickener for cleaning prods.; opacifier for shampoos, conditioners, acid rinses, permanent waves, setting lotions; dye acceptor in hair color preps.

*Properties:* Milky-wh. fluid emulsion; < 0.5 µ particle size; visc. 750 cps (@ pH 2-5); 40% solids

**Polidene® 33-031** [Scott Bader]

*Chem. Descrip.:* VdC copolymer plasticized with a phosphate plasticizer

*Uses:* Used in textile fibers; binder for fire-retardant fabrics; impregnant and adhesive for papers

*Properties:* Emulsion; particle size 0.3 µ; sp.gr. 1.10; visc. 0.05-0.50 poise; pH 7.0-8.0; 50 ± 1% solids

**Polybond® 3002** [Uniroyal]

*Chem. Descrip.:* PP homopolymer, maleic anhydride-modified

*Uses:* Chemical coupling agent for talc, glass, and mica-reinforced PP giving enhanced physical and thermal props.; compatibilizer for blends, e.g., PP/polyamide, PP/EVOH giving improved processability and mech. props.; adhesion agent for filled or reinforced polyolefins; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 176.170, 177.1210, 177.1390, 177.1520

*Properties:* Pellets; melt flow 7 g/10 min; dens. 0.91 g/cc; m.p. 157 C

**Polybond® 3150** [Uniroyal]

*Chem. Descrip.:* PP homopolymer, maleic anhydride-modified

*Uses:* Chemical coupling agent for glass, mica, and talc-reinforced PP giving enhanced physical and thermal props.; compatibilizer for blends such as PP/polyamide and PP/EVOH to improve processability and mech. props.; adhesion agent for filled or reinforced polyolefins; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 176.170, 177.1210, 177.1390, 177.1520

*Properties:* Pellets; melt flow 50 g/10 min (230 C); dens. 0.91 g/cc; m.p. 157 C

**Polyco® 3250** [Rohm & Haas]

*Chem. Descrip.:* Vinyl acrylic copolymer

*Uses:* Binder for paper and paperboard coatings; alkali-swellable; contributes good gloss and balanced ink receptivity; replacement for natural binders such as casein and protein; helps reduce risk of bacterial contamination associated with natural binders

*Properties:* Sp.gr. 1.08; dens. 9.0 lb/gal; visc. 100 cps; pH 5.0; 45% solids; anionic

**Polyco® 6108NP** [Rohm & Haas]

*Chem. Descrip.:* Acrylic/vinyl acetate copolymer

CAS 25067-02-1

*Uses:* Binder for paper and paperboard coatings; exc. balance of str., water resist., flexibility, and sheet/print gloss; exc. runnability at high solids or high speeds; high pick resist.; ideal where sheet coverage and printability are desired

*Properties:* Sp.gr. 1.09; dens. 9.1 lb/gal; visc. 500 cps; pH 6.3; 50% solids; anionic

**Polycup® 172** [Hercules]

*Chem. Descrip.:* Polyamide-epichlorohydrin aq. sol'n.

*Uses:* Crosslinking agent for carboxylated SBR latex, carboxymethyl cellulose, PVA, and other water-sol. polymers; water resist. aid for starch-based adhesives and coatings; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Pale amber liq.; water-sol.; sp.gr. 1.03; visc. 50 cps; f.p. -3.9 C; pH 4.7; 12.5% total solids; cationic

*Storage:* 100 days shelf life below 32 C

**Polycup® 1884** [Hercules]

*Chem. Descrip.:* Polyamide-epichlorohydrin aq. sol'n.

*Uses:* Crosslinking agent for carboxylated SBR latex, carboxymethyl cellulose, PVA, and other water-sol. polymers; water resist. aid for starch-based adhesives and coatings; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Pale amber liq.; water-sol.; sp.gr. 1.12; visc. 325 cps; f.p. -6.7 C; pH 4.5; 35% total solids; cationic

*Storage:* 100 days shelf life below 32 C

**Polyfix®** [Showa Highpolymer]

*Chem. Descrip.:* Polyamide epichlorohydrin aq. sol'n.

*Uses:* Wet paper reinforcement; retention aid for paper industry; strengthening additive for construction materials

**Polyflex® 300 Retention Aid** [Cytec Ind.]

*Chem. Descrip.:* Polyacrylamide

CAS 9003-05-8

*Uses:* Retention aid for neutral/alkaline paper and paperboard; wet-end polymer

*Regulatory:* DOT nonregulated

*Properties:* Wh. powd.; odorless; VOC 0.02 lb/gal; 5-10% volatiles; anionic  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat, 4 h) > 20 mg/l; direct contact may cause minimal eye and skin irritation; not expected to be harmful by ing., inh.; TSCA listed

- Precaution:* Incompat. with strong oxidizing agents; spills are very slippery when wet  
*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, ammonia, NO<sub>x</sub>  
 NFPA: Health 0; Flammability 1; Reactivity 0  
*Storage:* Avoid iron, copper, or aluminum containers/equip. for handling/storage
- PolyFloc™** [Hercules]  
*Uses:* Flocculant for water and wastewater clarification in pulp/paper industry
- PolyFree** [Reichhold]  
*Chem. Descrip.:* Latex-based compd.  
*Uses:* Paper coating providing some grease resist. to detergent boxes, paper/paperboard wraps, concrete and other dry-mix bags, food pkg.; fully repulpable; exc. water resist. and antiblocking  
*Regulatory:* FDA approved  
*Properties:* Clear
- PolyFree OC** [Reichhold]  
*Chem. Descrip.:* Latex-based compd.  
*Uses:* Paper coating incl. food pkg.; for overcoating water-resist. coatings like PolyFree or for use by itself; fully repulpable; exc. moisture/oil/grease resist.; exc. antiblocking  
*Regulatory:* FDA approved  
*Properties:* Clear
- Poly-G® 200** [BASF]  
*Chem. Descrip.:* PEG 200  
 CAS 25322-68-3; EINECS/ELINCS 203-989-9  
*Uses:* Chemical intermediate for prod. of surfactants for cleaners, textiles, cosmetics, personal care prods., rubber mold releases, printing inks and dyes, metalworking fluids, foods, paints, paper, wood prods., adhesives, agric., ceramics, elec. equip., petrol. prods., photographic prods., resins; carrier for pharmaceuticals  
*Properties:* APHA 25 max. liq.; m.w. 200; sol. in water, acetone, ethanol, ethyl acetate, toluene; sp.gr. 1.125; dens. 9.38 lb/gal; visc. 4.3 cs (99 C); flash pt. 171 C (COC); nonionic
- Poly-G® B1530** [BASF]  
*Chem. Descrip.:* PEG 500-600  
*Uses:* Chemical intermediate for prod. of surfactants for cleaners, textiles, cosmetics, personal care prods., rubber mold releases, printing inks and dyes, metalworking fluids, foods, paints, paper, wood prods., adhesives, agric., ceramics, elec. equip., petrol. prods., photographic prods., resins; carrier for pharmaceuticals  
*Properties:* Wh. waxy solid; m.w. 900; somewhat less sol. in water than liq. glycols; sp.gr. 1.104 (50/20 C); dens. 9.20 lb/gal (50/20 C); visc. 15 cs (99 C); f.p. 38-41 C; flash pt. 254 C (COC); pour pt. 38 C
- Polyglyme** [Ferro/Grant]  
*Chem. Descrip.:* Poly(ethylene glycol) dimethyl ether  
 CAS 24991-55-7  
*Uses:* Solvent for removing CO, CO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S and other sour-gas components from ammonia gas streams, for absorp. of fluorocarbons and other halogenated liq./gases; stack gas scrubbing; brake fluid component; solubilizer for plastic, textile, and paper  
*Properties:* Sl. yel.; very mild nonresidual odor; water-sol.; misc. with ethanol, acetone, benzene, diethyl ether, octane; m.w. 275; sp.gr. 1.04 (20/20 C); dens. 8.6 lb/gal; visc. 12 cP (20 C); vapor pressure < 0.01 mm Hg (20 C); flash pt. (CC) > 130 C  
*Environmental:* Slowly biodeg.
- Polymin® 978 L** [BASF]  
*Chem. Descrip.:* Polyethylenimine and polyamidoamine aq. sol'n.  
*Uses:* Retention aid, drainage aid for paper and board mfg.; improves retention of fibers and fillers, and promotes drainage in paper processing; fixing agent for fillers, fines, pitch, anionic and nonionic colloids, pigment dyes, and direct dyes; reclaims suspended fibers from wh. water and wastewater; effective over broad pH range  
*Properties:* Water-sol.; cationic
- Polymin® KE 78 PF** [BASF]  
*Chem. Descrip.:* High m.w. polyacrylamide powd.  
 CAS 9003-05-8  
*Uses:* Retention aid, drainage aid for paper; improves retention of fines/fillers, and promotes drainage during web formation on paper machines; flocculant in flotation, filtration, and sedimentation processes to reclaim paper fibers from excess wh. water; dewatering agent for sludge; phenol-free; effective in neutral, acid, and sl. alkaline pH ranges  
*Properties:* Cationic
- Polymin® KE 84** [BASF]  
*Chem. Descrip.:* High m.w. polyacrylamide emulsion  
 CAS 9003-05-8  
*Uses:* Retention aid, drainage aid for paper; improves retention of fines/fillers, and promotes drainage during web formation on paper machine; flocculant in flotation, filtration, and sedimentation processes to reclaim paper fibers from excess wh. water; dewatering agent for sludge; effective in neutral, acid, and sl. alkaline pH ranges  
*Properties:* Cationic
- Polymin® PL** [BASF]  
*Chem. Descrip.:* Polyethylenimine aq. sol'n.  
 CAS 9002-98-6  
*Uses:* Retention aid, drainage aid for paper and board mfg.; fixing agent for anionic substances; pitch control agent; reclaims fibers from excess wh. water; drainage aid; wet str. papers; binds fines, fillers, slimy colloids and other org. substances on paper stock; charge modifier in highly contaminated, high hardness systems; most effective at neutral to sl. alkaline pH; can occasionally cause yellowing and impair fluorescent activity of optical brighteners in very wh. grades of paper  
*Properties:* Water-sol.; cationic
- Polymin® PR 266 L** [BASF]  
*Chem. Descrip.:* High m.w. polyacrylamide emulsion  
 CAS 9003-05-8  
*Uses:* Retention aid, drainage aid for paper; reclaims fibers from excess wh. water; effluent treatment; improves fiber retention, filler retention and drainage rates on paper machine wire  
*Properties:* Cationic
- Polymin® PR 971 L** [BASF]  
*Chem. Descrip.:* Polyethylenimine aq. sol'n.  
 CAS 9002-98-6  
*Uses:* Charge modifier in highly contaminated systems; binder for fines, fillers, slimy colloids, and other org. substances in paper stock; accelerates dewatering on the wire and in the press section; produces paper with high wet str.; fixes anionic substances; dye fixative; controls pitch; promotes alkaline size; used with polyacrylamides in dual component systems; can occasionally cause yellowing and impair fluorescent activity of optical brighteners in very wh. grades of paper  
*Properties:* Cationic
- Polymin® PR 973** [BASF]  
*Chem. Descrip.:* High m.w. polyacrylamide powd.  
 CAS 9003-05-8  
*Uses:* Retention aid, drainage aid for paper; improves retention of fines and fillers, and promotes drainage on paper machine wire; precipitant for solids, reclaims fibers from excess wh. water; effluent treatment; most effective at sl. alkaline to sl. acidic pH  
*Properties:* Anionic
- Polymin® PR 8578** [BASF]  
*Chem. Descrip.:* High m.w. polyacrylamide emulsion  
 CAS 9003-05-8  
*Uses:* Retention aid, drainage aid for paper; improves retention of fibers and fillers, and promotes drainage on paper machine wire; reclaims fibers from excess wh. water; effluent treatment  
*Properties:* Cationic
- Polymin® SKA** [BASF]  
*Chem. Descrip.:* Substituted polyethylenimine aq. sol'n.  
 CAS 9002-98-6  
*Uses:* Binder for binding fines, fillers, slimy colloids and dissolved org. substances to paper fibers, esp. for paper and board grades containing mech. or recycled fibers; reclaims fibrous material from excess wh. water; most effect at pH 4-7.5  
*Properties:* Cationic
- Polymin® SNA** [BASF]  
*Chem. Descrip.:* Modified polyethylenimine aq. sol'n.  
 CAS 9002-98-6  
*Uses:* Retention aid, drainage aid for paper and board mfg., esp. for use in highly contaminated systems; aids recovery of fines from paper machine wh. water; binder for fines, slimy colloids, pigments on the fiber; effective over broad pH range; can impair effect of optical brighteners; stable to salts that cause hardness in water  
*Properties:* Water-sol.; cationic
- Polymin® SO** [BASF]  
*Chem. Descrip.:* Aq. sol'n. of high m.w. polyamidoamine

*Uses:* Retention agent, flocculant, fixing agent for fines, slimy colloids, pigment and colloidal substances on fiber in paper; improves drainage rate of paper stock; recovery of fibers from paper machine wh. water; does not reduce brightness of pulp when used up to 0.2%; suitable for use in highly acid media; stable to salts that cause hardness in water

*Properties:* Weakly cationic

**Polyox® WSR 205** [Union Carbide]

*Chem. Descrip.:* PEG-14M

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener, lubricant, binder, flocculant, wet adhesive, binder/coating for ceramics, papermaking, cosmetics, pharmaceuticals, agric., elec., metals, petrol., textiles; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 600,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 4500-8800 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR 301** [Union Carbide]

*Chem. Descrip.:* PEG-90M

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; flow modifier, lubricant for construction, military, agric., mining; provides wet adhesion to personal care prods.; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 4,000,000; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 1650-5500 cps (1% aq.); m.p. 62-67 C; pH 8-10 (1% aq.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR 303** [Union Carbide]

*Chem. Descrip.:* Polyethylene oxide

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener, lubricant, binder, flocculant, wet adhesive for mining, papermaking; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 7,000,000; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 7500-10,000 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR 308** [Union Carbide]

*Chem. Descrip.:* Polyethylene oxide

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener, lubricant, binder, flocculant, wet adhesive; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 8,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 10,000-15,000 cps (1% aq.); m.p. 62-67 C; pH 8-10

(sol'n.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR 3333** [Union Carbide]

*Chem. Descrip.:* PEG-9M

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener; lubricant; binder; flocculant; for wet adhesion in papermaking; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 400,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 2250-3350 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR Coagulant** [Union Carbide]

*Chem. Descrip.:* PEG-115M

CAS 25322-68-3

*Uses:* Thermoplastic resin; lubricant in shave prods.; feel modifier providing soft feel; film-former, thickener for aq. systems; flocculant for mining, papermaking; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 5,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 5500-7500 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR N-10** [Union Carbide]

*Chem. Descrip.:* PEG-2M

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 100,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 12-50 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR N-12K** [Union Carbide]

*Chem. Descrip.:* PEG-23M

CAS 25322-68-3

*Uses:* Thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 1,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 400-800 cps (2% aq.); m.p. 62-67 C; pH 8-10 (2% aq.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Polyox® WSR N-60K** [Union Carbide]



- Chem. Descrip.:* PEG-45M  
CAS 25322-68-3  
*Uses:* Thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; lubricant/emollient in personal care prods.; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)  
*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 2,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 2000-4000 cps (2% aq.); m.p. 62-67 C; pH 8-10 (2% aq.); nonionic  
*Precaution:* Slippery when wet  
*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup
- Polyox® WSR N-80** [Union Carbide]  
*Chem. Descrip.:* PEG-5M  
CAS 25322-68-3  
*Uses:* Thermoplastic resin, thickener, lubricant, binder/coating, flocculant, wet adhesive for agric., ceramics applics.; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)  
*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 200,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 65-115 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic  
*Precaution:* Slippery when wet  
*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup
- Polyox® WSR N-750** [Union Carbide]  
*Chem. Descrip.:* PEG-7M  
CAS 25322-68-3  
*Uses:* Thermoplastic resin, thickener, lubricant, binder/coating, flocculant, wet adhesive for agric., elec., papermaking; emollient for personal care prods.; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)  
*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 300,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 600-1200 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic  
*Precaution:* Slippery when wet  
*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup
- Polyox® WSR N-3000** [Union Carbide]  
*Chem. Descrip.:* PEG-14M  
CAS 25322-68-3  
*Uses:* Thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; binder/coating in elec.; emollient in personal care prods.; dispersant for vinyl polymerization; food-contact coatings, paper/paperboard, polymers, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)  
*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 400,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 2250-4500 cps (5% aq.); m.p. 62-67 C; pH 8-10 (5% aq.); nonionic  
*Precaution:* Slippery when wet  
*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup
- Polypax EGDS** [Pax Group]  
*Chem. Descrip.:* Ethylene glycol distearate  
CAS 627-83-8; EINECS/ELINCS 211-014-3  
*Uses:* Opacifier, pearlescent, plasticizer, visc. builder for pearlescent shampoos; opacifier, antistat, conditioner, plasticizer, lubricant, visc. builder in paper/pulp; low HLB  
*Properties:* Solid; disp. in oil and hydrocarbons; insol. in water; 99% act.
- Polypax EGMS** [Pax Group]  
*Chem. Descrip.:* Ethylene glycol monostearate  
CAS 111-60-4; EINECS/ELINCS 203-886-9  
*Uses:* Opacifier, pearlescent, plasticizer, visc. builder for pearlescent shampoos; opacifier, antistat, conditioner, plasticizer, lubricant, visc. builder in paper/pulp; low HLB  
*Properties:* Solid; disp. in oil and hydrocarbons; insol. in water; 99% act.
- Polypax IC** [Pax Group]  
*Chem. Descrip.:* Polyglycol ester  
*Uses:* Defoamer, emulsifier, dispersant, thickener, leveling agent, lubricant, softener in paper/pulp  
*Properties:* Liq.; sol. in veg. and min. oils; disp. in water; 99% act.; nonionic
- Polypax SMS** [Pax Group]  
*Chem. Descrip.:* Sorbitan monostearate  
CAS 1338-41-6; EINECS/ELINCS 215-664-9  
*Uses:* Surfactant, emulsifier, dispersant, defoamer, lubricant, stabilizer in paper/pulp  
*Properties:* Solid; sol. in oils and hydrocarbons; insol. in water; 99% act.; nonionic
- Polyquat 2 C** [Pax Group]  
*Chem. Descrip.:* Alkyl trimethylammonium chloride  
*Uses:* Biocide for industrial formulations; surfactant, emulsifier, corrosion inhibitor, flocculant, preservative, fungicide, bactericide, antistat, softener in paper/pulp; prevents/controls unwanted growth of microorganisms; minimizes loss due to spoilage  
*Properties:* Liq.; 27% act.; cationic
- Polyquat 188** [Pax Group]  
*Chem. Descrip.:* 3-Chloro-2-hydroxypropyl trimethylammonium chloride  
CAS 3327-22-8; EINECS/ELINCS 222-048-3  
*Uses:* Reagent to quaternize nat. and syn. polymers; starch modifier, biocide in industrial applics.; surfactant, emulsifier, humectant, leveling agent, softener, flocculant, biocide, bactericide, antistat, conditioner in paper/pulp; dyeing assistant  
*Properties:* Liq.; 70% act.; cationic
- Polyquat PR** [Pax Group]  
*Chem. Descrip.:* Fatty acid imidazoline deriv.  
*Uses:* Emulsifier, antistripping agent in bitumen emulsions; corrosion inhibitor, flocculant, dispersant, antistat, demulsifier, lubricant, softener in paper/pulp  
*Properties:* Liq./semisolid; 98% act.
- Polysalt** [BASF AG]  
*Chem. Descrip.:* Salts of polycarboxylic acids  
*Uses:* Dispersant for extenders, paper coating pigments; stabilizer for coating mixtures and slurries; grinding assistant for chalk
- Polyset® 2015** [Int'l. Group]  
*Chem. Descrip.:* HDPE wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Hardener for candles, crayons, and paper coatings; food pkg.; antiblocking agent; dry lubricant; emulsions; gravure separation; hot-melt coatings and adhesives; mold release agent; paper cups and containers; pastes; pigment flushing; plastic additives/processing aids; polishing and potting compd.; rubber compounding; sealants; sculpture and artists' waxes; in food-contact textiles; will enhance performance without significantly affecting melt visc.  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.2600, 177.2800, 178.3850  
*Properties:* Liq. and free-flowing solid; m.w. 780; sp.gr. 0.943; visc. 15-25 cps; soften. pt. 113 C; acid no. nil; drop m.p. 116 C; flash pt. (CC) 232 C min.
- Polysol®** [Showa Highpolymer]  
*Chem. Descrip.:* Syn. resin emulsions (from polymerization of vinyl or olefin monomers)  
*Uses:* Used in adhesives (paper-to-paper, wood-to-wood, plastic-to-paper, etc.), pressure-sensitive adhesives; vehicle for emulsion paint of construction materials and metal; coating/finishing for paper or fabrics; binder for flock finishing to clothes; mortar mix; seed fixing agent
- Polystabil®** [Stockhausen]  
*Uses:* Grinding aid, dispersant for improving rheological props. of pigment slurries in papermaking
- Polystar OM** [NOF]  
*Chem. Descrip.:* Sodium salt of polymeric carboxylic acid

- Uses:* Dispersant, stabilizer for dyes, pigments, clays, agric., rubber, and plastic industries; antistat for pulp/paper industry  
*Properties:* Lt. yel. liq.; anionic
- Polystar OMP** [NOF]  
*Chem. Descrip.:* Sodium salt of polymeric carboxylic acid  
*Uses:* Dispersant, stabilizer for dyes, pigments, clays, agric., rubber, and plastic industries; antistat for pulp/paper industry  
*Properties:* Wh. powd.
- POLYSTEP® A-7** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Sodium dodecylbenzene sulfonate, linear  
CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Emulsifier for emulsion polymerization in paints and coatings, S/B, vinyl chloride, vinylidene chloride latexes; food pkg. adhesives, rubber articles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600, 178.3130, 178.3400  
*Properties:* Yel. slurry; 39% conc.; anionic
- POLYSTEP® A-11** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Isopropylamine dodecylbenzene sulfonate, branched  
CAS 26264-05-1; EINECS/ELINCS 247-556-2  
*Uses:* Pigment dispersant; emulsifier in emulsion polymerization (paints and coatings, S/B, vinyl chloride, vinylidene chloride latexes); defoamer in food-contact paper/paperboard; food-contact rubber articles; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §176.210, 177.2600, 178.3130, 178.3400  
*Properties:* Pale clear visc. liq.; oil-sol.; 88% act.; anionic
- POLYSTEP® A-13** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Linear dodecylbenzene sulfonic acid  
CAS 27176-87-0; EINECS/ELINCS 248-289-4  
*Uses:* Emulsion polymerization surfactants; paints and coatings; catalyst in acid catalyzed reactions; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §176.210, 178.3400  
*Properties:* Dk. visc. liq.; 97% act.; anionic
- POLYSTEP® A-15** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Sodium linear dodecylbenzene sulfonate  
CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Emulsifier for emulsion and styrene polymerization; paints and coatings; food pkg. adhesives, rubber articles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600, 178.3130, 178.3400  
*Properties:* Pale clear to hazy liq.; 22% conc.; anionic
- POLYSTEP® A-15-30K** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Potassium dodecylbenzene sulfonate, linear  
CAS 27177-77-1; EINECS/ELINCS 248-296-2  
*Uses:* Surfactant for styrene-butadiene, vinyl chloride, and vinylidene chloride latexes; emulsion polymerization for paints and coatings; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; thermal and hydrolytic stability  
*Regulatory:* FDA 21CFR §176.210, 177.2600, 178.3130, 178.3400  
*Properties:* Hazy slurry; 30% conc.; anionic
- POLYSTEP® A-16** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Sodium dodecylbenzene sulfonate, branched  
CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Emulsifier for styrene polymerization; paints and coatings; food pkg. adhesives, rubber articles; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600, 178.3130, 178.3400  
*Properties:* Pale turbid liq.; 30% conc.; anionic
- POLYSTEP® A-16-22** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Sodium dodecylbenzene sulfonate, branched  
CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Emulsifier for styrene, vinyl chloride polymerization, emulsion polymerization, paints and coatings; food pkg. adhesives, rubber articles; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600, 178.3130, 178.3400  
*Properties:* Pale turbid liq.; 22% conc.; anionic
- POLYSTEP® A-17** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Dodecylbenzene sulfonic acid, branched  
CAS 27176-87-0; EINECS/ELINCS 248-289-4  
*Uses:* Intermediate for the prod. of sodium salts; neutralized acid as emulsifier;
- salts as emulsifiers for SBR latex; emulsion polymerization; paints and coatings; catalyst for acid catalyzed reactions; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §176.210, 178.3400  
*Properties:* Dk. visc. liq.; water-sol.; dens. 9.1 lb/gal; sp.gr. 1.09; visc. 9000 cps (30 C); 97.4% act.; anionic
- POLYSTEP® AE-120** [Stepan]  
*Uses:* Surfactant; mech. and freeze/thaw stabilizer; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; aids in control of particle size  
*Regulatory:* FDA §176.210, 178.3400 compliant  
*Properties:* Waxy semi-solid; 100% act.; nonionic
- POLYSTEP® AE-307** [Stepan]  
*Uses:* Surfactant; mech. and freeze/thaw stabilizer; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; aids in control of particle size  
*Regulatory:* FDA §176.210, 178.3400 compliant  
*Properties:* Pale clear liq.; 70% act.; nonionic
- POLYSTEP® B-3** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Sodium lauryl sulfate  
CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Emulsifier for emulsion polymerization of S/B, vinyl chloride, sol. acrylics, paints and coatings; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3400; USP approved  
*Properties:* Wh. powd.; 97.5% act.; anionic
- POLYSTEP® B-5** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Sodium lauryl sulfate  
CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Emulsifier for emulsion polymers, incl. vinyl chloride, S/B, acrylic, paints and coatings; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3400  
*Properties:* Pale yel. clear liq.; 30% act.; anionic
- POLYSTEP® B-7** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Ammonium lauryl sulfate  
CAS 2235-54-3; EINECS/ELINCS 218-793-9  
*Uses:* Emulsion polymerization surfactant; latex foaming agent; water resist. aid in coatings; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3400  
*Properties:* Pale clear liq.; 30% act.; anionic
- POLYSTEP® B-11** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Ammonium laureth sulfate (4 EO)  
CAS 32612-48-9  
*Uses:* Emulsifier for emulsion polymerization (acrylics, styrene-acrylic, vinyl acrylics, S/B, paints, coatings); food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3400  
*Properties:* Pale clear liq.; 59% act.; anionic
- POLYSTEP® B-20** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Ammonium laureth sulfate (30 EO)  
CAS 32612-48-9  
*Uses:* Emulsifier for emulsion polymerization (acrylics, styrene-acrylics, vinyl acrylics), floor finish latexes, paints and coatings; food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; good water resistance  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3400  
*Properties:* Pale clear liq.; 30% act.; anionic
- POLYSTEP® B-22** [Stepan; Stepan Canada]  
*Chem. Descrip.:* Ammonium laureth sulfate (12 EO)  
CAS 32612-48-9  
*Uses:* Emulsifier for acrylic copolymers, emulsion polymerization, paints and coatings; food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3400

- Properties:* Pale clear liq.; 30% act.; anionic
- POLYSTEP® B-23** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Sodium laureth-12 sulfate  
 CAS 9004-82-4; EINECS/ELINCS 221-416-0  
*Uses:* High active emulsifier for emulsion polymerization (acrylics, styrene-acrylics, vinyl acrylics); food pkg. adhesives; defoamer in food-contact paper/paperboard; somewhat monomer sol.  
*Regulatory:* FDA 21CFR §175.105, 176.210  
*Properties:* Amber hazy liq.; oil-sol.; 60% act.; anionic
- POLYSTEP® B-24** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Emulsifier for emulsion polymerization (S/B, vinyl chloride, acrylic, styrene acrylic, PVC, paints, coatings); food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard; low cloud pt.  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3400  
*Properties:* Pale clear liq.; 30% act.; anionic
- POLYSTEP® B-330S** [Stepan]  
*Chem. Descrip.:* Sodium laureth sulfate preserved with Kathon CG  
 CAS 9004-82-4; EINECS/ELINCS 221-416-0  
*Uses:* Emulsion polymerization surfactant used in latex mfg.; controls latex particle size; food pkg. adhesives; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard; useful in most polymer systems esp. vinyl chloride and S/B emulsions; contains no formaldehyde  
*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3400; kosher  
*Properties:* Clear liq.; sp.gr. 1.03; dens. 8.6 lb/gal; visc. 57 cps; f.p. -2 C; pour pt. 1 C; cloud pt. 4 C; flash pt. (PMCC) > 94 C; pH 7.5 (10% aq.); 28.5% act.; anionic  
*Toxicology:* LD50 (oral) > 5 g/kg; pract. nontoxic orally; mild to mod. skin and mod. eye irritant at 10% act.  
*Environmental:* Biodeg.  
*Storage:* Store in sealed container above 7 C; avoid overheating or freezing
- POLYSTEP® C-OP3S** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Sodium octoxynol-3 sulfate  
*Uses:* Emulsifier for controlling particle size in vinyl acetate specialty copolymers, in emulsion polymerization, paints and coatings; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* Wh. visc. disp.; 20% act.; anionic
- POLYSTEP® F-1** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-4  
 CAS 9016-45-9; EINECS/ELINCS 230-770-5  
*Uses:* Pigment dispersant; emulsifier for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; nonfoaming  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Water wh. to pale yel. clear liq.; oil-sol.; 100% act.; nonionic
- POLYSTEP® F-2** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-6  
 CAS 9016-45-9  
*Uses:* Pigment dispersant; emulsion polymerization; paints and coatings; contributes mech. and freeze/thaw stability to latexes; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; allows control of particle size  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Pale clear liq.; oil-sol.; 100% act.; nonionic
- POLYSTEP® F-3** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-8  
 CAS 9016-45-9  
*Uses:* Pigment dispersant; emulsifier for polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); contributes mech. and freeze/thaw stability to latexes; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; allows control of particle size  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Water-wh. to pale yel. clear liq.; water-sol.; 100% act.; nonionic
- POLYSTEP® F-4** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-10  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* Emulsifier for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles
- Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400
- Properties:* Water-wh. to pale yel. clear liq.; 100% act.; nonionic
- POLYSTEP® F-5** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-12  
 CAS 9016-45-9  
*Uses:* Emulsifier and stabilizer for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; allows control of particle size;  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Water-wh. to pale yel. clear to turbid liq.; 100% act.; nonionic
- POLYSTEP® F-6** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-14  
 CAS 9016-45-9  
*Uses:* Emulsifier for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Water-wh. to pale yel. clear to turbid liq.; 100% act.; nonionic
- POLYSTEP® F-9** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-30  
 CAS 9016-45-9  
*Uses:* Emulsifier in emulsion polymerization; paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Water-wh. to pale yel. clear to hazy liq. or gel; 70% act.; nonionic
- POLYSTEP® F-9S** [Stepan]  
*Chem. Descrip.:* Nonoxynol-30  
 CAS 9016-45-9  
*Uses:* Surfactant for emulsion polymerization, paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Wh. waxy solid; 100% act.; nonionic
- POLYSTEP® F-10** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-40  
 CAS 9016-45-9  
*Uses:* Emulsifier for acrylics and vinyl acetate, emulsion polymerization, paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Clear to hazy liq. or gel; 70% conc.; nonionic
- POLYSTEP® F-95B** [Stepan; Stepan Canada; Stepan Europe]  
*Chem. Descrip.:* Nonoxynol-34  
 CAS 9016-45-9  
*Uses:* Emulsifier for acrylics and vinyl acetate, emulsion polymerization, paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; blended with other surfactants to increase the latex particle size  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Properties:* Clear liq.; 70% act.; nonionic
- POLYSTEP® LAS-50** [Stepan]  
*Chem. Descrip.:* Linear sodium dodecylbenzene sulfonate  
 CAS 25155-30-0; EINECS/ELINCS 246-680-4  
*Uses:* Surfactant for emulsion polymerization, paints and coatings; food pkg. adhesives, rubber articles; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600, 178.3400  
*Properties:* Yel. slurry; 50% act.; anionic
- POLYSTEP® OP-9** [Stepan]  
*Chem. Descrip.:* Octylphenol ethoxylate, 9 EO  
 CAS 9002-93-1  
*Uses:* Surfactant for emulsion polymerization, paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400  
*Properties:* Pale, clear liq.; 100% act.; nonionic
- POLYSTEP® OP-3070** [Stepan]  
*Chem. Descrip.:* Octylphenol ethoxylate, 30 EO  
 CAS 9002-93-1  
*Uses:* Surfactant for emulsion polymerization, paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400

*Properties:* Clear/hazy liq.; 70% act.; nonionic

**POLYSTEP® OP-4070** [Stepan]

*Chem. Descrip.:* Octylphenol ethoxylate, 40 EO

CAS 9002-93-1

*Uses:* Surfactant for emulsion polymerization, paints and coatings; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400

*Properties:* Clear/hazy liq.; 70% act.; nonionic

**Polystix® 90 Resin** [Hercules/Resins]

*Chem. Descrip.:* Dimerized rosin

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* For soldering fluxes, construction mastics, and various adhesives and protective coatings; food pkg. adhesives, coatings, paper, cellophane, polymers, films, rubber articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 175.390, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.1400, 177.2600 compliant

*Properties:* Gardner 8 (50% resin solids in toluene) solid or flakes; sol. in most alcohols, esters, ketones, hydrocarbons, and chlorinated solvs.; insol. in water; sp.gr. 1.07; softens. pt. 90 C; acid no. 150

*Precaution:* May fuse/block/lump during hot weather, if stored near steam pipes or sources of heat, and upon prolonged storage; gradually oxidize and darken, affecting sol.

**Polysynth NDW** [Pax Group]

*Chem. Descrip.:* Proprietary blend of nonionic emulsifiers and fatty acid/alcohol derivs.

*Uses:* Defoamer in paper/pulp; rec. where silicone defoamers are not advisable

*Properties:* Paste; 33% act.; nonionic

*Environmental:* Totally biodeg.

**Polysynth RRE** [Pax Group]

*Chem. Descrip.:* Sodium polyacrylate

CAS 9003-04-7

*Uses:* Retanning agent, dispersant, scale inhibitor, flocculant, thickener, stabilizer in paper/pulp; cost-effective

*Properties:* Visc. liq.; 30% act.

**Polysynth SD** [Pax Group]

*Chem. Descrip.:* Silicone oil-based

*Uses:* Defoamer for industrial applics., paper/pulp; highly effective

*Properties:* Liq.; 30% act.

**Polysynth SI 40** [Pax Group]

*Chem. Descrip.:* Organically modified silicone oil emulsion

*Uses:* Softener imparting good handle to textile fabrics, leather; mold release agent, slip agent, softener in paper/pulp; provides surf. feel enhancement

*Properties:* Liq.; 40% act.

**Poly-Tergent® E-17A** [BASF]

*Chem. Descrip.:* EO/PO block polymer

CAS 9003-11-6

*Uses:* Surfactant, foam control agent, solubilizer, dispersant, wetting agent, spreading agent for automatic dishwashing, rinse aids, industrial laundry, metal cleaning, water treatment, textiles, agric., paper processing; low-foaming

*Properties:* APHA 50 clear liq., mild odor; sol. in water, alcohols, glycol ethers, aromatic and aliphatic hydrocarbons, chlorinated solvs.; sp.gr. 1.02; dens. 8.5 lb/gal; pour pt. -30 C; cloud pt. 32 C (1% aq.); flash pt. (COC) 232 C; pH 4.5-7.5 (1% aq.); surf. tens. 42 dynes/cm (0.1%); Draves wetting 43 s (0.1%); Ross-Miles foam 18 mm (0.1%, initial); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 2.7 g/kg, (dermal, rabbit) >2 g/kg; may cause irritation to skin and eyes

*Storage:* Store between 21-49 C

**Poly-Tergent® E-17B** [BASF]

*Chem. Descrip.:* EO/PO block polymer

CAS 9003-11-6

*Uses:* Surfactant, foam control agent, solubilizer, dispersant, wetting agent, spreading agent for automatic dishwashing, rinse aids, industrial laundry, metal cleaning, water treatment, textiles, agric., paper processing; low-foaming

*Properties:* APHA 50 clear liq., mild odor; sol. in water, alcohols, glycol ethers, aromatic and aliphatic hydrocarbons, chlorinated solvs.; sp.gr. 1.02; dens. 8.5 lb/gal; pour pt. -35 C; cloud pt. 35 C (1% aq.); flash pt. (COC) 232 C; pH 4.5-7.5 (1% aq.); surf. tens. 44 dynes/cm (0.1%); Draves

wetting > 300 s (0.1%); Ross-Miles foam 25 mm (0.1%, initial); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 4.2 g/kg, (dermal, rabbit) > 2 g/kg; may cause irritation to skin and eyes

*Storage:* Store between 21-49 C

**Poly-Tergent® E-20B** [BASF]

*Chem. Descrip.:* EO/PO block copolymer

CAS 9003-11-6

*Uses:* Low toxicity foam control agent, solubilizer for automatic dishwashing, rinse aids, industrial laundry, metal cleaning, water treatment, and textile formulations; dispersant, wetting agent, and spreading agent for agric. formulations; used in paper processing, kraft pulping, and spent cooling liquor

*Properties:* Liq.; 100% conc.; nonionic

**Poly-Tergent® E-25B** [BASF]

*Chem. Descrip.:* EO/PO block polymer

CAS 9003-11-6

*Uses:* Surfactant, foam control agent, solubilizer, dispersant, wetting agent, spreading agent for automatic dishwashing, rinse aids, industrial laundry, metal cleaning, water treatment, textiles, agric., paper processing; low-foaming

*Properties:* APHA 50 clear liq., mild odor; sol. in water, alcohols, glycol ethers, aromatic and aliphatic hydrocarbons, chlorinated solvs.; sp.gr. 1.03; dens. 8.6 lb/gal; pour pt. -10 C; cloud pt. 29 C (1% aq.); flash pt. (COC) 232 C; pH 4.5-7.5 (1% aq.); surf. tens. 42 dynes/cm (0.1%); Draves wetting > 300 s (0.1%); Ross-Miles foam 20 mm (0.1%, initial); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; LC50 (inh., rat) > 200 mg/l; nonirritating to skin and eyes

*Storage:* Store between 21-49 C

**Poly-Tergent® P-32A** [BASF]

*Chem. Descrip.:* EO/PO block polymer

CAS 9003-11-6

*Uses:* Surfactant, demulsifier, dedusting agent, dispersant for rinse aids, dishwashing, metal cleaning, papermaking; low-foaming

*Properties:* APHA 50 max. clear liq.; mild odor; sol. in alcohols, glycol ethers, aromatic hydrocarbons, chlorinated solvs.; insol. in water; sp.gr. 1.02; dens. 8.5 lb/gal; pour pt. -33 C; cloud pt. 15 C (1% aq.); flash pt. (COC) 229 C; pH 5.0-7.5 (1% aq.); surf. tens. 43 dynes/cm (0.1%); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 2.5 g/kg, (dermal, rabbit) > 2 g/kg; may cause irritation to skin and eyes

*Storage:* Store between 21-49 C

**Poly-Tergent® S-205LF** [BASF]

*Chem. Descrip.:* Alkoxylated linear alcohol

*Uses:* Surfactant for dishwashing applics., metal cleaning baths; foam depressant in hard surface cleaners; cleaner for dairy industry; rewetting agent for paper toweling

*Properties:* APHA 100 max. clear liq.; mild odor; sol. in water, alcohols, glycol ethers, aromatic hydrocarbons, chlorinated solvs.; sp.gr. 1.00; visc. 192 cs; flash pt. 229 C (COC); cloud pt. 10 C (1% aq.); pH 5.5-7.0 (1% aq.); surf. tens. 32 dynes/cm (0.1%); 100% act.; nonionic

**Polywax® 500** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 500)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, flow modifier, release agent, antiozonant/antiblock for plastics, rubber; nucleating agent for expandable PS; slip agent for printing inks; leveling/slip agent for powd. coatings; visc. modifier for hot-melt adhesives; cosmetic ingreds.; wax modifier; chewing gum base; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings

*Regulatory:* Incl. FDA §172.888, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 178.3720, 179.45

*Properties:* Prills; low sol. in org. solvs., esp. at R.T.; sol. in CCl<sub>4</sub>, benzene, xylene, toluene, turpentine; m.w. 500; melt index > 5000 g/10 min; dens. 0.93 g/cc; visc. 6.6 cps (99 C); m.p. 88 C; soften. pt. (R&B) 88 C

**Polywax® 600** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 600)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Syn. polymer for food and food contact applics.; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; defoamer in food-contact coatings, paper/paperboard; outstanding heat stability and resist. to chemical attack

*Regulatory:* FDA 21CFR §172.888, 175.105, 175.125, 175.300, 175.320,

176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3720, 178.3850, 179.45

*Properties:* Visc. 64 SUS (149 C); m.p. 94 C

**Polywax® 655** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 655)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, flow modifier, release agent, antiblock for plastics processing; nucleating agent for expandable PS; slip aid for printing inks; leveling/slip agent for powd. coatings; visc. modifier for hot-melt adhesives; cosmetic ingreds.; wax modifier; chewing gum base; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings

*Regulatory:* Incl. FDA 21CFR §172.888, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 178.3720, 179.45

*Properties:* Prilled; low sol. in org. solvs., esp. at R.T.; sol. in CCl<sub>4</sub>, benzene, xylene, toluene, turpentine; m.w. 655; melt index > 5000 g/10 min; dens. 0.94 g/cc; visc. 5 cps (149 C); m.p. 99 C; soften. pt. (R&B) 99 C

**Polywax® 850** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 850)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, flow modifier, release agent, antiblock for plastics processing; nucleating agent for expandable PS; slip aid for printing inks; leveling/slip agent for powd. coatings; visc. modifier for hot-melt adhesives; cosmetic ingreds.; wax modifier; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings

*Regulatory:* Incl. FDA 21CFR §172.888, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 178.3720, 179.45

*Properties:* M.w. 850; melt index > 5000 g/10 min; dens. 0.96 g/cc; visc. 8.5 cs (149 C); m.p. 107 C; soften. pt. (R&B) 107 C

**Polywax® 1000** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 1000)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, flow modifier, release agent, antiblock for plastics processing; nucleating agent for expandable PS; slip aid for printing inks; leveling/slip agent for powd. coatings; visc. modifier for hot-melt adhesives; cosmetic ingreds.; wax modifier; food pkg. adhesives, coatings, paper, cellophane, rubber, textiles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.888, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 177.2800, 178.3720, 178.3850, 179.45

*Properties:* Prilled; low sol. in org. solvs., esp. at R.T.; sol. in CCl<sub>4</sub>, benzene, xylene, toluene, turpentine; m.w. 1000; melt index > 5000 g/10 min; dens. 0.96 g/cc; visc. 12 cps (149 C); m.p. 113 C; soften. pt. (R&B) 113 C

**Polywax® 2000** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 2000)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, flow modifier, release agent, antiblock for plastics processing; nucleating agent for expandable PS; slip aid for printing inks; leveling/slip agent for powd. coatings; visc. modifier for hot-melt adhesives; cosmetic ingreds.; wax modifier; food pkg. adhesives, coatings, paper, cellophane, polymers, rubber; defoamer in food-contact coatings, paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.20, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520(c) (2.1)-(2.3), 177.2600, 178.3570, 178.3850, 179.45

*Properties:* Prilled; low sol. in org. solvs., esp. at R.T.; sol. in CCl<sub>4</sub>, benzene, xylene, toluene, turpentine; m.w. 2000; melt index > 5000 g/10 min; dens. 0.97 g/cc; visc. 48 cps (149 C); m.p. 126 C; soften. pt. (R&B) 126 C

**Polywax® 3000** [Baker Petrolite]

*Chem. Descrip.:* Polyethylene homopolymer (m.w. 3000)

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, flow modifier, release agent, antiblock for plastics processing; nucleating agent for expandable PS; slip aid for printing inks; leveling/slip agent for powd. coatings; visc. modifier for hot-melt adhesives; cosmetic ingreds.; wax modifier; food pkg. adhesives, coatings, paper, cellophane, polymers, rubber; defoamer in food-contact coatings, paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.20, 175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.1520(c) (2.1)-(2.3), 177.2600, 178.3570, 178.3850, 179.45

*Properties:* M.w. 3000; melt index > 5000 g/10 min; dens. 0.98 g/cc; visc. 130 cps (149 C); m.p. 129 C; soften. pt. (R&B) 129 C

**PolyWeb® 5000** [Georgia-Pacific Resins]

*Chem. Descrip.:* High charge dens. polymer

*Uses:* Minimizes wet web breaks in the pressroom and controls linting in thin or thick stock systems for newsprint

*Properties:* Burgundy liq.; visc. 75 cps; pH 5.5; 12.5% NV; cationic

**Polywet® ND-2** [Uniroyal]

*Chem. Descrip.:* Sodium polyacrylate, bisulfite terminated aq. sol'n.

CAS 9003-04-7

*Uses:* Nonfoaming dispersant for pigments, mins., extenders, fillers in aq. systems; latex paints and enamels; food pkg. coatings, adhesives, paper/paperboard, polymers; dispersant, scale inhibitor for water treatment, cooling towers, boiler water; controls sludge; prep. of color concs.; defoamer in food-contact paper; effective over wide pH range; resists hydrolysis; stable to acid and alkali

*Use Level:* 20-40 ppm (scale inhibitor, cooling or boiler water)

*Regulatory:* FDA 21CFR §173.73, 173.310, 173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1210; Australia, Canada, EU, Japan, Korea, and Philippines compliances

*Properties:* Colorless to slight yel. clear liq., char. odor; sol. in alcohols and water; m.w. ≈ 1000; sp.gr. 1.16; visc. 24-40 cps; pH 6.8-7.8; 25% act.; anionic

*Toxicology:* LD50 (oral, rat) 23 g/kg; eye irritant

*Environmental:* LC50 (bluegill sunfish, 95 h) > 8000 ppm; nontoxic to fish or activated sludge microorganisms

*Storage:* Store in closed containers away from sources of direct heat in a dry area; stable to prolonged storage below freezing

**Polywet® ND-35** [Uniroyal]

*Chem. Descrip.:* Sodium polyacrylate, bisulfite terminated, aq. sol'n.

CAS 9003-04-7

*Uses:* Nonfoaming dispersant for pigments, extenders, and fillers in aq. systems; efficient in all latex paints, incl. gloss latex enamels; dispersant in shipment of inorg. pigment slurries; scale inhibitor for water treatment; food pkg. adhesives, coatings, paper, polymers; defoamer in food-contact coatings; effective over broad pH range

*Regulatory:* FDA 21CFR §173.73, 173.310, 173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1210; Australia, Canada, EU, Japan, Korea, and Philippines compliances

*Properties:* Colorless to sl. yel. liq.; char. odor; sol. in alcohols and water; sp.gr. 1.25; visc. 50-90 cps; pH 7.2; 34% solids; anionic

*Toxicology:* Expected LD50 (oral, rat) > 11 g/kg; sl. irritating to eyes; nonirritating to skin; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Storage:* Store away from sources of direct heat in dry area; keep containers closed when not in use; stable to prolonged storage at temps. below freezing

**Polywet® WTC 6512** [Uniroyal]

*Chem. Descrip.:* Sodium polyacrylate, bisulfite terminated, aq. sol'n.

CAS 9003-04-7

*Uses:* Dispersant; antiscalant; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §173.73, 173.310, 173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1210; Australia, Canada, EU, Japan, Korea, and Philippines compliances

*Properties:* Yel. to amber liq.; char. odor; sol. in alcohols and water; sp.gr. 1.30; visc. 400-1300 cps; pH 6.8-7.8; 48% solids; anionic

*Toxicology:* Expected LD50 (oral, rat) 10 g/kg; may cause eye irritation; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Storage:* Store away from sources of direct heat in dry area; keep containers closed when not in use; stable to prolonged storage at temps. below freezing

**Polywet® Z1766** [Uniroyal]

*Chem. Descrip.:* Sodium polyacrylate, bisulfite terminated, aq. sol'n.

CAS 9003-04-7

*Uses:* Dispersant for titanium dioxide, other pigments for coatings; boiler water additives; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings; effective over broad pH range; resists hydrolysis

*Regulatory:* FDA 21CFR §173.73, 173.310, 173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1210; Australia, Canada, EU, Japan, Korea, and Philippines compliances

*Properties:* Colorless to sl. yel. clear to opalescent liq., char. odor; sol. in alcohols and water; sp.gr. 1.23; visc. 180-350 cps; pH 7.0; 35% act.; anionic

*Toxicology:* LD50 (oral, rat) > 12.3 g/kg; nonirritating to eyes and skin

## Ponolith™ Blue BW Liq.

*Storage:* Store in closed containers away from sources of direct heat in a dry area; stable to prolonged storage below freezing

### Ponolith™ Blue BW Liq. [Bayer/Industrial Chems.]

*Uses:* Pigment for papers (sized, acid, alkaline, coatings), tinting applics.; brilliant grn.-shade blue; exc. lightfastness; not bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 10.5

### Ponolith™ Blue NPEF Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Blue PT Liq. [Bayer/Industrial Chems.]

*Uses:* Pigment for papers (sized, acid, alkaline, coatings), esp. for tinting wh. papers; red-shade blue; exc. lightfastness; not bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; dens. 9.0 lb/gal; visc. < 100 cps; pH 8.4

### Ponolith™ Blue RDC Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Pigment for papers (sized, acid, alkaline, coatings), esp. for tinting of alkaline and acid papers; brilliant grn.-shade blue; exc. lightfastness; not bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; dens. 9.5 lb/gal; visc. < 100 cps; pH 9.5

### Ponolith™ Blue RT Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Pigment for papers (sized, acid, alkaline), esp. for tinting of alkaline and acid wh. papers; economical; red-shade blue; very good lightfastness; not bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; dens. 8.7 lb/gal; visc. < 100 cps; pH 7.1

### Ponolith™ Fast Black P Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Carbon black disp.

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Pigment for papers (sized, acid, alkaline, coatings), esp. for tinting acid and alkaline-sized wh. papers.; blk.; exc. lightfastness; not bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; dens. 9.9 lb/gal; visc. < 100 cps; pH 8.2

### Ponolith™ Fast Black PLD Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Fast Blue C Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Pigment for papers (sized, acid, alkaline, coatings), esp. for tinting of alkaline and acid wh. papers; red-shade blue; exc. lightfastness; not bleachable in hypochlorite; very good affinity for clay fillers

*Properties:* Liq.; dens. 9.1 lb/gal; visc. < 100 cps; pH 8.7

### Ponolith™ Fast Blue PT Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Fast Violet 4RN Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Pigment with mod. brilliance for papers (tinting of sized, acid, alkaline, coatings), suitable for tinting and deeper shades; violet; partially bleachable in hypochlorite; exc. lightfastness; very good affinity for clay fillers; good affinity for CaCO<sub>3</sub> and TiO<sub>2</sub> fillers

*Properties:* Liq.; dens. 8.8 lb/gal; visc. < 100 cps; pH 8.6

### Ponolith™ Green BN Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Print Yellow FGRN-2 Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Red BRN Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring

paper internally, for stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Red BWSC Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Pigment with mod. brilliance for papers (sized, acid, alkaline, coated), suitable for envelope grades; neutral-shade red; partially bleachable in hypochlorite; very good lightfastness; very good affinity for CaCO<sub>3</sub>, clay, and TiO<sub>2</sub> fillers

*Properties:* Liq.; dens. 8.8 lb/gal; visc. 1500 cps; pH 10.5

### Ponolith™ Red WC Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Pigment for tinting of sized, alkaline and acid papers; bright blue-shade red; bleachable in hypochlorite; exc. lightfastness; exc. affinity for CaCO<sub>3</sub> fillers; very good affinity for clay and TiO<sub>2</sub>

*Properties:* Liq.; dens. 9.5 lb/gal; visc. < 1000 cps; pH 9.0

### Ponolith™ Supra Black B Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Pigment black 7

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Blk. dye for beater applic. to acid-sized papers, esp. where high lightfastness is required, for neutral or alkaline-sized papers where a cationic retention mechanism is used, and as colorant for coatings and deco printing inks; not rec. for laminates; exc. bleedfastness; not bleachable in hypochlorite; very good affinity for TiO<sub>2</sub> fillers

*Properties:* Liq. disp.

### Ponolith™ Supra Blue HM Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Pigment blue 15:3

*Uses:* Blue pigment for beater applic. to acid-sized papers, esp. where high lightfastness is required, for neutral or alkaline-sized papers where a cationic retention mechanism is used, and for coatings and deco printing inks; not rec. for use in laminates; not bleachable; exc. bleedfastness; exc. affinity for TiO<sub>2</sub>; very good affinity for clay and CaCO<sub>3</sub> fillers

*Properties:* Liq. disp.

### Ponolith™ Supra Blue RB Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Pigment blue 15

CAS 147-14-8; EINECS/ELINCS 205-685-1

*Uses:* Blue pigment for beater applic. to acid-sized papers, esp. where high lightfastness is required, for neutral or alkaline-sized papers where a cationic retention mechanism is used, and for coatings and deco printing inks; not rec. for use in laminates; not bleachable; exc. bleedfastness; very good affinity for clay and CaCO<sub>3</sub> fillers

*Properties:* Liq. disp.

### Ponolith™ Supra Red CD Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Pigment violet 19

CAS 1047-16-1; EINECS/ELINCS 213-879-2

*Uses:* Pigment for beater applic. to acid-sized papers, esp. where high lightfastness is required, for neutral or alkaline-sized papers where cationic retention mechanism is used, and for coatings and deco printing inks; completely bleachable in hypochlorite; exc. bleedfastness; exc. affinity for CaCO<sub>3</sub> fillers; very good affinity for clay and TiO<sub>2</sub>

*Properties:* Liq. disp.

### Ponolith™ Supra Red MY Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant scarlet pigment for fine papers (sized, alkaline-sized); rec. where higher lightfastness is required; partially bleachable in hypochlorite; very good affinity for clay and CaCO<sub>3</sub> fillers

*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 3000 cps; pH 9.0

### Ponolith™ Supra Violet EB Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Pigment violet 23

CAS 6358-30-1; EINECS/ELINCS 228-767-9

*Uses:* Violet pigment for beater applic. to acid-sized papers, esp. where high lightfastness is required, for neutral or alkaline-sized papers where a cationic retention mechanism is used, and for coatings and deco printing inks; not rec. for laminates; exc. bleedfastness; not bleachable; exc. affinity for clay fillers; very good affinity for CaCO<sub>3</sub>

*Properties:* Liq. disp.

### Ponolith™ Supra Yellow BG Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Org. pigment disp.

*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, in stock additions, and coating applics.

*Properties:* Liq.

### Ponolith™ Supra Yellow GY Liq. [Bayer/Industrial Chems.]

*Chem. Descrip.:* Pigment yellow 150



- Uses:* Yel. dye for beater applic. to acid-sized papers, esp. where high lightfastness is required; colorant for coatings and deco printing inks; not rec. for laminates; exc. bleedfastness; completely bleachable in hypochlorite; exc. affinity for TiO<sub>2</sub> fillers; very good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq. disp.
- Ponolith™ Supra Yellow RD Liq.** [Bayer/Industrial Chems.]  
*Chem. Descrip.:* Pigment yellow 65  
*Uses:* Yel. dye for beater applic. to acid-sized papers, esp. where high lightfastness is required; colorant for coatings and deco printing inks; not rec. for laminates; exc. bleedfastness; not bleachable in hypochlorite; very good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq. disp.
- Ponolith™ Tinting Yellow 2GND Liq.** [Bayer/Industrial Chems.]  
*Chem. Descrip.:* Org. pigment disp.  
*Uses:* Brilliant green-shade yel. pigment for papers (sized, acid, alkaline), tinting applics.; good stability when diluted with mill process water; partially bleachable in hypochlorite; good lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub> fillers  
*Properties:* Liq. disp.; dens. 8.8 lb/gal; visc. < 400 cps; pH 9.5
- Ponolith™ Violet FFR Liq.** [Bayer/Industrial Chems.]  
*Chem. Descrip.:* Org. pigment disp.  
*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.  
*Properties:* Liq.
- Ponolith™ Yellow 2GBW Liq.** [Bayer/Industrial Chems.]  
*Uses:* Pigment for papers (sized, acid, alkaline, coatings), esp. for tinting applics.; brilliant green-shade yel.; good resist. to microbiological growth when diluted 1:1 with mill process water; partially bleachable in hypochlorite; good lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub> fillers  
*Properties:* Liq. disp.; dens. 8.8 lb/gal; visc. < 400 cps; pH 10.5
- Ponolith™ Yellow 2GN-P Liq.** [Bayer/Industrial Chems.]  
*Chem. Descrip.:* Org. pigment disp.  
*Uses:* Brilliant green-shade yel. pigment for papers (sized, acid, alkaline, coatings); rec. for tinting and for producing deeper shades; partially bleachable in hypochlorite; good lightfastness; very good affinity for clay fillers; good affinity for TiO<sub>2</sub> and CaCO<sub>3</sub> fillers  
*Properties:* Liq. disp.; dens. 8.7 lb/gal; visc. < 100 cps; pH 8.0
- Ponolith™ Yellow WY-7724** [Bayer/Industrial Chems.]  
*Chem. Descrip.:* Org. pigment disp.  
*Uses:* Brilliant pigment for tinting paper, for coating colored papers, for coloring paper internally, for stock additions, and coating applics.
- Pontamine™ Beige FX Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.
- Pontamine™ Black LD Liq.** [Bayer/Industrial Chems.]  
*Uses:* Direct dye intended for tinting of wh. papers, suitable for sized, acid, alkaline types; can be applied internally or on the sheet surf.; pract. bleachable in hypochlorite; partially bleachable in sodium hydrosulfite; fair lightfastness  
*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 7.5
- Pontamine™ Black LFS** [Bayer/Industrial Chems.]  
*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Powd.
- Pontamine™ Black LFS Liq.** [Bayer/Industrial Chems.]  
*Uses:* Direct blk. dyestuff for papers (acid-sized, alkaline-sized, tissue); bleachable in hypochlorite; exc. lightfastness @ 200 lb/ton dyeing level, fair @ 20 lb/ton; high substantivity to typ. papermaking furnishes; very good affinity for CaCO<sub>3</sub>  
*Properties:* Liq.
- Pontamine™ Black SP Liq.** [Bayer/Industrial Chems.]  
*Uses:* Black dyestuff for papers (sized, acid, alkaline, paperboard, molded, tissue); tint in wh. fine papers to inc. opacity; economical; pract. bleachable in chlorine; fair lightfastness  
*Properties:* Liq.; dens. 9.6 lb/gal; visc. < 100 cps; pH 8.0
- Pontamine™ Blue BN Liq. 200%** [Bayer/Industrial Chems.]  
*Uses:* Bright neutral-shade blue dyestuff rec. for internal paper coloration applics. (sized, acid, alkaline, tissue); pract. bleachable in chlorine; good lightfastness and bleedfastness; good resist. to trace amts. of residual chlorine; exc. affinity for CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 8.8 lb/gal; visc. < 100 cps; pH 7.5
- Pontamine™ Blue BT Liq.** [Bayer/Industrial Chems.]  
*Uses:* Red-shade blue dyestuff for papers (sized, acid, alkaline, tissue); bleachable in chlorine; fair lightfastness  
*Properties:* Liq.; dens. 9.7 lb/gal; visc. < 100 cps; pH 10.7
- Pontamine™ Blue GTB Liq.** [Bayer/Industrial Chems.]  
*Uses:* Sl. greener-shade blue direct dye for papers (sized, alkaline-sized, tissue); pract. bleachable; good lightfastness; exc. affinity for CaCO<sub>3</sub> fillers; good substantivity to commonly used cellulose fibers and recycled fibers  
*Properties:* Liq.; dens. 9.1 lb/gal; visc. < 100 cps; pH 10.5
- Pontamine™ Blue SP Liq.** [Bayer/Industrial Chems.]  
*Uses:* Red-shade blue dyestuff for papers (sized, acid, alkaline, tissue); pract. bleachable in chlorine; fair lightfastness  
*Properties:* Liq.; dens. 10.1 lb/gal; visc. < 100 cps; pH 7.9
- Pontamine™ Blue SP-N Liq.** [Bayer/Industrial Chems.]  
*Uses:* Red-shade blue dyestuff for papers (sized, acid, alkaline, tissue); bleachable in chlorine; fair lightfastness  
*Properties:* Liq.; dens. 9.7 lb/gal; visc. < 100 cps; pH 8.25
- Pontamine™ Blue WE-N Liq.** [Bayer/Industrial Chems.]  
*Uses:* Bright red-shade blue dyestuff primarily intended for tinting applics. for sized, acid, alkaline, and tissue papers; pract. bleachable in hypochlorite; good lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 8.5 lb/gal; visc. < 100 cps; pH 8.0
- Pontamine™ Bond Blue B Liq.** [Bayer/Industrial Chems.]  
*Uses:* Sl. green-shade blue dyestuff for fine papers (sized, acid, alkaline); bleachable in sodium hypochlorite and sodium hydrosulfite; very good lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.4 lb/gal; visc. < 100 cps; pH 9.3
- Pontamine™ Bond Yellow 303 Liq.** [Bayer/Industrial Chems.]  
*Uses:* Sl. grn.-shade, fluorescent yel. dyestuff for paper (sized, acid, alkaline, tissue); economical; bleachable; exc. lightfastness  
*Properties:* Liq.; dens. 9.0 lb/gal; visc. < 100 cps; pH 7.2
- Pontamine™ Bordeaux 8B Liq.** [Bayer/Industrial Chems.]  
*Uses:* Brilliant blue-shade red dyestuff for paper (sized, acid, alkaline, tissue); pract. bleachable in chlorine; good lightfastness; good affinity for clay fillers  
*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 8.1
- Pontamine™ Brilliant Blue A** [Bayer/Industrial Chems.]  
*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Powd.
- Pontamine™ Brilliant Blue A2G Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.
- Pontamine™ Brilliant Blue A Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.
- Pontamine™ Brilliant Bond Blue A Liq.** [Bayer/Industrial Chems.]  
*Uses:* Brilliant grn.-shade blue dyestuff for papers (sized, acid, alkaline, tissue); partially bleachable in chlorine; very good lightfastness  
*Properties:* Liq.; dens. 9.5 lb/gal; visc. < 100 cps; pH 11.1
- Pontamine™ Brilliant Flavine 6G-N Sol'n.** [Bayer/Industrial Chems.]  
*Uses:* Very bright grn.-shade, fluorescent yel. dyestuff for paper (sized, acid, alkaline, tissue); bleachable; poor lightfastness; fair affinity for clay, TiO<sub>2</sub>, and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.3 lb/gal; visc. < 400 cps; pH 7.3
- Pontamine™ Brilliant Orange 2R Liq.** [Bayer/Industrial Chems.]  
*Uses:* Bright red-shade orange direct dyestuff for paper (sized, alkaline-sized, tissue); good substantivity to common papermaking furnishes; bleachable in chlorine; fair lightfastness, good bleedfastness; very good affinity for TiO<sub>2</sub> fillers  
*Properties:* Liq.; dens. 9.3 lb/gal; visc. < 100 cps; pH 7.0
- Pontamine™ Brilliant Paper Yellow Liq.** [Bayer/Industrial Chems.]  
*Uses:* Yel. dyestuff for paper (sized, acid papers); alkali-sensitive; bleachable; very good lightfastness  
*Properties:* Liq.; dens. 9.6 lb/gal; visc. < 100 cps; pH 12.6
- Pontamine™ Brilliant Violet 6B Liq. 50** [Bayer/Industrial Chems.]  
*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.
- Pontamine™ Brilliant Violet BRW Liq.** [Bayer/Industrial Chems.]

## Pontamine™ Brilliant Yellow 5GA Liq.

*Uses:* Violet dyestuff for paper (sized, acid, alkaline, tissue); pract. bleachable in chlorine; good lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.5 lb/gal; visc. < 100 cps; pH 8.4

## Pontamine™ Brilliant Yellow 5GA Liq. [Bayer/Industrial Chems.]

*Uses:* Grn. shade yel. dyestuff for paper (sized, acid, alkaline, tissue); bleachable in chlorine; good lightfastness; also avail. in powd. form  
*Properties:* Liq.; dens. 8.9 lb/gal; visc. < 100 cps; pH 6.4

## Pontamine™ Fast Orange WN Liq. [Bayer/Industrial Chems.]

*Uses:* Brilliant red-shade orange dyestuff for paper (sized, acid, alkaline, tissue); pract. bleachable in chlorine; good lightfastness; very good affinity for clay fillers  
*Properties:* Liq.; dens. 9.4 lb/gal; visc. < 100 cps; pH 7.5

## Pontamine™ Fast Red 8BF Liq. [Bayer/Industrial Chems.]

*Uses:* Blue-shade red dyestuff for paper (sized, acid, alkaline, tissue—lighter shades); economical; partially bleachable in chlorine; good lightfastness; good affinity for CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 7.9

## Pontamine™ Fast Red 8BLX [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Powd.

## Pontamine™ Fast Red 8BLX Liq. [Bayer/Industrial Chems.]

*Uses:* Blue-shade red dyestuff for paper (sized, acid, alkaline, tissue); partially bleachable in chlorine; good lightfastness; good affinity for CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.7 lb/gal; visc. < 100 cps; pH 6.8

## Pontamine™ Fast Red 9BL Liq. [Bayer/Industrial Chems.]

*Uses:* Blue-shade red dyestuff for paper (sized, acid, alkaline, tissue—lighter shades); economical; partially bleachable in chlorine; good lightfastness; good affinity for CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.0 lb/gal; visc. < 100 cps; pH 7.8

## Pontamine™ Fast Red BA Liq. New [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Fast Scarlet 4BA [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Powd.

## Pontamine™ Fast Scarlet 4B Liq. [Bayer/Industrial Chems.]

*Uses:* Brilliant scarlet dyestuff for paper (sized, acid, alkaline, tissue); partially bleachable in chlorine; good lightfastness; very good affinity for clay fillers, good affinity for CaCO<sub>3</sub>  
*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 7.4

## Pontamine™ Fast Turquoise 8GL Liq. [Bayer/Industrial Chems.]

*Uses:* Brilliant green-shade blue dye for papers (sized, acid, alkaline, tissue); partially bleachable; good lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.5 lb/gal; visc. < 100 cps; pH 7.1

## Pontamine™ Fast Yellow 3GF Liq. [Bayer/Industrial Chems.]

*Uses:* Yel. dyestuff for paper (acid-sized, alkaline-sized, tissue); pract. bleachable in chlorine; exhibits good lightfastness; good affinity for clay fillers  
*Properties:* Liq.; dens. 9.0 lb/gal; visc. < 100 cps; pH 6.0

## Pontamine™ Fast Yellow 5GF Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Fast Yellow E-2G Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Golden Yellow RB Liq. [Bayer/Industrial Chems.]

*Uses:* Reddish shade yel. dyestuff for paper (sized, acid, alkaline, tissue); bleachable; good lightfastness  
*Properties:* Liq.; dens. 8.9 lb/gal; visc. < 100 cps; pH 7.2

## Pontamine™ Green 2B [Bayer/Industrial Chems.]

*Uses:* Blue-shade green direct dyestuff for papers (sized, alkaline, tissue); partially bleachable in hypochlorite; fair lightfastness; good fiber substantivity in rosin size and alum dyeing conditions  
*Properties:* Powd.; sol. 10 g/l

## Pontamine™ Grey K-CGL [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity

for cellulose fibers

*Properties:* Powd.

## Pontamine™ Kraft Brown ES Liq. [Bayer/Industrial Chems.]

*Uses:* Red-shade brown dyestuff for paper (sized, acid, alkaline, molded, tissue); partially bleachable; good lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 9.0 lb/gal; visc. < 100 cps; pH 8.7

## Pontamine™ Kraft Brown JCC Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Kraft Orange A Liq. [Bayer/Industrial Chems.]

*Uses:* Yel.-shade orange dyestuff for paper (sized, acid, alkaline, tissue, molded prods.); economical; partially bleachable; good lightfastness; very good affinity for clay fillers  
*Properties:* Liq.; dens. 9.9 lb/gal; visc. < 100 cps; pH 8.4

## Pontamine™ Orange OCC Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Red Sern Liq. [Bayer/Industrial Chems.]

*Uses:* Brilliant blue-shade red direct dyestuff for paper (sized, alkaline); fully bleachable in hypochlorite, pract. bleachable in sodium hydrosulfite; fair lightfastness; exc. affinity for CaCO<sub>3</sub> fillers, good affinity for clay  
*Properties:* Liq.; dens. 8.8 lb/gal; visc. < 100 cps; pH 7.0

## Pontamine™ Substantive Turquoise 6G Liq. [Bayer/Industrial Chems.]

*Uses:* Turquoise dye substantive to hardwood and softwood kraft pulps, rec. for tissue and alkaline-sized papers; partially bleachable; very good lightfastness  
*Properties:* Liq.; sp.gr. 1.1; visc. < 100 cps; pH 12.0; anionic

## Pontamine™ Violet BBN Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Yellow 2RF Liq. [Bayer/Industrial Chems.]

*Uses:* Bright reddish-shade yel. dyestuff for paper (sized, acid, alkaline, tissue); partially bleachable; good lightfastness; good affinity for CaCO<sub>3</sub> fillers  
*Properties:* Liq.; sp.gr. 1.1; visc. < 100 cps; pH 8.0-8.5 (10%)

## Pontamine™ Yellow 3GRC [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Yellow 711 Liq. [Bayer/Industrial Chems.]

*Uses:* Sl. reddish shade, fluorescent yel. dyestuff for paper (sized, acid, alkaline, tissue); exc. bleachability in chlorine; good lightfastness and water bleedfastness; very good affinity for clay fillers  
*Properties:* Liq.; dens. 8.8 lb/gal; visc. < 100 cps; pH 7.5

## Pontamine™ Yellow EM Liq. [Bayer/Industrial Chems.]

*Uses:* Yel. dyestuff for paper (sized, acid, alkaline, tissue); pract. bleachable in chlorine; good lightfastness; good affinity for clay fillers  
*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 6.0

## Pontamine™ Yellow GFB Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Yellow GG-N Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Liq.

## Pontamine™ Yellow G Liq. [Bayer/Industrial Chems.]

*Uses:* Yel. dyestuff for paper (sized, acid, alkaline, tissue); bleachable; exc. lightfastness; good fiber substantivity and water bleedfastness  
*Properties:* Liq.; dens. 9.1 lb/gal; visc. < 100 cps; pH 7.2

## Pontamine™ Yellow GX [Bayer/Industrial Chems.]

*Uses:* Colorant for fine papers, tissue papers, specialty papers; direct affinity for cellulose fibers  
*Properties:* Powd.

## Pontamine™ Yellow GXG Liq. [Bayer/Industrial Chems.]

*Uses:* Red-shade yel. dyestuff for paper (sized, acid, alkaline, tissue); economical; fair lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; dens. 10.0 lb/gal; visc. < 150 cps; pH 8.9

## Pontamine™ Yellow GXW Liq. [Bayer/Industrial Chems.]

*Uses:* Red-shade yel. dyestuff for paper (sized, acid, alkaline, tissue); economical; not bleachable; fair lightfastness; good affinity for clay and CaCO<sub>3</sub> fillers

*Properties:* Liq.; dens. 9.2 lb/gal; visc. < 100 cps; pH 9.0

**Powdered Guar Gum Type A** [Gumix Int'l.]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, visc. modifier, water-binder, stabilizer, lubricant for foods (dairy prods., bakery, meat, beverages, salad dressings), pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets), cosmetics (creams, lotions), industrial uses incl. papermaking, mining, tobacco, textiles, explosives, potable water treatment (coagulant aid); flocculant in industrial water, petrol. drilling

*Properties:* Wh. to yllsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Guar Gum Type AA** [Gumix Int'l.]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, visc. modifier, water-binder, stabilizer, lubricant for foods (dairy prods., bakery, meat, beverages, salad dressings), pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets), cosmetics (creams, lotions), industrial uses incl. papermaking, mining, tobacco, textiles, explosives, potable water treatment (coagulant aid); flocculant in industrial water, petrol. drilling

*Properties:* Wh. to yllsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Guar Gum Type B** [Gumix Int'l.]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, visc. modifier, water-binder, stabilizer, lubricant for foods (dairy prods., bakery, meat, beverages, salad dressings), pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets), cosmetics (creams, lotions), industrial uses incl. papermaking, mining, tobacco, textiles, explosives, potable water treatment (coagulant aid); flocculant in industrial water, petrol. drilling

*Properties:* Wh. to yllsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Guar Gum Type BB** [Gumix Int'l.]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, visc. modifier, water-binder, stabilizer, lubricant for foods (dairy prods., bakery, meat, beverages, salad dressings), pharmaceuticals (appetite depressant, disintegrant and binder in compressed tablets), cosmetics (creams, lotions), industrial uses incl. papermaking, mining, tobacco, textiles, explosives, potable water treatment (coagulant aid); flocculant in industrial water, petrol. drilling

*Properties:* Wh. to yllsh. powd., nearly odorless, bland taste; disp. in cold or hot water; insol. in org. solvs.

**Powdered Gum Ghatti #1** [Frutarom Meer]

*Chem. Descrip.:* Gum ghatti

CAS 9000-28-6

*Uses:* Stabilizer, binder, emulsifier forming o/w emulsions, used in beverage emulsions where it forms orange oil emulsions, in table syrup emulsions; tablet binder and thick mucilage coatings in pharmaceuticals; binder in paper industry; emulsifier for petroleum and nonpetroleum waxes used in coating and barrier applics.

*Properties:* Off-wh. to lt. amber gum; 99% thru 80 mesh, ≥ 90% thru 100 mesh; visc. ≥ 100 cps (5%)

**Powdered Gum Ghatti #2** [Frutarom Meer]

*Chem. Descrip.:* Gum ghatti

CAS 9000-28-6

*Uses:* Stabilizer, binder, emulsifier forming o/w emulsions, used in beverage emulsions where it forms orange oil emulsions, in table syrup emulsions; tablet binder and thick mucilage coatings in pharmaceuticals; binder in paper industry; emulsifier for petroleum and nonpetroleum waxes used in coating and barrier applics.

*Properties:* Water-sol.

**Powdered Gum Guar NF Type 80 Mesh B/T** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages,

cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Water-sol.

**Powdered Gum Guar Type 140 Mesh B/T** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Water-sol.

**Powdered Gum Guar Type ECM** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Water-sol.

**Powdered Gum Guar Type M** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Water-sol.

**Powdered Gum Guar Type MM FCC** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Wh. to cream-wh. fine powd., nearly odorless; 97% thru 140 mesh, ≥ 90% thru 200 mesh; visc. ≥ 3500 cps (1%); pH 5.0-6.4

**Powdered Gum Guar Type MM (HV)** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Water-sol.

**Powdered Gum Guar Type MMM 1/2** [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

## Powdered Gum Guar Type MMW

*Properties:* Water-sol.

### Powdered Gum Guar Type MMW [Frutarom Meer]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, binder, suspending agent, stabilizer, and dietary fiber source for soft cheese prods., ice cream, sherbets, fruit drinks, dietetic beverages, cocoa beverages, baked goods, frozen pie fillings, icings, salad dressings, relishes; binder/lubricant in sausages, stuffed meat prods., canned pet foods; in explosives and mining; as wet-end additive in papermaking, sizes, oil well drilling muds; appetite depressant; pharmaceutical tablet binder; cosmetics; textile printing

*Properties:* Water-sol.

### Powdered Gum Karaya Superfine #1 FCC [Frutarom Meer]

*Chem. Descrip.:* Karaya gum FCC

CAS 9000-36-6; EINECS/ELINCS 232-539-4

*Uses:* Stabilizer, water binder, emulsifier for foods (water ices, sherbets, cheese spreads, meringue powds., meat processing), pharmaceuticals (bulk laxatives, denture adhesives); binder in paper industry; thickener for textile dyes

*Properties:* Water-sol.

### Powdered Gum Karaya Superfine XXXX FCC [Frutarom Meer]

*Chem. Descrip.:* Karaya gum NF/FCC

CAS 9000-36-6; EINECS/ELINCS 232-539-4

*Uses:* Stabilizer, water binder, emulsifier for foods (water ices, sherbets, cheese spreads, meringue powds., meat processing), pharmaceuticals (bulk laxatives, denture adhesives); binder in paper industry; thickener for textile dyes

*Use Level:* 0.2-0.4% (sherbets), < 0.8% (cheese spreads), 0.25-1% (meat)

*Properties:* Powd.; 100% thru 80 mesh, ≥ 60% thru 200 mesh; swells in water, insol. in alcohol; visc. ≥ 200 cps (1%); pH 4.4-4.8

### Powdered Locust Bean Gum Type D-200 [Frutarom Meer]

*Chem. Descrip.:* Locust bean gum FCC

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, water binder, suspending agent, and stabilizer for soft cheese, cheese spreads, ice cream, baked goods, cakes, frozen pie fillings, sausages, stuffed meat prods., canned pet foods; wet-end additive in papermaking; textile sizing agent, print paste thickener; excipient for pharmaceutical tablets; thickener for toothpaste; thickener/stabilizer for cosmetic creams and lotions

*Properties:* Water-sol.

### Powdered Locust Bean Gum Type D-300 [Frutarom Meer]

*Chem. Descrip.:* Locust bean gum FCC

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, water binder, suspending agent, and stabilizer for soft cheese, cheese spreads, ice cream, baked goods, cakes, frozen pie fillings, sausages, stuffed meat prods., canned pet foods; wet-end additive in papermaking; textile sizing agent, print paste thickener; excipient for pharmaceutical tablets; thickener for toothpaste; thickener/stabilizer for cosmetic creams and lotions

*Properties:* Water-sol.

### Powdered Locust Bean Gum Type P-100 [Frutarom Meer]

*Chem. Descrip.:* Locust bean gum FCC

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, water binder, suspending agent, and stabilizer for soft cheese, cheese spreads, ice cream, baked goods, cakes, frozen pie fillings, sausages, stuffed meat prods., canned pet foods; wet-end additive in papermaking; textile sizing agent, print paste thickener; excipient for pharmaceutical tablets; thickener for toothpaste; thickener/stabilizer for cosmetic creams and lotions

*Properties:* Water-sol.

### Powdered Locust Bean Gum Type PP-100 [Frutarom Meer]

*Chem. Descrip.:* Locust bean gum FCC

CAS 9000-40-2; EINECS/ELINCS 232-541-5

*Uses:* Thickener, water binder, suspending agent, and stabilizer for soft cheese, cheese spreads, ice cream, baked goods, cakes, frozen pie fillings, sausages, stuffed meat prods., canned pet foods; wet-end additive in papermaking; textile sizing agent, print paste thickener; excipient for pharmaceutical tablets; thickener for toothpaste; thickener/stabilizer for cosmetic creams and lotions

*Properties:* Water-sol.

### PQ® Epsom Salt Tech. [PQ]

*Chem. Descrip.:* Magnesium sulfate heptahydrate

CAS 10034-99-8; EINECS/ELINCS 231-298-8

*Uses:* Pulping aid maintaining pulp visc. and quality during oxygen delignification for bleaching of kraft hard and soft wood pulps; retards degradation of pulp carbohydrates; maintains cellulose fiber lengths

*Properties:* Colorless or wh. rhombic or monoclinic opaque cryst.; 94% -10 to +48 mesh (Tyler screen); readily dissolves in cold water; m.w. 246.50; sp.gr. 1.68; bulk dens. 63 lb/ft<sup>3</sup>; ref. index 1.455; pH 6-7 (1%); hardness (Mohs) 2-2.5; 99% min. MgSO<sub>4</sub> (anhyd.); 9.8% Mg

### Praestafix® [Stockhausen]

*Uses:* Paper auxiliary, trash remover for elimination of anionic charges and charge carriers in the pulp; replaces alum for fixation of rosin size; partially reduces COD-freight in water circuit

*Use Level:* 0.1-0.4%

*Properties:* Very low m.w.; cationic

### Praestamin® [Stockhausen]

*Uses:* Paper auxiliary, dry strength agent, drainage aid, retention aid for paper, carton, cardboard; improves tens. str.; burst, breaking length, internal bonding, pick resist.

*Use Level:* 0.1-0.9%

*Properties:* Liq., emulsion, granulate; low m.w.; cationic/amphoteric

### Praestaret® [Stockhausen]

*Uses:* Paper auxiliary, retention agent for acid and neutral papermaking; improves drainage speed and fiber and filler retention, inc. machine capacity, provides better yield of furnish components (fibers, fillers)

*Use Level:* 0.01-0.1%

*Properties:* Liq. and granular; high-very high m.w.; cationic

### Prelude™ [Hercules]

*Uses:* Sizing agent for recycled paperboard; requires no cationic starch or additives for retention or reaction

### Premier [IMERYS]

*Chem. Descrip.:* Kaolin clay

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Clay for paper coatings (high quality boxboard and enamel papers); produces coatings of exc. gloss and brightness with uniform ink receptivity

*Properties:* Spray-dried, slurry; 0.002% 325-mesh residue, 92% finer than 2 μ particle size; sp.gr. 2.72; visc. 200 cps (70% solids); brightness (GE) 87-88; ref. index 1.56; pH 6.2-7.5 (20% aq.); hardness (Mohs) 2; 0.3-1.0% moisture (spray-dried), 29-31% moisture (slurry)

### Presstige™ [Hercules]

*Uses:* Deposit control agent, felt conditioner, fabric/felt cleaning agent for pulp, paper, and paperboard mfg., treatment of press section rolls

### Printex® XE 2 [Degussa-Hüls]

*Chem. Descrip.:* Carbon black

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Uses:* Porous conductive filler for elec. conductive and antistatic compds., incl. thermoplastics, rubber, adhesives, sealants, inks, coatings, putties, floor pavements, concrete, mortar, paper for conductor insulation; results in lower comping, visc., easier processing, lower moisture pickup during comping., storage, and transportation, improved physical props.

*Properties:* Blk. beads; odorless; dens. 140 g/l; surf. area 1000 m<sup>2</sup>/g; pH 8

*Precaution:* Nonexplosive under normal handling/storage, however, explosions can be caused in air concs. above 50 g/cm<sup>3</sup> with a high energy ignition source; may smolder above 300 C; avoid contact with strong oxidizers

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, SO<sub>2</sub>

### Printosil® [Süd-Chemie AG]

*Chem. Descrip.:* Bentonite

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* For surf. finishing of superlight-coated papers

### Printplus 500 [Vinings Ind.]

*Uses:* Frictionizing agent for fine and specialty papers; for applic. in a size press or through a spray applicator

### Pristerene 4909 [Uniqema/Oleochems.]

*Chem. Descrip.:* Stearine

*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers

*Properties:* Acid no. 201-209; iodine no. 2 max.; sapon. no. 202-210

### Pristerene 4912 [Uniqema/Oleochems.]

*Chem. Descrip.:* Stearine

*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers

*Properties:* Acid no. 200-208; iodine no. 2 max.; sapon. no. 201-209

### Pristerene 4913 [Uniqema/Oleochems.]

- Chem. Descrip.:* Stearine  
*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers  
*Properties:* Acid no. 202-206; iodine no. 1 max.; sapon. no. 203-207
- Pristerene 4916** [Uniqema/Oleochems.]  
*Chem. Descrip.:* Stearine  
*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers  
*Properties:* Acid no. 202-210; iodine no. 2 max.; sapon. no. 203-211
- Pristerene 4931** [Uniqema/Oleochems.]  
*Chem. Descrip.:* Stearine  
*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers  
*Properties:* Acid no. 200-210; iodine no. 5 max.; sapon. no. 202-212
- Pristerene 4943** [Uniqema/Oleochems.]  
*Chem. Descrip.:* Stearine  
*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers  
*Properties:* Acid no. 178-190; iodine no. 6 max.; sapon. no. 179-191
- Pristerene 4945** [Uniqema/Oleochems.]  
*Chem. Descrip.:* Stearine  
*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers  
*Properties:* Acid no. 188-198; iodine no. 5 max.; sapon. no. 189-199
- Pristerene 4963** [Uniqema/Oleochems.]  
*Chem. Descrip.:* Stearine  
*Uses:* Applics. incl. rubber vulcanization aids, shaving creams, paper sizing agents, candles, metal stearates and emulsifiers  
*Properties:* Acid no. 198-205; iodine no. 2 max.; sapon. no. 199-206
- Pro-Cote®** [Protein Tech. Int'l.]  
*Chem. Descrip.:* Soy-based polymers  
*Uses:* Rheology modifier, cobinder, coating structuring agent in paper and paperboard; good coating stability; for use in size press, precoat, and topcoat applics.; for use with any pigment systems (clay, CaCO<sub>3</sub>, TiO<sub>2</sub>)  
*Properties:* Wh. to tan fine gran. powd.; < 2% on 20 mesh; sp.gr. 1.02-1.05 (10-18% sol'n.); bulk dens. 0.40-0.65 g/cm<sup>3</sup>; amphoteric  
*Storage:* 1 yr shelf life (dry); rec. to prepare and use sol'n. within one day
- Product BCO** [DuPont]  
*Chem. Descrip.:* Cetyl betaine  
 CAS 693-33-4; EINECS/ELINCS 211-748-4  
*Uses:* Wetting agent, detergent, emulsifier, dispersant, surfactant for dyeing applics.; softener for textiles; leveling agent and rewetting agent in the paper industry; dyeing assistant and degreaser in the leather industry; antistat on plastic films  
*Properties:* Brn. clear liq.; mild odor; misc. in water; dens. 8.4 lb/gal; visc. free-flowing; surf. tens. 27.8 dynes/cm (32 C, 0.1%); 33% solids; amphoteric
- Propetal 99** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol EO/PO adduct  
*Uses:* Detergent, wetting agent, emulsifier, antifoam, base material for low-foaming cleansing agents for household and industry, mech. dishwash agents, high-pressure and spray cleaners, tile cleaners, aux. prods. for paper, textile, and leather industries; low foaming  
*Properties:* Colorless to yllsh. liq.; sol. in most org. solvs., e.g., benzene, toluene; disp. in water @ higher temps.; sp.gr. 0.97 (20 C); cloud pt. 20-24 C (1% aq.); pH 6 (10%); 100% act., 0.5% water; nonionic  
*Storage:* Prod. may become turbid at lower temps. without loss in quality
- Propetal 241** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol EO/PO adduct  
*Uses:* Detergent, wetting agent, emulsifier, antifoam, intermediate for prep. of low foaming detergents for household and industry, dishwash, sanitary and floor tile cleaners, industrial spray cleaners, metal pickling, paper, textiles, leather; low foaming  
*Properties:* Colorless to yllsh. liq.; sol. in water, alcohols, most org. solvs.; dens. 0.99 g/cc; cloud pt. 37-41 C (1% aq.); pH 5-7 (10%); 100% act., 0.5% water; nonionic  
*Environmental:* Biodeg.  
*Storage:* Prod. may become turbid at lower temps. without loss in quality
- Propetal 387** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol EO-PO adduct  
*Uses:* Surfactant for household and industrial cleaners, high-pressure and spray cleaners, aux. prods. for paper, textile, and leather industries; low foaming; stable @ acid and weakly alkaline pH  
*Properties:* Colorless to yllsh. liq.; sol. in ethanol, IPA, petrol., and orange terpene; disp. in water; sp.gr. 0.93 (20 C); cloud pt. 54-59 C (5 g/10 ml BDG 57% aq.); pH 6 (10%); 100% act., 0.5% water; nonionic
- ProSoft™** [Hercules]  
*Uses:* Release aid, crepe aid, debonder, softener for tissue mfg.
- Prosorb®** [Vinings Ind.]  
*Chem. Descrip.:* Organophilic, adsorbent mineral slurry  
*Uses:* Pitch/stickies control agent for papermaking; anticoagulant for colloidal pitch on paper machine; detackifier making pitch and stickies less prone to deposition; patented; forms complex with pitch which has strong affinity for cationic materials, such as alum which serves to fix the complex to anionic fiber
- ProSweet™** [Hercules]  
*Uses:* Odor control agent for control of hydrogen sulfide and other mercaptan odors in pulp/paper mills
- Protect ZA7** [Magnesium Elektron]  
*Chem. Descrip.:* Neutral zirconium sol'n. contg. 20% ZrO<sub>2</sub>, ammonium acetate, and ammonium hydroxide  
*Uses:* Binder insolubilizer for paper and board coatings and dry-laid nonwoven fabrics; deposit control agent in wet-end papermaking; component of waterborne inks, overprint varnishes, and adhesives; component of textile, leather, and paper water-repellent formulations; coagulant in mfg. of syn. leather-cloth and nonwovens; metal pre-treatment coatings; precursor to ZrO<sub>2</sub> in catalyst systems  
*Properties:* Clear aq. sol'n.; sp.gr. 1.32; pH 7.0  
*Storage:* Store sealed in cool areas; protect from high temps. and freezing
- Protect ZZA** [Magnesium Elektron]  
*Chem. Descrip.:* Ammonium zirconium carbonate, zinc oxide, ammonium hydroxide sol'n.  
*Uses:* Str. agent for alkaline-sized paper; component of waterborne inks, overprint varnishes, and adhesives; component of textile, leather, and paper water repellent formulations; antimicrobial treatment for textiles/timber; coagulant in mfg. of syn. leather-cloth and nonwovens  
*Properties:* Clear alkaline aq. sol'n.; sp.gr. 1.35; pH 10; ZrO<sub>2</sub> & ZnO (16%)  
*Storage:* Store sealed in cool areas; protect from high temps. and freezing
- Protectol® BCM** [BASF AG]  
*Chem. Descrip.:* 1H-Benzimidazol-2-yl-carbamic acid, methyl ester  
 CAS 10605-21-7; EINECS/ELINCS 234-232-0  
*Uses:* Biocide; preservative; fungicidal treatment for paints, sealants, and grouts; biocide for paper industry (soap wrappers, wallpaper, cartons)  
*Use Level:* Up to 0.5% (paints, sealants, grouts); 0.2-0.5% (soap wrappers, wallpaper, cartons)  
*Regulatory:* MITI approved  
*Properties:* 99% act.  
*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritant; TSCA listed
- Protectol® BCM-FL** [BASF AG]  
*Chem. Descrip.:* 1H-Benzimidazol-2-yl-carbamic acid, methyl ester  
 CAS 10605-21-7; EINECS/ELINCS 234-232-0  
*Uses:* Biocide; preservative; fungicidal treatment for paints, sealants, and grouts; biocide for paper industry (soap wrappers, wallpaper, cartons)  
*Use Level:* Up to 1.25% (paints, sealants, grouts); 0.5-1.2% (soap wrappers, wallpaper, cartons)  
*Regulatory:* MITI approved  
*Properties:* 42% act.  
*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritant; TSCA listed
- Protectol® DMU** [BASF AG]  
*Chem. Descrip.:* Dimethylol urea  
 CAS 140-95-4; EINECS/ELINCS 205-444-0  
*Uses:* Biocide, disinfectant for hospital use; preservative in paints, chain lubricants, polymer and wax dispersions; fungicidal treatment for paper glues, pigment slurries  
*Use Level:* 0.05-0.2% (polymer disp.); 0.05-0.25% (wax emulsions); up to 2% (paints); 0.05-0.15% (glue, pigment slurries)  
*Regulatory:* MITI, BGA approved  
*Properties:* 99% act.  
*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritant; TSCA listed
- Protectol® GDA** [BASF AG]  
*Chem. Descrip.:* Glutaraldehyde  
 CAS 111-30-8; EINECS/ELINCS 203-856-5  
*Uses:* Biocide, preservative for aq. systems and cleaners; disinfectant in industrial water treatment, incl. paper prod., cooling towers, heat exchange

ers, oil recovery, and sugar refining; food pkg. adhesives, paper; food-contact slimicide; preservative for chain lubricants, detergents, paper coatings/pigment slurries, cosmetic rinse-off prods.; prevents growth of bacteria, slime-forming microorganisms, algae, and fungal mycelia

*Use Level:* 5-50 ppm (oil industry water treatment); 0.02-0.1% (detergents); 0.01-0.05% (paper coatings)

*Regulatory:* FDA 21CFR§ 172.230, 173.320, 175.105, 176.170, 176.180, 176.300; BP, USP, MITI and BGA approved

*Properties:* Liq.; 50% act.

*Toxicology:* LD50 (oral, rat) 320 mg/kg; strong skin and eye irritant; TSCA listed

#### Protectol® GL 40 [BASF AG]

*Chem. Descrip.:* Glyoxal

CAS 107-22-2; EINECS/ELINCS 203-474-9

*Uses:* Biocide, disinfectant for aq. systems, cleaners, disinfectants; disinfectant for hospital surfaces, food processing, animal husbandry, surgical instruments, laundry; food pkg. adhesives, paper, polymers

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.2280; BGA approved; MITI listed

*Properties:* Liq.; 40% act.

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritating to skin and eyes; TSCA listed

#### Protectol® KLC 50 [BASF AG]

*Chem. Descrip.:* Dimethyl-n-(C<sub>12</sub>/C<sub>14</sub>)-alkyl-benzylammonium chloride

CAS 85409-22-9; EINECS/ELINCS 287-089-1

*Uses:* Biocidal surfactant for chemical industry, detergent mfg.; disinfectant used in all-purpose sanitizers, disinfectant floor and dairy cleaners; process water treatment for sugar industry, cooling towers, heat exchangers, and swimming pools; preservative for cosmetics, chain lubricants, masonry washes, oil recovery; food pkg. adhesives, coatings; slimicide in food-contact paper; food-contact sanitizing sol'ns.

*Use Level:* 0.05-0.2% (wax emulsion); up to 0.5% (chain lubricants); up to 1% (masonry washes); 0.01-0.2% (cosmetics)

*Regulatory:* FDA 21CFR § 175.105, 176.300, 178.1010; EP, DAB, BP, USP, JP, MITI, JSCI, and BGA approved

*Properties:* Clear to yls. liq.; sol. in water, 5% sodium hydroxide, 5% HCl, 5% sodium chloride, alcohol, chlorinated hydrocarbons, oil, wh. spirit; dens. 0.98 g/cm<sup>3</sup>; visc. 80 mPa·s; cloud pt. -4 C; surf. tens. 37 mN/m (1 g/l); pH 6 (1% aq.); 50% act.; cationic

*Toxicology:* LD50 (oral, rat) 1500-1600 mg/kg; corrosive to skin and eyes; TSCA listed

*Environmental:* 80% biodeg.

#### Protectol® KLC 80 [BASF AG]

*Chem. Descrip.:* Dimethyl-n-(C<sub>12</sub>/C<sub>14</sub>)-alkylbenzylammonium chloride

CAS 85409-22-9; EINECS/ELINCS 287-089-1

*Uses:* Biocide, surfactant for chemical industry, detergent mfg., disinfection, preservation; disinfectant for hospital surfaces, food processing, animal husbandry, surgical instruments, hands, laundry; food pkg. adhesives, coatings; food-contact sanitizing sol'ns.; slimicide in food-contact paper

*Regulatory:* FDA 21CFR §175.105, 176.300, 178.1010; BGA, JSCI, MITI approved

*Properties:* Clear to yls. liq.; sol. in water, 5% sodium hydroxide, 5% HCl, 5% sodium chloride, alcohol, chlorinated hydrocarbons, oil, wh. spirit; dens. 0.98 g/cm<sup>3</sup>; visc. 500 mPa·s; cloud pt. -10 C; surf. tens. 37 mN/m (1 g/l); pH 6 (1% aq.); 80% act.; cationic

*Toxicology:* LD50 (oral, rat) 1100-1600 mg/kg; corrosive to skin and eyes; TSCA listed

*Environmental:* 80% biodeg.

#### Protectol® PP [BASF AG]

*Chem. Descrip.:* Phenoxypropanols

*Uses:* Biocide, disinfectant for medical and food industries; preservative for cosmetics industry, adhesives; defoamer in food-contact paper/paperboard

*Use Level:* 0.1-1% (cosmetics); up to 5% (adhesives)

*Regulatory:* FDA 21CFR §176.210; MITI approved

*Properties:* 98% act.

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritant; TSCA listed

#### Protectol® TOE [BASF AG]

*Chem. Descrip.:* 3,5-Dimethyl-1,3,5-2H-tetrahydrothiadiazine-2-thione

CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Biocide, preservative for use in aq. systems; slimicide for water treatment for paper industry, cooling towers, heat exchangers, food contact applics.; food pkg. adhesives, paper, animal glue

*Use Level:* 0.01-0.05% (wax emulsion); 0.01-0.05% (polymer dispersions); 0.01-0.05% (paper coatings, glue, pigment slurries)

*Regulatory:* FDA 21CFR§ 175.105, 176.170, 176.180, 176.230, 176.300, 178.3120; MITI and BGA approved

*Properties:* Powd.; 99% act.

*Toxicology:* LD50 (oral, rat) 600 mg/kg; nonirritant to skin and eyes; TSCA listed

#### Protectol® TOE Granules [BASF AG]

*Chem. Descrip.:* 3,5-Dimethyl-1,3,5-2H-tetrahydrothiadiazine-2-thione

CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Biocide, preservative; slimicide for water treatment for paper industry, cooling towers, heat exchangers, food contact applics.; food pkg. adhesives, paper, animal glue

*Use Level:* 0.01-0.05% (wax emulsion); 0.01-0.05% (polymer dispersions); 0.01-0.05% (paper coatings, glue, pigment slurries)

*Regulatory:* FDA 21CFR§ 175.105, 176.170, 176.180, 176.230, 176.300, 178.3120; MITI and BGA approved

*Properties:* Granules; 99% act.

*Toxicology:* LD50 (oral, rat) 600 mg/kg; nonirritant to skin and eyes; TSCA listed

#### Protocol™ [Hercules]

*Uses:* Defoamer for pulp, paper, and paperboard mfg.

#### Prox® 923 [Synthron SA]

*Chem. Descrip.:* Urea-formaldehyde resin

CAS 9011-05-6

*Uses:* Wet str. agent for paper mfg. at acidic pH

*Properties:* Cationic

#### Prox® A 899 E [Synthron SA]

*Uses:* Thickener, water retention aid for paper sticking and coating applics.

#### Prox® AC 553 L [Synthron SA]

*Chem. Descrip.:* Polyamide resin

CAS 9012-24-2

*Uses:* Dry str. agent for paper mfg. improving mech. props.

#### Prox® ASN 165 R [Synthron SA]

*Chem. Descrip.:* Acrylic copolymer

CAS 25133-97-5

*Uses:* Binder for coating paper, board, and polyester nonwoven materials; nonyellowing

#### Prox® DLF Double Conc. [Synthron SA]

*Uses:* Insolubilizer for starch-based binders in paper sticking and coating applics.; contains min. level of formaldehyde

#### Prox® V P 137 [Synthron SA]

*Chem. Descrip.:* Polyamide resin

CAS 9012-24-2

*Uses:* Wet str. agent for paper mfg. at neutral pH

#### Prox®-Ad WA 138 E [Synthron SA]

*Uses:* Nonstick agent for paper sticking and coating applics. incl. food pkg., flat board and box covering; component of paper/paperboard in contact with aq./fatty/dry foods; compat. with hot-melt adhesives

*Regulatory:* FDA 21CFR §176.170, 176.180; BGA XXXVI compliance

*Properties:* Cationic

#### Prox®-Amine AP [Synthron SA]

*Uses:* Lubricant, dustproofing agent for mfg. of pigmented paper in a size press

#### Prox®-Amine CE 9122 AL [Synthron SA]

*Uses:* Softener for mfg. of paper wadding; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

#### Prox®-Amine CH 65 [Synthron SA]

*Uses:* Softener for wet-end paper mfg. (wadding); food pkg. adhesives

*Regulatory:* FDA 21CFR§175.105

#### Prox®-Amine CH 66 [Synthron SA]

*Uses:* Hydrophilizing softener for wet-end paper mfg. (wadding); food pkg. adhesives

*Regulatory:* FDA 21CFR§175.105

*Properties:* Dilutable in all proportions in water

#### Prox®-Coat FF [Synthron SA]

*Chem. Descrip.:* Resin

*Uses:* Insolubilizer for org. binders and amyloids in paper sticking and coating applics.; food pkg. adhesives; formaldehyde-free

*Regulatory:* FDA 21CFR §175.105; BGA XXXVI compliance

#### Proxel® BD 20 [Avecia; Avecia Ltd]

*Chem. Descrip.:* 1,2-Benzisothiazolin-3-one solv.-free aq. disp.



CAS 2634-33-5; EINECS/ELINCS 220-120-9

**Uses:** Microbiostat preservative for aq. compositions such as o/w emulsions, water-based adhesives, latexes, emulsion paints, casein and rosin disp., textile spin-finish sol'ns., pesticides, aq. slurries, inks, titanium dioxide slurries, tape joint compds.; leather processing sol'ns.; preservation of fresh animal hides and skins; food pkg. adhesives, paper; food-contact slimicide; non-VOC; heat stable and nonvolatile

**Use Level:** 0.05-0.25% (emulsion paint, adhesives, paper coating, oil-in-water emulsions, latexes, leather processing), 0.10-0.50% (pesticide formulations)

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA 40CFR §180.1001(d); EPA reg. no. 10182-405

**Properties:** Fawn-colored disp.; sol. in water at use dilutions; sp.gr. 1.03; dens. 9.0 lb/gal; visc. 2000 cps; b.p. 100 C; pH 7; 19.3% act.

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; sl. toxic by ingestion; corrosive; causes eye and skin damage; may cause allergic skin reaction; harmful if swallowed or absorbed thru the skin; TSCA listed

**Environmental:** Toxic to fish

**Storage:** Stable under normal storage conditions; maintain pH above 4; protect from frost; if frozen, thaw and stir well before use

#### Proxel® DL [Avecia]

**Chem. Descrip.:** 1,2-Benzisothiazolin-3-one (8.5% min.) in aq. dipropylene glycol

**Uses:** Antimicrobial preservative, stabilizer, slimicide for use in latexes, emulsion paint, aq. slurries, adhesives, tape joint compds., o/w emulsions, paper coatings, pesticides, water-based inks, hides and skins; USDA approved for paints used in federally inspected plants and packing adhesives having min. contact with meat or poultry food prods.; food pkg. adhesives, paper; food-contact slimicide; inhibitor of bacteria, yeast, and fungi; heat-stable, low corrosivity; no formaldehyde released

**Use Level:** 0.1-0.3% (latexes, emulsion paints), 0.1-0.2% (aq. slurries, pigment disp.), 0.1-0.5% (adhesives, pesticides, tape joint compds., water-based inks), 0.1-0.3% (oil-in-water emulsions, paper coating compositions)

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA 40CFR §180.1001(d); EPA reg. no. 10182-265; USDA approval

**Properties:** Dk. brn. liq.; low odor; sol. in water at use dilutions; sp.gr. 1.08; visc. 10 cps; b.p. 100 C; flash pt. (Seta) > 200 F; pH 12; 8.5% min. act.

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; sl. toxic

**Environmental:** Biodeg.

**Storage:** Dilute aq. sol'ns. stable in presence of electrolytes above pH 4

#### Proxel® GXL [Avecia; Avecia Ltd]

**Chem. Descrip.:** 1,2-Benzisothiazolin-3-one in aq. dipropylene glycol

**Uses:** Antimicrobial preservative, slimicide in aq. compositions incl. latex emulsions, metalworking fluids, aq. paints, adhesives, and polishes; USDA approved for paints used in federally inspected plants and packing adhesives having min. contact with meat or poultry food prods.; food pkg. adhesives; food-contact paper/paperboard; slimicide in food-contact paper; patented; heat stable, nonvolatile

**Use Level:** 0.05-0.15% (latexes, emulsion paint, paper coating), 0.05-0.25% (water-based inks, pesticide formulations, adhesives), 0.04-0.125% (aq. slurries, pigment disp.), 0.08-0.25% (tape joint compds.), 0.05-0.18% (oil-in-water emulsions)

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA 40CFR §180.1001(d); EPA reg. no. 10182-30; USDA approval

**Properties:** Dk. brn. non-crystallizing liq., sl. odor; sol. in water at use dilutions; 0.1% on 270 mesh; sp.gr. 1.13; dens. 9.5 lb/gal; visc. 500 cps; vapor pressure 12.25 mm Hg; i.b.p. 100 C; flash pt. (Seta) > 200 F; pH 12 (10% aq.); 19.3% act.

**Toxicology:** LD50 (oral, rat) 1200-2175 mg/kg; sl. toxic by ingestion; severe skin/eye irritant; may cause eye burns; vapors can irritate eyes, nose, respiratory passages; repeated/prolonged contact may cause dermatitis and skin sensitization; TSCA listed

**Environmental:** Toxic to fish; LC50 (rainbow trout, 96 h) 7 mg/l, (bluegill sunfish, 96 h) 30 mg/l

**Precaution:** Incompat. with strong oxidizing agents, acids; corrodes mild steel, aluminum, copper, and other metals; reacts vigorously with sodium hypochlorite, may evolve chlorine

**Hazardous Decom. Prods.:** Hazardous combustion prods.: CO<sub>x</sub>, NO<sub>x</sub>, ammonia, SO<sub>x</sub>

**Storage:** Stable under normal storage conditions; maintain pH above 4, protect from frost

#### Proxel® XL2 [Avecia; Avecia Ltd]

**Chem. Descrip.:** 1,2-Benzisothiazolin-3-one aq. sol'n. in propylene glycol

**Uses:** Inhibitor of bacteria, yeast, and fungi; for use in latexes, emulsion paint, aq. slurries, adhesives, tape joint compds., o/w emulsions, paper coating compositions, pesticides, water-based inks, hides and skins; USDA approved for paints used in Federally inspected plants and packing adhesives having min. contact with meat or poultry food prods.; food pkg. adhesives, paper; food-contact slimicide; heat-stable, readily degradable in environment; low corrosivity; no formaldehyde released

**Use Level:** 0.1-0.3% (latexes, emulsion paints), 0.1-0.2% (aq. slurries, pigment disp.), 0.1-0.5% (adhesives, pesticides, tape joint compds., water-based inks), 0.1-0.3% (oil-in-water emulsions, paper coating compositions)

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA 40CFR §180.1001(d); EPA reg. no. 10182-405

**Properties:** Dk. brn. liq.; low odor; sol. in water at use dilutions; sp.gr. 1.09; visc. 10 cps; b.p. 100 C; flash pt. (Seta) > 200 F; pH 12.8; 9% min. act.

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; sl. toxic

**Environmental:** Biodeg.

#### Prox®-Lube SC 5060 [Synthron SA]

**Uses:** Lubricant, visc. stabilizer for paper sticking and coating applics.; reduces deposits during calendaring

#### Prox®-Lube SN 5070 [Synthron SA]

**Uses:** Lubricant, softener for paper sticking and coating applics.; developed for Champion or Massey drying press

#### Prox®-Size A 925 E [Synthron SA]

**Uses:** Surf. sizing agent for paper sticking and coating applics.; food pkg. adhesives; component of paper/paperboard in contact with aq./fatty/dry foods

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180; BGA XXXVI compliance

**Properties:** Anionic

#### Prox®-Size C 902 E [Synthron SA]

**Uses:** Sizing agent for paper sticking and coating applics.; applicable in the mass or as a surf. sealer

**Properties:** Cationic

#### PSA-28 [Songkang Ind. Co.]

**Chem. Descrip.:** Modified styrene-acrylic copolymer

CAS 9010-92-8

**Uses:** Surf. sizing agent for wood-free papermaking; improves printability in ink-jet paper; effective regardless of alum content or pH of stock

**Use Level:** 2-20% of starch wt.

**Properties:** Visc. < 2000 cps; pH 9 ± 1; 40 ± 1% solids

#### PSA-34 [Songkang Ind. Co.]

**Chem. Descrip.:** Modified styrene-acrylic copolymer

CAS 9010-92-8

**Uses:** Surf. sizing agent for wood-free papermaking; improves printability in ink-jet paper; effective regardless of alum content or pH of stock

**Use Level:** 2-20% of starch wt.

**Properties:** Visc. < 2000 cps; pH 9 ± 1; 40 ± 1% solids

#### Pulpsil® 160 C [Wacker-Chemie GmbH]

**Chem. Descrip.:** Polydimethylsiloxane and filler

**Uses:** Antifoam; defoamer in food-contact paper/paperboard; component in paper/paperboard in contact with aq./fatty/dry foods

**Regulatory:** FDA 21CFR §176.170, 176.180, 176.210; BgVV XXXVI compliance

**Properties:** Colorless liq.; mild odor; virtually insol. in water; dens. 0.99-1.04 g/cm<sup>3</sup>; visc. 17,000-23,000 mPa·s; m.p. -45 C; flash pt. > 230 C; ignition pt. > 350 C

**Toxicology:** LD50 (oral, rat) > 20,000 mg/kg, (dermal, rat) > 2000 mg/kg; nonmutagenic; nonteratogenic

**Environmental:** Expected LC50 (fish) > 100 mg/l; do not introduce into sewer systems or in shore waters; not degradable biologically; degradable to a certain extent in abiotic processes

**Hazardous Decom. Prods.:** Above 150 C a small amt. of formaldehyde is released thru oxidation

**Storage:** Keep container tightly closed

#### Pulpsil® 760 E [Wacker-Chemie GmbH]

**Chem. Descrip.:** Polydimethylsiloxane + filler aq. emulsion

**Uses:** Antifoam and drainage aid for pulp washing and screening, bleaching, sewage treatment; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty/dry foods; highly effective

**Use Level:** 0.05-0.3 kg/ton pulp

**Regulatory:** FDA 21CFR §176.170, 176.180, 176.210

*Properties:* Milky wh. liq.; mild odor; completely misc. with water; dens. 1.0 g/cm<sup>3</sup>; visc. 50-500 mPa·s; vapor pressure 23 hPa (20 C); b.p. 100 C (1013 hPa); flash pt. none; pH 6-8; 32-35% solids

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg

*Environmental:* Do not introduce into sewer systems or in shore waters; probably nontoxic to fish

*Hazardous Decomp. Prods.:* Above 150 C a small amt. of formaldehyde is released thru oxidation

*Storage:* 6 mos min. shelf life when stored in tightly closed original containers @ 0-40 C; protect against frost, sun, heat sources

#### Pura-Chem® [Hercules]

*Chem. Descrip.:* Emulsion and dry polymers

*Uses:* Settling agent, sludge dewatering agent for pulp/paper industry

#### PVP K-15 [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Off-wh. powd.; sol. in water and org. solv.; m.w. 8100; bulk dens. 36 lb/ft<sup>3</sup>; 95% min. act.

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### PVP K-15 Sol'n. [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Clear liq.; m.w. 12,000; 28-32% solids

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### PVP K-30 [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Off wh. powd.; sol. in water and many organic solv., incl. alcohols, some chlorinated compds., nitroparaffins, and amines; m.w. 57,500; bulk dens. 28 lb/ft<sup>3</sup>; 95% min. act.

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### PVP K-60 Sol'n. [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Clear liq.; m.w. 400,000; dens. 9.3 lb/gal; 45-49% solids

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### PVP K-90 [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

tography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Off-wh. powd.; m.w. 1,270,000; bulk dens. 20 lb/ft<sup>3</sup>; 95% min. act.

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### PVP K-90 Sol'n. [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Clear liq.; m.w. 1,280,000; 20-24% solids

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### PVP K-120 [ISP]

*Chem. Descrip.:* PVP

CAS 9003-39-8; EINECS/ELINCS 201-800-4

*Uses:* Film-former, protective colloid, suspending agent, binder, stabilizer, detoxicant, complexing agent, dye-receptive resin used in adhesives, ceramics, glass/glass fibers, coatings/inks (pigment dispersant, leveling agent, gloss aid, antiblock), personal care prods. (hair, shave, makeup, bath, skin, dentifrices), household/industrial/institutional cleaners, elec., lithography/photography, textiles, membranes, metallurgy, paper, polymerization, water/waste treatment, oil/gas

*Properties:* Off-wh. powd.; m.w. 2,900,000; 95% min. act.

*Toxicology:* LD50 (oral) > 100 g/kg, (IV) > 10 g/kg; very low acute toxicity

#### Pycal 94 [Uniqema/ICI Surf. Am.]

*Chem. Descrip.:* POE aryl ether

*Uses:* Emulsifier, wetting agent, plasticizer for industrial applics.; plasticizer for wax paper adhesives; solvent for PVAc; thickener for PVAc emulsions; coalescing agent for resin particles in air-drying of resin film

*Properties:* Pale yel. liq.; sol. in water, ether, alcohol, ketone, lower aliphatic ester, and aromatic hydrocarbon solv.; sp.gr. 1.1; visc. ≈ 50 cps; HLB 14; acid no. 2 max.; flash pt. > 300 F; ref. index 1.502; pH 4-6 (50% aq.)

#### Pyrex AMN [BK Giulini Chemie]

*Chem. Descrip.:* Inorg. ammonium salts

*Uses:* Flame retardant for paper, board, and cellulose nonwovens

*Use Level:* 10-12%

*Properties:* Wh. crystals; sol. 500 g/l in water (20 C); bulk dens. 950 kg/m<sup>3</sup>; pH 7 (10%); 100% act.

*Toxicology:* Nontoxic

*Storage:* 1 yr. shelf life in dry conditions

#### Pyrex FA [BK Giulini Chemie]

*Chem. Descrip.:* Ammonium polyphosphate

*Uses:* Flame retardant for paper, board, and cellulose nonwovens

*Use Level:* 7%

*Properties:* Colorless liq.; misc. with water; sp.gr. 1.3; pH 6; 50% act.

*Toxicology:* Nontoxic

*Storage:* 6 mos. shelf life

#### PyroBreak™ EX-13 [Michelman]

*Chem. Descrip.:* Phosphorus-based system with wetting agent

*Uses:* Flame retardant saturant for in-line and off-line applic. to treat paper, paperboard, natural fiber, and wood for paperboard pkg., corrugated paperboard for building materials, industrial prod. structural components, displays, exhibits, etc.; low cost; contains wetting agent to inc. rate of penetration into substrate; glueable; printable; flexible; repulpable; water-based; solv.-free; nonhazardous

*Use Level:* 10-15% (dry wt. basis) on paper/paperboard substrate

*Properties:* 60% solids

#### PyroBreak™ EX-18 [Michelman]

*Uses:* Flame retardant saturant for in-line and off-line applic. to treat paper, paperboard, natural-fiber fabrics, and wood for paperboard pkg., corrugated paperboard for building materials, industrial prod. structural components, displays, exhibits, etc.; glueable; printable; flexible; repulpable; water-based; solv.-free; nonhazardous

*Use Level:* 10-15% (dry wt. basis) on paper/paperboard substrate

*Properties:* 60% solids

#### PyroCide™ II [Michelman]

*Uses:* Flame retardant intumescent coating for paper, paperboard, corrugated

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sheet, and other substrates incl. wood, wood prods., plastics, and films;  
gluable; printable; flexible; repulpable; water-based; solv.-free; non-

hazardous  
*Properties:* Dens. 11 lb/gal

# Q

## Q-Cel® 6019 [PO]

*Chem. Descrip.:* Hollow borosilicate glass microspheres  
*Uses:* Extender/filler for plastics, fiberglass-reinforced plastics, urethane foams, putties, cultured marble, adhesives, automotive repair compds., moldings, thin films, pressure sensitive tapes, paper; lightweight  
*Properties:* Wh. spheres; dens. 0.20 g/cc  
*Toxicology:* Moderately alkaline; prolonged exposure may cause respiratory irritation

## QEMI BSW 8131 [Qemi Int'l.]

*Chem. Descrip.:* Water-based defoamer composed of silicone fluid, hydrophobic particles, and lipophilic surface act. agents  
*Uses:* Defoamer for brown stock washers, starch systems, ground wood, hydropulpers, white water loops, and wastewater applics.; drainage aid for paper applics.; pitch control agent; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210  
*Properties:* Off-wh. to wh. emulsion; sp.gr. 0.98-1.02; visc. 800-1600 cps; pH 7-10

## QEMI BSW 8133 [Qemi Int'l.]

*Chem. Descrip.:* Oil-based defoamer composed of silicone fluid, hydrophobic particles, and lipophilic surface active agents  
*Uses:* Defoamer for brown stock washers, starch systems, ground wood, hydropulpers, white water loops, and wastewater applics.; drainage aid for paper applics.; pitch control agent; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210  
*Properties:* Off-wh. to wh. emulsion; sp.gr. 0.98-1.02; visc. 800-1600 cps; pH 7-10

## QEMI DSR 8116A [Qemi Int'l.]

*Chem. Descrip.:* Low m.w., very high charge dens. polyamine  
*Uses:* Dry str. resin for paper/paperboard, food-contact paper/paperboard in contact with aq./fatty foods; designed for use as part of a two-component system  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* Amber clear liq.; sol. in water; dens. 9.4 ± 0.1 lb/gal; visc. 500-1000 cps; f.p. 20 F; pH 5 ± 1; 50 ± 1% act.; cationic  
*Storage:* 3 mos shelf life; store at 40-90 F; if frozen, thaw and agitate prior to use; store in glass, SS, plastic, or epoxy-lined vessels (avoid aluminum, copper, mild steel equip.)

## QEMI DSR 8117A [Qemi Int'l.]

*Chem. Descrip.:* Med. m.w., low charge dens. polyacrylamide  
 CAS 9003-05-8  
*Uses:* Dry str. resin for paper/paperboard, food-contact paper/paperboard in contact with aq./fatty foods; in conjunction with Qemi DSR 8116A for recycle furnishes; effective under acid or alkaline papermaking conditions  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* Lt. amber liq.; sol. in water; dens. 8.95 ± 0.1 lb/gal; visc. 5000-11,000 cps; f.p. 3 F; pH 5 ± 1; 22 ± 1% act.; anionic  
*Storage:* 3 mos shelf life; store at 40-90 F; if frozen, thaw and agitate prior to use; store in glass, SS, plastic, or epoxy-lined vessels (avoid aluminum and iron equip.)

## QEMI MDF 8019 [Qemi Int'l.]

*Chem. Descrip.:* Water-based defoamer composed of silicone fluid, hydro-

phobic particles, and lipophilic surface act. agents  
*Uses:* Machine defoamer for starch systems, coters, ground wood, hydropulpers, white paper white water loops, and wastewater applics.; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods; no reportable materials (i.e., paraffinic or naphthenic oils); no adverse effects on sizing  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210  
*Properties:* Wh. to off-wh. emulsion; sp.gr. 0.98-1.02; visc. 800-1600 cps; pH 7-10

## QEMI MDF 8021 [Qemi Int'l.]

*Chem. Descrip.:* Water-based defoamer composed of silicone fluid, hydrophobic particles, and lipophilic surface act. agents  
*Uses:* Machine defoamer for starch systems, coters, ground wood, hydropulpers, white paper white water loops, and wastewater applics.; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods; no reportable materials (i.e., paraffinic or naphthenic oils); no adverse effects on sizing  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210  
*Properties:* Wh. to off-wh. emulsion; sp.gr. 0.98-1.02; visc. 800-1600 cps; pH 7-10

## QEMI MDF 8023 [Qemi Int'l.]

*Chem. Descrip.:* Water-based defoamer composed of surface act. agents  
*Uses:* Defoamer for paper machines, in starch and coating systems, and in wastewater applics.; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods; no reportable materials (i.e., paraffinic or naphthenic oils); no adverse effects on sizing  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210  
*Properties:* Off-wh. tan emulsion; sp.gr. 0.98-1.02; visc. 800-1200 cps; pH 6.5-9.0

## QEMI MDF 8831 [Qemi Int'l.]

*Chem. Descrip.:* Water-based emulsion defoamer  
*Uses:* Machine defoamer for paper applics., effluent treatment of surf. foam; handles surf. foam as well as trapped air  
*Properties:* Wh. emulsion; sp.gr. 0.95; dens. 8.0 lb/gal; f.p. near 0 C; pH 7.5-8.5  
*Storage:* 6 mos shelf life

## QEMI Q-AQ-60 [Qemi Int'l.]

*Chem. Descrip.:* 60% Anthraquinone micronized aq. slurry, ultrahigh purity  
 CAS 84-65-1; EINECS/ELINCS 201-549-0  
*Uses:* Alkaline pulp catalyst enhancing yield and accelerating delignification of kraft pulps, resulting in increased digester capacity, odor abatement, decreased liquor chemical usage, etc.  
*Properties:* < 1.5 μ mean particle size; dens. 1.22; visc. < 400 cps; pH 8-10; 60% min. assay  
*Toxicology:* Potential skin irritant

## QEMI SSDF 8013 [Qemi Int'l.]

*Chem. Descrip.:* Water-based defoamer composed of silicone fluid, hydrophobic particles, and lipophilic surface act. agents  
*Uses:* Defoamer for starch systems, coters, ground wood, hydropulpers, white paper white water loops, and wastewater applics.; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods; no reportable materials (i.e., paraffinic or naphthenic oils); no adverse effects on sizing  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210

*Properties:* Wh. to off-wh. emulsion; sp.gr. 0.98-1.02; visc. 800-1200 cps; pH 7-9

**QEMI WSR 8122A** [Qemi Int'l.]

*Chem. Descrip.:* Highly charged cationic thermosetting polyamine resin

*Uses:* Wet str. resin for acid or alkaline papermaking, paper/paperboard, virgin and recycled stocks, fine paper, specialty paper, food-contact paper/paperboard in contact with aq./fatty foods; inc. wet tens. and wet tear props.; effective at pH 4-9; retains and inc. efficiency of internal additives

*Regulatory:* FDA 21CFR §176.170

*Properties:* Amber clear liq.; sol. in water; dens.  $9.0 \pm 0.2$  lb/gal; visc. 200-600 cps; f.p. 32 F; pH  $3.2 \pm 0.5$ ;  $30 \pm 0.5\%$  act.; cationic

*Storage:* 3 mos shelf life; store at 40-90 F; if frozen, thaw and agitate prior to use; store in glass, SS, plastic, or epoxy-lined vessels (avoid aluminum and iron equip.)

**QEMI WSR 8123A** [Qemi Int'l.]

*Chem. Descrip.:* Highly charged cationic thermosetting polyamine resin

*Uses:* Wet str. resin for acid or alkaline papermaking, paper/paperboard, virgin and recycled stocks, furnishes having high cationic demand incl. unbleached kraft, corrugating medium, and recycle furnishes, and food-contact paper/paperboard in contact with aq./fatty foods; inc. wet tens. and wet tear props.; effective at pH 4-9; retains and inc. efficiency of internal additives

*Regulatory:* FDA 21CFR §176.170

*Properties:* Dk. amber liq.; sol. in water; dens.  $9.0 \pm 0.1$  lb/gal; visc. 50-250 cps; f.p. 32 F; pH  $5.0 \pm 1$ ;  $30 \pm 0.5\%$  act.; cationic

*Storage:* 3 mos shelf life; store at 40-90 F; if frozen, thaw and agitate prior to use; store in glass, SS, plastic, or epoxy-lined vessels (avoid aluminum and iron equip.)

**Qemiban** [Qemi Int'l.]

*Chem. Descrip.:* Water-based defoamer composed of lipophilic and hydrophobic surface act. agents

*Uses:* Defoamer for paper machine white water loops, food-contact paper/paperboard, and wastewater applics.; component of paper/paperboard in contact with aq./fatty foods; no reportable materials (i.e., paraffinic or naphthenic oils)

*Regulatory:* FDA 21CFR §176.170, 176.210

*Properties:* Wh. emulsion; sp.gr. 0.98-1.02; visc. 800-1200 cps; pH 7-9

**Qemibrom L-27** [Qemi Int'l.]

*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide (20%)

CAS 10222-01-2

*Uses:* Biocide for control of bacteria, fungi, and yeast in pulp, paper, and paperboard mills; fast-acting; nonoxidizing

*Use Level:* 0.15-0.50 lb/ton of pulp/paper (dry basis)

*Properties:* Lt. yel. to amber liq.; mild antiseptic odor; misc. with water; bulk dens. 10.2-10.7 lb/gal; vapor pressure  $2.2 \times 10^5$  mm Hg; f.p.  $\approx -50$  C; b.p.  $> 120$  C (act. dec.); pour pt.  $\approx -45$  C; flash pt. (COC) none; pH 2-4

*Environmental:* Outstanding environmental props.; nonpersistent; degrades to naturally occurring prods.

*Storage:* 12 mos shelf life; store below 35 C in original self-venting containers out of direct sunlight

**Qemibrom L-56** [Qemi Int'l.]

*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide (5%)

CAS 10222-01-2

*Uses:* Biocide for control of bacteria, fungi, and yeast in pulp, paper, and paperboard mills; fast-acting; nonoxidizing

*Use Level:* 0.06-0.21 gal/ton of pulp/paper (dry basis)

*Properties:* Lt. yel. to amber liq.; mild antiseptic odor; misc. with water; bulk dens. 9.1-9.7 lb/gal; vapor pressure  $2.2 \times 10^5$  mm Hg; f.p.  $\approx -50$  C; b.p.  $> 120$  C (act. dec.); pour pt.  $\approx -45$  C; flash pt. (COC) none; pH 2-4

*Environmental:* Outstanding environmental props.; nonpersistent; degrades to naturally occurring prods.

*Storage:* 12 mos shelf life; store below 35 C in original self-venting containers out of direct sunlight

**Qemicide DTC-35** [Qemi Int'l.]

*Chem. Descrip.:* Sodium dimethyldithiocarbamate (15-16.6%), nabam (15-16.6%) in inert ingreds. (66.8-70%)

*Uses:* Bactericide and fungicide for paper mills, pulp mills; slimicide for machines which make food pkg. paper/paperboard

*Use Level:* 0.1-2.0 lb/ton finished paper

*Properties:* Yel.-grn. liq.; sulfurous odor; dens. 1.175 g/cc (20 C); pH 10.5-12.4

*Storage:* Store at mod. temps.

**Qemicide DTC-1050** [Qemi Int'l.]

*Chem. Descrip.:* Potassium dimethyldithiocarbamate (50-51%)

CAS 128-03-0

UN No. 1760

*Uses:* Bactericide and fungicide for industrial recirculating water cooling towers, evaporator condensers, paper mills, pulp mills, sec. and tert. petrol. recovery, and drilling fluids; highly effective; not approved for use in potable water or where contamination of potable water may occur

*Regulatory:* EPA reg. no. 31910-12-63684

*Properties:* Yel.-grn. liq.; dens. 1.25 g/cc (20 C); pH 12-14

*Toxicology:* Causes eye and skin irritation; harmful if swallowed; avoid contamination of food

*Precaution:* Corrosive liq.

*Storage:* Store at mod. temps., 33-110 F

**Qemicide MBT-10** [Qemi Int'l.]

*Chem. Descrip.:* Methylene bithiocyanate aq. microemulsion

CAS 6317-18-6

*Uses:* Biocide for cooling water and paper industries; slimicide in paper mills; cost effective; long term performance; no hazardous org. solvs.

*Use Level:* 2-8 oz/ton of finished paper

*Regulatory:* EPA approved

*Properties:* Wh. microemulsion; sl. pungent odor; m.w. 130 (of act.); sp.gr. 1.046 (15.5 C); visc. 150-250 cps; flash pt.  $> 67$  C

**Qemidink 8001** [Qemi Int'l.]

*Chem. Descrip.:* Org. cleaner composed of proprietary blend of org. surface act. agents and solvent

*Uses:* Deinking aid to remove and disperse inorg. and org. paper machine additives as well as common org. contaminants from pulping process; controls common sulfite, groundwood, and kraft pulping pitch aids; degreaser; release agent when applied continuously on tissue machines; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods; nonalkaline; nonfoaming

*Use Level:* 0.25-2.0 lb/ton (at hydropulper), 0.01-0.1% (fed continuously thru showers), 5-100% (batch and general cleaning)

*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210

*Environmental:* Biodeg.

**Qemidink 8002** [Qemi Int'l.]

*Chem. Descrip.:* Org. surfactant

*Uses:* Deinking aid, flotation aid for starch systems, coters, ground wood, hydropulpers, white paper white water loops, and wastewater applics.; softener in tissue prod.; defoamer in food-contact paper/paperboard; component of paper/paperboard in contact with aq./fatty and dry foods; inc. flotation cell effectiveness; nonalkaline; low foaming

*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210

*Properties:* Amber liq.; sp.gr. 0.942 g/ml; visc. 100-200 cps; flash pt.  $> 450$  F

*Environmental:* Biodeg.

**Qemidink 8787** [Qemi Int'l.]

*Chem. Descrip.:* Polyalkylene oxide surfactant

*Uses:* Surfactant, deinking aid for paper, optimizing brightness and ink removal in combination flotation/washing systems; effective in mills having hard or soft water; zero VOC; fully compat. with all typ. deinking chems.; effective over broad pH (8-11) and temp. (90-129 F) ranges; noncorrosive; extremely stable

*Use Level:* 4-6 lb/ton air-dried fiber (newsprint/magazine and wastepaper)

*Regulatory:* DOT nonhazardous

*Properties:* Colorless clear liq.; dens. 8.5 lb/gal; visc. 435 cps; f.p. 0 C; flash pt. (PMCC) nonflamm.; pH 5.5 (1%); nonionic

*Toxicology:* As with any detergent, care should be taken to avoid contact with eyes or skin due to natural degreasing props.

*Storage:* 6 mos shelf life; store and use above 60 F due to inc. visc. at lower temps.; avoid freezing; fully functional once completely thawed; avoid mild steel tanks

**Qemifeltwash 8020A** [Qemi Int'l.]

*Chem. Descrip.:* Solvent/surfactant blend

*Uses:* Solvent/surfactant for continuous cleaning of wet felts in paper machine press sections, e.g., in newsprint or mech. furnish sheets where pitch control is very important; acidic version; applied diluted at 0.1-1.0% conc.

*Use Level:* 3-7 lb/ton paper

*Properties:* Pale yel. clear liq.; sol. in water; sp.gr. 1.03; pH 2.4 (5%)

*Storage:* Store at 40-90 F; keep containers closed; store away from heat or ignition sources

**Qemifeltwash 8020N** [Qemi Int'l.]*Chem. Descrip.:* Solvent/surfactant blend*Uses:* Solvent/surfactant for continuous cleaning of wet felts in paper machine press sections, esp. on brn. paper, linerboard; neutral version; applied diluted at 0.1-1.0% conc.*Use Level:* 3-7 lb/ton paper*Properties:* Colorless clear liq.; org. solv. odor; disp. in water; sp.gr. 1.0; f.p. < 0 C; pH 6.5 (5%)*Precaution:* May contain trace amts. of ethylene oxide, which may accumulate in the headspace of shipping/storage containers*Storage:* Store at 40-90 F; keep containers closed; store away from heat or ignition sources**Qemifloc 707** [Qemi Int'l.]*Chem. Descrip.:* Polymer*Uses:* Coagulant for difficult wastewater applics. in paper, tanneries, steel furniture mfg., oily/greasy effluents, poultry processing plants, automotive mfg., textile industry; useful as primary or sec. coagulant or with anionic polymers; exc. solid-liq. separation; rapid destruction of o/w emulsions; reduces sludge; effective in low and high suspended solids effluents; cost effective over wide range of pH, temp., etc.*Properties:* Dk. brn. visc. liq.; sol. in water; sp.gr. 1.33-1.35; visc. 1000-2000 cps; f.p. 20 F; pH 4-5; 50% act.; cationic*Toxicology:* Mildly corrosive; avoid contact with eyes and skin; do not ingest*Precaution:* Mildly acidic; mildly corrosive to steel, aluminum, and copper alloys; extremely high temps. (500 F) and highly alkaline conditions may lead to prod. degradation**Qemifloc 8086** [Qemi Int'l.]*Chem. Descrip.:* Emulsion polymer*Uses:* Coagulant; retention aid for solid-liq. separation processes; clarifier and sludge dewatering aid in industrial and municipal water treatment processes, paper mill effluent treatment; flocculant in filter press and centrifuge operations; effective over wide range of operating conditions; exc. resist. to chlorine*Use Level:* 0.1%*Properties:* Milky wh. o/w emulsion; high m.w.; bulk dens. 8.6-8.7 lb/gal (80 F); visc. 400-1000 cps (80 F); f.p. 10 F; cationic*Toxicology:* Avoid exposure in confined areas*Precaution:* Water should never be added to an o/w emulsion (an intractable gel is formed); spills are very slippery; contains petrol. distillates*Storage:* 6 mos-1 yr shelf life; store at 40-90 F; if frozen, warm and agitate prior to use; will settle sl. on standing; mild agitation restores homogeneity; store empty closed containers away from heat/flame**Qemifloc AH 1000** [Qemi Int'l.]*Chem. Descrip.:* High m.w. polymer*Uses:* Flocculant for paper applics.*Use Level:* 3-5 g/l working conc.*Properties:* Wh. powd.; 2% < 100 mesh; bulk dens. 0.80; visc. 1800 cps (5 g/l); anionic*Storage:* Shelf life 24 mos in closed containers when stored indoors at stable temps. between 5 and 30 C**Qemifloc AH 1054** [Qemi Int'l.]*Chem. Descrip.:* Polymer*Uses:* Flocculant for paper applics.*Use Level:* 3-5 g/l working conc.*Properties:* Wh. powd.; 1.25 mm mesh size; bulk dens. 0.80; visc. 1700 cps (5 g/l); anionic*Precaution:* Spillages are slippery and may be hazardous if spread on floor*Storage:* Hygroscopic; store indoors in dry place below 35 C**Qemifloc CEPG 164** [Qemi Int'l.]*Chem. Descrip.:* Polyacrylamide emulsion

CAS 9003-05-8

*Uses:* Retention aid for liq.-solid separation processes, paper, belt filter/screw press/centrifuge dewatering, dissolved air flotation, gravity settling; flocculant; coagulant; clarifier for water, influent, effluent; thickener*Use Level:* 10 g/l max. use conc.*Properties:* Milky translucent liq.; med. m.w.; bulk dens. 1.02; visc. 1200 cps; 39% act.; cationic*Storage:* 6 mos stability; store @ 0-35 C**Qemifloc FL 61** [Qemi Int'l.]*Chem. Descrip.:* Highly charged, low m.w. polymer*Uses:* Flocculant, coagulant for liq.-solids separation processes, gravity settling, raw water clarification, potable water treatment, filtration, wastewater

treatment; total or partial replacement for inorg. salts; pourable, easy to apply; economical; effective over wide pH range

*Use Level:* 1-20 mg/l (raw water clarification, wastewater treatment), 5-20 mg/l (oil wastes)*Regulatory:* NSF approved for potable water treatment (20 mg/l max. conc.)*Properties:* Reddish-amber liq.; sol. in water; sp.gr. 1.14-1.16 g/ml; visc. 250-400 cps; f.p. 20 F; pH 5.5-6.5; cationic*Environmental:* BOD<sub>5</sub> 100,000 mg/l; COD 200,000 mg/l*Storage:* 12 mos shelf life @ 10-40 C in SS, epoxy or plastic-lined carbon steel, FRP, or PE containers; avoid iron or aluminum for storage/use**Qemifloc FL 71** [Qemi Int'l.]*Chem. Descrip.:* Highly charged polymer*Uses:* Coagulant for liq.-solids separation processes, water clarification where high color and/or low turbidity are prevalent, potable water treatment; used alone or with a flocculant*Regulatory:* NSF approved for potable water treatment (to 20 ppm)*Properties:* Amber liq.; sp.gr. 1.14-1.16 g/ml; visc. 650-1000 cps; f.p. 20 F; pH 5.5-6.5; cationic*Storage:* 1 yr shelf life; store @ 0-35 C in SS, epoxy or plastic-lined carbon steel, FRP, or PE containers; avoid iron or aluminum equip.**Qemifloc FL 81** [Qemi Int'l.]*Chem. Descrip.:* Highly charged high m.w. polymer*Uses:* Coagulant; flocculant; clarification aid; coagulant in potable water treatment; pourable, easy to apply; economical; effective at low dosages, over wide pH, and in chlorinated waters; noncorrosive*Regulatory:* NSF approved for potable water treatment (to 20 mg/l)*Properties:* Reddish-amber liq.; sp.gr. 1.15-1.17 g/ml; visc. 5000-9000 cps; f.p. -18 C; pH 4-5; cationic*Storage:* 1 yr shelf life; store @ 10-40 C in SS, epoxy or plastic-lined carbon steel, FRP, or PE containers; avoid iron or aluminum equip.**Qemireten 8015** [Qemi Int'l.]*Chem. Descrip.:* Low m.w., very high charge dens. liq.*Uses:* Coagulant, retention aid for industrial liq.-solid separation processes, influent clarification, oily wastewater separation, paper recycle clarification, sludge dewatering, pitch control, stickies control, and color removal; component of paper/paperboard in contact with aq./fatty food*Regulatory:* FDA 21CFR §173.60, 176.170; NSF approved for potable water treatment*Properties:* Lt. amber clear liq.; sol. in water; dens. 9.6 ± 0.1 lb/gal; visc. 500-1000 cps; f.p. ≤ 20 F; pH 5-6; cationic*Storage:* 1 yr min. shelf life in unopened containers; store in cool area; protect from freezing; if frozen, warm to 40-90 F and agitate prior to use; prod. rotation rec.; avoid Al, Cu, or mild steel equip.**Qemisoft 8075** [Qemi Int'l.]*Chem. Descrip.:* Fatty acids and quat. amines blend with 15% IPA/9% water*Uses:* Tissue softener, release agent, antistat, and repulping aid for paper industry; provides slick hand*Use Level:* 0.07-0.14 gal/ton of paper*Properties:* Wh. soft solid @ 25 C, easily handled at 46-48 C; easily disp. in hot water; m.w. 569; bulk dens. 7.12 lb/gal; flash pt. 68 F; pH 6.9; 74-77% fatty acids/quat. amines, 15% IPA, 9% water, 2.5% max. amines/amine hydrochloride; highly cationic*Storage:* Store in cool, dry place; keep closed**Qemisoft 8100** [Qemi Int'l.]*Chem. Descrip.:* Quat. ammonium compd.*Uses:* Tissue softener for paper industry, cotton, polyester, and wool giving very soft full handle; compat. with nonionic and cationic chems.*Use Level:* 1-2% on wt. of goods*Properties:* Wh. lysh. pearls; disp. in cold or warm water; pH 5.0 ± 0.5 (5 g/l H<sub>2</sub>O); 100% act.; cationic**Qemisperse 8845** [Qemi Int'l.]*Chem. Descrip.:* Org.*Uses:* Pitch dispersant, pitch control agent for use in thick stock to limit pulp defects and stock system deposition, for kraft and newsprint furnish systems*Properties:* Clear pumpable liq.; sl. odor; sol. in water; sp.gr. 1.18; pH 7 (1%)*Storage:* Store in cool, dry area**QO® Tetrahydrofurfuryl Alcohol (THFA®)** [Penn Spec. Chems.]*Chem. Descrip.:* Tetrahydrofurfuryl alcohol

CAS 97-99-4; EINECS/ELINCS 202-625-6

*Uses:* High boiling solvent and carrier for pesticides; FDA approved for use



- in paper processing; chemical intermediate; also in industrial and consumer cleaners, leather and textile dyeing, epoxies, coatings, inks, paints, and adhesives; plasticizer and vinyl stabilizer carrier  
*Regulatory:* FDA compliance  
*Properties:* Colorless liq.; sol. in water; m.w. 102.13; sp.gr. 1.05 (20 C); dens. 8.79 lb/gal (20 C); visc. 6.24 cps (20 C); f.p. < -80 C; b.p. 178 C; flash pt. (TCC) 74 C; ref. index 1.4520 (20 C)  
*Environmental:* Biodeg.
- QS 1162** [Mace Adhesives & Coatings]  
*Chem. Descr.:* Fully-reacted aliphatic PU in toluene/isopropanol  
*Uses:* For formulation of durable functional and decorative finishes for flexible to rigid substrates such as woven and nonwoven textiles, leather, plastic, wood, paper, and paperboard; readily pigmentable  
*Properties:* Clear visc. liq.; dens. 7.5 lb/gal; visc. 30,000 cps (70 F); VOC 5.3 lbs/gal; 30% solids  
*Toxicology:* Avoid prolonged or repeated contact with skin  
*Storage:* Store @ 40-100 F; keep away from all sources of ignition
- Q-Thane® QW20-1** [K.J. Quinn]  
*Chem. Descr.:* Aliphatic polyester urethane  
*Uses:* Water-based disp. for formulation of tough coatings for plastics, metals, and woods; rec. for flexible films (vinyl, polyester), floor coatings, wood coatings, and plastic, metal, and paper coatings; high gloss and exc. abrasion resist.  
*Properties:* Visc. 25-550 cps; VOC 317 g/l; pH 7.5 ± 0.5; tens. str. 3600; elong. 200%; hardness (Sward) 9; 33 ± 1% solids
- Q-Thane® QW28** [K.J. Quinn]  
*Chem. Descr.:* Aliphatic polyester urethane aq. disp.  
*Uses:* Used for flexible substrates that require tough durable coating; also for industrial bonding, plastic and paper coatings  
*Properties:* Translucent; visc. 25-500 cps; VOC 270 g/l; pH 7.75 ± 0.75; tens. str. 5000; elong. 550%; hardness (Sward) 10; 36 ± 1% solids
- Q-Thane® TE2028** [K.J. Quinn]  
*Chem. Descr.:* Acrylic emulsion  
*Uses:* For use as coating for fabrics, nonwovens, and paper to provide chem., water, and heat resist.; compat. with Q-Thane QWs to provide exc. crosslinking  
*Properties:* PH 6.2 ± 0.25; 50% ± 1 solids
- Quenchophor™ AK 01 Liq.** [Bayer/Industrial Chems.]  
*Chem. Descr.:* Polymer  
*Uses:* Fluorescence quenching agent for papers contng. fluorescent whitening agents  
*Properties:* Liq.; cationic
- Quenchophor™ E1006 Liq.** [Bayer/Industrial Chems.]  
*Chem. Descr.:* Polymer  
*Uses:* Fluorescence quenching agent for papers contng. fluorescent whitening agents  
*Properties:* Liq.; cationic
- Quenchophor™ E1025 Liq.** [Bayer/Industrial Chems.]  
*Chem. Descr.:* Polymer  
*Uses:* Fluorescence quenching agent for papers contng. fluorescent whitening agents  
*Properties:* Liq.; cationic
- Querton 442** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Dihydrogenated tallow dimethyl ammonium chloride  
CAS 61789-80-8; EINECS/ELINCS 263-090-2  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for commercial laundry and textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays
- Querton 442-11** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Dihydrogenated tallow dimethyl ammonium chloride  
CAS 61789-80-8; EINECS/ELINCS 263-090-2  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for commercial laundry and textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays  
*Properties:* Off-wh. paste; sol. in warm ethanol, IPA, or similar solvs.; disp. in hot water; dens. 860 kg/m<sup>3</sup>; visc. 90 mPa·s; solid. pt. 35-40 C; pH 6-8 (5% in IPA/water 50/50); 76-78.5% act.
- Querton 442-82** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Dihydrogenated tallow dimethyl ammonium chloride  
CAS 61789-80-8; EINECS/ELINCS 263-090-2  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for consumer rinse cycle softeners, commercial laundry, textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays  
*Properties:* Off-wh. paste; sol. in warm ethanol, IPA, similar solvs.; disp. in hot water; dens. 860 kg/m<sup>3</sup>; visc. 150 mPa·s; solid. pt. 35-40 C; pH 6-8 (5% in IPA/water 50/50); 81-83% act.
- Querton 442E** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Dihydrogenated tallow dimethyl ammonium chloride  
CAS 61789-80-8; EINECS/ELINCS 263-090-2  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for consumer rinse cycle softeners, commercial laundry, textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays  
*Properties:* Off-wh. paste; sol. in warm ethanol, IPA, similar solvs.; disp. in hot water; dens. 860 kg/m<sup>3</sup>; visc. 50 mPa·s; solid. pt. 30 C; pH 6-9 (5% in IPA/water 50/50); 75-77% act.
- Querton 442H** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Dihydrogenated tallow dimethyl ammonium chloride  
CAS 61789-80-8; EINECS/ELINCS 263-090-2  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for consumer rinse cycle softeners, commercial laundry, textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays  
*Properties:* Off-wh. paste; sol. in warm ethanol, IPA, similar solvs.; disp. in hot water; dens. 860 kg/m<sup>3</sup>; visc. 50 mPa·s; solid. pt. 30 C; pH 6-9 (5% in IPA/water 50/50); 75-77% act.
- Querton 442P** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Di(C12-20 alkyl) dimethylammonium chloride  
CAS 68514-95-4  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for consumer rinse cycle softeners, commercial laundry, textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays  
*Properties:* Off-wh. paste; sol. in warm ethanol, IPA, similar solvs.; disp. in hot water; dens. 860 kg/m<sup>3</sup>; visc. 50 mPa·s; solid. pt. 30 C; pH 6-9 (5% in IPA/water 50/50)
- Querton 442P-11** [Akzo Nobel Surf. Chem. AB]  
*Chem. Descr.:* Di(C12-20 alkyl) dimethylammonium chloride  
CAS 68514-95-4  
*Uses:* Imparts soft feel and antistatic props. to textile softeners for consumer rinse cycle softeners, commercial laundry, textile mfg. applics., for hair conditioners, paper chemicals; mfg. of organoclays  
*Properties:* Off-wh. paste; sol. in warm ethanol, IPA, similar solvs.; disp. in hot water; dens. 860 kg/m<sup>3</sup>; visc. 90 mPa·s; solid. pt. 35-40 C; pH 6-8 (5% in IPA/water 50/50); 76-78.5% act.
- Quilon® C** [DuPont; DuPont Canada]  
*Chem. Descr.:* Chrome complex sol'n. in IPA  
*Uses:* Water repellent and release agent used for water-repellent pkg. materials, food pkg., grease-resistant and release paper when used with PVA, water-repellent nonwoven fabrics, adhesive tapes, release films; insolubilizer for paper coatings, glass fiber coatings; water repellent, tanning agent, lubricant for leather, suede, feathers  
*Properties:* Blue-grn. liq.; alcoholic odor; b.p. 82 C; water-sol.; dens. 0.97 g/ml; flash pt. 4 C (TOC); 5.7% Cr; 7.8% Cl
- Quilon® H** [DuPont; DuPont Canada]  
*Chem. Descr.:* Chrome complex sol'n. in IPA  
*Uses:* Water repellent and release agent used on paper/paperboard for water-repellent pkg. materials, food pkg., grease-resistant and release paper when used with PVA, water-repellent coatings and adhesives, water- and stain-resistant leather (shoes, golf bags, etc.), colorfast, water-repellent suede (dry-cleanable); insolubilizer for adhesives, films, protein binders, and inks  
*Properties:* Dk.-grn. liq.; alcoholic odor; b.p. 82 C; water-sol.; dens. 1.04 g/ml; flash pt. -3 C (TOC); 9.2% Cr; 12.6% Cl
- Quilon® L** [DuPont; DuPont Canada]  
*Chem. Descr.:* Chrome complex sol'n. in IPA  
*Uses:* Water repellent and release agent used on paper/paperboard for water-repellent pkg. materials, food pkg., grease-resistant and release paper when used with PVA, release and grease-crawl-resist. paper for industrial release sheets for prep. of plastic laminates, food separators and pan liners, separator sheets for pressure-sensitive tapes and labels, water-repellent coatings and adhesives  
*Regulatory:* FDA approved for food pkg.  
*Properties:* Dk.-grn. liq.; alcoholic odor; b.p. 82 C; water-sol.; dens. 1.03 g/ml; flash pt. -2 C (TOC); 9.2% Cr; 12.7% Cl
- Quilon® S** [DuPont; DuPont Canada]  
*Chem. Descr.:* Chrome complex sol'n. in IPA  
*Uses:* Water repellent and release agent used for release and grease-crawl-

resistant papers (industrial release sheets for prep. of plastic laminates, food separators and pan liners, separator sheets for pressure-sensitive tapes and labels), water-repellent pkg. materials, food pkg., grease-resistant and release paper when applied with PVA, water-repellent coatings and adhesives; insolubilizer for adhesives, films, protein binders, and inks

*Properties:* Dk.-grn. liq.; alcoholic odor; b.p. 82 C; water-sol.; dens. 0.95 g/ml; flash pt. 2 C (TOC); 5.7% Cr; 7.8% Cl

**Quso® G35, G38, WR55, WR83** [Degussa-Hüls]

*Chem. Descrip.:* Precipitated silica

CAS 1343-98-2; EINECS/ELINCS 215-683-2

*Uses:* Thickener for pastes, creams, lotions in cosmetics and toiletries; suspending agent; improves free-flowing chars. of fine powds.; defoamer for pulp/paper

*Properties:* Microfine; sol. in hot, strong alkaline sol'ns.

# R

## Rad-Cure 106A [Rad-Cure]

*Uses:* UV-curable, heat-sealable adhesive coating providing exc. results when cured on paper or porous substrates for subsequent thermal sealing to glass, aluminum, and steel; high gloss, nonyel. appearance

*Properties:* Gardner 1-2 clear liq.; moderate, musty acrylate odor (uncured), mild sweet odor (cured); dens. 9.0 lb/gal; visc. 150-250 cps; 100% solids

## Rad-Cure 106B [Rad-Cure]

*Uses:* UV-curable, heat-sealable blister coating for blister card applics., producing a paper tearing bond when heat sealed to vinyl blisters; high gloss, nonyel. appearance; also seals well to itself and to most papers and some other plastics

*Properties:* Light hazy liq.; moderate, musty acrylate odor (uncured), mild sweet odor (cured); dens. 9.0 lb/gal; visc. 650-950 cps; 100% solids

## Rad-Cure 106S [Rad-Cure]

*Uses:* UV-curable, heat-sealable adhesive coating intended primarily for plastic-to-plastic applics., and can be cured on paper, vinyl, Lexan, Mylar, and some other plastics; high gloss, nonyel. appearance; cured adhesive has exc. seal props.

*Properties:* Lt. hazy liq.; moderate, camphor-like odor (uncured), mild sweet odor (cured); dens. 9.0 lb/gal; visc. 250-350 cps; 100% solids

## Radiaflot® [Atofina]

*Chem. Descrip.:* Surfactant

*Uses:* Dispersant for pulp, deinking; flotation collector; foam regulator

*Environmental:* Biodeg.

## Raisaccel 2510-L3 [Vinings Ind.]

*Chem. Descrip.:* Blend of surfactants and anthraquinone

*Uses:* Pulping catalyst; improves pulp yield, str., and uniformity; reduces the K number, the rejects, and the usage rate of pulping chems.

## Rai-X-Foam [Vinings Ind.]

*Uses:* Defoamer for pulp/paper

## Ralufon® EA 15-90 [Raschig; Raschig AG]

*Chem. Descrip.:* 2-Ethylhexanol, ethoxylated, sulfopropylated  
 CAS 154906-10-2

*Uses:* Surfactant used in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; wetting agent; solubilizer for hardly sol. nonionics; low-foaming; long service life due to inherent stability; hydrolysis-resist. over wide pH range; no cloud pt.

*Properties:* Liq.; completely misc. in water; pH 5-9; 70% min. act.; anionic

## Ralufon® F3-13 [Raschig]

*Chem. Descrip.:* Alkanol polyethylene oxide sulfopropyl ether, potassium salt  
*Uses:* Surfactant used in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc. in water; 70% min. act.; anionic

## Ralufon® F4-I [Raschig; Raschig AG]

*Chem. Descrip.:* Isotridecyl alcohol ethoxylate (4 mole) sulfopropyl ether, potassium salt  
 CAS 119481-70-8

*Uses:* Surfactant for cleansers, emulsions, electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc. in water; 70% min. act.; anionic

## Ralufon® F5-13I [Raschig; Raschig AG]

*Chem. Descrip.:* Pentaethylene glycol- $\alpha$ -alkyl (C13-C15) alcohol- $\omega$ -(3-sulfopropyl)-diether  
 CAS 119481-71-9

*Uses:* Surfactant for cleansers, emulsions, electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc. in water; 70% min. act.; anionic

## Ralufon® F7-13 [Raschig; Raschig AG]

*Chem. Descrip.:* Heptaethylene glycol- $\alpha$ -alkyl (C13-C15) alcohol- $\omega$ -(3-sulfopropyl)-diether  
 CAS 119481-71-9

*Uses:* Surfactant for cleansers, emulsions, electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc. in water; 70% min. act.; anionic

## Ralufon® F11-13 [Raschig; Raschig AG]

*Chem. Descrip.:* Undecaethylene glycol- $\alpha$ -alkyl (C13-C15) alcohol- $\omega$ -(3-sulfopropyl)-diether  
 CAS 119481-71-9

*Uses:* Surfactant for cleansers, emulsions, electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc. in water; 70% min. act.; anionic

## Ralufon® N3.5 [Raschig]

*Chem. Descrip.:* Nonylphenol polyethylene oxide sulfopropyl ether, potassium salt

*Uses:* Surfactant, wetting agent, emulsifier in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc.; 70% min. act.; anionic

## Ralufon® N6 [Raschig]

*Chem. Descrip.:* Nonylphenol polyethylene oxide sulfopropyl ether, potassium salt

*Uses:* Surfactant, wetting agent, emulsifier in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free

*Properties:* Paste; completely misc.; 70% min. act.; anionic

## Ralufon® N9 [Raschig; Raschig AG]

*Chem. Descrip.:* Polyethylene glycol- $\alpha$ -(4-nonylphenyl)- $\omega$ -3-sulfopropyl diether, potassium salt  
 CAS 119438-10-7

*Uses:* Surfactant, wetting agent, emulsifier in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensi-

- tive to high electrolyte concs.; resist. in acid and basic media; completely salt-free  
*Properties:* Paste; completely misc.; 70% min. act.; anionic
- Ralufon® N10** [Raschig]  
*Chem. Descrip.:* Nonylphenol polyethylene oxide sulfopropyl ether, potassium salt  
*Uses:* Surfactant, wetting agent, emulsifier in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free  
*Properties:* Paste; completely misc.; 70% min. act.; anionic
- Ralufon® N20-90** [Raschig; Raschig AG]  
*Chem. Descrip.:* Polyethylene glycol- $\alpha$ -(4-nonylphenyl)- $\omega$ -3-sulfopropyl diether, potassium salt  
 CAS 119438-10-7  
*Uses:* Surfactant, wetting agent, emulsifier in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper and textile applics.; high foaming power; stable against alkaline earth ions (hard water); insensitive to high electrolyte concs.; resist. in acid and basic media; completely salt-free  
*Properties:* Paste; completely misc.; anionic
- Ralufon® NAPE 14-90** [Raschig; Raschig AG]  
*Chem. Descrip.:* Sulfoalkylated polyalkylated  $\beta$ -naphthol, potassium salt  
 CAS 120478-49-1  
*Uses:* Surfactant, wetting agent, emulsifier used in electroplating baths, metal cleaners, tert. oil recovery, emulsion polymerization, paper, leather, and textile applics., tech. cleaners; solubilizer for aromatic compds.; low-foaming; good dissolving power for organic substances  
*Properties:* Liq.; completely sol. in water; pH 5-9; 70% min. act.; anionic
- Raneoff F-9** [Eastern Color & Chem.]  
*Chem. Descrip.:* Fluorocarbon-type  
*Uses:* Water repellent in food-contact paper/paperboard; durable; provides oil resist. with water repellency; zero VOC version  
*Regulatory:* FDA 21CFR §176.170
- Rapisol B-30, B-80, B-90, C-70** [NOF]  
*Chem. Descrip.:* Sodium dioctyl sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent; dyeing aux.; penetrant for textiles, machine industry; detergent for food industry; dispersant for pitch; agric. spreader; deinking agent for waste paper; pharmaceutical additive; emulsifier for PVC paste resin, petrol and tar; flash agent for dyestuffs and pigments; flotation agent for mining industry  
*Properties:* Colorless transparent liqs.; anionic
- Raven® H2O** [Columbian Chems.]  
*Chem. Descrip.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* For paper, building materials; low energy disp.  
*Properties:* Powd.; 55 nm mean particle size; sp.gr. 1.8; surf. area 45 m<sup>2</sup>/g; oil absorp. 111 (powd.); 2.2% NV
- RC 503** [Process Chems. LLC]  
*Uses:* Brownstock defoamer for kraft, sulfite, and semi-chem. pulp washing., for use in brownstock washing, screen room, and bleach plant operations; oil-based; does not contribute to deposit formation; suitable whether batch or continuous pulp is employed  
*Properties:* Opaque tan liq.; dens. 7-9 lb/gal; visc. 300-500 cps  
*Toxicology:* TSCA listed  
*Storage:* Store in dry area
- RC 8003** [Mace Adhesives & Coatings]  
*Uses:* Paper coating for heat transfer printing applics.; good ink reception and good release for clean transfer; no VOCs  
*Use Level:* 30-60 g/ream coat wt.  
*Properties:* Colorless clear lt. oil; mild acrylic odor; visc. 150 cps  $\pm$  50 (70 F); 100% solids  
*Precaution:* Avoid open flame  
*Storage:* 3 mos. shelf life away from heat and UV-lt.
- RC 8005** [Mace Adhesives & Coatings]  
*Uses:* UV-curable paper coating; good stain, solv. resist., and color stability; no VOCs  
*Use Level:* 30-120 g/ream coat wt.  
*Properties:* Clear to off-wh. liq.; mild acrylic odor; visc. 2400 cps  $\pm$  200 (70 F); 100% solids
- Precaution:* Avoid open flame  
*Storage:* 3 mos. shelf life away from heat and UV-lt.
- Reacopaque 100** [OMNOVA Sol'ns./Paper]  
*Uses:* Opacifier to replace abrasive fillers in various paper grades; improves smoothness of most paper, improves pressroom performance, increases sizing
- Reactopaque® 100** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Hydrophobic polyamide  
 CAS 25038-54-4  
*Uses:* Opacifier for paper incl. newsprint, uncoated and coated free sheets, LWC, board and tissue grades; improves paper formation and smoothness; provides higher opacity at equal or higher brightness  
*Properties:* Visc. 400 cps; pH 4.0; 11% total solids; cationic
- Reactopaque® 150** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Hydrophobic polyamide  
 CAS 25038-54-4  
*Uses:* Opacifier for paper incl. newsprint, uncoated and coated free sheets, LWC, board and tissue grades; improves paper formation and smoothness; provides higher opacity at equal or higher brightness; works at higher pH; sl. more cationic than Reactopaque 100  
*Properties:* Visc. 400 cps; pH 4.0; 11% total solids; cationic
- Reactopaque® 175** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Hydrophobic polyamide  
 CAS 25038-54-4  
*Uses:* Opacifier for paper incl. newsprint, uncoated and coated free sheets, LWC, board and tissue grades; improves paper formation and smoothness; provides higher opacity at equal or higher brightness; works at higher pH; sl. more cationic than Reactopaque 100  
*Properties:* Visc. 400 cps; pH 4.0; 11% total solids; cationic
- ReChem®** [Hercules]  
*Uses:* Deinking agent, flotation aid, pulping aid, debonder, ink dispersant for recycled fiber systems
- Redifloc® Series** [Eka Chems.]  
*Chem. Descrip.:* Polyamines, polyacrylamides, and polyaluminum hydroxychloride  
*Uses:* Anionic trash catcher to reduce colloidal interference and deposition in papermaking processes
- Regal® 991** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant for gravure and carbon paper inks, gloss inks and bases; general purpose; offers balance of good dispersion and blue tone  
*Use Level:* 15-22% (web-offset newsink); 35-45% (paste ink bases); 5-12% (liq. gravure ink)  
*Properties:* Pellets; 38 nm particle size; sp.gr. 1.8; dens. 28 lb/ft<sup>3</sup>; surf. area 46 m<sup>2</sup>/g; oil absorp. 63 cc/100 g; 1% volatile  
 HMIS: Health 0; Flammability 1; Reactivity 0
- Regal® 99R** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant for gravure and carbon paper inks, gloss inks and bases; general purpose; offers balance of good dispersion and blue tone  
*Use Level:* 35-45% (paste ink bases)  
*Properties:* Fluffy; 38 nm particle size; sp.gr. 1.8; dens. 16 lb/ft<sup>3</sup>; surf. area 46 m<sup>2</sup>/g; oil absorp. 65 cc/100 g; 1% volatile  
 HMIS: Health 0; Flammability 1; Reactivity 0
- Regal® 300R** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant for inks, coatings, plastics, paper; provides high tinting str., good jetness, and good dispersion  
*Properties:* Fluffy; 27 nm particle size; dens. 13 lb/ft<sup>3</sup>; surf. area 80 m<sup>2</sup>/g; 1.0% volatile
- Regal® 330** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant, UV stabilizer for inks, coatings, plastics, paper; provides high tinting str., good jetness, and good dispersion  
*Properties:* Pellets; 25 nm particle size; dens. 28 lb/ft<sup>3</sup>; surf. area 94 m<sup>2</sup>/g; 1.0% volatile
- Regal® 330R** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black

- CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant, UV stabilizer for inks, coatings, plastics, paper; provides high tinting str., good jetness, and good dispersion  
*Properties:* Fluffy; 25 nm particle size; dens. 19 lb/ft<sup>3</sup>; surf. area 94 m<sup>2</sup>/g; 1.0% volatile
- Regal® 400** [Cabot/Special Blacks]  
*Chem. Descr.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant providing exc. dispersion in gloss printing and carbon paper inks, stable tinting of enamels, resistive plastics  
*Properties:* Pellets; 25 nm particle size; dens. 30 lb/ft<sup>3</sup>; surf. area 96 m<sup>2</sup>/g; 3.5% volatile
- Regal® 400R** [Cabot/Special Blacks]  
*Chem. Descr.:* Carbon black, aftertreated  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant providing exc. dispersion in gloss printing and carbon paper inks, stable tinting of enamels, resistive plastics (higher dielec. PVC cable compds.)  
*Properties:* Fluffy; 25 nm particle size; dens. 14 lb/ft<sup>3</sup>; surf. area 96 m<sup>2</sup>/g; pH 2.5-4.0; 3.5% volatile
- Regal® SRF-S** [Cabot/Special Blacks]  
*Chem. Descr.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant for gravure and one-time carbon paper inks  
*Use Level:* 5-12% (liq. gravure ink)  
*Properties:* Pellets; 60 nm particle size; sp.gr. 1.8; dens. 32 lb/ft<sup>3</sup>; surf. area 30 m<sup>2</sup>/g; oil absorp. 64 cc/100 g; 1% volatile  
 HMIS: Health 0; Flammability 1; Reactivity 0
- Reofos® 1884** [FMC]  
*Chem. Descr.:* Triaryl phosphate  
*Uses:* Flame retardant plasticizer for PVC and other polymers, rubber, aq. systems, latexes based on PVC, SBR, PVAc, acrylics, EVA, paints, dyes, nonwoven fabric binders, textile back coatings, carpet backings, asbestos paper bindings, adhesives, pigment carriers; emulsifiable  
*Properties:* Water-disp.; sp.gr. 1.145-1.161 (20/20 C); acid no. 0.26; nonionic
- Reomol® TBP** [FMC]  
*Chem. Descr.:* Tributyl phosphate  
 CAS 126-73-8; EINECS/ELINCS 204-800-2  
*Uses:* Defoamer for drilling muds, cements, fracturing fluids, plaster compositions, paper coatings, pulp bleaching, mold coating, glass luminescent coatings, aq. emulsion paints, adhesives, mercerizing liquors/dye baths; anti-freeze sol'ns., fermentation, detergents; primary plasticizer and solvent; pigment dispersant  
*Properties:* Liq.; sol. in min. oil, gasoline, most org. liqs.; sol. 0.1% in water; insol. in glycerin, glycols; sp.gr. 0.97-0.983 (20/20 C); dens. 8.14 lb/gal (20 C); visc. 3.7 cp (20 C); vapor pressure 7.3 mm Hg (150 C); f.p. < -80 C; b.p. 137-145 C (4 mm Hg); pour pt. < 80 C; flash pt. 166 C; fire pt. 182 C; surf. tens. 29 dynes/cm (20 C); 7.4% P, < 0.1% moisture  
*Toxicology:* Severe skin irritant  
*Precaution:* Low degree of fire hazard
- Repolem®** [Atofina SA]  
*Chem. Descr.:* Acrylic disp. and emulsions  
*Uses:* Binder for decorative paints, adhesives, textiles and nonwoven materials, leather, pulp/paper, etc.
- Resimene® 717** [Solutia]  
*Chem. Descr.:* High solids methylated melamine in n-butanol  
*Uses:* Crosslinker for thermosetting high solids and waterborne surf. coatings for automotive, metal, paper, appliance, and metal deco coatings, inks, prefinished paneling; gives rapid low temp. crosslinking, without need for strong acid catalysis  
*Properties:* APHA 30 max. liq.; dens. 9.5-9.7 lb/gal; visc. (Gardner-Holdt) Z-Z<sub>4</sub>; flash pt. (PMCC) 33 C; 84% min. solids  
*Storage:* 6 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 730** [Solutia]  
*Chem. Descr.:* High solids methylated melamine in isopropyl alcohol  
*Uses:* Crosslinker for thermosetting surf. coatings for metal, appliance, can/container, and paper coatings, inks, prefinished paneling; fast uncatalyzed cure response and good uncatalyzed enamel stability  
*Properties:* APHA 30 max. liq.; sol. in solvs. and water; dens. 9.75-10.05 lb/gal; visc. (Gardner-Holdt) Z<sub>2</sub>Z<sub>4</sub>; flash pt. (PMCC) 22 C; 90% min. solids  
*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 735** [Solutia]  
*Chem. Descr.:* High solids methylated melamine in isopropanol  
*Uses:* Crosslinker for thermosetting aq. and solv.-borne surf. coatings for appliance, metal, paper, metal deco, and automotive coatings; good compatibility and fast cure response, exc. uncatalyzed enamel stability; offers high gloss, flexible, and impact-resist. films  
*Properties:* APHA 30 max. liq.; sol. in solvs. and water; dens. 9.35-9.65 lb/gal; visc. (Gardner-Holdt) T-W; flash pt. (PMCC) 10 C; 80% min. solids  
*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 745** [Solutia]  
*Chem. Descr.:* Hexamethoxymethyl melamine  
 CAS 3089-11-0  
*Uses:* Crosslinker for thermosetting surf. coatings for automotive, appliance, coil, can/container, metal, metal deco, and paper coatings, inks, prefinished paneling; offers exc. catalyzed cure response, stability, and compatibility; cure response 220 to > 600 F  
*Properties:* APHA 30 max. liq.; solv.-sol. and water-extensible; dens. 9.9-10.1 lb/gal; visc. (Gardner-Holdt) Y-Z<sub>2</sub>; flash pt. (PMCC) 110+ C; 98% min. solids  
*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 747** [Solutia]  
*Chem. Descr.:* Hexamethoxymethyl melamine  
 CAS 3089-11-0  
*Uses:* Crosslinker for thermosetting solv. and aq. surf. coatings for automotive, appliance, coil, can/container, metal, metal deco, and paper coatings, inks; provides for exc. catalyzed cure response with very good film flexibility and toughness  
*Properties:* Liq.; sol. in water with cosolv.; dens. 9.9-10.1 lb/gal; visc. (Gardner-Holdt) Y-Z<sub>2</sub>; flash pt. (PMCC) 110+ C; 98% min. solids  
*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 757** [Solutia]  
*Chem. Descr.:* High solids methylated/butylated melamine (methyl:butyl 75:25)  
 CAS 68036-97-5  
*Uses:* Crosslinker for thermosetting high solids surf. coatings, esp. at reduced temps., for automotive, appliance, metal, metal deco, and paper coatings, electrostatically applied coatings, and inks; improved flow, leveling, and cratering resist.; better intercoat adhesion  
*Properties:* APHA 30 max. liq.; dens. 9.4-9.6 lb/gal; visc. (Gardner-Holdt) Z-Z<sub>2</sub>; flash pt. (PMCC) 66+ C; 97% min. solids  
*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 797** [Solutia]  
*Chem. Descr.:* Modified high solids methylated melamine contg. 20% styrene allyl alcohol in ethanol  
*Uses:* Crosslinker for thermosetting surf. coatings for automotive, coil, can/container, metal, appliance, metal deco, paper, wood furniture and cabinet, and extrusion coatings, inks; cure/performance at cure temps. as low as 180 F  
*Properties:* APHA 100 max. liq.; solv.-sol.; dens. 9.4-9.7 lb/gal; visc. (Gardner-Holdt) V-Z; flash pt. (PMCC) 30 C; 92% min. solids  
*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C
- Resimene® 7111** [Solutia]  
*Chem. Descr.:* Modified methylated melamine formaldehyde resin in ethanol  
*Uses:* Crosslinker for solvent-borne and high solids coatings incl. automotive, plastic, exterior container, paper, wood, and general metal coatings; improved low temp. catalyzed cure response, better water resistance, tougher coating films, improved hardness without loss in film flexibility, and better adhesion  
*Properties:* APHA 100 max. color; dens. 9.5-9.8 lb/gal; visc. (Gardner-Holdt) R-V; flash pt. (PMCC) 30 C; 90-94% solids
- Resimene® 7112** [Solutia]  
*Chem. Descr.:* Modified methylated melamine formaldehyde resin in ethanol  
*Uses:* Crosslinker for solv.-borne and high solids coatings incl. automotive, plastic, exterior container, paper, wood, and general metal coatings; improved low temp. catalyzed cure response; better water, chemical, and stain resist.; better corrosion and salt spray resist.  
*Properties:* APHA 100 max. color; dens. 9.5-9.8 lb/gal; visc. (Gardner-Holdt) U-Y; flash pt. (PMCC) 30 C; 90-94% solids
- Resimene® AQ-1616** [Solutia]  
*Chem. Descr.:* High solids partially methylated melamine-formaldehyde resin in water

CAS 68002-20-0

*Uses:* Crosslinker for coating systems incl. automotive primers/topcoats, paper/paperboard coatings, latex binder systems, nonwoven binders, wood coatings, gen'l. metal coatings; provides fast and low temp. cure with little or no acid catalyst, good cured film props.

*Properties:* APHA 40 max. color; dens. 10.35-10.65 lb/gal; visc. (Gardner-Holdt) W-Z; flash pt. (PMCC) > 200 F; 78-82% solids

*Storage:* Protect from freezing

**Resimene® AQ-7550 [Solutia]**

*Chem. Descrip.:* Partially methylated melamine

CAS 68002-20-0

*Uses:* Crosslinker for thermosetting surf. coating, aq. coatings incl. metal, paper, automotive, coil, and wood furniture and cabinet coatings, inks; rapid uncatalyzed cure response

*Properties:* APHA 30 max. liq.; sol. in water; dens. 10.4-10.7 lb/gal; visc. (Gardner-Holdt) U-W; flash pt. (PMCC) 93+ C; 79% min. solids in water

*Storage:* 4 mos shelf life stored in tanks at temps. between 4-32 C; protect from freezing

**Resimene® BM-5901 [Solutia]**

*Chem. Descrip.:* High solids butylated melamine in n-butanol

*Uses:* Crosslinker for thermosetting surf. coatings, high solids and waterborne coatings for auto, appliance, metal, paper, and metal deco, and wood furniture and cabinet coatings, inks; gives fast, low temp. crosslinking without need for strong acid catalysis

*Properties:* APHA 30 max. liq.; dens. 8.6-8.9 lb/gal; visc. (Gardner-Holdt) Z<sub>1</sub>Z<sub>4</sub>; flash pt. (PMCC) 33 C; 80% solids

*Storage:* 12 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® CE-6517 [Solutia]**

*Chem. Descrip.:* High solids methylated/butylated melamine in n-butanol

*Uses:* Crosslinker, flow control agent, leveling agent for thermosetting surf. coatings for metal, paper, auto, appliance, coil, and metal deco, prefinished paneling, wood furniture and cabinet coatings, and inks; rapid uncatalyzed cure response

*Properties:* APHA 30 max. liq.; dens. 9.3-9.5 lb/gal; visc. (Gardner-Holdt) W-Z; flash pt. (PMCC) 33 C; 85% min. solids

*Storage:* 12 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® HM-2608 [Solutia]**

*Chem. Descrip.:* High solids methylated melamine in isobutanol

*Uses:* Crosslinking agent for thermosetting high solids and waterborne surf. coatings, for automotive, appliance, metal, paper, and metal deco coatings, inks, prefinished paneling; low temp. cure response with little or no acid catalysts

*Properties:* Liq.; dens. 9.7-9.9 lb/gal; visc. (Gardner-Holdt) Z<sub>1</sub>Z<sub>4</sub>; flash pt. (PMCC) 31 C; 90% min. solids

*Storage:* 6 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® U-901 [Solutia]**

*Chem. Descrip.:* High solids butylated urea-formaldehyde resin in 65% butanol, 35% xylene

*Uses:* Crosslinker for thermosetting surf. coatings for metal deco, general metal, prefinished paneling, paper, and prefinished paneling coatings; fast cure

*Properties:* APHA 30 max. color; insol. in water; dens. 8.3-8.6 lb/gal; visc. (Gardner-Holdt) W-Z; flash pt. (PMCC) 21 C; 50-54% solids

*Storage:* 12 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® U-918 [Solutia]**

*Chem. Descrip.:* High solids butylated urea-formaldehyde resin in butanol

*Uses:* Crosslinker for thermosetting surf. coatings for can/container, metal deco, general metal, paper, and prefinished paneling coatings; epoxy crosslinker; exc. flexibility, cure chars., and good moisture resist.

*Properties:* APHA 30 max. color; insol. in water; dens. 8.6-8.9 lb/gal; visc. (Gardner-Holdt) W-Z; flash pt. (PMCC) 40 C; 69-73% solids

*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® U-920 [Solutia]**

*Chem. Descrip.:* High solids butylated urea in 75% butanol, 25% xylene

*Uses:* Crosslinker for thermosetting surf. coatings for metal deco, general metal, prefinished paneling, paper, and wood and furniture and cabinet coatings; very good compat., gloss retention, and color retention

*Properties:* APHA 30 max. color; insol. in water; dens. 8.4-8.6 lb/gal; visc. (Gardner-Holdt) U-X; flash pt. (PMCC) 36 C; 58-62% solids

*Storage:* 24 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® U-933 [Solutia]**

*Chem. Descrip.:* High solids butylated urea in 55% isobutanol, 45% xylene

*Uses:* Crosslinker for thermosetting surf. coatings, esp. heat-sensitive substrates (e.g., wood and plastic) for general metal, prefinished paneling, paper, and wood furniture and cabinet coatings; very fast cure response

*Properties:* APHA 30 max. color; insol. in water; dens. 8.1-8.4 lb/gal; visc. (Gardner-Holdt) W-Z; flash pt. (PMCC) 18 C; 49-53% solids

*Storage:* 12 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® U-970 [Solutia]**

*Chem. Descrip.:* High solids methylated urea-formaldehyde resin in isobutanol

*Uses:* Crosslinker for thermosetting surf. coatings for general metal, prefinished paneling, paper, and wood furniture and cabinet coatings; good reactivity; reduced level of free formaldehyde

*Properties:* APHA 60 max. liq.; sol. in water; dens. 9.25-9.55 lb/gal; visc. (Gardner-Holdt) Y-Z; flash pt. (PMCC) 32 C; 80-84% solids

*Storage:* 12 mos shelf life stored in tanks at temps. between 4-32 C

**Resimene® U-975 [Solutia]**

*Chem. Descrip.:* High solids methylated urea-formaldehyde resin

CAS 68071-45-4

*Uses:* Crosslinker for thermosetting surf. coatings for general metal, prefinished paneling, paper, and wood furniture and cabinet coatings; good balance of cure response, enamel stability, and hydrocarbon tolerance

*Properties:* APHA 30 max. liq.; sol. in water; dens. 9.95-10.25 lb/gal; visc. (Gardner-Holdt) Z<sub>2</sub>Z<sub>5</sub>; flash pt. (PMCC) > 110 C; 96% min. solids

*Storage:* Store @ > 40 F to prevent crystallization; protect from freezing

**Resimene® U-980 [Solutia]**

*Chem. Descrip.:* High solids methylated urea-formaldehyde resin

CAS 68071-45-4

*Uses:* Crosslinker for thermosetting surf. coatings for can/container, metal deco, general metal, prefinished paneling, paper, and wood furniture and cabinet coatings; provides good exterior durability, hydrolytic stability, and film hardness; mod. cure response

*Properties:* APHA 30 max. liq.; sol. in water; dens. 9.8-10.1 lb/gal; visc. (Gardner-Holdt) U-Y; flash pt. (PMCC) 58 C; 97% min. solids

*Storage:* Store @ > 40 F to prevent crystallization; protect from freezing

**Resin 731D [Hercules]**

*Chem. Descrip.:* Modified dehydrogenated (disproportionated) rosin

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Thermoplastic resin used in hot-melt-applied adhesives and coatings for paper and paperboard substrates; as tackifier and processing aid for rubber-based adhesives and molding compds.; emulsifier for emulsion polymerization; plasticizer, softener, tackifier; for use in contact with food; pale, oxidation-resistant; sl. retards cure

*Properties:* USDA Rosin N solid, flakes; sol. in alcohols, esters, ketones, min. spirits, and aromatic hydrocarbons; dens. 1.058 kg/l; R&B soften. pt. 73 C; flash pt. (COC) 209 C; acid no. 154; sapon. no. 159

**Resolution™ 5029 [Eka Chems.]**

*Chem. Descrip.:* Fatty acid derivative; avail. in two versions: one from tall oil and one from vegetable oil

*Uses:* Deinking agent

*Environmental:* Readily biodeg.

**Resolution™ 5030 [Eka Chems.]**

*Chem. Descrip.:* Conventional fatty acid

*Uses:* Deinking agent for newsprint; can be converted to a soap by contact with alkali

*Properties:* Molten liq.

**Resyn® 25-1103 [Nat'l. Starch & Chem.]**

*Chem. Descrip.:* Polyvinyl acetate

CAS 9003-20-7

*Uses:* Coating binder, stiffener for bleached board coatings; component of paper/paperboard in contact with aq./fatty/dry foods; forms very rigid film on drying; exc. converting props. for pkg.; mech. stable; compat. with many coating ingreds.

*Regulatory:* FDA 21CFR §176.170, 176.180

*Properties:* Dens. 9.0 lb/gal; visc. < 500 cps; pH 6.5; 47% solids

*Storage:* Protect from freezing

**Resyn® 25-1114 [Nat'l. Starch & Chem.]**

*Chem. Descrip.:* High m.w. polyvinyl acetate

CAS 9003-20-7

*Uses:* Coating binder for specialty size press applics., high quality web offset coatings, boxboard coatings, and bleached kraft applics.; component of paper/paperboard in contact with aq./fatty/dry foods; forms rigid film on drying; mech. stable; compat. with many coating ingreds.

*Regulatory:* FDA 21CFR §176.170, 176.180



- Properties:* Dens. 9.0 lb/gal; visc. < 500 cps; pH 6.5; 50% solids; anionic  
*Storage:* Protect from freezing
- Resyn® 25-1120** [Nat'l. Starch & Chem.]  
*Chem. Descrip.:* Polyvinyl acetate  
 CAS 9003-20-7  
*Uses:* Coating binder, stiffener for bleached board coatings; component of paper/paperboard in contact with aq./fatty/dry foods; forms very rigid film on drying; mech. stable; compat. with many coating ingreds.; exc. high shear rheology; meets demands of newer offset printing processes  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 9.0 lb/gal; visc. < 500 cps; pH 6.5; 47% solids  
*Storage:* Protect from freezing
- Resyn® 25-1140** [Nat'l. Starch & Chem.]  
*Chem. Descrip.:* Vinyl acrylate  
 CAS 2177-18-6; EINECS/ELINCS 218-538-1  
*Uses:* Coating binder for rotogravure coatings, pigmented and unpigmented size press sol'ns.; component of paper/paperboard in contact with aq./fatty/dry foods; forms very flexible film on drying; mech. stable; compat. with many coating ingreds.  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 8.8 lb/gal; visc. < 500 cps; pH 6.5; 50% solids  
*Storage:* Protect from freezing
- Resyn® 25-1151** [Nat'l. Starch & Chem.]  
*Chem. Descrip.:* Vinyl acetate  
 CAS 108-05-4; EINECS/ELINCS 203-545-4  
*Uses:* Coating binder for offset and rotogravure coatings.; delivers exc. holdout for special inks and varnishes; adds controlled adhesion in special coated paper grades; component of paper/paperboard in contact with aq./fatty/dry foods; forms mod. flexible film on drying; mech. stable; compat. with many coating ingreds.  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 8.9 lb/gal; visc. < 500 cps; pH 6.5; 50% solids  
*Storage:* Protect from freezing
- Resyn® 25-1152** [Nat'l. Starch & Chem.]  
*Chem. Descrip.:* Vinyl acrylate  
 CAS 2177-18-6; EINECS/ELINCS 218-538-1  
*Uses:* Coating binder for board coatings; improves printability with water-based inks; component of paper/paperboard in contact with aq./fatty/dry foods; forms flexible film on drying; mech. stable; compat. with many coating ingreds.  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 9 lb/gal; visc. < 500 cps; pH 6.5; 50% solids  
*Storage:* Protect from freezing
- Resyn® 25-1190** [Nat'l. Starch & Chem.]  
*Chem. Descrip.:* Polyvinyl acetate  
 CAS 9003-20-7  
*Uses:* Coating binder, stiffener for paper and board coatings; component of paper/paperboard in contact with aq./fatty/dry foods; forms very rigid film on drying; mech. stable; compat. with many coating ingreds.; exc. high shear rheology  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 9 lb/gal; visc. < 500 cps; pH 6.5; 50% solids  
*Storage:* Protect from freezing
- Resyn® 1090** [Nat'l. Starch & Chem.]  
*Chem. Descrip.:* Polyvinyl acetate emulsion  
 CAS 9003-20-7  
*Uses:* Dry and wet str. agent for paper saturation (filtration); component of paper/paperboard in contact with aq./fatty/dry foods; in resin-bonded filters for food contact; features stiffness, moldability, exc. mech. stability; imparts rigidity and pleatability to wide variety of substrates; can react with thermo-setting resins  
*Regulatory:* FDA 21CFR §176.170, 176.180, 177.2260  
*Properties:* 1.0 µ particle size; dens. 9.0 lb/gal; visc. 1000 cps; pH 5.0; 55% solids; nonionic
- Retaminol® 043S** [Bayer]  
*Uses:* Processing chem. for paper
- Retaminol® E** [Bayer]  
*Uses:* Processing chem. for paper
- Retaminol® H01** [Bayer]  
*Uses:* Processing chem. for paper
- Retaminol® K** [Bayer]  
*Uses:* Processing chem. for paper
- Retek®** [Hercules]  
*Chem. Descrip.:* Low charge dens. polymers (emulsions, dry polymers, and sol'ns.)  
*Uses:* Drainage aid, retention aid, charge control agent in pulp/paper industry
- Rewopal® HV 9** [Goldschmidt-Rewo GmbH]  
*Chem. Descrip.:* Nonoxynol-9  
 CAS 9016-45-9  
*Uses:* Emulsifier, solubilizer used in emulsion polymerization and insecticides; raw material for rinsing, washing, and cleaning agents; wetting agent in the paper and cellulose industry; degreaser used in pickling and alkaline immersion-bath cleaners  
*Properties:* Gardner 2 max. liq.; sol. in min. oil, alcohol, ketone, toluene, xylene, chlorinated hydrocarbons; cloud pt. 59-62 C (2%); pH 5-7 (1% solids); nonionic
- Rewopal® HV 25** [Goldschmidt-Rewo GmbH]  
*Chem. Descrip.:* Nonoxynol-25  
 CAS 9016-45-9  
*Uses:* Emulsifier, solubilizer used in emulsion polymerization, insecticides, detergents with high electrolyte content (e.g., electroplating); raw material for rinsing, washing, and cleaning agents; wetting agent in the paper and cellulose industry; degreaser used in pickling and alkaline immersion-bath cleaners  
*Regulatory:* BGA and FDA compliance  
*Properties:* Wh. wax; sol. in min. oil, alcohol, ketone, toluene, xylene, chlorinated hydrocarbons; cloud pt. 73-76 C (2%); pH 5-7 (1% solids); surf. tens. 42 dynes/cm; 100% act.; nonionic
- Rewopal® B 2003** [Goldschmidt-Rewo GmbH]  
*Chem. Descrip.:* Tetrasodium dicarboxyethyl stearyl sulfosuccinamate  
 CAS 3401-73-8; EINECS/ELINCS 222-273-7  
*Uses:* Flotation reagent; emulsifier for emulsion polymerization; foaming agent for latex emulsion (carpet backing); antigelling agent, cleaning agent for paper mill felts  
*Regulatory:* FDA compliance  
*Properties:* Low visc. liq.; sol. in water; partly sol. in org. solvs.; pH 7-8 (1%); surf. tens. 40 dynes/cm; 35% conc.; anionic
- Rewopal® SBDO 70** [Goldschmidt-Rewo GmbH]  
*Chem. Descrip.:* Dioctyl sodium sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Wetting agent, solubilizer for cosmetics, personal care preps., household and metal cleaners, paper, textile, paint, and dye industries, dry cleaning  
*Properties:* Colorless liq.; surf. tens. < 30 dynes/cm (0.1%); pH 6.5-7.5 (5% solids); 64% min. act.; anionic  
*Environmental:* Biodeg.
- Rexene® PE 5000 Series** [Huntsman]  
*Chem. Descrip.:* LDPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Extrusion coating and laminating resin ideal for critical specialty coatings such as photographic paper; good processability  
*Properties:* Dens. 0.917-0.924; melt index 4-18; tens. str. 1300-1500 psi (break)
- Rexfoam 301-A** [Graden]  
*Uses:* Defoamer for coatings; starch defoamer for size press applics.; defoamer in food-contact paper/paperboard; food pkg. adhesives, paper/paperboard; compat. with acrylics, B/S, and PVAc systems; will not cause film irregularities, fisheyes, or cratering  
*Use Level:* 0.01-2.0%  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210  
*Properties:* Off-wh. opaque liq.; sp.gr. 0.827-0.877; 100% solids  
*Storage:* Store @ R.T.; if frozen, warm to R.T. prior to use
- Rexfoam PI-53** [Graden]  
*Uses:* Antifoam/defoamer for aq. inks; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.200  
*Properties:* Off-wh. translucent liq.; disp. readily in aq. inks; dens. 8.6 lb/gal; visc. 1500-4500 cps; pH 7.5-9.0 (50%)  
*Storage:* Store @ R.T.; avoid prolonged storage above 110 F; if frozen or stored above 110 F, return to R.T. and mix thoroughly before use
- Rezsol®** [Hercules]  
*Chem. Descrip.:* Resin  
*Uses:* As Yankee coating chem. (adhesive base coatings, film modifiers,

release agents)

*Properties:* Cationic

**Rheolate® 2001** [Rheox]

*Chem. Descrip.:* Olefinic copolymer suspension

*Uses:* Antisettling agent for use in water-reducible coating and ink systems incl. industrial and trade sales paints, water-reducible alkyd, acrylic, epoxy, and urethane systems; provides superior pigment suspension at low levels; exc. leveling props.; produces exc. gloss, smooth films; also for household cleaners, inks, liq. detergents, pigment and agrochem. slurries; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles; defoamer for food contact; VOC-free; pourable

*Use Level:* 0.6-2.0% on total wt.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 177.2800

*Properties:* Off-wh. translucent liq.; sp.gr. 1.008; dens. 8.4 lb/gal; bulking value 0.119 gal/lb; visc. 20 mPa·s max.; 24% NV in water/5% methyl diethanolamine

**Rheovis®** [Ciba Spec. Chems./Paper]

*Uses:* Rheology modifier, water retention aid for paper coatings

**Rhodacal® 3594** [Rhodia HPCII]

*Chem. Descrip.:* Proprietary

*Uses:* Solubilizer; foaming agent; dispersant; emulsifier in emulsion polymerization, emulsion PVC, latexes, elastomers; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 178.3400; BGA XIV compliance

*Properties:* Liq.; surf. tens. 35 dynes/cm; 38% solids in water

**Rhodacal® BX-78** [Rhodia HPCI; Rhodia HPCII France]

*Chem. Descrip.:* Sodium dibutyl naphthalene sulfonate

CAS 25417-20-3

*Uses:* Emulsifier, wetting agent, penetrant, dispersant for industrial cleaning, textiles, dyeing, leather, insecticides, herbicides, paper, dyes/pigments, wallpaper pastes, rubber, latex polymerization

*Regulatory:* Exempt from tolerance under EPA 40CFR §180.1001(c)(e)

*Properties:* Liq.; m.w. 326; water-sol.; pH 6-8 (5%); surf. tens. 36 dynes/cm (@ CMC); 70% solids; anionic

**Rhodacal® DS/4-E25** [Rhodia HPCII]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate aq. sol'n.

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Emulsifier for emulsion polymerization, latexes, emulsion PVC, elastomers; solubilizer; foaming agent; dispersant; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 178.3400; BGA XIV compliance

*Properties:* Liq.; surf. tens. 32 dynes/cm; 25% solids in water; anionic

**Rhodacal® DS-10** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Branched sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Emulsifier for emulsion polymerization (SBR, vinyl acetate, vinyl chloride, styrene, and acrylic latexes), paints and coatings; emulsifier, dispersant for agric. formulations; surfactant for washing fruits and vegetables; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e); BGA XIV compliance

*Properties:* Flakes; pH 6.0-9.5 (10%); surf. tens. 32 dynes/cm (@ CMC); 98% act.; anionic

*Toxicology:* LD50 (oral, rat) 2.77 g/kg, (IV, mice) 105 mg/kg

**Rhodacal® N** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Sodium polynaphthalene sulfonate

CAS 9084-06-4

*Uses:* Process aid in paper, leather; dispersant for pulp/paper, metal cleaning; emulsifier, wetting agent for industrial cleaners, pesticides, inks, reactive pigments, paints; moisture reducer in concrete; textile dye leveling agent

*Properties:* Tan to brn. gran. powd.; odorless; sol. in water; dens. 0.65-0.75 g/ml; 88-90% act.; anionic

**Rhodafac® BG-510** [Rhodia HPCII; Rhodia HPCII France; Costec]

*Chem. Descrip.:* Aliphatic phosphate ester of ethoxylated isodecyl alcohols, free acid

CAS 108818-88-8

*Uses:* Detergent, emulsifier, wetting agent, dispersant, hydrotrope, solubilizer

for liq. industrial alkaline cleaners, hard surf. detergents, soak-tank metal cleaning, metal lubricants, steam cleaning, household cleaning, paints, textile wet processing, paper deresination, pulping, and bleaching, crop protection formulations; compat. in conc. electrolyte systems

*Regulatory:* Exempt from tolerance under EPA 40CFR §180.1001(c)

*Properties:* Clear visc. liq.; sol. in water, glycol, ethanol, perchlorethylene, xylene; insol. in wh. min. oil, odorless kerosene; sp.gr. 1.19 (35 C); acid no. 215-235; pour pt. 7 C; pH < 2.5 (10% aq.); surf. tens. 29.9 dynes/cm (0.1% aq.); Draves wetting 0.25% (25 s); 99.5% act.; anionic

**Rhodafac® RE-610** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Nonoxynol-9 phosphate

CAS 68412-53-3; EINECS/ELINCS 266-231-6

*Uses:* Detergent, emulsifier, wetting agent, dispersant, antistat, lubricant, dedusting agent for dry cleaning, pesticides, paints, textile wet processing, metals, household and industrial detergents; emulsifier for emulsion polymerization; corrosion inhibitor; food pkg. adhesives, paper; defoamer in food-contact paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e)

*Properties:* Pale yel. clear to sl. hazy visc. liq., mild odor; sol. in xylene, butyl Cellosolve, perchlorethylene, ethanol, water; sp.gr. 1.095-1.115; dens. 9.2 lb/gal; visc. 610-630 cks (50 C); acid no. 62-70; pour pt. < 0 C; pH 1.5-2.5 (10%); surf. tens. 37 dynes/cm (0.1% aq.); Ross-Miles foam 100 mm (0.05% tap water, initial); 99% act.; anionic

*Toxicology:* LD50 (oral, rat) 7.8 g/kg; primary dermal irritant; severe eye irritant

**Rhodafac® RS-610** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Trideceth-6 phosphate

CAS 9046-01-9

*Uses:* Emulsifier for emulsion polymerization, waterless hand cleaners, pesticides; detergent for dry cleaning formulations, textile wetting agent; lubricant for fiber and metal treatment, paper-mill felt washing; antistat for aerosols, plastics; corrosion inhibitor; food pkg. adhesives, paper; defoamer in food-contact paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(d)

*Properties:* Hazy, visc. liq.; sol. in kerosene, Stod., xylene, butyl Cellosolve, perchlorethylene, ethanol; disp. in water; sp.gr. 1.04-1.06; dens. 8.7 lb/gal; pour pt. < 0 C; pH < 2.5 (10%); 99% act.; anionic

**Rhodafac® RS-710** [Rhodia HPCII; Rhodia HPCII France]

*Chem. Descrip.:* Trideceth-10 phosphate

CAS 9046-01-9

*Uses:* Detergent, wetting agent, emulsifier, dispersant for textile wet processing, industrial cleaners, pesticides, dry cleaning, metal treatment; antistat for plastics; corrosion inhibitor; food pkg. adhesives, paper; defoamer in food-contact paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(d)

*Properties:* Opaque visc. liq.; sol. in Stod., xylene, butyl Cellosolve, perchlorethylene, ethanol, water; sp.gr. 1.04-1.06; dens. 8.7 lb/gal; pour pt. 18 C; pH < 2.5 (10%); 99% act.; anionic

**Rhodamox® CAPO** [Rhodia HPCII]

*Chem. Descrip.:* Cocamidopropyl dimethylamine oxide

CAS 68155-09-9; EINECS/ELINCS 268-938-5

*Uses:* Foam booster/stabilizer, thickener, emollient for shampoos, bath prods., toiletries, dishwash, rug shampoos, fine fabric detergents, shaving creams, lotions, foam rubber, electroplating, paper coatings; used in toiletries for mildness

*Properties:* Colorless clear liq.; faint odor; water sol.; disp. in min. oil; dens. 1.0 g/ml; f.p. < 0 C; 30% conc.; nonionic/cationic

**Rhodamox® LO** [Rhodia HPCII]

*Chem. Descrip.:* Lauryl dimethylamine oxide

CAS 1643-20-5; EINECS/ELINCS 216-700-6

*Uses:* Foam booster/stabilizer, thickener, detergent, wetting agent, antistat, emollient for shampoos, bath prods., toiletries, dishwash, fine fabric detergents, shaving creams, lotions, textile softeners; foam stabilizer in foam rubber, electroplating, paper coatings; used in toiletries for mildness

*Properties:* Colorless clear liq.; faint char. odor; sol. in water, alcohols; disp. in nonpolar org. solvs., e.g., kerosene, min. oils; dens. 1.0 g/ml; f.p. < 0 C;

- pH 7-8; 30% act.; nonionic/cationic
- Rhodapex® CO-436** [Rhodia HPCII; Rhodia HPCII France]  
*Chem. Descrip.:* Ammonium nonoxynol-4 sulfate  
 CAS 9051-57-4  
*Uses:* Detergent, wetting agent, dispersant for dishwashing, scrub soaps, car washes, rug and hair shampoos; emulsifier for latexes, emulsion polymerization, petrol. waxes; antistat for plastics and syn. fibers; lime soap dispersant; crop protection formulations; food pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; high foaming  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; exempt from tolerance under EPA 40CFR §180.1001(c)(e); BGA XIV compliance  
*Properties:* Varnish 5 max. clear liq.; alcoholic odor; water-sol.; sp.gr. 1.065; dens. 8.9 lb/gal; visc. 100 cps; surf. tens. 34 dynes/cm (1%); 58% act.; anionic
- Rhodapon® L-22** [Rhodia HPCII; Rhodia HPCII France; Costec]  
*Chem. Descrip.:* Ammonium lauryl sulfate  
 CAS 2235-54-3; EINECS/ELINCS 218-793-9  
*Uses:* High foaming detergent, emulsifier for shampoo, bubble bath, pet shampoos, l&l cleaners, coatings, wool scouring, fire-fighting foams; assistant for pigment dispersion; emulsion polymerization aid; food pkg. coatings, cellophane; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §175.210, 176.200, 177.1200  
*Properties:* Clear visc. liq.; visc. 1000 cps; HLB 31.0; cloud pt. 14 C; pH 6.8 (10%); 28% act.; anionic  
*Environmental:* Slowly degrades above pH 7  
*Storage:* 12 mos storage stability
- Rhodapon® LCP** [Rhodia HPCII]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Emulsion polymerization surfactant; imparts good stability and uniform particle size to emulsion polymers based on vinyl chloride, vinylidene chloride, styrene, butadiene, and acrylic esters; surfactant for fruit coatings, polymeric coatings, adhesives, paperboard, rubber goods; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles, animal glue; defoamer in food-contact paper/paperboard; low cloud pt.  
*Regulatory:* FDA 21CFR §172.210, 172.822, 175.105, 175.300, 175.320, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.1010, 178.3120, 178.3400, 179.45  
*Properties:* Yel. clear liq.; visc. 100 cps; pH 7.5-8.5 (10%); surf. tens. 30 dynes/cm (@ CMC); 29-30% act.; anionic
- Rhodapon® LSB** [Rhodia HPCII; Costec]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Detergent, emulsifier for hair shampoo, lotion, bubble bath, shaving creams, medicinal ointments, pastes, l&l and household cleaners, fruit coatings, polymeric coatings, adhesives, textiles, rubber articles; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles, animal glue; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard; high-foaming  
*Regulatory:* FDA 21CFR §172.210, 172.88, 175.105, 175.300, 175.320, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.1010, 178.3120, 178.3400, 179.45  
*Properties:* Pale clear liq.; visc. 150 cps; HLB 40; cloud pt. 20 C; pH 8 (10%); 29% act.; anionic
- Rhodapon® SM** [Rhodia HPCII]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Cosurfactant for household, l&l cleaners, personal care prods., rug/upholstery cleaners, pet shampoos, bubble baths, textile scouring, pigment flushing, food pkg., fruit coatings, polymeric coatings; food pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, textiles, animal glues; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.210, 172.822, 175.105, 175.300, 175.320, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.1010, 178.3120, 178.3400, 179.45  
*Properties:* Wh. paste; pH 8; 38% act.; anionic
- Rhodapon® UB/E-30** [Rhodia HPCII]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1

- Uses:* Emulsifier for emulsion polymerization, emulsion and suspension PVC, latexes; solubilizer; foaming agent; dispersant; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard; emulsifier in food-contact articles; for use alone or with other surfactants; exc. mech. stability  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; BGA XIV compliance  
*Properties:* Liq.; surf. tens. 29 dynes/cm; 30% solids in water
- Rhodapon® UB/E-N** [Rhodia HPCII]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Emulsifier for emulsion polymerization, emulsion and suspension PVC, latexes; solubilizer; foaming agent; dispersant; food pkg. adhesives, paper; defoamer in food-contact paper/paperboard; emulsifier in food-contact articles; for use alone or with other surfactants; exc. mech. stability  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 176.210, 178.3400; BGA XIV compliance  
*Properties:* Need.; surf. tens. 29 dynes/cm; 90% solids
- Rhodasurf® 870H2O** [Rhodia HPCII]  
*Chem. Descrip.:* Ethoxylated alcohol  
*Uses:* Emulsifier for latexes; food pkg. adhesives; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §175.105, 176.200; BGA XIV compliance  
*Properties:* Liq.; HLB 14.0; surf. tens. 27 dynes/cm; 80% solids; nonionic
- Rhodasurf® A-60** [Rhodia HPCII]  
*Chem. Descrip.:* Cetareath-60  
 CAS 68439-49-6  
*Uses:* Surfactant; emulsifier for latexes, acrylic, styrene-acrylic, and vinyl-acrylic emulsion polymerization; food pkg. adhesives; defoamer in food-contact paper coatings; APE-free  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200; BGA XIV compliance  
*Properties:* Solid; HLB 18.2; surf. tens. 50 dynes/cm; 100% solids; nonionic
- Rhodasurf® CET/20** [Rhodia HPCII]  
*Chem. Descrip.:* Ethoxylated alcohol  
*Uses:* Emulsifier for latexes, acrylic, styrene-acrylic, and vinyl-acrylic emulsion polymerization; food pkg. adhesives; defoamer in food-contact paper coatings; APE-free  
*Regulatory:* FDA 21CFR §175.105, 176.200; BGA XIV compliance  
*Properties:* Flake; HLB 16.2; surf. tens. 49 dynes/cm; 100% solids; nonionic
- Rhodasurf® CET/55** [Rhodia HPCII]  
*Chem. Descrip.:* Ethoxylated alcohol  
*Uses:* Emulsifier for latexes, acrylic, styrene-acrylic, and vinyl-acrylic emulsion polymerization; food pkg. adhesives; defoamer in food-contact paper coatings; APE-free  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200; BGA XIV compliance  
*Properties:* Flake; HLB 18.0; surf. tens. 51.5 dynes/cm; 100% solids; nonionic
- Rhodasurf® E 400** [Rhodia HPCII]  
*Chem. Descrip.:* PEG-8  
 CAS 25322-68-3; EINECS/ELINCS 225-856-4  
*Uses:* Surfactant intermediate; binder and lubricant in compressed tablets; softener for paper; plasticizer for starch pastes and polyethylene films; coupling agent for skin care lotions  
*Properties:* Liq.; pour pt. 6 C; 100% act.; nonionic
- Rhodasurf® E 600** [Rhodia HPCII]  
*Chem. Descrip.:* PEG-12  
 CAS 25322-68-3; EINECS/ELINCS 229-859-1  
*Uses:* Surfactant intermediate; binder and lubricant in compressed tablets; color stabilizer for fuel oils; softener for paper; plasticizer for starch paste and polyethylene film; coupling agent in skin care lotions  
*Properties:* Liq.; pour pt. 22 C; 100% act.; nonionic
- Rhodasurf® L-4** [Rhodia HPCII]  
*Chem. Descrip.:* Laureth-4  
 CAS 68002-97-1; EINECS/ELINCS 226-097-1  
*Uses:* Emulsifier, thickener, wetting agent, pigment dispersant, lubricant, solubilizer for cosmetic and industrial emulsions, emulsion polymerization, metal cleaning, monomer systems, floor waxes, paper finishes, rubber, crop protection applics.; textile scouring agent; emollient for pharmaceuticals  
*Properties:* Liq.; HLB 9.7; cloud pt. 0-5; pH 6.5 (1%); 100% act.; nonionic
- Rhodasurf® L-25** [Rhodia HPCII]  
*Chem. Descrip.:* Laureth-23  
 CAS 9002-92-0

*Uses:* Surfactant, wetting agent, pigment dispersant, lubricant, solubilizer for cosmetic and industrial emulsions, emulsion polymerization, metal cleaning, rubber and monomer systems, floor waxes, paper finishes; textile scouring agent; stabilizer for emulsion polymers; emollient for pharmaceuticals

*Properties:* Wax; HLB 16.9; cloud pt. > 95 C (1%); pH 6.5 (1%); 100% act.; nonionic

**Rhodasurf® TDA-8.5** [Rhodia Canada]

*Chem. Descrip.:* Trideceth-9 (8.5 EO)

CAS 24938-91-8

*Uses:* Emulsifier, strong rewetting agent for textile and paper prods.

*Properties:* Liq.; sol. in water, min. oil, min. spirits, aromatic solvs., perchloroethylene; dens. 0.98 g/ml; HLB 12.5; cloud pt. 52-56 C (1% aq.); 100% conc.; nonionic

**Rhodasurf® TR15/40** [Rhodia HPCII]

*Chem. Descrip.:* Tridecyl alcohol, ethoxylated

CAS 24938-91-8

*Uses:* Emulsifier for latexes, acrylic, styrene-acrylic, and vinyl-acrylic emulsion polymerization; food pkg. adhesives; defoamer in food-contact paper coatings; APE-free

*Regulatory:* FDA 21CFR §175.105, 176.200; BGA XIV compliance

*Properties:* Liq.; HLB 15.3; surf. tens. 34 dynes/cm; 40% solids in water; nonionic

**Rhodaterge® BCC** [Rhodia HPCII]

*Chem. Descrip.:* Proprietary blend

*Uses:* Surfactant, wetting agent, antifoam for use in alkaline and acid prods., beer prod. equip. cleaners, high alkaline CIP cleaners, food processing equip. cleaning systems, bottle washing concs., paper mill stock chest cleaners, metal cleaners, dishwasher compds.; surf. tens. reducer; defoamer for protein; low-foaming; stable in min. acids, 50% caustic (NaOH)

*Properties:* Amber clear liq.; sp.gr. 1.03-1.11; flash pt. (CC) > 200 F; pH 7.5; 40-45% solids; anionic

**Rhodaterge® PRC** [Rhodia HPCII]

*Chem. Descrip.:* Blend of surfactants, sequestrant, and alkali

*Uses:* Surfactant, detergent used for separation of PVC, vinyl, and paper in PET recycling systems; low-foaming; removes residue from plastic substrates; caustic-stable

*Properties:* Clear liq.; bland sl. sweet odor; flash pt. > 250 F; pH 11-13 (10% aq.); VOC none; 23-26% solids, 9-12% sodium hydroxide; anionic

*Environmental:* Biodeg.

**Rhodorsil® Emulsion 865A** [Rhodia Silicones]

*Chem. Descrip.:* Methylpolysiloxane emulsion, propylene glycol (1-5%)

*Uses:* Latex polymer for use as water repellent in masonry prods., tile adhesives, gypsum board, wood and brick prods.; component of food-contact paper/paperboard; water-based

*Regulatory:* FDA 21CFR §176.170, 176.180; DOT nonregulated; SARA acute health hazard

*Properties:* Milky wh. emulsion; sl. odor; sol. in water; sp.gr. 1.08; vapor pressure < 17 mm Hg (20 C); f.p. 0 C; b.p. 100 C (760 mm); flash pt. (TCC) > 93 C; pH 3.5; 54% volatiles by vol.

*Toxicology:* Eye irritant; sl. skin irritant; low acute oral toxicity; TSCA listed  
*Precaution:* Will burn under fire conditions; avoid strong bases, strong oxidizing agents; contains trace amts. of isothiazoline derivs. which may cause sensitization; contains dimethylpolysiloxane which can generate sm. amts. of formaldehyde

*Hazardous Decomp. Prods.:* Combustion may produce formaldehyde, CO<sub>x</sub>, cryst. silica; thermal decomp. prods.: dimethylcyclosiloxanes, methylphenylcyclosiloxanes

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* Store @ > 4 C in tightly closed containers in well-ventilated area away from ignition sources and incompat. materials; avoid freezing

**Rhodorsil® Emulsion 878** [Rhodia Silicones]

*Chem. Descrip.:* Polymethylsiloxane aq. emulsion, propylene glycol (1-5%)  
*Uses:* Latex polymer for use as water repellent in masonry prods., tile adhesives, concrete/joint cements, gypsum board, wood prods.; component of food-contact paper/paperboard; water-based

*Regulatory:* FDA 21CFR §176.170, 176.180; DOT nonregulated; SARA Title III acute health hazard

*Properties:* Milky wh. emulsion; sl. odor; sol. in water; sp.gr. 1.08; vapor pressure < 17 mm (20 C); f.p. 0 C; b.p. 100 C (760 mm); flash pt. (TCC) > 93 C; pH 3.5; 54% volatiles by vol.; nonionic

*Toxicology:* Eye irritant; sl. skin irritant; low acute oral toxicity; TSCA listed  
*Precaution:* Will burn under fire conditions; avoid strong bases, strong oxidiz-

ing agents; contains trace amts. of isothiazoline derivs. which may cause sensitization; contains dimethylpolysiloxane which can generate sm. amts. of formaldehyde

*Hazardous Decomp. Prods.:* Combustion may produce formaldehyde, CO<sub>x</sub>, cryst. silica; thermal decomp. prods.: dimethylcyclosiloxanes, methylphenylcyclosiloxanes

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* Store @ > 4 C in tightly closed containers in well-ventilated area away from ignition sources and incompat. materials; avoid freezing

**Rhodoviol® 4/125** [Rhodia HPCII]

*Chem. Descrip.:* Low m.w. polyvinyl alcohol

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Binder, thickener, and water retention aid for mfg. of adhesives for paper, cardboard; filler; low rate of hydrolysis

*Properties:* Gran. powd.; readily sol. in water; m.w. ≈ 30,000; visc. 5-6 mPas (4%); pH 5.0-6.5 (10%); 97% min. solids

*Storage:* 6 mos storage life when stored in dry atmosphere @ ambient temps. (not to exceed 40-120 F) in the original container

**Rhoplex® ASE-75** [Rohm & Haas]

*Chem. Descrip.:* Acrylic emulsion

*Uses:* Rheology modifier for paper and paperboard coatings; alkali-swellable; high solids; good balance of thickening efficiency and water holding; rec. where coat wt. build or high solids coatings are desired

*Properties:* Sp.gr. 1.08; dens. 9.0 lb/gal; visc. 20 cps; pH 2.7; 40% solids; anionic

**Rhoplex® ASE-95NP** [Rohm & Haas]

*Chem. Descrip.:* Acrylic emulsion

*Uses:* Rheology modifier for paper and paperboard coatings; alkali-swellable; high m.w.; rec. for specialty applics. or in conjunction with other Rhoplex thickeners to build visc. at high shear rates; not rec. as primary thickener in most applics.

*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. 200 cps; pH 3; 18% solids; anionic

**Rhoplex® ASE-108NP** [Rohm & Haas]

*Chem. Descrip.:* Acrylic emulsion

*Uses:* Rheology modifier for paper and paperboard coatings; alkali-swellable; exc. balance of water holding and thickening efficiency; effective at building coat weights; best suit for low shear applics.

*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. 70 cps; pH 3; 18% solids; anionic

**Rhoplex® B-15J** [Rohm & Haas]

*Chem. Descrip.:* Acrylic latex

*Uses:* Binder for coated materials, adhesives, textiles, fabric backcoating and finishing, paper; semireactive; med. hand; heat-sealable; self-thickening; exc. mech. stability; exc. cohesive and tens. str., durability; crosslinkable; will crosslink with melamine or urea/formaldehyde resins

*Properties:* Wh emulsion.; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 45 cps; pH 6.2; 46% solids; nonionic

**Rhoplex® B-60A** [Rohm & Haas]

*Chem. Descrip.:* Acrylic latex

*Uses:* Binder for paper and paperboard coatings; nonreactive; exc. color stability; rec. for applics. where clarity and resist. to discoloration are desired

*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. 1500 cps; pH 9.6; 46.5% solids; nonionic

**Rhoplex® B-85** [Rohm & Haas]

*Chem. Descrip.:* Acrylic emulsion

*Uses:* Binder for paper and paperboard coatings, textiles; textile hand stiffener; noncrosslinking; very firm; produces films with toughness and improved resist. to blocking

*Properties:* Dens. 8.7 lb/gal; visc. < 100 cps; pH 9.8; 38% solids; anionic

**Rhoplex® B-88** [Rohm & Haas]

*Chem. Descrip.:* Acrylic emulsion

*Uses:* Binder for paper and paperboard coatings, textiles; textile hand stiffener; noncrosslinking; very firm; produces films with toughness and improved resist. to blocking

*Properties:* Dens. 9.0 lb/gal; visc. 30 cps; pH 8.7; 42.5% solids; nonionic

**Rhoplex® B-959** [Rohm & Haas]

*Chem. Descrip.:* Acrylic emulsion

*Uses:* Binder for paper and paperboard coatings, textiles (flocking, fabric backcoating/finishing, pigment printing); self-crosslinking; balance of med. hand, high solids, and exc. wash/dry clean durability; self-thickening; improved mech. stability

- Properties:* Sp.gr. 1.07; dens. 8.9 lb/gal; visc. 65 cps; pH 2.6; 55% solids; anionic
- Rhoplex® E-1691** [Rohm & Haas]  
*Chem. Descrip.:* Acrylic emulsion  
*Uses:* Binder for paper and paperboard coatings; topcoat and ink vehicle for vinyl coated fabrics and vinyl film; exc. solv. resist.; maintains exc. color stability; adheres well to vinyl with sl. force drying  
*Properties:* Dens. 8.6 lb/gal; visc. < 100 cps; pH 6.2; 41% solids; anionic
- Rhoplex® E-2961** [Rohm & Haas]  
*Uses:* Rheology modifier for paper and paperboard coatings, esp. heavy paper/paperboard; preneutralized; requires no pH adjustment; alkali-swellable; exc. balance of water holding and thickening efficiency; rec. for heavy coat weights applics.  
*Properties:* Sp.gr. 1.07; dens. 8.9 lb/gal; visc. 500 cps; pH 9.2; 11% solids; anionic
- Rhoplex® GL-618** [Rohm & Haas]  
*Chem. Descrip.:* Elastomeric acrylic polymer emulsion  
*Uses:* Binder for wet laid glass and/or polyester fiber mats used in roofing prods. such as asphalt shingles, other industrial nonwovens (filters, facer sheets, resilient flooring substrates, geotextile applics.), paper; self-crosslinking; firm binder; hydrophobic; superior hot tens. str.; low foaming; exc. mech. stability; ideal as sole binder or cobinder with U/F, P/F, and M/F resins  
*Properties:* Milky wh. liq.; dens. 8.9 lb/gal; visc. 95 cps; pH 8.6; 47% solids; anionic
- Rhoplex® GL-623** [Rohm & Haas]  
*Chem. Descrip.:* Acrylic polymer emulsion  
*Uses:* Binder for wet laid glass mat used in roofing prods. such as asphalt shingles, industrial nonwoven applics. (filtration media), paper; binder, hand stiffener in fabric finishing; self-crosslinking; firm binder  
*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. 50 cps; pH 8.0; 45% solids; anionic
- Rhoplex® HA-12** [Rohm & Haas]  
*Chem. Descrip.:* Acrylic polymer emulsion  
*Uses:* Ceramics binder for tape casting, slip casting, and roll compaction; binder, tack-free film-former for textiles, fabric finishing and backcoating; self-crosslinking; not sensitive to humidity change; high grn. str. and dens.; rec. where abrasion resist. is required; med./firm hand; exc. wash/dry clean durability  
*Properties:* 85-140 nm particle size; sp.gr. 1.05; dens. 8.8 lb/gal; visc. 280 cps; pH 2.6; 45% solids; nonionic  
 Custom prod.
- Rhoplex® NW-1715K** [Rohm & Haas]  
*Chem. Descrip.:* Styrene acrylic emulsion  
 CAS 9010-92-8  
*Uses:* Binder for textiles, nonwovens, and specialty paper; backcoating binder; crosslinkable; hydrophobic; ultra low formaldehyde; med. hand; good abrasion resist.  
*Properties:* Sp.gr. 1.01; dens. 8.4 lb/gal; visc. 150 cps; pH 6.2; 44% solids; anionic
- Rhoplex® NW-1845K** [Rohm & Haas]  
*Chem. Descrip.:* Styrene acrylic emulsion  
 CAS 9010-92-8  
*Uses:* Binder for textiles, backcoating fabric finishing, paper; soft; crosslinkable; hydrophobic; formaldehyde-free; balance of soft hand and str.; heat-sealable; improved mech. stability  
*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. 85 cps; pH 6.7; 44% solids; anionic
- Rhoplex® P-308** [Rohm & Haas]  
*Chem. Descrip.:* Styrene acrylic  
 CAS 9010-92-8  
*Uses:* Binder for mottle-resist. paper and paperboard coatings; high str.; compat. with calcium ions; hydrophobic  
*Properties:* Sp.gr. 1.04; dens. 8.7 lb/gal; visc. 150 cps; pH 7.5; 50% solids; anionic
- Rhoplex® P-322** [Rohm & Haas]  
*Chem. Descrip.:* Styrene acrylic  
 CAS 9010-92-8  
*Uses:* Binder for mottle-resist. paper and paperboard coatings  
*Properties:* Sp.gr. 1.04; dens. 8.6 lb/gal; visc. 500 cps; pH 7.5; 50% solids; anionic
- Rhoplex® P-376** [Rohm & Haas]  
*Chem. Descrip.:* Styrene acrylic  
 CAS 9010-92-8  
*Uses:* Binder for paper and paperboard coatings; hydrophobic; contributes exc. wet and dry pick resist.; promotes gloss development and ink/varnish holdout without contributing to ink mottle or adsorption problems; exc. compat. with cobinders; good adhesion to nonconventional substrates  
*Properties:* Sp.gr. 1.04; dens. 8.7 lb/gal; visc. 200 cps; pH 9.4; 50% solids; anionic
- Rhoplex® RM-232D** [Rohm & Haas]  
*Chem. Descrip.:* Hydrophobically modified alkali-swellable emulsion  
*Uses:* Rheology modifier for paper and paperboard coatings; low foam; good combination of thickening efficiency and water holding; exc. runnability in high-speed coating applics.; enhanced mech. stability  
*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. < 50 cps; pH 5.4; 28% solids; anionic
- Rhoplex® TR-520** [Rohm & Haas]  
*Chem. Descrip.:* Acrylic emulsion  
*Uses:* Binder for nonwovens manufactured with rayon, wood pulp or polyester fibers, medical nonwovens, paper; self-crosslinking; hydrophilic; salt-tolerant; mechanically stable; imparts intermediate hand; exc. wet tens. str. and durability to washing and dry cleaning; self-thickening  
*Properties:* Milky wh. liq.; dens. 8.9 lb/gal; visc. 35 cps; pH 2.6; 50.5% solids; anionic
- Rhoplex® TT-935** [Rohm & Haas]  
*Chem. Descrip.:* Hydrophobically modified alkali-swellable emulsion  
*Uses:* Rheology modifier for paper and paperboard coatings, esp. lightweight coatings; good combination of thickening efficiency and water holding; exc. runnability in high-speed coating applics.; rec. for use under high shear conditions  
*Properties:* Sp.gr. 1.06; dens. 8.8 lb/gal; visc. 50 cps; pH 3; 30% solids; anionic
- Ricon 100** [Ricon Resins]  
*Chem. Descrip.:* SBR random copolymer  
 CAS 9003-55-8  
*Uses:* Thermosetting liq. resin system used for elec. potting and impregnation of transformers, capacitors, motors laminates, molding compds. and castings, rubber modifiers, mica paper binder, nuclear heat shield; for harder cure zinc-rich coatings, molding compds.; vulcanizable binder for regrind and reclaim rubber; processing aid; outstanding elec. properties, thermal stability, moisture and age resistance, adhesion, and chem. resistance  
*Properties:* Hazy to clear amber very visc. liq.; low odor; m.w. 2400; negligible sol. in water; sp.gr. 0.89; dens. 7.4 lb/gal; visc. 40,000 cps (45 C); b.p. > 300 F; flash pt. 200 C; 80% butadiene, 20% styrene, 65% 1,2-vinyl; 98.5% min. NV
- Ricon 150** [Ricon Resins]  
*Chem. Descrip.:* High vinyl 1,2 polybutadiene homopolymer resin  
*Uses:* Thermosetting resin used in elec. potting and impregnation of transformers, capacitors, motors laminates, molding compds. and castings, rubber modifiers, mica paper binder, nuclear heat shield; for food pkg. and contact; impact modifier for PE or PP; coagent for NR, EPR, EPDM, CR, NBR, and SBR for peroxide cures, EPR and EPDM for sulfur cure; lowers Mooney visc. allowing increased filler loading  
*Properties:* Amber visc. liq.; low odor; m.w. 2400; sp.gr. 0.89; dens. 7.4 lb/gal; visc. 40,000 cps (45 C); flash pt. (TCC) > 300 F; 70% 1,2-vinyl, 20-22% trans-1,4, 6-8% cis-1,4; 100% resin
- RITA PEO-1** [R.I.T.A.]  
*Chem. Descrip.:* PEG-5M  
 CAS 25322-68-3  
*Uses:* Lubricant, tackifier for paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; cosmetic thickener, suspending agent, lubricant, coagulant, skin slip agent; resist. to bacterial degradation  
*Use Level:* 0.1-1%  
*Properties:* Wh. powd.; mild characteristic odor; particle size thru 16 mesh; sol. in water, numerous org. solvs.; m.w. 400,000; sp.gr. 1.15-1.22; visc. 300-1500 cps (5% sol'n.); bulk dens. 0.3 kg/l; soften. pt. 65-67 C; pH 6-8 (aq. sol'n.); nonionic  
*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; sl. toxic; TSCA listed  
*Precaution:* Avoid disp. of dust in air to reduce potential explosion hazard  
*Storage:* 6 mos shelf life in dk. place below 40 C to avoid solidification
- RITA PEO-2** [R.I.T.A.]  
*Chem. Descrip.:* PEG-9M  
 CAS 25322-68-3

*Uses:* Lubricant, tackifier for paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; cosmetic thickener, suspending agent, lubricant, coagulant, skin slip agent; resist. to bacterial degradation  
*Use Level:* 0.1-1%

*Properties:* Wh. powd.; mild characteristic odor; particle size thru 16 mesh; sol. in water, numerous org. solvs.; m.w. 210,000; visc. 50-200 cps (5% sol'n.); bulk dens. 0.3 kg/l; soften. pt. 65-67 C; pH 6-8 (aq. sol'n.); nonionic  
*Storage:* 6 mos shelf life in dk. place below 40 C to avoid solidification

**RITA PEO-3 [R.I.T.A.]**

*Chem. Descrip.:* PEG-23M

CAS 25322-68-3

*Uses:* Lubricant, tackifier for paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; cosmetic thickener, suspending agent, lubricant, coagulant, skin slip agent; resist. to bacterial degradation  
*Use Level:* 0.1-1%

*Properties:* Wh. powd.; mild characteristic odor; particle size thru 16 mesh; sol. in water, numerous org. solvs.; m.w. 1,000,000; visc. 2500-5500 cps (5% sol'n.); bulk dens. 0.3 kg/l; soften. pt. 65-67 C; pH 6-8 (aq. sol'n.); nonionic

*Storage:* 6 mos shelf life in dk. place below 40 C to avoid solidification

**RITA PEO-8 [R.I.T.A.]**

*Chem. Descrip.:* PEG-45M

CAS 25322-68-3

*Uses:* Lubricant, tackifier for paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; cosmetic thickener, suspending agent, lubricant, coagulant, skin slip agent; resist. to bacterial degradation  
*Use Level:* 0.1-1%

*Properties:* Wh. powd.; mild characteristic odor; particle size thru 16 mesh; sol. in water, numerous org. solvs.; m.w. 1,900,000; visc. 20-70 cps (0.5% sol'n.); bulk dens. 0.3 kg/l; soften. pt. 65-67 C; pH 6-8 (aq. sol'n.); nonionic  
*Storage:* 6 mos shelf life in dk. place below 40 C to avoid solidification

**RITA PEO-18 [R.I.T.A.]**

*Chem. Descrip.:* PEG-90M

CAS 25322-68-3

*Uses:* Lubricant, tackifier for paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; cosmetic thickener, suspending agent, lubricant, coagulant, skin slip agent; resist. to bacterial degradation  
*Use Level:* 0.1-1%

*Properties:* Wh. powd.; mild characteristic odor; particle size thru 16 mesh; sol. in water, numerous org. solvs.; m.w. 4,400,000; visc. 250-430 cps (0.5% sol'n.); bulk dens. 0.3 kg/l; soften. pt. 65-67 C; pH 6-8 (aq. sol'n.); nonionic

*Storage:* 6 mos shelf life in dk. place below 40 C to avoid solidification

**RITA PEO-27 [R.I.T.A.]**

*Chem. Descrip.:* PEG-160M

CAS 25322-68-3

*Uses:* Lubricant, tackifier for paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; cosmetic thickener, suspending agent, lubricant, coagulant, skin slip agent; resist. to bacterial degradation  
*Use Level:* 0.1-1%

*Properties:* Wh. powd.; mild characteristic odor; particle size thru 16 mesh; sol. in water, numerous org. solvs.; m.w. 7,200,000; visc. 400-1000 cps (0.5% sol'n.); bulk dens. 0.3 kg/l; soften. pt. 65-67 C; pH 6-8 (aq. sol'n.); nonionic

*Storage:* 6 mos shelf life in dk. place below 40 C to avoid solidification

**RO-40 [IMERYS]**

*Chem. Descrip.:* Ground calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* Pigment, filler, reinforcement for paper, paint, polymers, food, esp. polyolefins, carpet backing, caulks, sealants, putties, asphalt, ceramics, foamed compds.; mild abrasive in cleaners; coarse ground

*Properties:* Wh. powd., odorless; 53% thru 325 mesh; negligible sol. in water; sp.gr. 2.71; dens. 22.57 lb/gal; bulk dens. 85 lb/ft<sup>3</sup> (loose); bulking value 0.044; ref. index 1.59; pH 9.5; nonflamm.

*Toxicology:* TLV/TWA 10 mg/m<sup>3</sup>, considered nuisance dust

*Precaution:* Incompat. with acids

**Rod White 950™ [Michelman]**

*Uses:* Wh. coating for paper; designed for rod coater applic.; max. wax gray-out resist.; gluable; repulpable

*Regulatory:* FDA compliance

**Rohagit® SL 252 [Rohm Tech]**

*Chem. Descrip.:* Acrylic polymer aq. sol'n.

*Uses:* Dispersant for nonwoven bonding, textile finishing and coating, and papermaking and finishing

*Properties:* Liq.

**Rohamere® 21 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate

*Uses:* Binder and additive for nonwoven bonding, textile finishing/coating, papermaking, impregnations; forms clear, hard tack-free film with exc. wash and dry clean fastness

*Properties:* Emulsion; 115 nm particle size; pH 2.2; 45 ± 0.5% solids; anionic/nonionic

**Rohamere® 61 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate

*Uses:* Thermoplastic for use as hand builder or flattening agent for textile or paper applics., or to improve block resist. of softer polymers; binder and additive for nonwoven bonding, textile finishing/coating, papermaking

*Properties:* Emulsion; 130 nm particle size; pH 9.2; 38 ± 0.5% solids; anionic

**Rohamere® 132 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Ethyl acrylate, acrylonitrile

*Uses:* Forms tack-free film for predispersed pigment colors; suited for nonwovens, esp. interlinings, fabric backcoatings and finishes, and paper coatings and impregnations; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; std. self-crosslinking acrylic; exc. anti-crock props.

*Properties:* Emulsion; 150 nm particle size; pH 2.3; 45 ± 0.5% solids; anionic/nonionic

**Rohamere® 568 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate

*Uses:* Binder and additive for nonwoven bonding, textile finishing/coating, papermaking; forms clear, hard tack-free film with exc. wash and dry clean fastness

*Properties:* Emulsion; 120 nm particle size; pH 2.2; 45 ± 0.5% solids; anionic/nonionic

**Rohamere® 587 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Butyl acrylate, acrylonitrile

*Uses:* For use in textile flocking adhesives, interlinings, and lightweight nonwovens; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; std. self-crosslinking acrylic; very soft; exc. wash and dry clean durability and UV resist.

*Properties:* Emulsion; 190 nm particle size; pH 3.0; 45 ± 0.5% solids; nonionic

**Rohamere® 626 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Butyl acrylate, methyl methacrylate

*Uses:* Binder and additive for nonwoven bonding, textile finishing/coating, papermaking; hard tack-free acrylic noted for exc. adhesion to leather and for exc. weather resist. provided by its highly hydrophobic composition

*Properties:* Emulsion; 120 nm particle size; pH 9.0; 45 ± 0.5% solids; anionic

**Rohamere® 977 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate

*Uses:* Used for nonwovens, textile backcoatings, paper impregnations, beater addition, coatings, and leather finish applics.; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; coagulatable acrylic

*Properties:* Emulsion; 110 nm particle size; pH 2.2; 45 ± 0.5% solids; anionic/nonionic

**Rohamere® 1410 [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Butyl acrylate, methyl methacrylate

*Uses:* Finishing agent for leather, tarpaulins, tablecloths, awnings, or applics. where water resist. is required; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; hydrophobic std. self-crosslinking acrylic

*Properties:* Emulsion; 120 nm particle size; pH 9.0; 42.5 ± 0.5% solids; anionic

**Rohamere® 1900-D [Röhm Am.; Rohm Tech]**

*Chem. Descrip.:* Butyl acrylate, ethyl acrylate

*Uses:* Used for nonwoven bonding, textile backcoating, flocking, and high wet str. paper applics.; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking acrylic; very soft, resilient; nonyellowing

*Properties:* Emulsion; 300 nm particle size; pH 3.7; 44.5 ± 0.5% solids; anionic

**Rohamere® 1960-D [Röhm Am.; Rohm Tech]**



- Chem. Descrip.:* Ethyl acrylate, methyl methacrylate  
*Uses:* Film-former for nonwoven bonding and impregnation, textile finishing, and paper impregnation; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking acrylic that forms firm, non-yellowing film  
*Properties:* Emulsion; 200 nm particle size; pH 3.0; 45 ± 0.5% solids; anionic
- Rohamere® 3045** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate  
*Uses:* Film-former for high pigment loading and good adhesion to vinyl and paperboard substrates; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; crosslinkable thermoplastic acrylic that forms med., clear, fast-drying film with exc. flexibility  
*Properties:* Emulsion; 110 nm particle size; pH 9.5; 45 ± 0.5% solids; anionic
- Rohamere® 6844-0** [Röhm Am.; Röhm GmbH]  
*Chem. Descrip.:* N-(2-Methacryloyloxyethyl)-ethylene urea 25% sol'n. in methylmethacrylate with 800 ppm MEHQ and 200 ppm PTZ inhibitors  
*Uses:* Wet adhesion monomer for paint resins (improves adhesion to old alkyd paints and wood); also used in plastics, leather, paper, and textile industries; polymerization and copolymerization in bulk, suspension, emulsion, and sol'n.  
*Properties:* Pt-Co 500 max. y/wh. to brn. liq.; sl. ester-like odor; misc. with water; sp.gr. 1.1 (20 C); visc. 6.7 mPa·s (20 C); vapor pressure 23 mbar (20 C); b.p. 100 C; solid. pt. -3 C; flash pt. none; ref. 1.4100-1.4200 (20 C); 1.0% water  
*Toxicology:* Not a skin irritant; TSCA listed  
*Precaution:* Avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light  
*Storage:* 6 mos shelf life @ 30 C max.
- Rohamere® 6852-0** [Röhm Am.; Röhm GmbH]  
*Chem. Descrip.:* N-(2-Methacryloyloxyethyl)-ethylene urea (50% sol'n. in water) with 800 ppm MEHQ and 200 ppm PTZ inhibitors  
*Uses:* Wet adhesion monomer for paint resins (improves adhesion to old alkyd paints and wood); also used in plastics, leather, paper, and textile industries; polymerization and copolymerization in bulk, suspension, emulsion, and sol'n.  
*Properties:* Pt-Co 500 max. y/wh. to brn. liq.; sl. ester-like odor; misc. with water; sp.gr. 1.1; visc. 6.7 mPa·s (20 C); vapor pressure 23 mbar (20 C); b.p. 100 C; solid. pt. -3 C; flash pt. none; ref. idex 1.4100-1.4200 (20 C); 50 ± 2.5% water; 50 ± 2.5% reactive ester  
*Toxicology:* Not a skin irritant; TSCA listed  
*Precaution:* Avoid contamination with peroxides, azo compds., heavy metal ions, tert. amines, S compds.; polymerization also induced by light  
*Storage:* 6 mos shelf life @ 30 C max.
- Rohamere® 8437** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Butyl acrylate, ethyl acrylate emulsion  
*Uses:* Used for nonwovens, textile backcoating, flocking, and paper applics.; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; nonyel. very soft acrylic with exc. wash and dry clean fastness  
*Properties:* Emulsion; 300 nm particle size; pH 4.5; 44.5 ± 0.5% solids; anionic
- Rohamere® 8464** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, acrylonitrile  
*Uses:* Film-former for backcoating formulations, laminating adhesives, or fabric finishing; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; std. self-crosslinking acrylic forms clear, flexible film; exc. mechanical stability  
*Properties:* Clear emulsion; 400 nm particle size; pH 3.0; 45 ± 0.5% solids; anionic/nonionic
- Rohamere® 8478** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate  
*Uses:* Film-former for fibrous or nonwoven applics. and paper impregnation; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking acrylic that forms med. film; nonyellowing  
*Properties:* Emulsion; 200 nm particle size; pH 3.0; 45 ± 0.5% solids; anionic
- Rohamere® 8596** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, acrylic acid sol'n.  
*Uses:* Film-former for textile sizing applics. and leather tanning; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; clear acrylic sol'n. polymer that forms soft film
- Properties:* Sol'n.; pH 1.5; 35 ± 0.5% solids
- Rohamere® 8662** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate emulsion  
*Uses:* Film-former; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; finishing agent in textile, leather, paper applics.; thermoplastic acrylic; forms a medium film  
*Properties:* Emulsion; 145 nm particle size; pH 6.5; 46 ± 0.5% solids; anionic/nonionic
- Rohamere® 9158** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate sol'n.  
*Uses:* Used for textile and leather saturation applics. requiring exc. penetration and improvement of break and scuff resist. in leather; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; clear, soft acrylic  
*Properties:* Sol'n.; pH 8.5; 21 ± 0.5% solids; anionic
- Rohamere® 84116** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate  
 CAS 140-88-5; EINECS/ELINCS 205-438-8  
*Uses:* Used for nonwovens, fabric finishing, laminating, and paper saturations; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking acrylic; nonyellowing; exc. wash and dry clean fastness  
*Properties:* Emulsion; 240 nm particle size; pH 3.5; 45 ± 0.5% solids; anionic/nonionic
- Rohamere® 84124** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, methyl methacrylate  
*Uses:* Film-former for spray coating and impregnation onto fibrous or nonwoven materials and paper; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking acrylic that forms stiff, nonyellowing film; exc. wash and dry clean durability  
*Properties:* Emulsion; 340 nm particle size; pH 3.0; 45 ± 0.5% solids; anionic
- Rohamere® 87219** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Ethyl acrylate, acrylonitrile  
*Uses:* Used in various coating applics.; binder and additive for nonwoven bonding, textile finishing/coating, papermaking; std. self-crosslinking acrylic; rec. where str. and good flexibility are required; good wash and dry clean durability  
*Properties:* Emulsion; 203 nm particle size; pH 3.0; 45 ± 0.5% solids; anionic/nonionic
- Rohamere® FF-6** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Butyl acrylate, methyl methacrylate  
*Uses:* Binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking formaldehyde-free polymer; low temp. cure; provides med. hand with very good wash and dry clean fastness  
*Properties:* Emulsion; 220 nm particle size; pH 2.5; 45 ± 0.5% solids; anionic
- Rohamere® FF-20** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Butyl acrylate  
 CAS 141-32-2; EINECS/ELINCS 205-480-7  
*Uses:* Binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking formaldehyde-free polymer; rec. for applics. where soft conventional crosslinking systems are used; low temp. cure; provides soft hand with very good wash and dry clean fastness  
*Properties:* Emulsion; 220 nm particle size; pH 2.5; 45 ± 0.5% solids; anionic
- Rohamere® FF+40** [Röhm Am.; Rohm Tech]  
*Chem. Descrip.:* Butyl acrylate, methyl methacrylate  
*Uses:* Binder and additive for nonwoven bonding, textile finishing/coating, papermaking; self-crosslinking formaldehyde-free polymer for applics. requiring stiff highly resist. finish; low temp. cure; provides firm hand with very good wash and dry clean fastness  
*Properties:* Emulsion; 220 nm particle size; pH 2.5; 45 ± 0.5% solids; anionic
- Rohatol® BV 411** [Rohm Tech]  
*Chem. Descrip.:* Self-crosslinking acrylic polymer emulsion  
*Uses:* Binder and additive for nonwoven bonding (waddings for clothing and interlinings), textile finishing (high-pile fabrics, flocking adhesives), textile coating (sportswear and leisure wear), papermaking and paper finishing  
*Properties:* Emulsion; pH 2.5; Polymer: tens. str. 5 M/mm<sup>2</sup>; elong. 80% (@ break); 50% solids; anionic
- Rohatol® BV 596** [Rohm Tech]

*Chem. Descrip.:* Self-crosslinking acrylic polymer emulsion

*Uses:* Binder and additive for nonwoven bonding (waddings for clothing, coating carriers for bitumen and PVC, needle felts for automotive articles, abrasives), textile finishing (high-pile fabrics, flocking adhesives), textile coating (roller and vertical blinds), papermaking and paper finishing

*Properties:* Emulsion; pH 2.8; Polymer: tens. str. 49 M/mm<sup>2</sup>; elong. 6% (@ break); 50% solids; anionic

**Rohatol® D 362** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer emulsion

*Uses:* Binder and additive for textile coating, protective foils, paper finishes

*Properties:* Emulsion; pH 7.5; Polymer: tens. str. 1 N/mm<sup>2</sup>; elong. 2400% (@ break); 50% solids; sl. anionic

**Rohatol® D 471** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer emulsion

*Uses:* Binder and additive for nonwoven bonding, roller and vertical blinds, bookbinding fabrics, papermaking and paper coatings

*Properties:* Emulsion; pH 9.6; Polymer: tens. str. 3 M/mm<sup>2</sup>; elong. 650% (@ break); 50% solids; anionic

**Rohatol® D 541** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer emulsion

*Uses:* Binder and additive for nonwoven bonding, roller and vertical blinds, textile coatings (tents, tarpaulins, awnings, tablecloths), papermaking and paper coatings

*Properties:* Emulsion; pH 9.5; Polymer: tens. str. 10 M/mm<sup>2</sup>; elong. 300% (@ break); 50% solids; anionic

**Rohatol® DV 242** [Rohm Tech]

*Chem. Descrip.:* Self-crosslinking acrylic polymer emulsion

*Uses:* Binder and additive for nonwoven bonding (interlinings, nonwovens for hygiene and hospital requisites, household and home), textile finishing (tarpaulins, tents, awnings, high-pile fabrics, upholstery fabrics, mattress ticking), textile coating (sportswear and leisure wear, tents, tarpaulins, awnings, roller and vertical blinds, suitcase, rucksacks, boat coverings, food wrapping), papermaking and paper finishing

*Properties:* Emulsion; pH 2.1; Polymer: tens. str. 2 M/mm<sup>2</sup>; elong. 140% (@ break); 50% solids; anionic

**Rohatol® DV 440** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer

*Uses:* Binder and additive for nonwoven bonding (for hygiene and hospital requisites, filters for dairy industry), textile finishing (upholstery fabrics, mattress ticking), papermaking and paper finishing; crosslinkable with melamine or urea resins

*Properties:* Emulsion; pH 2.5; Polymer: tens. str. 1 M/mm<sup>2</sup>; elong. 700% (@ break); 50% solids; anionic

**Rohatol® DV 477** [Rohm Tech]

*Chem. Descrip.:* Self-crosslinking acrylic polymer emulsion

*Uses:* Binder and additive for nonwoven bonding (waddings for upholstery, quilts, sleeping bags, clothing, nonwovens for household, air filters, dust masks, insulating materials), textile finishing (upholstery fabrics, mattress ticking, high-pile fabrics), textile coating (sportswear and leisure wear, tents, tarpaulins, awnings, roller and vertical blinds, suitcases, rucksacks, boat coverings, mattress covers), papermaking and finishing

*Properties:* Emulsion; pH 2.1; Polymer: tens. str. 7 M/mm<sup>2</sup>; elong. 147% (@ break); 50% solids; anionic

**Rohatol® DV 544** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer

*Uses:* Binder and additive for nonwoven bonding (household), papermaking and paper finishing; crosslinkable with melamine or urea resins

*Properties:* Emulsion; pH 8.4; Polymer: tens. str. 15 M/mm<sup>2</sup>; elong. 240% (@ break); 50% solids; anionic

**Rohatol® DV 571** [Rohm Tech]

*Chem. Descrip.:* Self-crosslinking acrylic polymer emulsion

*Uses:* Binder and additive for nonwoven bonding (waddings for upholstery, quilts, sleeping bags, clothing, coating carriers for bitumen and PVC, air filters, dust masks, insulating materials), textile finishing (edge-stiffening agent for knitwear, high pile fabrics), textile coating (sportswear and leisure wear, tents, tarpaulins, awnings, roller and vertical blinds, suitcases, rucksacks, boat coverings, mattress covers, protective foils), papermaking and finishing

*Properties:* Emulsion; pH 2.2; Polymer: tens. str. 24 M/mm<sup>2</sup>; elong. 85% (@ break); 50% solids; anionic

**Rohatol® M 600** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer

*Uses:* Binder and additive for nonwoven bonding, roller and vertical blinds, textile coatings (tents, tarpaulins, awnings, tablecloths, roller blinds), book-binding fabrics, papermaking and paper coatings

*Properties:* Emulsion; pH 9.5; Polymer: tens. str. 35 M/mm<sup>2</sup>; elong. 4% (@ break); 50% solids; sl. anionic

**Rohatol® M 630** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer

*Uses:* Binder and additive for nonwoven bonding (battery separators), food wrappings, papermaking and paper coating

*Properties:* Emulsion; pH 7.0; Polymer: tens. str. 35 M/mm<sup>2</sup>; elong. 4% (@ break); 50% solids; anionic

**Rohatol® M 712** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer

*Uses:* Binder and additive for nonwoven bonding (battery separators) and papermaking

*Properties:* Emulsion; pH 7.0; Polymer: tens. str. 26 M/mm<sup>2</sup>; elong. 85% (@ break); 50% solids; anionic

**Rohatol® MV 604** [Rohm Tech]

*Chem. Descrip.:* Thermoplastic acrylic polymer

*Uses:* Binder and additive for nonwoven bonding (for hygiene and hospital requisites, filters for dairy industry), glass-fiber nettings for reinforcement; crosslinkable with melamine or urea resins

*Properties:* Emulsion; pH 2.5; Polymer: tens. str. 22 M/mm<sup>2</sup>; elong. 8% (@ break); 50% solids; anionic

**Ropaque® BC-643** [Rohm & Haas]

*Chem. Descrip.:* Styrene acrylic hollow spheres

CAS 9010-92-8

*Uses:* Pigment, binder providing gloss, opacity, and brightness for paper and paperboard coatings; rec. for coatings where optical props. and bulk are desired

*Properties:* Hollow spheres; 0.6 µm particle size; 43% void vol.; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 80 cps; pH 8.5; 30% solids; sl. anionic

**Ropaque® HP-1055** [Rohm & Haas]

*Chem. Descrip.:* Styrene acrylic hollow spheres

CAS 9010-92-8

*Uses:* Pigment providing gloss, opacity, and brightness for paper and paperboard coatings; rec. for coatings where optical props. and bulk are desired

*Properties:* Hollow spheres; 1.0 µm particle size; 55% void vol.; sp.gr. 1.02; dens. 8.5 lb/gal; visc. 80 cps; pH 8.5; 26.5% solids; sl. anionic

**Ropaque® HP-543P** [Rohm & Haas]

*Chem. Descrip.:* Styrene acrylic hollow spheres

CAS 9010-92-8

*Uses:* Pigment providing gloss, opacity, and brightness for paper and paperboard coatings; rec. for coatings on nonuniform substrates or for applics. where sheet finishing is limited

*Properties:* Hollow spheres; 0.5 µm particle size; 45% void vol.; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 80 cps; pH 8.5; 30.5% solids; sl. anionic

**Roscol®** [Eka Chems.]

*Chem. Descrip.:* Rosin disp., casein-stabilized

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Sizing agent for internal sizing of all kinds of paper and board in pH range of 4-6

*Properties:* Anionic

**Ross Beeswax** [Frank B. Ross]

*Chem. Descrip.:* Beeswax

EINECS/ELINCS 232-383-7

*Uses:* For use in polishes, cosmetics, medicinal ointments/salves, candles, leather/textile/wood/paper finishes, confectionery, modeling, engraving, acid etching, lithography, emulsions; avail. as crude, yel. refined, and wh. bleached grades

*Regulatory:* FDA 21CFR §184.1973, 184.1975

*Properties:* Lt. taffy to deep brn. wax, char. honey odor; m.p. 62-65 C; acid no. 17-24; cloud pt. -65 C max.

**Ross Beeswax Substitute No. 11** [Frank B. Ross]

*Chem. Descrip.:* Yel. beeswax substitute

*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required

*Properties:* Yel.; m.p. 130-143 F; acid no. 1-5; sapon. no. 6-15

**Ross Beeswax Substitute No. 30** [Frank B. Ross]

*Chem. Descrip.:* Yel. beeswax substitute

- Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Yel.; m.p. 130-143 F; acid no. 1-5; sapon. no. 6-15
- Ross Beeswax Substitute No. 145** [Frank B. Ross]  
*Chem. Descrip.:* Wh. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Wh.; m.p. 140-158 F; acid no. nil; sapon. no. nil
- Ross Beeswax Substitute No. 628/5** [Frank B. Ross]  
*Chem. Descrip.:* Paraffin, candelilla wax, hydrogenated tallow glycerides, stearic acid, and cetyl alcohol  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* M.p. 140-150 F; acid no. 17-27; sapon. no. 60-80
- Ross Beeswax Substitute No. 662** [Frank B. Ross]  
*Chem. Descrip.:* Yel. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Yel.; m.p. 155-160 F; acid no. 17-24; sapon. no. 90-93
- Ross Beeswax Substitute No. 776** [Frank B. Ross]  
*Chem. Descrip.:* Wh. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Wh.; m.p. 145-160 F; acid no. 17-24; sapon. no. 89-103
- Ross Beeswax Substitute No. 909** [Frank B. Ross]  
*Chem. Descrip.:* Yel. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Yel.; m.p. 163-167 F; acid no. 1-3; sapon. no. 6-8
- Ross Beeswax Substitute No. 1595** [Frank B. Ross]  
*Chem. Descrip.:* Yel. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Yel.; m.p. 133-143 F; acid no. 1-5; sapon. no. 5-14
- Ross Beeswax Substitute No. 1623** [Frank B. Ross]  
*Chem. Descrip.:* Wh. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Wh.; m.p. 145-160 F; acid no. 17-24; sapon. no. 89-103
- Ross Beeswax Substitute No. 1892** [Frank B. Ross]  
*Chem. Descrip.:* Wh. beeswax substitute  
*Uses:* Used in polishes, cosmetics, medicinals (ointments, salves), candles, textile, leather, wood, and paper finishes, confectionery, modeling, engraving, acid etching, lithography, and emulsions; for use where pure beeswax is not required  
*Properties:* Wh.; m.p. 140-150 F; acid no. 2-8; sapon. no. 16-28
- Ross Candelilla Wax** [Frank B. Ross]  
*Chem. Descrip.:* Candelilla wax  
CAS 8006-44-8; EINECS/ELINCS 232-347-0  
*Uses:* Used in polishes, leather/textile finishes, cosmetics (lipstick), casting, lubricants/greases, adhesives, chewing gum, paper size, paper coatings; food pkg. adhesives, coatings, paper; avail. as crude and refined grades  
*Regulatory:* FDA 21CFR §172.615, 175.105, 175.320, 176.180  
*Properties:* Grayish-green wax-like fat, aromatic odor; sp.gr. 0.977-0.982; m.p. 38-49 C; acid no. 5-24; iodine no. 2-10; sapon. no. 210-239; flash pt. 470 F min.; ref. index 1.4360
- Ross Carnauba Wax** [Frank B. Ross]  
*Chem. Descrip.:* Carnauba (Copernicia cerifera) wax  
CAS 8015-86-9; EINECS/ELINCS 232-399-4  
*Uses:* Used for polishes, leather finishes, cosmetic creams and lipsticks, casting, lubricants, buffing compds., glazing of candies, gum, pills, and paper, inks; protective coatings, candles, medicinal ointments and salves; lubricant for melamine, phenolics; avail. as Prime or No. 1 Yel. or No. 3 North Country grades  
*Regulatory:* FDA 21CFR §182.1978, 184.1978  
*Properties:* Flakes or powd.; sp.gr. 0.996-0.998; m.p. 181.4 F min.; acid no. 2-10; iodine no. 7-14; sapon. no. 78-95; flash pt. 570 F min.; ref. index 1.4540
- Ross Ceresine Wax** [Frank B. Ross]  
*Chem. Descrip.:* Ceresine wax  
CAS 8001-75-0; EINECS/ELINCS 232-290-1  
*Uses:* Used for adhesives, textile waterproofing/mildewproofing, polishes, sunchecking in rubbers, cosmetic pomades and perfumes, crayons, medicinal ointments and salves, lubricants, mold releases, paper impregnants/sizes, paints, casting; food pkg. adhesives; avail. in various grades  
*Regulatory:* FDA 21CFR §175.105  
*Properties:* Wh., yel., tan, or orange grades; sp.gr. 0.880-0.935; m.p. 53.3-87.8 C; acid no. nil; sapon. no. 2 max.; ref. index 1.425-1.435
- Ross Japan Wax** [Frank B. Ross]  
*Chem. Descrip.:* Japan (Rhus succedanea) wax  
CAS 8001-39-6  
*Uses:* Wax used in package coatings, textile finishes, cosmetics, lubricants for textile, metal, and rope, pencils, crayons, wax modeling, buffing compds., pharmaceuticals; anticorrosion agent for metal; food pkg. adhesives, coatings, paper  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.350, 176.170, 182.10  
*Properties:* Pale cream colored wax, gummy feel; sp.gr. 0.975-0.984; m.p. 46.5-51.5 C; acid no. 6-30; iodine no. 4-15; sapon. no. 200-225; flash pt. 385 F min.; ref. index 1.4550
- Ross Montan Wax** [Frank B. Ross]  
*Chem. Descrip.:* Montan wax  
CAS 8002-53-7; EINECS/ELINCS 232-313-5  
*Uses:* Wax for use as carnauba substitutes, defoaming agents, in carbon paper and printing inks, polishes, rubber prods., plastics, records, insulation, sizing, adhesives; food pkg. adhesives, rubber articles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600  
*Properties:* German crude: pellets, powd.; m.p. 83-89 C; acid no. 31-38; sapon. no. 87-104; Domestic crude/refined: dk. brn., brn., tan flakes, powd.; m.p. 79.4-89 C; acid no. 24-55; sapon. no. 75-135
- Ross Ouricury Wax Replacement** [Frank B. Ross]  
*Uses:* Wax used for shoe polishes, inks for carbon paper, lubricants, mold release, roll leaf, stamping; carnauba wax replacement for use where color is not important  
*Properties:* Dk. color; sp.gr. 0.997-1.010; m.p. 180-188 F; acid no. 2-7; ester no. 76-88; sapon. no. 78-95; flash pt. 289.9 C min.
- Ross Palm Wax No. 765** [Frank B. Ross]  
*Chem. Descrip.:* Palm wax  
CAS 8021-56-5  
*Uses:* Wax used in carbon paper inks, rope and twine lubricants and water repellents, and floor, automotive, furniture, and leather polishes  
*Properties:* M.p. 175-185 F
- Ross Palm Wax No. 1475** [Frank B. Ross]  
*Chem. Descrip.:* Palm wax  
CAS 8021-56-5  
*Uses:* Wax used in carbon paper inks, rope and twine lubricants and water repellents, and floor, automotive, furniture, and leather polishes  
*Properties:* M.p. 171-180 F
- Ross Palm Wax No. 1581** [Frank B. Ross]  
*Chem. Descrip.:* Palm wax  
CAS 8021-56-5  
*Uses:* Wax used in carbon paper inks, rope and twine lubricants and water repellents, and floor, automotive, furniture, and leather polishes  
*Properties:* M.p. 167-175 F
- Ross Synthetic Candelilla Wax** [Frank B. Ross]  
*Chem. Descrip.:* Paraffin, myristyl lignocerate, stearic acid, hydrogenated tallow glyceride  
*Uses:* Wax for use in furniture, leather, auto, and floor polishes, leather and

textile finishes, cosmetics (lipsticks), casting, lubricants/greases, adhesives, chewing gum, paper size and coatings; hard, lustrous

*Properties:* Pale yel. hard wax, faint aromatic odor; m.p. 155-165 F; acid no. 12-22; sapon. no. 43-65; flash pt. 435 F min.

**Ross Wax #140** [Frank B. Ross]

*Chem. Descrip.:* Ethylene distearamide synthetic wax  
CAS 110-30-5; EINECS/ELINCS 203-755-6

*Uses:* Wax used as ingredient, finish or processing aid in adhesives, ammunition, asphalt, explosives, paints, paper, pyrotechnics, lubricants, mold releases, PVC, textile finishes, powd. metallurgy, etc.; food pkg. adhesives, coatings, paper, cellophane; high m.p.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1200

*Properties:* Wh. flakes, powd., or atomized; sol. in hot naphtha, xylene, Carbitol, IPA, trichlorethylene; sp.gr. 0.97; m.p. 138-140 C; flash pt. 530 F min.; acid no. 3-10; dielec. str. 233 V/mil; vol. resist.  $0.99 \times 10^{13}$  ohm-cm

**Ross Wax #160** [Frank B. Ross]

*Chem. Descrip.:* Synthetic wax  
CAS 123237-14-9; EINECS/ELINCS 232-315-6

*Uses:* Wax used as ingredient, finish or processing aid in adhesives, ammunition, explosives, hot-melt coatings, lubricants, paints, paper, pyrotechnics, release agent, propellants, textile finishes, powd. metallurgy, varnish, plastic film, etc.; high m.p.

*Properties:* Tan med. hard wax in lumps, flakes, powd., or atomized; sol. in hot naphtha, xylene, Carbitol, IPA, trichlorethylene, toluene; sp.gr. 1.0232; m.p. 157-162 C; flash pt. 590 F min.; acid no. 10 max.; iodine no. 7.5

**Rovene® 4100** [Mallard Creek Polymers]

*Chem. Descrip.:* Carboxylated styrene-butadiene emulsion

*Uses:* Modifier for air knife and blade coating formations, for boxboard coating and some publication grade papers

*Properties:* 0.19  $\mu$  particle size; visc. 300 cps; pH 6.3; 57% bound styrene;

50% solids

**Rovene® 4106** [Mallard Creek Polymers]

*Chem. Descrip.:* Carboxylated styrene butadiene latex

*Uses:* Hand modifier, sheet gloss aid for paper coatings; extremely hard latex

*Properties:* Particle size 0.20  $\mu$ ; dens. 8.4 lb/gal; visc. 200 cps; pH 6.5; 50% solids; anionic

**Rovene® 4112** [Mallard Creek Polymers]

*Chem. Descrip.:* Carboxylated styrene butadiene latex

*Uses:* Exc. runnability and printability for high speed blade coatings on LWC paper

*Properties:* Particle size 0.18  $\mu$ ; dens. 8.4 lb/gal; visc. 500 cps; pH 6.3; 50% solids; anionic

**Rovene® 4305** [Mallard Creek Polymers]

*Chem. Descrip.:* Carboxylated styrene butadiene latex

*Uses:* Binder for textiles, nonwovens, and paper saturation; soft; zero formaldehyde

*Properties:* 0.20  $\mu$  particle size; dens. 8.40 lb/gal; visc. 500 cps; pH 8.7; 53% solids; S/B ratio 45/55; anionic

**Rovene® 4402** [Mallard Creek Polymers]

*Chem. Descrip.:* Carboxylated styrene butadiene latex

*Uses:* Used for nonwovens and paper saturation; med. soft polymer

*Properties:* 0.20  $\mu$  particle size; dens. 8.40 lb/gal; visc. 300 cps; pH 8.7; 53% solids; S/B ratio 50/50; anionic

**Rovene® 5005** [Mallard Creek Polymers]

*Chem. Descrip.:* Carboxylated styrene-butadiene emulsion

*Uses:* Paper saturant; low foaming; rec. for applics. that require soft and strong saturant

*Properties:* 0.19  $\mu$  particle size; visc. 400 cps; pH 8.7; 45% bound styrene; 53% solids

# S

## Sabofos PP 75 [Sabo SpA]

*Chem. Descrip.:* Sodium alkylpolyglycol ether phosphate  
 CAS 68071-35-2

*Uses:* Detergent; wetting agent for low foaming auxiliaries in textile, paper, cleaners, and machine washing; alkali-stable

*Properties:* Liq.; 75% conc.; anionic

## Sabopon SAM [Sabo SpA]

*Chem. Descrip.:* Sulfosuccinate

*Uses:* Emulsifier in emulsion polymerization; foaming agent for latex emulsions (carpet backing); antigelling agent; cleaning agent for paper mill felts

*Properties:* Paste; 35% conc.; anionic

## Sachtofloc® 46.3 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Sachtoklar® and Synthofloc polyelectrolytes mixt.

*Uses:* Flocculant for treatment of turbid sol'ns. in sl. acidic to sl. alkaline range, e.g., for cleaning of heavily polluted wastewater from paper, textiles, ceramics industries, and petrochem. plants

*Properties:* Clear liq.; sp.gr. 1.20 (20 C); visc. 25 mPa·s (20 C); solid. pt. - 9 C; pH 2.9

*Storage:* 1 yr. shelf life

## Sachtofloc® 46.6 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Sachtoklar® and Synthofloc polyelectrolytes mixt.

*Uses:* Flocculant for treatment of turbid sol'ns. in sl. acidic to sl. alkaline range, e.g., for cleaning of heavily polluted wastewater from paper, textiles, ceramics industries, and petrochem. plants

*Properties:* Clear liq.; sp.gr. 1.19 (20 C); visc. 32 mPa·s (20 C); solid. pt. - 8 C; pH 2.9

*Storage:* 1 yr. shelf life

## Sachtofloc® 46.12 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Sachtoklar® and Synthofloc polyelectrolytes mixt.

*Uses:* Flocculant for treatment of turbid sol'ns. in sl. acidic to sl. alkaline range, e.g., for cleaning of heavily polluted wastewater from paper, textiles, ceramics industries, and petrochem. plants

*Properties:* Clear liq.; sp.gr. 1.18 (20 C); visc. 44 mPa·s (20 C); solid. pt. - 6 C; pH 3.0

*Storage:* 1 yr. shelf life

## Sachtofloc® 46.18 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Sachtoklar® and Synthofloc polyelectrolytes mixt.

*Uses:* Flocculant for treatment of turbid sol'ns. in sl. acidic to sl. alkaline range, e.g., for cleaning of heavily polluted wastewater from paper, textiles, ceramics industries, and petrochem. plants

*Properties:* Clear liq.; sp.gr. 1.17 (20 C); visc. 57 mPa·s (20 C); solid. pt. - 5 C; pH 3.0

*Storage:* 1 yr. shelf life

## Sachtofloc® 46.24 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Sachtoklar® and Synthofloc polyelectrolytes mixt.

*Uses:* Flocculant for treatment of turbid sol'ns. in sl. acidic to sl. alkaline range, e.g., for cleaning of heavily polluted wastewater from paper, textiles, ceramics industries, and petrochem. plants

*Properties:* Clear liq.; sp.gr. 1.16 (20 C); visc. 70 mPa·s (20 C); solid. pt. - 5 C; pH 3.1

*Storage:* 1 yr. shelf life

## Sachtofloc® 46.60 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Sachtoklar® and Synthofloc polyelectrolytes mixt.

*Uses:* Flocculant for treatment of turbid sol'ns. in sl. acidic to sl. alkaline range,

e.g., for cleaning of heavily polluted wastewater from paper, textiles, ceramics industries, and petrochem. plants

*Properties:* Clear liq.; sp.gr. 1.12 (20 C); visc. 86 mPa·s (20 C); solid. pt. - 2 C; pH 3.4

*Storage:* 1 yr. shelf life

## Sachtoklar® 37 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Polyaluminum chloride aq. sol'n.

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (13.2%); Cl (17.5%); Al (7%); SO<sub>4</sub> (< 1.0%)  
 CAS 1327-41-9; EINECS/ELINCS 215-477-2

UN No. 3264

*Uses:* Primary flocculant used for purification of potable and utility water, wastewater treatment, and papermaking process; food-contact applics.

*Use Level:* 5-50 g/m<sup>3</sup> (potable water); 10-5000 g/m<sup>3</sup> (wastewater); 0.3-2% (paper process)

*Regulatory:* German approved for paper in contact with foodstuffs

*Properties:* Yel. clear liq.; odorless; unlimited sol. in water; sp.gr. 1.30 (20 C); visc. 10-60 mPa·s (20 C); vapor pressure 103 hPa (20 C); f.p. - 25 C; b.p. > 100 C; pH 1.4

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; irritating to eyes and skin

*Environmental:* LC0 (leuciscus idus melonatus, 48 h) 750 mg/l; contains no substances or heavy metals in ecologically critical concs.; sl. harmful to water

*Precaution:* Corrosive; acidic; keep away from acid-sensitive materials

*Hazardous Decomp. Prods.:* May form HCl above 200 C

*Storage:* 12 mos storage stability; store dry < 40 C; handle/store with acid-resist. tanks, piping, pumps

## Sachtoklar® 39 [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Polyaluminum chloride aq. sol'n.

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (16.8%); Cl (22%); Al (8.9%); SO<sub>4</sub> (< 1.0%)  
 CAS 1327-41-9; EINECS/ELINCS 215-477-2

UN No. 3264

*Uses:* Primary flocculant used for purification of potable and utility water, wastewater treatment, and papermaking process; food-contact applics.

*Use Level:* 5-50 g/m<sup>3</sup> (potable water); 10-5000 g/m<sup>3</sup> (wastewater); 0.3-2% (paper process)

*Regulatory:* German approved for paper in contact with foodstuffs

*Properties:* Yel. clear liq.; odorless; unlimited sol. in water; sp.gr. 1.37 (20 C); visc. < 60 mPa·s (20 C); vapor pressure 103 hPa (20 C); f.p. -18 C; b.p. > 100 C; pH < 1.4

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; irritating to eyes and skin

*Environmental:* LC0 (leuciscus idus melonatus, 48 h) 750 mg/l; contains no substances or heavy metals in ecologically critical concs.; sl. harmful to water

*Precaution:* Corrosive; acidic; keep away from acid-sensitive materials

*Hazardous Decomp. Prods.:* May form HCl above 200 C

*Storage:* 12 mos storage stability; store dry < 40 C; handle/store with acid-resist. tanks, piping, pumps

## Sachtolith® HD-S [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Zinc sulfide, coated

CAS 1314-98-3; EINECS/ELINCS 215-251-3

*Uses:* Pigment, flame retardant used in thermoplastics (HDPE, PP), thermosets (melamine, urea, polyester), flame-resistant plastics, glass-reinforced plastics, pigment concs. and masterbatches, elastomers, textile fibers, paper, sealants, lubricants; opacifier; dry lubricant; food pkg. adhesives, rub-

ber articles; HD-S grade is coated with a small amt. of org. surfactant and have improved wetting-out and disp. char. in aq. and org. systems

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3297, 178.3570

*Properties:* Wh. powd.; odorless; 0.30 µm mean particle size; dens. 4.0 g/ml; surf. area 8 m<sup>2</sup>/g; oil absorp. 13; ref. index 2.37; pH 7; hardness (Mohs) 3; 98% ZnS

*Toxicology:* ZnS: ACGIH TLV/TWA 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction); avoid dust inh.

*Precaution:* Incompat. with strong acids

*Hazardous Decomp. Prods.:* H<sub>2</sub>S

HMIS: Health 0; Flammability 0; Reactivity 0

**Sachtolith® L** [Sachtleben Chemie GmbH]

*Chem. Descrip.:* Zinc sulfide

CAS 1314-98-3; EINECS/ELINCS 215-251-3

*Uses:* Pigment, flame retardant used in thermoplastics (HDPE, PP), thermosets (melamine, urea, polyester), flame-resistant plastics, glass-reinforced plastics, pigment concs. and masterbatches, elastomers, textile fibers, paper, sealants, lubricants; opacifier; dry lubricant; food pkg. adhesives, rubber articles; L is uncoated std. grade

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3297, 178.3570

*Properties:* Wh.; 0.35 µm mean particle size; dens. 4.0 g/ml; surf. area 8 m<sup>2</sup>/g; oil absorp. 14; ref. index 2.37; pH 6; hardness (Mohs) 3; 98% ZnS content

**Safacid 20/22 CD** [Pronova Oleochems.]

*Chem. Descrip.:* Sat. fatty acid

CAS 68002-88-0; EINECS/ELINCS 2681035

*Uses:* Industrial raw material; emulsifier, lubricant, defoamer, and release agent used in metal soaps, paper sizing, emulsions for textile/paper/wood processing; anticaking agent for fertilizers; hair conditioner; textile auxiliaries; raw material for making versatile greases, flow improvers, biodeg. fluids; good water repellency, high m.p., and gel strength; thermal props.

*Properties:* Lovibond 20Y/2R flakes or liq.; acid no. 167-174; iodine no. 7; sapon. no. 168-178

*Environmental:* Biodeg.; nontoxic to algae, daphnia, and fish

**Safacid 20/22 DF** [Pronova Oleochems.]

*Chem. Descrip.:* Sat. fatty acid

CAS 68002-88-0; EINECS/ELINCS 2681035

*Uses:* Industrial raw material; emulsifier, lubricant, defoamer, and release agent used in metal soaps, paper sizing, emulsions for textile/paper/wood processing; anticaking agent for fertilizers; hair conditioner; textile auxiliaries; raw material for making versatile greases, flow improvers, biodeg. fluids; good water repellency, high m.p., and gel strength; thermal props.

*Properties:* Lovibond 20Y/2R flakes or liq.; acid no. 164-171; iodine no. 8; sapon. no. 165-173

*Environmental:* Biodeg.; nontoxic to algae, daphnia, and fish

**Safacid 20/22 HF** [Pronova Oleochems.]

*Chem. Descrip.:* Sat. fatty acid

CAS 68002-88-0; EINECS/ELINCS 2681035

*Uses:* Industrial raw material; emulsifier, lubricant, defoamer, and release agent used in metal soaps, paper sizing, emulsions for textile/paper/wood processing; anticaking agent for fertilizers; hair conditioner; textile auxiliaries; raw material for making versatile greases, flow improvers, biodeg. fluids; good water repellency, high m.p., and gel strength; thermal props.

*Properties:* Lovibond 15Y/1.5R flakes or liq.; acid no. 164-169; iodine no. 3; sapon. no. 164-171

*Environmental:* Biodeg.; nontoxic to algae, daphnia, and fish

**Safacid 20/22 LF** [Pronova Oleochems.]

*Chem. Descrip.:* Behenic acid and arachidic acid

*Uses:* Industrial raw material; emulsifier, lubricant, defoamer, and release agent used in metal soaps, paper sizing, emulsions for textile/paper/wood processing; anticaking agent for fertilizers; hair conditioner; textile auxiliaries; raw material for making versatile greases, flow improvers, biodeg. fluids; good water repellency, high m.p., and gel strength; thermal props.

*Properties:* Lovibond 15Y/1.5R flakes or liq.; acid no. 164-171; iodine no. 3; sapon. no. 165-173

*Environmental:* Biodeg.; nontoxic to algae, daphnia, and fish

**SAFFIL High Alpha Grade** [ICI SAFFIL]

*Chem. Descrip.:* Polycrystalline alumina fiber

*Chem. Analysis:* Alumina (96%); silica (4%)

CAS 1344-28-1; EINECS/ELINCS 215-691-6

*Uses:* For high temp. insulation applics. (incl. vacuum formed boards, custom shapes and papers); for operating temps. up to 1750 C

*Properties:* < 0.5% impurities

**SAFFIL Low Alpha Grade** [ICI SAFFIL]

*Chem. Descrip.:* Polycrystalline alumina fibers

*Chem. Analysis:* Alumina (96%); silica (4%)

CAS 1344-28-1; EINECS/ELINCS 215-691-6

*Uses:* For high temp. insulation applics. incl. module making, expansion joints, furnace repairs, vacuum formed boards, custom shapes and papers; resist. to thermal shrinkage and chem. attack up to 1600 C

*Properties:* < 0.5% impurities

**Sag 100** [Crompton/Witco]

*Chem. Descrip.:* Silicone compd.

*Uses:* Antifoam for edible oil processing, jam/jelly/sauce mfg., food frying, hog scalding, feed supplement mfg., oil-based cosmetics, food pkg. adhesives and glues, food-contact paper/paperboard; food grade, autoclavable

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.170, 176.180; BATF 27CFR §240.1051; USDA 9CFR §318.7, 381.147

**Sag 275D** [Crompton/Witco]

*Chem. Descrip.:* Organic compd.

*Uses:* Defoamer for waterborne coatings (latex, acrylics, vinyl/acrylics, PVA, semi- and high-gloss paints) and adhesives; defoamer in food-contact coatings, paper/paperboard; cost-effective; recoatable; controls foam and entrained air while minimizing pigment flotation, fish eyes, cratering, orange peel

*Use Level:* 0.5-1%

*Regulatory:* FDA 21CFR §176.180, 176.200, 176.210, 177.1640(b)

*Properties:* Lt. yel. opaque liq.; insol. in water; sp.gr. 0.88; visc. 1250 cP; flash pt. (COC) 116 C; pH 7.0; 100% act.

**Sag 730** [Crompton/Witco]

*Chem. Descrip.:* Dimethicone and silica

*Uses:* Defoamer for wastewater treatment at food processing plants, beverage mfg., whey processing, dehydration/evap./extraction processes, meat/poultry processing, washing/pkg. operations (eggs, vegetables, seafood), ethanol fermentation, flavorings mfg., cosmetics formulations (balms, lotions, moisturizers, ointments, shampoos, sunscreens), adhesives and sealants; food pkg. adhesives; food-contact paper/paperboard; food-grade

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.170, 176.180, 177.1640(b); BATF 27CFR §240.1051; USDA approved

*Properties:* Disp. in water; 30% act.

**Sag 770** [Crompton/Witco]

*Uses:* Foam control agent used in snack food processing, ethanol fermentation, vegetable washing, beverage processing, food pkg. adhesives, food-contact paper/paperboard/polystyrene; food grade emulsion used to control protein or starch stabilized foam; provides rapid knockdown of existing foams; exc. durability

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.170, 176.180, 177.1640(b); USDA approved

*Properties:* Liq.; disp. in water

**Sampaque® 5002** [Huber Engineered Materials]

*Uses:* Structured pigment, TiO<sub>2</sub> extender for paper and paperboard; good opacity and bulking chars.

*Properties:* Slurry; 85-95% finer than 2 µ; 0.03% max. 325 mesh residue; sp.gr. 2.60; visc. 500-700 cps; brightness (TAPPI) 91-93%; ref. index 1.57; pH 10-11.5 (28% solids); 45-51% slurry solids

**Samshin White AS** [Sam Shin]

*Uses:* Fluorescent brightening agent for pulp or paper; used for paper which is sized with rosin or syn. resins; exc. fastness to light, heat, acids, alkalis; unaffected by wide pH conditions

*Properties:* Yel. liq.; UV absorbance 347.6 nm; anionic

*Storage:* Avoid excessive heat and moisture

**Samshin White HL** [Sam Shin]

*Uses:* Fluorescent brightening agent for pulp or paper; used for paper which is sized with rosin or syn. resins; exc. fastness to light, heat, acids, alkalis; unaffected by wide pH conditions

*Properties:* Lt. brn. liq.; UV absorbance 347.6 nm; anionic

*Storage:* Avoid excessive heat and moisture

**Samshin White PL** [Sam Shin]

*Uses:* Fluorescent brightening agent for pulp or paper; used for paper which is sized with rosin or syn. resins; exc. fastness to light, heat, acids, alkalis; unaffected by wide pH conditions

*Properties:* Lt. brn. liq.; UV absorbance 347.6 nm; anionic

*Storage:* Avoid excessive heat and moisture

**Samshin White PR** [Sam Shin]



- Uses:* Fluorescent brightening agent for pulp or paper; used for paper which is sized with rosin or syn. resins; exc. fastness to light, heat, acids, alkalis; unaffected by wide pH conditions  
*Properties:* Highly conc. powd. or liq.; UV absorbance 347.6 nm; anionic  
*Storage:* Avoid excessive heat and moisture
- Samstat-350** [Sam Shin]  
*Uses:* Textile and paper aux. (copying paper, tissue paper); nearly no foaming; no influence on degree of size and whiteness during size press  
*Use Level:* 1-3 part/100 parts of starch on size  
*Properties:* Colorless transparent liq.; visc. < 20 cps; pH 7-9; 35 ± 1% solids; cationic  
*Storage:* 12 mos storage at R.T.
- Sancure® 1511** [BF Goodrich]  
*Chem. Descrip.:* Waterborne aromatic polyurethane polymer  
*Uses:* Used for plastic, concrete, and paper coatings; med. hard polymer  
*Properties:* Opaque; dens. 9.0 lb/gal; visc. 1000 cps; pH 8.7; tens. str. 5500 psi; elong. 230% (break); hardness (Sward) 56; VOC 307 g/l; 35% solids; 11.3% NMP
- Sanfac™** [BASF]  
*Uses:* Surfactant, rewetting agent for papermaking
- Sanibrom™ 40** [Albemarle]  
*Chem. Descrip.:* Sodium bromide (40% sol'n.)  
CAS 7647-15-6; EINECS/ELINCS 231-599-9  
*Uses:* Biocide for use as disinfectant, bactericide, fungicide, algicide, slimeicide, and molluscicide in recirculating and once-thru cooling water systems, wastewater systems, brewery pasteurizers, and pulp/paper mills; use with oxidizer such as sodium hypochlorite or chlorine gas to produce hypobromous acid  
*Regulatory:* EPA reg. no. 3377-25, 3377-32; DOT nonregulated  
*Properties:* Lt. to water-wh. clear liq.; sl. odor; sp.gr. 1.385-1.440; dens. 11.6-12.1 lb/gal (21 C); b.p. 100-112 C; flash pt. none; pH 7-9 (1:10); 38-42% assay  
*Toxicology:* Eye and skin irritant  
*Precaution:* Avoid strong acids, oxidizing agents, and extremely high heat; corrosive to aluminum
- Sanibrom™ 45** [Albemarle]  
*Chem. Descrip.:* Sodium bromide (45% sol'n.)  
CAS 7647-15-6; EINECS/ELINCS 231-599-9  
*Uses:* Biocide for use as disinfectant, bactericide, fungicide, algicide, slimeicide, and molluscicide in recirculating and once-thru cooling water systems, wastewater systems, brewery pasteurizers, and pulp/paper mills; use with oxidizer such as sodium hypochlorite or chlorine gas to produce hypobromous acid  
*Regulatory:* EPA reg. no. 3377-29, 3377-28; FIFRA registered  
*Properties:* Lt. to water-wh. clear liq.; sl. odor; sp.gr. 1.470-1.500; dens. 12.3-12.6 lb/gal (21 C); b.p. 100-112 C; flash pt. none; pH 7-9 (1:10); 44-46% assay  
*Toxicology:* Eye and skin irritant  
*Precaution:* Avoid strong acids, oxidizing agents, and extremely high heat; corrosive to aluminum
- Sanpeg™** [BASF]  
*Chem. Descrip.:* PEG-based  
*Uses:* Release agent for papermaking
- San-Sil® AN 45** [BASF]  
*Chem. Descrip.:* Syn. amorphous silica  
CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Pigment for saturating paper grades used in decorative laminates and in paper coating applics. to enhance porosity, brightness, and ink receptivity  
*Properties:* Wh. powd.
- San-Sil® BD-73** [BASF]  
*Chem. Descrip.:* Syn. amorphous silica  
CAS 7631-86-9; EINECS/ELINCS 231-545-4  
*Uses:* Pigment for paper coating applics. where surf. smoothness is critical, for size press treated grades requiring enhanced brightness and surf. smoothness, and for ink jet applic.; provides exc. coating porosity  
*Properties:* Wh. powd.
- San-Sil® CG-102** [BASF]  
*Chem. Descrip.:* Syn. amorphous silica  
CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Pigment for paper wet end filler additions, paper/paperboard coatings, and size press applics. to improve printing and brightness while maintaining opacity  
*Properties:* Wh. powd.
- San-Sil® KU 33** [BASF]  
*Chem. Descrip.:* Syn. amorphous silica  
CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Pigment for paper coating applics. where surf. smoothness is critical, for size press treated grades requiring enhanced brightness and surf. smoothness; provides exc. coating porosity; improves printing and brightness  
*Properties:* Wh. powd.
- Sansink SB 301** [BASF]  
*Uses:* Deinking agent, surfactant for agglomerating laser and xerographic inks in paper processing; patented
- SanSoft™** [BASF]  
*Chem. Descrip.:* Quat. ammonium compd.  
*Uses:* Softener for tissue paper  
*Properties:* Cationic
- Sansperse™ WTC** [BASF]  
*Chem. Descrip.:* Phosphate-based high activity multicomponent formulation with acrylate dispersants and proprietary sequestrants  
*Uses:* Scale control agent, dispersant for alkaline deinking systems in papermaking; keeps washer and extractor surfaces clean in pulping and bleaching processes and in heat exchangers and scrubber systems; provides protection from scale in the presence of both temp. and pH shock; effective on calcium carbonate and calcium sulfate scale  
*Properties:* Liq.
- Sanstrip™ CA** [BASF]  
*Uses:* Acid boilout cleaning chem. for paper processing
- Sanstrip™ FP** [BASF]  
*Uses:* Alkaline boilout cleaning chem. for paper processing
- Santolink® AM-129** [Solutia]  
*Chem. Descrip.:* Etherified acrylated melamine/formaldehyde resin (62-68%) in tripropylene glycol diacrylate  
*Uses:* Crosslinking resin in radiation-cure applics. such as polyester and epoxy acrylates, unsat. polyesters, aliphatic and aromatic urethane acrylates, and most acrylate monomer diluents; imparts hardness and gloss, stain and chem. resist. to coatings, paper coatings; cured by free radical polymerization initiated by UV or thermal processing  
*Regulatory:* DOT nonregulated; SARA §302, 313 nonreportable  
*Properties:* Clear visc. liq.; sl. acrylate odor; insol. in water; sol. in most alcohols, aromatic hydrocarbons, ketones, and paraffins; sp.gr. 1.07-1.11 (20 C); dens. 8.9-9.3 lb/gal; visc. 4000-8000 cps; flash pt. (PMCC) > 110 C; 97% min. NV; < 0.1% free formaldehyde  
*Toxicology:* May cause eye and skin irritation; causes respiratory tract irritation; may cause allergic skin reaction; contains formaldehyde—potential cancer hazard; TSCA listed  
*Hazardous Decomp. Prods.:* Thermal decomp. may produce formaldehyde, methanol, nitrogenous prods., CO, and amines  
*Storage:* Store closed in cool, well ventilated area away from foodstuffs, reducing agents, and acids
- Santonox® TBMC** [Flexsys]  
*Chem. Descrip.:* 4,4'-Thiobis(6-t-butyl-m-cresol)  
CAS 96-69-5  
*Uses:* Antioxidant for paper film coatings, polyolefin stabilization, pulp/paper stabilization, NR and syn. rubbers, adhesives, PE, PP, ABS, cable coatings; antioxidant, stabilizer for food-grade polymers, rubber, adhesives; thermal print stabilizer; fiber lubricant stabilizer; stabilizer for NBR, ABS, PE, PP, EPM, EPDM; highly effective protectant for polyethylene; non-staining; nondiscoloring; in very low concs., forestalls degradation caused by processing heat and by UV light in outdoor aging  
*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.2010; BgVV XXI compliant  
*Properties:* Wh. to off-wh. fine powd. or cryst. powd.; m.w. 358.55; sp.gr. 1.09; m.p. 156-164 C  
*Storage:* 12 mos shelf life; store in single-stacked pallets in cool, dry, well-ventilated area away from direct sunlight
- Santowhite® BBMC** [Flexsys]  
*Chem. Descrip.:* 4,4'-Butylidenebis-(6-t-butyl-m-cresol)  
CAS 85-60-9  
*Uses:* Antioxidant for PE, PP, ABS, NR, synthetics, latexes, adhesives, oils for fiber finishes, food-grade polymers; stabilizer for syn. polymers, resins, inks; stabilizer, antigellant for drying oils; antioxidant, stabilizer for paper coatings, photographic coatings, thermal fax paper; food pkg. adhesives, coatings, rubber articles; nonstaining; provides exc. thermal oxida-

tive/UV discoloration protection; rec. for wh. or lt. colored prods. where color is critical; non-pinking

*Regulatory:* FDA 21CFR §175.105, 175.210, 175.300, 177.1632, 177.2600, 178.2010; BfVV XXI compliant

*Properties:* Wh. powd.; sol. in alcohol, acetone; insol. in petrol. ether; sp.gr. 1.03; m.p. 206-214 C

*Storage:* Store in single-stacked pallets in cool, dry, well-ventilated area away from direct sunlight

**Sappco Spa Securigard** [SA Paper Chems.; British Traders & Shippers]

*Chem. Descrip.:* Benzothiazole

*Uses:* Security chems. for paper

**Sarbox® SB 500 E50** [Sartomer]

*Chem. Descrip.:* Aromatic acid methacrylate half ester in SR 454 (ethoxylated trimethylolpropane triacrylate) with 1190 ppm MEHQ

*Uses:* Used in coatings (metal, paper, plastic, wood), inks (flexo and gravure, screen); fast cure speed, good wetting chars., exc. hardness and tens. str.; exc. adhesion to metal and plastic, good pigment dispersibility, good gloss characteristics

*Properties:* APHA 100-200 clear liq.; sp.gr. 1.16-1.19; dens. 9.7-9.9 lb/gal; visc. 75,000-100,000 cps; acid no. 130-160; flash pt. (Seta) > 200 F; 100% reactive esters

*Toxicology:* Low/moderate eye and skin irritation

*Storage:* Store in cool (preferably air-conditioned) area < 90 F away from direct sunlight, oxidizing agents and materials which may generate free radicals; use within 6 mos of receipt

**Sarbox® SB 500 K60** [Sartomer]

*Chem. Descrip.:* Aromatic acid methacrylate half ester in SR 344 (PEG-8 diacrylate) with 1060 ppm MEHQ

*Uses:* Used in adhesives, coatings (metal, paper, plastic, wood), inks (flexo and gravure, screen); good cure speed, wetting chars.; exc. adhesion to metal and plastic, org. and inorg. pigment dispersibility, exc. solv. resist.

*Properties:* APHA 100-200 clear liq.; sp.gr. 1.16-1.19; dens. 9.7-9.9 lb/gal; visc. 35,000-50,000 cps; acid no. 130-160; flash pt. (Seta) > 200 F; 100% reactive esters

*Toxicology:* Low/moderate eye and skin irritation

*Storage:* Store in cool (preferably air-conditioned) area < 90 F away from direct sunlight, oxidizing agents and materials which may generate free radicals; use within 6 mos of receipt

**Sarbox® SB 510 E35** [Sartomer]

*Chem. Descrip.:* Aromatic acid methacrylate half ester in SR 454 (ethoxylated trimethylolpropane triacrylate) with 620 ppm MEHQ

*Uses:* Used in adhesives, coatings (metal, paper, plastic, wood), inks (flexo and gravure, screen), plastisols; adhesion promoter for plastisol systems; exc. cure speed, exc. adhesion to metal and plastic, good wetting and flow characteristics; UV/EB or conventional cure; improved tensile and modulus props. while maintaining flexibility; exc. thin-film adhesion to electrocoated steel

*Properties:* APHA 150-250 clear liq.; sp.gr. 1.16-1.19; dens. 9.7-9.9 lb/gal; visc. 80,000-120,000 cps; acid no. 200-230; flash pt. (Seta) > 200 F; 100% reactive esters

*Toxicology:* Low/moderate eye and skin irritation

*Storage:* Store in cool (preferably air-conditioned) area < 90 F away from direct sunlight, oxidizing agents and materials which may generate free radicals; use within 6 mos of receipt

**Sarbox® SB 520 E35** [Sartomer]

*Chem. Descrip.:* Aromatic acid acrylate half ester in SR 454 (ethoxylated trimethylolpropane triacrylate) with 145 ppm MEHQ

*Uses:* Used in adhesives, coatings (metal, paper, plastic, wood), inks (flexo and gravure, screen); exc. cure speed, good wetting and flow characteristics, exc. adhesion to metal, plastic, electrocoated steel; intercoat adhesion; UV/EB or conventional cure

*Properties:* APHA 150-250 clear liq.; sp.gr. 1.16-1.19; dens. 9.7-9.9 lb/gal; visc. 80,000-120,000 cps; acid no. 200-230; flash pt. (Seta) > 200 F; 100% reactive esters

*Toxicology:* Low/moderate eye and skin irritation

*Storage:* Store in cool (preferably air-conditioned) area < 90 F away from direct sunlight, oxidizing agents and materials which may generate free radicals; use within 6 mos of receipt

**Sarbox® SB 520 M35** [Sartomer]

*Chem. Descrip.:* Aromatic acid acrylate half ester in SR 339 (2-phenoxyethyl acrylate) with 1060 ppm MEHQ inhibitor

*Uses:* Used for adhesives, coatings (metal, paper, wood, plastics), and inks

(flexo, gravure, screen); offers good cure speed, exc. adhesion to metal and plastics, good solv. and acid resist., high gloss, water/abrasion/chem./heat resist.; good wetting and flow char.

*Properties:* APHA 225 clear liq.; dens. 9.583 lb/gal; visc. 950 cps

*Storage:* 6 mos shelf life

**SarCat® K126** [Sartomer]

*Chem. Descrip.:* Cycloaliphatic diepoxide

*Uses:* Adhesion promoter for laminating adhesives, coatings (metal, paper, plastic, wood), inks, and electronics; fast cure, low volatility

*Properties:* APHA 10 clear liq.; sp.gr. 1.167; visc. 236 cps; cationic

**SB-332** [Huber Engineered Materials]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Filler, flame retardant, smoke suppressant for thermoplastics, thermosets, FRP spray-up/hand lay-up, FRP continuous panel, adhesives, sealants, mastics, paints, coatings, paper, elastomers, and rubber prods.; high loading; med. grind; high in superfines

*Properties:* Ground particulate; 11 μ median particle diam.; 98% thru 325 mesh; sp.gr. 2.42; bulk dens. 0.7 g/cc (loose); surf. area 3-4 m<sup>2</sup>/g; oil absorp. 27-28; brightness (TAPPI) 88; ref. index 1.57; hardness (Mohs) 2.5-3.5

**SB-805** [Huber Engineered Materials]

*Chem. Descrip.:* Alumina trihydrate

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (64.9%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Filler, flame retardant, smoke suppressant for neoprene foam, thermoplastics, thermosets, adhesives, paints, coatings, paper; high loading; commonly used where a high degree of active surf. area is required and high loading levels must be maintained

*Properties:* Superfine powd.; 2.6 μ median particle diam.; 99.99% thru 325 mesh; sp.gr. 2.42; bulk dens. 0.4 g/cc (loose), 0.7 g/cc (packed); surf. area 5-6 m<sup>2</sup>/g; oil absorp. 34; brightness (TAPPI) 90-95; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Schercofol DSB** [Scher]

*Chem. Descrip.:* Modified ethoxylated alkylamine

*Uses:* Dispersant for chopped strand fiberglass, paper, syn. fibers, and other nonwoven prods.; creates little or no foam

*Properties:* Amber liq.; faint typ. odor; completely sol. in water; sp.gr. 1.0; dens. 8.5 lb/gal; visc. 100-400 cps; vapor pressure < 25 mm Hg; b.p. 206 F; flash pt. (Seta) > 210 F; pH 6-7.5; 40-43% solid; cationic

*Toxicology:* Possible skin irritant; eye, nasal, and intestinal tract irritant; prolonged contact may cause dermatitis

*Precaution:* Incompat. with strong acid, strong alkali; spills are slippery

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, ammonia

*Storage:* 1 yr shelf life; avoid overheating or freezing; spilled material is slippery

**Schercoquat IAS** [Scher]

*Chem. Descrip.:* Isostearamidopropyl ethyldimonium ethosulfate

CAS 67633-63-0; EINECS/ELINCS 266-778-0

*Uses:* Emulsifier, dispersant, and flocculant for fibers, pulp/paper

*Properties:* Amber clear visc. liq., slight mild odor; water-sol.; m.w. 522; sp.gr. 0.99 ± 0.01; dens. 8.2 lb/gal; pH 5-7 (5.0% aq.); 90% min. act.; cationic

**Schercoquat IIS** [Scher]

*Chem. Descrip.:* Isostearyl ethylimidonium ethosulfate

CAS 67633-57-2; EINECS/ELINCS 266-778-0

*Uses:* Emulsifier, dispersant, flocculant for fibers, pulp/paper

*Properties:* Dk. amber clear to sl. hazy visc. liq., sl. mild odor; m.w. 532; sp.gr. 1.036 ± 0.01; dens. 8.6 lb/gal; pH 4-7 (5.0% aq.); 98% min. dry solids; cationic

**Schercozoline I** [Scher]

*Chem. Descrip.:* Isostearyl hydroxyethyl imidazoline

CAS 68966-38-1; EINECS/ELINCS 273-429-6

*Uses:* Surfactant, softener, antistat, dye assistant for textiles, paper, cutting oils, metal lubricants, polishes, cosmetics, agric., corrosion inhibitors, building materials

*Properties:* Amber clear liq.; m.w. 378; alkali no. 150-160; 90% min. imidazoline; cationic

Custom prod.

**Schercozoline L** [Scher]

*Chem. Descrip.:* Lauryl hydroxyethyl imidazoline

CAS 136-99-2; EINECS/ELINCS 205-271-0

*Uses:* Surfactant, softener, dye assistant, antistat for textiles, paper, cutting oils, metal lubricants, polishes, cosmetics, corrosion inhibitors, building materials; intermediate for quats.

*Properties:* Cream solid; m.w. 268; m.p. 38-42 C; alkali no. 204-214; 90% min. imidazoline; cationic

Custom prod.

#### Schercozoline O [Scher]

*Chem. Descrip.:* Oleyl hydroxyethyl imidazoline

CAS 95-38-5; EINECS/ELINCS 248-248-0

*Uses:* Surfactant, softener, dye assistant, antistat, w/o emulsifier, corrosion inhibitor for textiles, paper, cutting oils, metal lubricants, polishes, cosmetics, agric., building materials; intermediate for quat. ammonium compds.

*Properties:* Dk. amber liq.; m.w. 350; alkali no. 160-170; 90% min. imidazoline; cationic

Custom prod.

#### Schercozoline S [Scher]

*Chem. Descrip.:* Stearyl imidazoline

CAS 95-19-2; EINECS/ELINCS 202-397-8

*Uses:* Surfactant, softener, antistat, dye assistant for textiles, paper, cutting oils, metal lubricants, polishes, cosmetics, agric., corrosion inhibitors, building materials

*Properties:* Cream solid; m.w. 336; m.p. 44-48 C; 90% min. imidazoline; cationic

Custom prod.

#### Sclair® 10A [NOVA Chems.]

*Chem. Descrip.:* Octene VLDPE with process stabilizer

*Uses:* Blending film resin for improved toughness; food-contact paper/paperboard, polymer; low gel, exc. sealability, exc. clarity, easy processability

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 1.7 g/10 min.; sp.gr. 0.911; tens. str. 34 MPa (MD); elong. 400% (MD); tear str. 13 g/μm (MD); Dart drop str. 6 g/μm

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 10B [NOVA Chems.]

*Chem. Descrip.:* Octene VLDPE with process stabilizer

*Uses:* Film resin for coextrusion; food-contact paper/paperboard, polymer; low gel, exc. sealability, dart impact, and clarity

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 0.77 g/10 min.; sp.gr. 0.911; tens. str. 50 MPa (MD); elong. 500% (MD); tear str. 16 g/μm (MD); Dart drop str. 28 g/μm

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 10C [NOVA Chems.]

*Chem. Descrip.:* Octene VLDPE with process stabilizer

*Uses:* Film resin for specialty blending and sealant/lamination applics.; food-contact paper/paperboard, polymer; low gel, exc. sealability, dart impact, and clarity

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 0.77 g/10 min.; sp.gr. 0.911; tens. str. 45 MPa (MD); elong. 550% (MD); tear str. 20 g/μm (MD); Dart drop str. > 41 g/μm

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 11B4 [NOVA Chems.]

*Chem. Descrip.:* Octene LLDPE with high slip and antblock, process stabilizer, polymer process aid

CAS 9002-88-4

*Uses:* Film resin for specialty lamination and coextrusion; food-contact paper/paperboard, polymer; low gel, exc. seal chars., easy processability

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 0.77 g/10 min.; sp.gr. 0.921; soften. pt. (Vicat) 104 C; tens. str. 34 MPa (MD); elong. 600% (MD); tear str. 12 g/μm (MD); Dart drop str. 6 g/μm; hardness (Shore D) 58

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 11P2 [NOVA Chems.]

*Chem. Descrip.:* Butene LLDPE with low slip/antblock, process stabilizer, and polymer process aid

CAS 9002-88-4

*Uses:* Film resin for specialty lamination and coextrusion; food-contact paper/paperboard, polymer; low gel; exc. seal chars.; easy processability

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 0.72 g/10 min.; sp.gr. 0.920; soften. pt. (Vicat) 98 C; tens. str. 42 MPa (MD); elong. 800% (MD); tear str. 2 g/μm (MD); Dart drop str. 3 g/μm

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 11P3 [NOVA Chems.]

*Chem. Descrip.:* Butene LLDPE with med. slip/antblock, process stabilizer, polymer process aid

CAS 9002-88-4

*Uses:* Film resin for specialty lamination and coextrusion; food-contact paper/paperboard, polymer; low gel; exc. seal chars.; easy processability

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Melt index 0.72 g/10 min.; sp.gr. 0.920; soften. pt. (Vicat) 98 C; tens. str. 42 MPa (MD); elong. 800% (MD); tear str. 2 g/μm (MD); Dart drop str. 3 g/μm

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 11P4 [NOVA Chems.]

*Chem. Descrip.:* Butene LLDPE with high slip/antblock, process stabilizer, polymer process aid

CAS 9002-88-4

*Uses:* Film resin for specialty lamination and coextrusion; food-contact paper/paperboard, polymer; low gel; exc. seal chars.; easy processability

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Melt index 0.72 g/10 min.; sp.gr. 0.920; soften. pt. (Vicat) 98 C; tens. str. 42 MPa (MD); elong. 800% (MD); tear str. 2 g/μm (MD); Dart drop str. 3 g/μm

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 58G (High Gloss) [NOVA Chems.]

*Chem. Descrip.:* HDPE with processing antioxidant

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Blow molding resin for sm. part blow molding, inj. blow molding, low-mod. ESCR uses; food-contact paper/paperboard; outstanding gloss, pearlescent finish when colored

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Melt index 0.96 g/10 min.; sp.gr. 0.958; bulk dens. 0.61 g/cm<sup>3</sup>; soften. pt. (Vicat) 126 C; tens. str. 27.6 MPa (@ yield, 50 mm/min.); elong. 1200% (50 mm/min.); hardness (Shore D) 67

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 61C [NOVA Chems.]

*Chem. Descrip.:* Octene LLDPE with process stabilizer

CAS 9002-88-4

*Uses:* Extrusion resin for food pkg., milk cartons, and paperboard containers; food-contact paper/paperboard, polymer; offers exc. sealability and toughness, high adhesion and drawdown, good barrier props. and abrasion resist.

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 5.3 g/10 min.; sp.gr. 0.919

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 69A [NOVA Chems.]

*Chem. Descrip.:* HDPE with antioxidant

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Extrusion coating for paper, polymer films, woven scrim, food pkg.; features high tens. str., good moisture barrier, oil/solv./abrasion/temp. resist.; lower brittleness temp.

*Regulatory:* FDA 21CFR §177.1520 compliant

*Properties:* Melt index 13 g/10 min.; sp.gr. 0.962; soften. pt. (Vicat) 129 C; hardness (Shore D) 65

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 2607 [NOVA Chems.]

*Chem. Descrip.:* HDPE with antioxidant

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Inj. molding resin for roll-out carts; food-contact paper/paperboard, polymer; good impact resist.; exc. stiffness; low warpage

*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant

*Properties:* Melt index 4.8 g/10 min.; sp.gr. 0.947; soften. pt. (Vicat) 122 C; tens. str. 22 MPa (yield); hardness (Shore D) 65

*Storage:* Store in clean, dry place @ ambient temps.

#### Sclair® 2607-UV10 [NOVA Chems.]

*Chem. Descrip.:* HDPE with high UV stabilizers and antioxidants

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Inj. molding resin for roll-out carts; food-contact paper/paperboard, polymer; exc. stiffness; good impact. resist.; low warpage

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Melt index 4.8 g/10 min; dens. 0.947 g/cm<sup>3</sup>; tens. str. 22 MPa (yield); elong. 1000% (break); hardness (Shore D) 65; soften. pt. (Vicat) 122 C

#### Sclair® 2908, 2908-UV8A [NOVA Chems.]

*Chem. Descrip.:* HDPE with antioxidant; 2908-UV8A contains UV stabiliz-

ers

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Inj. molding resin for tote boxes and beverage crates; food-contact paper/paperboard, polymer; high stiffness; max. impact str. and toughness*Regulatory:* FDA 21CFR §176.170, 177.1520*Properties:* Melt index 7.0 g/10 min.; sp.gr. 0.961; soften. pt. (Vicat) 129 C; tens. str. 29 MPa (yield 50, mm/min.); elong. 1200% (break, 50 mm/min.); hardness (Shore D) 65*Storage:* Store in clean, dry place @ ambient temps.**Sclair® 2909** [NOVA Chems.]*Chem. Descrip.:* HDPE with antioxidant, UV stabilizer

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Inj. molding resin for tote boxes and beverage crates; food-contact paper/paperboard, polymer; high stiffness, surf. gloss; max. impact str. and toughness*Regulatory:* FDA 21CFR §176.170, 177.1520*Properties:* Melt index 13 g/10 min.; sp.gr. 0.962; soften. pt. (Vicat) 129 C; tens. str. 29 MPa (yield 50, mm/min.); elong. 800% (break, 50 mm/min.); hardness (Shore D) 65*Storage:* Store in clean, dry place @ ambient temps.**Sclair® 8107** [NOVA Chems.]*Chem. Descrip.:* LLDPE with antioxidant

CAS 9002-88-4

*Uses:* Inj. molding resin for food and sanitary containers; food-contact paper/paperboard, polymer; exc. ESCR, low temp. impact*Regulatory:* FDA 21CFR §176.170, 177.1520*Properties:* Melt index 4.8 g/10 min.; sp.gr. 0.925; soften. pt. (Vicat) 91 C; tens. str. 10.5 MPa (yield, 50 mm/min.); elong. 850% (break, 50 mm/min.); hardness (Shore D) 52*Storage:* Store in clean, dry place @ ambient temps.**Sclair® 8107 UV8D, 8107G UV8D** [NOVA Chems.]*Chem. Descrip.:* LLDPE with processing antioxidants and UV stabilizers

CAS 9002-88-4

*Uses:* Rotational molding resin for food and sanitary containers; food-contact paper/paperboard, polymer; exc. ESCR, low temp. impact*Regulatory:* FDA 21CFR §176.170, 177.1520*Properties:* Melt index 4.8 g/10 min.; sp.gr. 0.925; soften. pt. (Vicat) 91 C; tens. str. 10.5 MPa (yield, 50 mm/min.); elong. 850% (break, 50 mm/min.); hardness (Shore D) 52*Storage:* Store in clean, dry place @ ambient temps.**Sclair® 8306 UV8D, 8306G UV8D** [NOVA Chems.]*Chem. Descrip.:* MDPE with processing antioxidants and UV stabilizers

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* General purpose rotational molding resin; food-contact paper/paperboard, polymer; offers balance of toughness, ESCR, and processability*Regulatory:* FDA 21CFR §176.170, 177.1520*Properties:* Melt index 3.8 g/10 min.; sp.gr. 0.932; soften. pt. (Vicat) 108 C; tens. str. 14.4 MPa (yield, 50 mm/min.); elong. 900% (break, 50 mm/min.); hardness (Shore D) 56*Storage:* Store in clean, dry place @ ambient temps.**Sclair® 8405 UV8D, 8405G UV8D** [NOVA Chems.]*Chem. Descrip.:* MDPE with processing antioxidants and UV stabilizers

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Rotational molding resin for spray tanks; food-contact paper/paperboard, polymer; high impact str.; good ESCR*Regulatory:* FDA 21CFR §176.170, 177.1520 compliant*Properties:* Melt index 2.6 g/10 min.; sp.gr. 0.938; soften. pt. (Vicat) 114 C; tens. str. 18 MPa (yield, 50 mm/min.); elong. > 1000% (break, 50 mm/min.); hardness (Shore D) 58*Storage:* Store in clean, dry place @ ambient temps.**Scogin™ F** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceuticals, cosmetics, other industrial uses, esp. for surf. treatment of paper and board*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 80 mesh; sol. in water; visc. 45 cps (0.5%), 300 cps (1%), 3700 cps (2%), 16,000 (3%)**Scogin™ HV** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceuticals, cosmetics, other industrial uses, esp. for surf. treatment of paper and board; thickener for printing reactive dyes on cellulose fibers*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 30 mesh; sol. in water; visc. 130 cps (0.5%), 800 cps (1%), 10,000 cps (2%), 75,000 (3%)**Scogin™ HVF** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceutical, cosmetic, other industrial uses; esp. for surf. treatment of paper and board*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 150 mesh; sol. in water; visc. 125 cps (0.5%), 775 cps (1%), 9600 cps (2%), 43,000 (3%)**Scogin™ LV** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceutical, cosmetic, other industrial uses; esp. for surf. treatment of paper and board; thickener for printing reactive dyes on cellulose fibers*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 40 mesh; sol. in water; visc. 20 cps (0.5%), 60 cps (1%), 600 cps (2%), 3500 (3%)**Scogin™ MV** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceuticals, cosmetics, other industrial uses, esp. for surf. treatment of paper and board; thickener for printing reactive dyes on cellulose fibers*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 30 mesh; sol. in water; visc. 80 cps (0.5%), 400 cps (1%), 5000 cps (2%), 30,000 (3%)**Scogin™ QH** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceutical, cosmetic, other industrial uses; esp. for surf. treatment of paper and board*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 30 mesh; sol. in water; visc. 80 cps (0.5%), 400 cps (1%), 6000 cps (2%), 30,000 (3%)**Scogin™ QL** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceutical, cosmetic, other industrial uses; esp. for surf. treatment of paper and board*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 30 mesh; sol. in water; visc. 10 cps (0.5%), 25 cps (1%), 160 cps (2%), 750 (3%)**Scogin™ QM** [FMC Biopolymer]*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Thickener, water holder, emulsion stabilizer, suspending agent, gellant, and film-former for food, pharmaceutical, cosmetic, other industrial uses; esp. for surf. treatment of paper and board*Regulatory:* FDA GRAS*Properties:* Ivory colored granular powd.; 30 mesh; sol. in water; visc. 25 cps (0.5%), 175 cps (1%), 2000 cps (2%), 9000 (3%)**Scripset® 500** [Hercules]*Chem. Descrip.:* Styrene/maleic anhydride, sodium salt*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment*Properties:* Powd.; 100% conc.; anionic**Scripset® 520** [Hercules]*Chem. Descrip.:* Styrene/maleic anhydride copolymer

- CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Off-wh. powd.; faint aromatic odor; m.w. 350,000; sol. in alkaline aq. systems; soften. pt. 245-250 C; acid no. 405; 100% conc.; nonionic  
*Storage:* > 6 yr shelf life
- Scripset® 540** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Off-wh. powd.; faint aromatic odor; sol. in alkaline aq. systems, org. solvs.; m.w. 180,000; soften. pt. 230-235 C; acid no. 185; 100% conc.  
*Storage:* > 6 yr shelf life
- Scripset® 542** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (3:1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Powd.; m.w. 120,000; acid no. 274  
*Storage:* > 6 yr shelf life
- Scripset® 550** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Off-wh. powd.; faint aromatic odor; sol. in org. solvs., alkaline aq. sol'ns.; m.w. 105,000; soften. pt. 175-180 CV; acid no. 175; 100% conc.  
*Storage:* > 6 yr shelf life
- Scripset® 640** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (1:< 1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Off-wh. free-flowing fine powd.; faint, aromatic odor; readily sol. in variety of org. solvs. incl. alcohols, ketones, ethyl acetate, and cosolvs.; also sol. in aq. alkali; m.w. 225,000; bulk dens. 44.3 lb/ft<sup>3</sup>; acid no. 215  
*Storage:* Unlimited shelf life in dry location
- Scripset® 700** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; faint aromatic odor; m.w. 120,000; water-sol.; dens. 9.5 lb/gal; visc. 350-1500 cps; pH 7.5-8.5; 30% act.; anionic  
*Storage:* 2 yr shelf life
- Scripset® 720** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; faint aromatic odor; m.w. 120,000; water-sol.; visc. 200-1000 cps; soften. pt. 245-250 C; pH 7.5-9.5; 25% act.; anionic  
*Storage:* 6 mos shelf life
- Scripset® 740** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (1.18:1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; m.w. 180,000; visc. 13-60 cps; soften. pt. 230-235 C; pH 9-9.5  
*Storage:* 2 yr shelf life
- Scripset® 742** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (3:1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; m.w. 120,000; visc. 5-40 cps; pH 9.5-10.5  
*Storage:* 1 yr shelf life
- Scripset® 745** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (1.18:1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; m.w. 180,000; visc. 10-60 cps; pH 8.25-8.75  
*Storage:* 2 yr shelf life
- Scripset® 746** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (1:1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; m.w. 120,000; visc. 80 max. cps; pH 8.5-9.5  
*Storage:* 2 yr shelf life
- Scripset® 747** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride copolymer (1:1)  
 CAS 9011-13-6  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment  
*Properties:* Liq.; m.w. 120,000; visc. 80 max. cps; pH 7.5-8.5  
*Storage:* 2 yr shelf life
- Scripset® 808** [Hercules]  
*Chem. Descr.:* Styrene/maleic anhydride amide/NH<sub>4</sub>OH acid salt  
*Uses:* Emulsifier; starch modifier in adhesives, textile sizing, paper sizing; protective colloid; pigment binder and dispersant; film-former; visc. modifier; latex stabilizer; barrier coatings; anti-resoiling additives; strippable coatings; water treatment; compat. in systems with ≥ pH 6.0  
*Properties:* Powd.; water-sol.; 100% conc.
- Secoren™-VE** [Dr. W. Kolb AG]  
*Uses:* Dewatering agent, bulk enhancer, drainage aid in paper processing; achieves a homogeneous distribution of fibers and fillers; inc. vol. of paper and reduces surf. difference; improves printability
- Sequabond® 7880** [OMNOVA Sol'ns./Paper]  
*Chem. Descr.:* Colloidal styrene-acrylic latex  
 CAS 9010-92-8  
*Uses:* Binder for paperboard improving coating str. and water resist.; component of paper/paperboard in contact with aq./fatty/dry foods; inc. ink holdout and str.; contributes to glueability, print mottle, folding chars. and offset water/ink absorp. balance  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 9.5 lb/gal; pH 9.5; 40% total solids
- Sequabond® TR 7830** [OMNOVA Sol'ns./Paper]  
*Chem. Descr.:* Colloidal styrene-acrylic latex  
 CAS 9010-92-8  
*Uses:* Binder for paperboard improving coating str. and water resist.; component of paper/paperboard in contact with aq./fatty/dry foods; inc. ink holdout and str.; contributes to glueability, print mottle, folding chars. and offset water/ink absorp. balance  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Properties:* Dens. 8.5 lb/gal; pH 8.5; 48% total solids
- Sequaflow® 502** [OMNOVA Sol'ns./Paper]

- Chem. Descrip.:* Aliphatic ester  
*Uses:* Lubricant, dust control agent for improved surf. finish of coated paper/paperboard in calendering process; provides control of dusting and hazing in high temp. calendering operations; gives low high-shear visc. and exc. ink holdout  
*Properties:* Dens. 7.4 lb/gal; 100% total solids
- Sequaflow® 566** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Organic  
*Uses:* Lubricant, dust control agent for improved surf. finish of coated paper/paperboard in calendering process; provides control of dusting and hazing in high temp. calendering operations  
*Properties:* Dens. 8.2 lb/gal; pH 6.0; 50% total solids
- Sequapel® 403** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Stearylated melamine  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.2 lb/gal; pH 6.0; 50% total solids
- Sequapel® 409** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Stearylated melamine  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.3 lb/gal; pH 9.0; 40% total solids
- Sequapel® 414** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Stearylated melamine/paraffin wax  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.3 lb/gal; pH 9.0; 40% total solids
- Sequapel® 417** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Paraffin wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.2 lb/gal; pH 9.0; 35% total solids
- Sequapel® 1415** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Water-based fluorochemical  
*Uses:* Surf. sizing agent providing grease and oil holdout in size press paper coatings  
*Properties:* Dens. 8.3 lb/gal; pH 9.0; 15% total solids
- Sequapel® NS** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Paraffin wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.3 lb/gal; pH 10.0; 35% total solids
- Squarez 82** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Zirconium chelate  
*Uses:* Insolubilizer for paper coatings incl. food-contact paper; reacts with functional groups of coating binders; reduces water sensitivity; allows improved printability and more uniform surf.  
*Regulatory:* FDA approved  
*Properties:* Dens. 9.5 lb/gal; pH 7.5; 27% total solids
- Squarez 755** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Polyol carbonyl adduct  
*Uses:* Insolubilizer for paper coatings incl. food-contact paper; reacts with functional groups of coating binders; reduces water sensitivity; inc. number of impressions and print quality in the offset printing process  
*Regulatory:* FDA approved  
*Properties:* Dens. 10.7 lb/gal; pH 4.5; 55% total solids
- Sequatone® 2000** [OMNOVA Sol'ns./Paper]  
*Chem. Descrip.:* Styrene acrylate  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent for digital printing applics.; enhances printing chars.  
*Properties:* Dens. 8.6 lb/gal; pH 8.5; 40% total solids
- Sequel™ ASA** [Hercules]  
*Uses:* Sizing agent for papermaking; reacts directly with cellulose to produce complete on-machine sizing at pH 4-9
- Sequestrene® 30A** [Ciba Spec. Chems. (NC)]  
*Chem. Descrip.:* Tetrasodium EDTA aq. sol'n.  
 CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent for water softening, water treatment (hardness control, boiler/cooling tower treatment), enhanced oil recovery, liq. soaps, detergents, cosmetics (creams, soaps, ointments, oils, skin care prods.), H<sub>2</sub>S, SO<sub>x</sub>, NO<sub>x</sub> abatement, chemical cleaning, scale removal, photography, textiles (scouring, stripping, boil-off, dyeing), pulp/paper, leather, metal treatment (plating baths, alkaline derusting, pickling baths), syn. rubber/plastics (SBR polymerization, latex stabilization)  
*Properties:* Straw to pale yel. clear liq.; misc. with water; sp.gr. 1.29-1.31;

chel. value 100; pH 11.5-12.5 (10% aq.); 39% act. in water

*Toxicology:* TSCA listed

**SER-AD® FA 620** [Condea Servo; Condea Servo BV]

*Chem. Descrip.:* Oleyl alcohol ethoxylated, phosphated, ammonium salt (25-50%) and di-2-ethylhexyl sulfosuccinate, sodium salt (10-25%)

UN No. 1987

*Uses:* Pigment wetting agent/dispersant for use in aq. coatings such as flat and gloss dispersion paints, paper coatings, and waterborne industrial paints

*Use Level:* 8%

*Properties:* APHA 100 max. clear liq.; char. odor; sol. in water; immisc. with org. solvs.; sp.gr. 1.015 kg/m<sup>3</sup> (20 C); visc. 150 mPa·s (20 C); vapor pressure 66 mbar (20 C); b.p. > 80 C; flash pt. 29-31 C; pH 4.5-6.0; 50% act.; anionic

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; irritating to eyes, skin

*Environmental:* > 85% biodeg.; do not allow to enter sewerage and surf. or groundwater; danger to drinking water if even sm. quantities leak into ground; LC50 (fish) 1-100 mg/l

*Precaution:* Flamm.; avoid oxidizing agents

*Hazardous Decomp. Prods.:* None known

*Storage:* Keep container tightly sealed; protect from frost

**SER-AD® FX 504** [Condea Servo; Condea Servo BV]

*Chem. Descrip.:* Ammonium polyacrylate

CAS 9003-03-6

*Uses:* Pigment dispersant for paints and aq. coatings based on polymeric binders (paper coatings, adhesives, carpet backings, plasters); low foaming; effective with hydrophilic pigments and extenders

*Properties:* Gardner 3 max. clear liq.; pract. odorless; water-sol.; immisc. with org. solvs.; dens. 1.130 g/cm<sup>3</sup> (20 C); visc. 40 mPa·s max.; vapor pressure 23 mbar (20 C); m.p. -5 C; b.p. > 100 C; dec. pt. > 100 C; pH 7-9 (20 C); 30% act.

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritating to skin and eyes; nonsensitizing

*Environmental:* > 80% biodeg.; do not allow to enter sewerage and surf. or groundwater; do not allow lg. quantities to reach ground water or sewage system

*Hazardous Decomp. Prods.:* None known

*Storage:* Protect from frost

**SER-AD® FX 505** [Condea Servo; Condea Servo BV]

*Chem. Descrip.:* Polymeric carboxylic acid ammonium salt

*Uses:* Pigment dispersant for all aq. coatings based on polymeric binders, terpolymers, and latexes, e.g., paper coatings, adhesives, carpet backings, and plasters, etc.; low foaming

*Properties:* Gardner 4 max. clear liq.; nearly odorless; sol. in water; not misc. with org. solvs.; sp.gr. 1.220 (20 C); visc. 1000 mPa·s max. (20 C); vapor pressure 23 mbar (20 C); flash pt. > 100 C; pH 7-8.5; 50% act.; anionic

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; nonirritating to skin and eyes

*Environmental:* > 80% biodeg.; do not allow to enter sewerage and surf. or groundwater

*Hazardous Decomp. Prods.:* None known

*Storage:* Protect from frost

**Serdas® GBO** [Condea Servo; Condea Servo BV]

*Chem. Descrip.:* Surfactant in mineral oil, silicon-free

*Uses:* Antifoam with emulsifying props. for aq. coatings, disp. paints, paper coatings; for indirect food contact; low odor

*Use Level:* 0.2-0.5%

*Regulatory:* BGA and FDA approved

*Properties:* Cloudy liq.; odorless; disp. in water; sol. in many org. solvs.; sp.gr. 0.88 kg/m<sup>3</sup> (20 C); visc. < 400 mPa·s (20 C); b.p. > 200 C; flash pt. > 150 C; 99-100% act.; nonionic

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg; low toxicity; nonirritating to eyes, skin

*Environmental:* < 80% biodeg.; do not allow to enter sewerage and surf. or groundwater; danger to drinking water if even sm. quantities leak into ground; LC50 (fish) 5-15 mg/l

*Hazardous Decomp. Prods.:* None known

*Storage:* Protect from frost; after extended period @ lower temps. prod. will separate

**Serdas® GLN** [Condea Servo BV]

*Chem. Descrip.:* Surfactants in mineral oil

*Uses:* Defoamer for paper, sugar, textiles, leather, paints

*Properties:* Disp. in water



- Serdox® NKL 6** [Condea Servo BV]  
*Chem. Descrip.:* C16-18 alcohol polyglycol ether  
 CAS 68439-49-6  
*Uses:* Emulsifier for paraffins, lanolin, waxes, silicone oils for textile, wood, paper, mold release, polishes  
*Properties:* Paste; cloud pt. 76 C (10% in 25% BDG); 100% act.; nonionic
- Serdox® NOP 9** [Condea Servo BV]  
*Chem. Descrip.:* Octoxynol-9  
 CAS 9002-93-1  
*Uses:* Used in textiles; rinsing agent for washing paper machine felts; rewetting agent for paper towels and tissues  
*Properties:* Liq.; HLB 13.0; 100% conc.; nonionic
- Serpol QPA 160** [Condea Servo BV]  
*Chem. Descrip.:* Sodium polyacrylate  
 CAS 9003-04-7  
*Uses:* Dispersant for paper industry  
*Properties:* Water-sol.
- Servirox® OEG 45** [Condea Servo BV]  
*Chem. Descrip.:* PEG-17 castor oil  
 CAS 61791-12-6  
*Uses:* Used in textile, phytopharmaceutical, leather, paper and cosmetic industries  
*Properties:* Liq.; 100% conc.; nonionic
- Servirox® OEG 55** [Condea Servo BV]  
*Chem. Descrip.:* PEG-26 castor oil  
 CAS 61791-12-6  
*Uses:* Emulsifier, dispersant, solubilizer used in textile, phytopharmaceutical, leather, paper and cosmetic industries  
*Properties:* Liq.; 100% act.; nonionic
- Servirox® OEG 90** [Condea Servo BV]  
*Chem. Descrip.:* PEG-180 castor oil  
 CAS 61791-12-6  
*Uses:* Emulsifier, dispersant, solubilizer used in textile, phytopharmaceutical, leather, paper and cosmetic industries  
*Properties:* Solid; 100% act.; nonionic
- Servirox® OEG 90/50** [Condea Servo BV]  
*Chem. Descrip.:* PEG-180 castor oil  
 CAS 61791-12-6  
*Uses:* Solubilizer used in textile, phytopharmaceutical, leather, paper and cosmetic industries  
*Properties:* Liq.; 50% act.; nonionic
- Servoxyl® VPBZ 5/100** [Condea Servo BV]  
*Chem. Descrip.:* C12-C18 fatty alcohol PEG ether (5 EO) phosphate ester  
*Uses:* Emulsifier for min. oils, metalworking, metal cleaning; antistat; hydro-trope; auxs. for textiles, agric., paper, cleaning, and metal processing industries  
*Properties:* Liq./paste; 100% act.; anionic
- Servoxyl® VPDZ 3/100** [Condea Servo BV]  
*Chem. Descrip.:* Isotrideceth-3 phosphate  
*Uses:* Low foam wetting agent for neutral to weakly alkaline range; in salt form used as emulsifiers and antistats for textiles; aux. for textiles, agric., paper, cleaning, and metal processing industries; hydrotrope  
*Properties:* Liq.; water-sol.; 100% act.; anionic
- Servoxyl® VPDZ 6/100** [Condea Servo BV]  
*Chem. Descrip.:* Isotrideceth-6 phosphate  
*Uses:* Surfactant for textile, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPFZ 7/100** [Condea Servo BV]  
*Chem. Descrip.:* Oleth-7 phosphate  
 CAS 39464-69-2  
*Uses:* Surfactant for the textile, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPGZ 6/100** [Condea Servo BV]  
*Chem. Descrip.:* Phenol PEG ether (6 EO) phosphate ester  
 CAS 39464-70-5  
*Uses:* Emulsifier for min. oils, lubricant auxiliaries, metal processing; auxs. for textile, agric., paper, cleaning industries; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPI 55** [Condea Servo BV]  
*Chem. Descrip.:* Sodium n-butyl phosphate  
*Uses:* Surfactant for textile, agric., paper, cleaning, and metal processing industries; antistat for syn. fibers  
*Properties:* Liq.; sol. in water; 55% act.; anionic
- Servoxyl® VPIZ 100** [Condea Servo BV]  
*Chem. Descrip.:* n-Butyl phosphate ester  
 CAS 68439-39-4  
*Uses:* Surfactant used as base material for acid cleaners for glass, metal, and ceramics, flame retardants, mercerizing wetting agents and antistats; anti-corrosive and rust-removing props.; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPNZ 7/100** [Condea Servo BV]  
*Chem. Descrip.:* Nonoxynol-7 phosphate  
*Uses:* Wetting agent, base for mfg. of alkaline or weakly acid cleaning agents, dry cleaning formulations with antistatic properties, flame retardants, flotation aids; dispersant; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope; low foam  
*Properties:* Liq.; water-sol.; 100% conc.; anionic
- Servoxyl® VPNZ 20/100** [Condea Servo BV]  
*Chem. Descrip.:* Nonoxynol-20 phosphate  
*Uses:* Surfactant for the textile, agric., paper, cleaning, and metal processing industries  
*Properties:* Paste; 100% act.; anionic
- Servoxyl® VPPZ 100** [Condea Servo BV]  
*Chem. Descrip.:* Isopropyl phosphate ester  
 CAS 76483-21-1  
*Uses:* Base compd. for formulating acid cleaners for glass, metal, and ceramics, flame retardants, mercerizing wetting agents and antistats; anticorrosive and rust-removing props.; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPRZ 006/100** [Condea Servo BV]  
*Chem. Descrip.:* Tallow PEG-6 ether phosphate ester  
*Uses:* Surfactant for prod. of textile and dyeing auxiliaries, antistats, dry cleaning detergents; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPRZ 100** [Condea Servo BV]  
*Chem. Descrip.:* Tallow fatty alcohol partial ester of phosphoric acid  
*Uses:* Surfactant for the textile, agric., paper, cleaning, and metal processing industries  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPRZ 0011/100** [Condea Servo BV]  
*Chem. Descrip.:* Talloweth-11 phosphate  
*Uses:* Surfactant for prod. of dry cleaning detergents with antistatic props., textile and dyeing auxiliaries; o/w emulsifier for cosmetic creams, lotions, and gels; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Pale yel. solid; solid pt. 35 C; acid no. 65-70; pH 1.5-2.0 (1% aq.); 100% act.; anionic
- Servoxyl® VPTZ 003/100** [Condea Servo BV]  
*Chem. Descrip.:* 2-Ethylhexyl PEG ether phosphate ester, acid form  
 CAS 68439-39-4  
*Uses:* Surfactant, emulsifier for dry cleaning, emulsion polymerization, pesticides, cosmetics; base for acid cleaners; low-foam wetting agent for alkaline sol'ns., high pressure cleaners, metal degreasing, causticizing and kier boiling agents; anticorrosive props.; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; 100% act.; anionic
- Servoxyl® VPTZ 100** [Condea Servo BV]  
*Chem. Descrip.:* 2-Ethylhexyl phosphate ester  
 CAS 12645-31-7  
*Uses:* Low foam wetting agent for weakly to med. strong alkaline range in textile pretreatment and finishing, cosmetics; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Liq.; water-sol.; 100% act.; anionic
- Servoxyl® VPVZ 12/100** [Condea Servo BV]  
*Chem. Descrip.:* C20-22 fatty alcohol PEG ether (12 EO) phosphate ester  
*Uses:* Wetting agent, antistat for dry cleaning detergents, textile and dyeing auxiliaries; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope  
*Properties:* Waxy solid; 100% act.; anionic

**Serwet® WH 170** [Condea Servo BV]*Chem. Descip.:* Dioctyl sodium sulfosuccinate

CAS 577-11-7; EINECS/ELINCS 209-406-4

*Uses:* Wetting agent for textiles, paints, paper, cleaners, cosmetics; dispersant for pigments; highly act.*Properties:* Liq.; sol. in water and alcohol; 65% act.; anionic*Environmental:* Biodeg.**Sevron®** [Crompton & Knowles]*Uses:* Basic dyes for unbleached, recycled, and other coarse paper applics. incl. kraft specialties, newsprint, egg cartons, industrial tissues, and saturation paper grades*Properties:* Powd. and liq.**Shamrock Hydrocer 100** [Shamrock Tech.]*Uses:* For water disp. surf. inks; better adhesion to coated paper, PP, PE substrates; improved wetting, gloss, rub resist.*Use Level:* 1.25-2.5%*Properties:* Wh. dispersion; dens. 8.4 lb/gal; 40% solids**Shamrock Hydrocer 145** [Shamrock Tech.]*Chem. Descip.:* Syn. wax

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* For aq. coatings and inks to reduce coeff. of friction with min. effect on gloss; for release props. of coatings from fabrics to can coatings; food pkg. adhesives, coatings, paper; prevents fingernail marring*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180; USDA compliant*Properties:* Wh. liq.; dens. 7.9-8.1 lb/gal; visc. 1100 cps max.; pH 6-7; 50% act.; nonionic*Toxicology:* TSCA listed*Storage:* Keep from freezing**Shamrock Hydrocer 200** [Shamrock Tech.]*Uses:* For water disp. surf. inks; better adhesion to PPE, PP, and non-absorbent coated paper; improved wetting, gloss, rub resist.*Use Level:* 2-4%*Properties:* Wh. dispersion; dens. 8.4 lb/gal; 25% solids**Shamrock Hydrocer EC 98** [Shamrock Tech.]*Chem. Descip.:* #1 Carnauba wax emulsion

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Uses:* Slip agent and antimar additive to low pH polymers such as PVAc, PVC, PVdC; in resinous and polymeric food-contact coatings, in food-contact paper/paperboard*Regulatory:* FDA 21CFR 175.300, 176.170, 176.180 compliant*Properties:* Off-wh. to lt. tan emulsion; dens. 8.35 lb/gal; visc. 50 cps max.; pH 4-6; 35% act.; anionic*Toxicology:* TSCA listed*Storage:* Keep from freezing**Shamrock Hydrocer EEP 16** [Shamrock Tech.]*Chem. Descip.:* Polyethylene/paraffin wax*Uses:* Slip agent, release agent for inks and overprint varnishes where water resist. is desired; food pkg. paper/paperboard; will not normally interfere with second coat adhesion*Use Level:* 3-7%*Regulatory:* FDA 21CFR §176.170, 176.180*Properties:* Off-wh. translucent emulsion; dens. 8.2 lb/gal; visc. 50 cps max.; pH 9.5-10.5; 29-31% act.; anionic*Toxicology:* TSCA listed*Storage:* Keep from freezing**Shamrock Hydrocer EEP 33** [Shamrock Tech.]*Chem. Descip.:* Paraffin/polyethylene wax*Uses:* Antislip/antiblock additive for water-based inks and coatings; food pkg. coatings, paper/paperboard*Use Level:* 5-10%*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180 compliant*Properties:* Tan translucent emulsion; dens. 8.0-8.3 lb/gal; visc. 500 cps max.; pH 9.5-10.5; 29-31% act.; nonionic*Toxicology:* TSCA listed**Shamrock Hydrocer EP 91** [Shamrock Tech.]*Chem. Descip.:* Paraffin wax

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Water repellent in coatings, stains, and varnishes; food pkg. coatings, paper/paperboard*Use Level:* 4-8%*Regulatory:* FDA 21CFR §172.210, 175.300, 176.170, 176.180*Properties:* Wh. emulsion; ammoniacal odor; dens. 7.8-8.0 lb/gal; visc. 2000 cps max.; m.p. 57 C; pH 10-11.5; 29-31% act.; anionic*Toxicology:* TSCA listed*Storage:* Keep from freezing**Shamrock Neptune 968** [Shamrock Tech.]*Chem. Descip.:* Syn. wax

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Imparts lubricity, abrasion resist., and antiblocking props. to all water-based systems; food pkg. adhesives, coatings, paper/paperboard; helps avoid defoamer kickout*Use Level:* 0.5-3.0%*Regulatory:* FDA 21CFR 175.105, 175.300, 175.320, 176.170, 176.180; USDA compliant*Properties:* Wh. free-flowing powd.; 9 μ avg. particle size; disp. in water; sp.gr. 0.93; m.p. 104 C; soften. pt. 68 C*Toxicology:* TSCA listed**Shamrock Neptune 5038** [Shamrock Tech.]*Chem. Descip.:* Crystalline polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* For use in inks and coatings; defoamer in food-contact coatings; food pkg. adhesives, coatings, paper; low/nonfoaming; will not affect intercoat adhesion or physical char. of coating*Regulatory:* FDA 21CFR 175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA compliant*Properties:* Wh. free-flowing powd.; 12.5 μ avg. particle size; disp. in water; sp.gr. 0.95; m.p. 125 C; soften. pt. 100 C; flash pt. > 175 C; anionic*Toxicology:* TSCA listed**Shamrock Neptune I N1** [Shamrock Tech.]*Chem. Descip.:* High melt polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* For use with water-reducible inks and top coatings for paper, film, and foil; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings; improves scuff and fingernail mar resist.*Use Level:* 1-2% (inks), 1-3% (coatings)*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved*Properties:* Wh. free-flowing powd.; 5 μ particle size; fineness (Hegman) 7+; disp. in aq. systems; sp.gr. 0.95; m.p. 113 C; soften. pt. 99 C*Toxicology:* TSCA listed**Shamrock Neptune I SP5** [Shamrock Tech.]*Chem. Descip.:* High melt polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* For use with water-reducible inks and top coatings for paper, film, and foil; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings; improves scuff and fingernail mar resist.*Use Level:* 1-2% (inks)*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved*Properties:* Wh. free-flowing powd.; 18 μ particle size; fineness (Hegman) 6+; sp.gr. 0.95; m.p. 113 C; soften. pt. 99 C*Toxicology:* TSCA listed**Shamrock S-232 MG** [Shamrock Tech.]*Chem. Descip.:* Alloy of waxes*Uses:* Provides inc. hardness, lubricity, and antiblocking chars. for coil coatings, wood lacquers, flexible and rigid pkg., and UV clears; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings; min. effect on gloss and clarity*Use Level:* 2-3% total formula wt.*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved*Properties:* Wh. free-flowing powd.; 3-4 μ particle size; fineness (Hegman) 7+; sp.gr. 0.97; m.p. 108 C; soften. pt. 69 C*Toxicology:* TSCA listed**Shamrock S-232 N1** [Shamrock Tech.]*Chem. Descip.:* Alloy of waxes*Uses:* Provides inc. hardness, lubricity, and antiblocking chars. for coil coatings, wood lacquers, flexible and rigid pkg., and UV clears; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings; min. effect on gloss and clarity*Use Level:* 2-3% total formula wt.*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved

- Properties:* Wh. free-flowing powd.; 5  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 0.97; m.p. 108 C; soften. pt. 69 C  
*Toxicology:* TSCA listed
- Shamrock S-232 N5** [Shamrock Tech.]  
*Chem. Descrip.:* Alloy of waxes  
*Uses:* Provides inc. hardness, lubricity, and antiblocking chars. for coil coatings, wood lacquers, flexible and rigid pkg., and UV clears; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings; min. effect on gloss and clarity  
*Use Level:* 2-3% total formula wt.  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved  
*Properties:* Wh. free-flowing powd.; 12.5  $\mu$  particle size; fineness (Hegman) 7; sp.gr. 0.97; m.p. 108 C; soften. pt. 69 C  
*Toxicology:* TSCA listed
- Shamrock S-236** [Shamrock Tech.]  
*Chem. Descrip.:* Alloy of waxes  
*Uses:* Provides inc. hardness, lubricity, and scuff resist. for coil coatings, wood lacquers, flexible and rigid pkg., and UV clears; food pkg. coatings, paper; does not sacrifice finish, gloss, and clarity  
*Use Level:* 2-3% to decrease coeff. of friction, maximize abrasion and scuff resist.  
*Regulatory:* FDA 21CFR §172.888, 175.250, 175.300, 176.170, 178.3720; USDA approved  
*Properties:* Wh. free-flowing powd.; 5  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 1.0; m.p. 83 C; soften. pt. 70 C  
*Toxicology:* TSCA listed
- Shamrock S-379 H** [Shamrock Tech.]  
*Chem. Descrip.:* Synthetic polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides good rub and slip in coatings and ink systems; food pkg. adhesives, coatings, paper  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180; USDA approved  
*Properties:* Wh. free-flowing powd.; 12.5  $\mu$  particle size; fineness (Hegman) 7; sp.gr. 0.93; m.p. 97 C; soften. pt. 63 C  
*Toxicology:* TSCA listed
- Shamrock S-379 N** [Shamrock Tech.]  
*Chem. Descrip.:* Synthetic polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides good rub and slip in coatings; food pkg. adhesives, coatings, paper  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180  
*Properties:* Wh. free-flowing powd.; 5  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 0.93; m.p. 97 C; soften. pt. 63 C  
*Toxicology:* TSCA listed
- Shamrock S-379 N3** [Shamrock Tech.]  
*Chem. Descrip.:* Synthetic polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides good rub and slip in coatings; food pkg. adhesives, coatings, paper  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180  
*Properties:* Wh. free-flowing powd.; 8  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 0.93; m.p. 97 C; soften. pt. 63 C  
*Toxicology:* TSCA listed
- Shamrock S-381 N1** [Shamrock Tech.]  
*Chem. Descrip.:* Modified polyethylene waxes  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Efficient flattening agent for coil coatings, wood lacquers, powd. coatings, flexible pkg., and architectural paints; food pkg. adhesives, coatings, paper; produces satin or flat finishes with exc. mar resist. and reduction of coeff. of friction  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180; USDA approval  
*Properties:* Wh. free-flowing powd.; 5  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 0.93; m.p. 78 C; soften. pt. 61 C  
*Toxicology:* TSCA listed
- Shamrock S-381 N5** [Shamrock Tech.]  
*Chem. Descrip.:* Modified polyethylene waxes  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Efficient flattening agent for coil coatings, wood lacquers, powd. coatings, flexible pkg., and architectural paints; food pkg. adhesives, coatings, paper;
- produces satin or flat finishes with exc. mar resist. and reduction of coeff. of friction  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180; USDA approval  
*Properties:* Wh. free-flowing powd.; 12.5  $\mu$  particle size; fineness (Hegman) 7; sp.gr. 0.93; m.p. 78 C; soften. pt. 61 C  
*Toxicology:* TSCA listed
- Shamrock S-394 N1** [Shamrock Tech.]  
*Chem. Descrip.:* Polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides exc. recoatability, rub resist., hardness, and antiblocking chars. for coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg., inks; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved  
*Properties:* Wh. free-flowing powd.; 5  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 0.95; m.p. 113 C; soften. pt. 99 C  
*Toxicology:* TSCA listed
- Shamrock S-394 N5** [Shamrock Tech.]  
*Chem. Descrip.:* Polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides exc. recoatability, rub resist., hardness, and antiblocking chars. for coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg., inks; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved  
*Properties:* Wh. free-flowing powd.; 12.5  $\mu$  particle size; fineness (Hegman) 7; sp.gr. 0.95; m.p. 113 C; soften. pt. 99 C  
*Toxicology:* TSCA listed
- Shamrock S-394 SP5** [Shamrock Tech.]  
*Chem. Descrip.:* Polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides exc. recoatability, hardness, and antiblocking chars. for coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg.; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200; USDA approved  
*Properties:* Wh. free-flowing powd.; 18  $\mu$  particle size; fineness (Hegman) 6+; sp.gr. 0.95; m.p. 113 C; soften. pt. 99 C  
*Toxicology:* TSCA listed
- Shamrock S-395 N2** [Shamrock Tech.]  
*Chem. Descrip.:* Crystalline grade of polyethylene  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides recoatability, inc. hardness, abrasion resist., and antiblocking chars. for coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg., UV clears, and architectural paint, solv. inks; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.180, 176.200; USDA approved  
*Properties:* Wh. free-flowing powd.; 7  $\mu$  particle size; fineness (Hegman) 7+; sp.gr. 0.95; m.p. 126 C; soften. pt. 119 C  
*Toxicology:* TSCA listed
- Shamrock S-395 N5** [Shamrock Tech.]  
*Chem. Descrip.:* Crystalline grade of polyethylene  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides recoatability, inc. hardness, abrasion resist., and antiblocking chars. for coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg., UV clears, and architectural paint, solv. inks; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.180, 176.200; USDA approved  
*Properties:* Wh. free-flowing powd.; 12.5  $\mu$  particle size; fineness (Hegman) 7; sp.gr. 0.95; m.p. 126 C; soften. pt. 119 C  
*Toxicology:* TSCA listed
- Shamrock S-395 SP5** [Shamrock Tech.]  
*Chem. Descrip.:* Crystalline grade of polyethylene  
CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Provides recoatability, inc. hardness, abrasion resist., and antiblocking chars. for coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg., UV clears, and architectural paint, solv. inks; food pkg. adhesives,

coatings, paper; defoamer in food-contact coatings

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.180, 176.200; USDA approved

**Properties:** Wh. free-flowing powd.; 18 µ particle size; fineness (Hegman) 6+; sp.gr. 0.95; m.p. 126 C; soften. pt. 119 C

**Toxicology:** TSCA listed

**Shamrock S-400 N1** [Shamrock Tech.]

**Chem. Descrip.:** Synthetic wax

CAS 8002-74-2; EINECS/ELINCS 232-315-6

**Uses:** Reduces coeff. of friction and inc. slip in rigid pkg. coatings with min. effect on gloss; food pkg. adhesives, coatings, paper

**Use Level:** 1-2% based on total formula wt.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180; USDA approved

**Properties:** Wh. free-flowing powd.; 5 µ particle size; fineness (Hegman) 7+; sp.gr. 0.98; m.p. 141 C; soften. pt. 110 C

**Toxicology:** TSCA listed

**Shamrock S-400 N5** [Shamrock Tech.]

**Chem. Descrip.:** Synthetic wax

CAS 8002-74-2; EINECS/ELINCS 232-315-6

**Uses:** Reduces coeff. of friction and inc. slip in rigid pkg. coatings with min. effect on gloss; food pkg. adhesives, coatings, paper

**Use Level:** 1-2% based on total formula wt.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180; USDA approved

**Properties:** Wh. free-flowing powd.; 12.5 µ particle size; fineness (Hegman) 7; sp.gr. 0.98; m.p. 141 C; soften. pt. 110 C

**Toxicology:** TSCA listed

**Shamrock S-400 SP5** [Shamrock Tech.]

**Chem. Descrip.:** Synthetic wax

CAS 8002-74-2; EINECS/ELINCS 232-315-6

**Uses:** Reduces coeff. of friction and inc. slip in rigid pkg. coatings with min. effect on gloss; food pkg. adhesives, coatings, paper

**Use Level:** 1-2% based on total formula wt.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180; USDA approved

**Properties:** Wh. free-flowing powd.; 18 µ particle size; fineness (Hegman) 6+; sp.gr. 0.98; m.p. 141 C; soften. pt. 110 C

**Toxicology:** TSCA listed

**Shamrock S-483** [Shamrock Tech.]

**Chem. Descrip.:** High m.w. polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

**Uses:** Imparts good rub, abrasion, and slip chars. when added to inks and industrial coatings; food pkg. adhesives, coatings, paper, cellophane, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard

**Use Level:** 1-2% (liq. inks), 2-3% (paste inks)

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1210

**Properties:** Wh. free-flowing powd.; 6.5 µ particle size; sp.gr. 0.95; m.p. 112 C; soften. pt. 92 C

**Toxicology:** TSCA listed

**Shamrock S-Nauba 5021** [Shamrock Tech.]

**Chem. Descrip.:** Carnauba wax

CAS 8015-86-9; EINECS/ELINCS 232-399-4

**Uses:** Wax used in coil coatings, wood lacquers, flexible and rigid pkg., UV clears, inks, cosmetics, candles, lubricants, shoe polishes, leather finishes, car waxes, floor polishes, fruit and candy coatings; food pkg. adhesives, coatings, paper; defoamer in food-contact coatings

**Use Level:** 2% (improved surf. hardness)

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200, 182.1978; USDA approved

**Properties:** Off-wh. extra fine powd.; 12.5 µ particle size; 100% -400 mesh; sp.gr. 0.995; m.p. 84 C; acid no. 2-10; iodine no. 7-14; sapon. no. 75-85

**Toxicology:** TSCA listed

**Shamrock Taber Tiger 5512** [Shamrock Tech.]

**Chem. Descrip.:** Crystalline grade of polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

**Uses:** Offers inc. hardness, abrasion resist. and antiblocking chars. for inks, coil coatings, wood lacquers, powd. coatings, flexible and rigid pkg., UV clears, and architectural paints; food pkg. coatings, paper, polymers

**Use Level:** 1-2% based on formula wt.

**Regulatory:** FDA 21CFR §172.888, 175.250, 175.300, 176.170, 176.180, 177.1520; USDA approved

**Properties:** Wh. free-flowing powd.; 18 µ particle size; fineness (Hegman) 6+; sp.gr. 0.98; m.p. 128 C; soften. pt. 120 C

**Toxicology:** TSCA listed

**Shell Sol B HT** [Shell]

**Chem. Descrip.:** Mixt. of predominantly C<sub>6</sub> (hexanes) and about 10% C<sub>7</sub> (heptanes) aliphatic hydrocarbons

**Uses:** Solvent for agric. fat/oil extraction, automotive undercoating, pharmaceuticals, adhesives, inks, paints, paper coating, lighter fluids, resins, plastics, NR, SR (except NBR); fast evaporating; hydrotreating removes unwanted compds., converts unsat. hydrocarbons, results in relatively low odor; lower hexane content than typ. commercial hexanes, thus reducing worker exposure

**Properties:** Colorless liq.; sp.gr. 0.674 (60/60 F); vapor pressure 140 mm Hg (68 F); distillation range 140-183 F; flash pt. < 0 F; KB value 29; VOC 5.53 lb/gal; 27-31% n-hexane

**Shell Tolu-Sol® W HT Solv.** [Shell]

**Chem. Descrip.:** Mixt. of predominantly C<sub>7</sub> and about 20% C<sub>8</sub> aliphatic hydrocarbons, hydrotreated

**Uses:** Solvent for agric., fat/oil extraction, automotive undercoating, polishes, adhesives, inks, paints, paper coatings, petrol. gas absorption, lighter fluids, resins, plastics, rubber; starting component for rubber solvs., lacquer diluents; high solvency; hydrotreating removes unwanted compds. (e.g., sulfur, nitrogen, oxygen), converts unsat. hydrocarbons (olefins, acetylenes, aromatics), results in relatively low odor; no more than trace amts. of HAPs; high cycloparaffin content

**Regulatory:** FDA 21CFR §172.250; SARA nonreportable

**Properties:** Saybolt 30 min color; sp.gr. 0.748 (60/60 F); vapor pressure 41 mm Hg (68 F); i.b.p. 205 F min.; distillation range 209-230 F; flash pt. 20 F; KB value 32 min.; VOC 6.17 lb/gal; 26.6 vol. % paraffins, 74.4 vol. % cycloparaffins

**Shell VM&P Naphtha HT** [Shell]

**Chem. Descrip.:** VM&P naphtha, hydrotreated

CAS 8032-32-4; EINECS/ELINCS 232-453-7

**Uses:** Solvent for agric., oil/fat extraction, polishes, industrial cleaners, adhesives, inks, paints, lighter fluids, pharmaceuticals, paper/textile coatings, petrol. gas absorp., asphalt, resins, plastics, rubber; fast/med.-evaporating, high solvency; hydrotreating removes unwanted compds. (e.g., sulfur, nitrogen, oxygen), converts unsat. hydrocarbons (olefins, acetylenes, aromatics), results in relatively low odor; no more than trace amts. of HAPs

**Regulatory:** SARA §313 nonreportable

**Properties:** Sp.gr. 0.752 (60/60 F); vapor pressure 10 mm Hg (68 F); b.p. 247-282 F; flash pt. 55 F; KB value 35; VOC 6.19 lb/gal; 54 vol. % paraffins, 48 vol. % cycloparaffins

**Sicomin®** [BASF AG]

**Chem. Descrip.:** Chrome yellow and molybdate orange pigments

**Uses:** Pigment for paints and surface coatings, for coloring plastics, for flexographic and gravure inks for pkg. materials, laminated paper coloring

**Sicopur®** [BASF AG]

**Chem. Descrip.:** High purity iron oxides

**Uses:** Pigment for paper refiners

**Silicone Antifoam Agent S 203** [Wacker Silicones]

**Chem. Descrip.:** Silicone compd.

**Uses:** Defoamer in aq. and nonaq. systems, for chem. processing and formulating, agrochems., pharmaceutical and food processing, and petrochems.; food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard; USDA approved for egg washing, cleaning of meat-processing equip., fruit and vegetable washing; easily emulsified into antifoam emulsions for use in aq. systems

**Use Level:** 10 ppm

**Regulatory:** FDA 21CFR §173.340, 175.105, 176.200, 176.210; EPA 40CFR §180.1001(c)(d); USDA approval

**Properties:** Gray opaque compd.; solv.-disp.; visc. 2400 cps; 100% act.

**Storage:** 1 yr storage stability

**Silicone Antifoam Agent S 204** [Wacker Silicones]

**Chem. Descrip.:** Silicone compd.

**Uses:** Defoamer for aq. and nonaq. systems, chem. processing and formulating, cleaners, laundry detergents, food-contact coatings/paper; useful in alkaline aq. systems such as detergents; food pkg. adhesives; superior alkaline resist.

**Use Level:** 10 ppm

- Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Gray opaque med.-visc. compd.; solv.-disp.; visc. 4000 cps; 100% act.  
*Storage:* 1 yr storage stability
- Silicone Antifoam Agent S 670** [Wacker Silicones]  
*Chem. Descrip.:* Self-emulsifying silicone polar compd.  
*Uses:* Antifoam in chem. processing and formulating, cleaners, textiles, paper, metalworking fluids, dispersions, paints and coatings; has been rendered self-dispersing with org. components  
*Use Level:* 30 ppm  
*Properties:* Translucent; good dispersibility in water; visc. 130 cps; 100% act.; nonionic  
*Storage:* 1 yr storage life @ R.T.
- Silicone Antifoam Compound S 204** [Wacker Silicones]  
*Chem. Descrip.:* Nonaq. silicone antifoam  
*Uses:* Antifoam for nonaq. systems, petrochem. processing, laundry detergents, cleaners, agrochems., food pkg. adhesives/paper/paperboard; rec. for systems with high surfactant content and/or exposure to high shear stress  
*Use Level:* 0.5-0.005%  
*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210  
*Properties:* Gray opaque; dens. 8.5 lb/gal; visc. 4000 cP; iodine no. 1; ref. index 1.40; 100% act.  
*Storage:* > 12 mos shelf stability; not subject to freezing
- Silicone Antifoam Emulsion SE 21** [Wacker Silicones]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Antifoam for hot aq. systems and coating applics., chem. processing and formulating, cleaners, agrochems., textiles and paper, paints, dispersions, wastewater treatment, pharmaceutical and food processing; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives; USDA approved for egg washing, cleaning meat-processing equip., fruit/veg. washing, soups, etc.  
*Use Level:* 100 ppm  
*Regulatory:* FDA 21CFR §173.340, 175.105, 176.200, 176.210; EPA 40CFR §180.1001(d); USDA compliance for egg washing, cleaning meat-processing equip., fruit/veg. washing, soups, etc.  
*Properties:* Creamy emulsion; very good dispersibility in water; visc. 1500 cps; 10% act.; anionic  
*Storage:* 6 mos storage life @ R.T.
- Silicone Antifoam Emulsion SE 23** [Wacker Silicones]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Antifoam for hot aq. systems and coating applics., chem. processing and formulating, agrochems., textiles and paper, paints, dispersions, wastewater treatment, pharmaceutical and food processing; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives; USDA approved for egg washing, cleaning meat-processing equip., fruit/veg. washing, printing ink, soups, etc.  
*Use Level:* 30 ppm  
*Regulatory:* FDA 21CFR §173.340, 175.105, 176.200, 176.210; EPA 40CFR §180.1001(d); USDA compliance for egg washing, cleaning meat-processing equip., fruit/veg. washing, printing ink, soups, etc.  
*Properties:* Creamy emulsion; poor dispersibility in water; visc. 5000 cps; 30% act.; anionic  
*Storage:* 6 mos storage life @ R.T.
- Silicone Antifoam Emulsion SE 25** [Wacker Silicones]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Antifoam for chem. processing and formulating, cleaners, agrochems., wastewater treatment, pharmaceutical and food processing; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives; USDA approved for egg washing, cleaning of meat-processing equip., fruit and vegetable washing, soups  
*Use Level:* 30 ppm  
*Regulatory:* FDA 21CFR §173.340, 175.105, 176.200, 176.210; EPA 40CFR §180.1001(d); USDA compliance for egg washing, cleaning meat-processing equip., fruit/veg. washing, soups, etc.  
*Properties:* Creamy emulsion; poor dispersibility in water; visc. 15,000 cps; 30% act.; anionic  
*Storage:* 6 mos storage life @ R.T.
- Silicone Antifoam Emulsion SE 26** [Wacker Silicones]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Antifoam emulsion for chem. processing and formulating, cleaners, paints, coatings, dispersions, laundry detergents; defoamer in food-contact

- paper coatings; food pkg. adhesives; persistent antifoam props. in highly alkaline environments at elevated temps.  
*Use Level:* 30 ppm  
*Regulatory:* FDA 21CFR §175.105, 176.200  
*Properties:* Creamy; good dispersibility in water; visc. 1200 cps; 20% act.; anionic  
*Storage:* 6 mos storage life @ R.T.
- Silicone Antifoam Emulsion SRE** [Wacker Silicones]  
*Chem. Descrip.:* Silicone emulsion  
*Uses:* Antifoam in chem. processing and formulating, cleaners, textile and paper, paints, coatings, dispersions, wastewater treatment, and petrochemicals; readily disp. in aq. systems and collapses foam rapidly  
*Use Level:* 50 ppm  
*Properties:* Creamy emulsion; very good dispersibility in water; visc. 100 cps; 20% act.; nonionic  
*Storage:* 6 mos. storage life @ R.T.
- Silwet® L-77** [Crompton/Witco]  
*Chem. Descrip.:* Polyalkylene oxide-modified polymethylsiloxane  
CAS 27306-78-1  
*Uses:* Surfactant, flow control agent, leveling agent, antistat, antifog, dispersant, wetting agent, flotation agent, spreading agent for coatings, printing inks, adhesives, agric., automotive, cleaners, mining, paper, pharmaceuticals  
*Use Level:* 0.025-0.25%  
*Regulatory:* SARA reportable  
*Properties:* Pale amber clear liq.; sol. in methanol, IPA, acetone, xylene, methylene chloride; disp. in water; m.w. 600; sp.gr. 1.007; dens. 8.37 lb/gal; visc. 20 cSt; vapor pressure < 1 mm Hg; f.p. 30 F; b.p. 150 F; HLB 5-8; pour pt. 2 C; cloud pt. < 10 C (0.1%); flash pt. (PMCC) 116 C; surf. tens. 20.5 dyne/cm (0.1% aq.); Draves wetting 8 s (0.1%); Ross-Miles foam 33 mm (0.1%, initial); VOC 2.96%; 100% act.; nonionic  
*Toxicology:* Mod. toxic, severe eye and mild skin irritant  
*Environmental:* Highly toxic to fish  
*Precaution:* Corrosive  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, SiO<sub>2</sub>  
NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-720 AP** [Crompton/Witco]  
*Chem. Descrip.:* Dimethicone copolyol  
*Uses:* Surfactant; anticaking agent; slip agent for paper; also for pharmaceutical use, printing inks; antiseize agent in glass food containers  
*Regulatory:* FDA approved as antiseize agent in glass food containers  
*Properties:* Colorless clear liq.; sol. in water, methanol, IPA, acetone, xylene, methylene chloride; m.w. 12,000; sp.gr. 1.036; dens. 8.61 lb/gal; visc. 1100 cSt; HLB 9-12; cloud pt. 42 C (1%); flash pt. (PMCC) 96 C; pour pt. -34 C; surf. tens. 29.3 dyne/cm (0.1% aq.); Draves wetting > 300 s (0.1%); Ross-Miles foam 43 mm (0.1%, initial); VOC 0.68%; 50% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-722** [Crompton/Witco]  
*Chem. Descrip.:* Dimethicone copolyol  
*Uses:* Surfactant, wetting agent, lubricant, antistat, dispersant, emulsifier, flow control agent, leveling agent, slip/mar resist. aid for adhesives, agric., chem. processing, coatings, fibers, household specialties, metal processing, mining, paper, personal care, petrol. processing, pigments, plastics, rubber, printing inks, textiles; low surf. tension  
*Properties:* Colorless clear liq.; sol. in methanol, IPA, acetone, xylene, methylene chloride; water-insol.; m.w. 3000; sp.gr. 0.990; dens. 8.23 lb/gal; visc. 120 cSt; HLB 5-8; pour pt. -54 C; flash pt. (PMCC) 124 C; VOC 2.23%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7001** [Crompton/Witco]  
*Chem. Descrip.:* Dimethicone copolyol  
*Uses:* Surfactant, dispersant, emulsifier, leveling agent, flow control agent, antifog, lubricant, antiblock, slip agent for adhesives, agric., automotive, coatings, printing inks, textiles, household specialties, cutting fluids, petrol. extraction, paper, personal care prods., plastics and rubber  
*Properties:* Pale yel. clear liq.; sol. in water, methanol, IPA, acetone, xylene, methylene chloride; m.w. 20,000; sp.gr. 1.023; dens. 8.50 lb/gal; visc. 1700 cSt; HLB 9-12; cloud pt. 39 C (1%); flash pt. (PMCC) 97 C; pour pt. -48 C; surf. tens. 30.5 dyne/cm (0.1% aq.); Draves wetting > 300 s (0.25%); Ross-Miles foam 46 mm (0.1%, initial); VOC 0.84%; 75% act.; nonionic

- Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7002** [Crompton/Witco]  
*Chem. Descrip.:* Dimethicone copolyol  
*Uses:* Surfactant, defoamer, flow control agent, leveling agent, slip/mar resist. aid for adhesives, agric., chem. processing, coatings, fibers, household specialties, metal processing, mining, paper, personal care, petrol. processing, pigments, plastics, rubber, printing inks, textiles  
*Properties:* Lt. amber clear liq.; sol. in water, methanol, IPA, acetone, xylene, methylene chloride; m.w. 8000; sp.gr. 1.028; dens. 8.54 lb/gal; visc. 900 cSt; HLB 5-8; pour pt. -40 C; cloud pt. 39 C (1% aq.); flash pt. (PMCC) 88 C; surf. tens. 30.5 dynes/cm (1.1% aq.); Ross-Miles foam 64 mm (0.1%, initial); VOC 1.14%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7087** [Crompton/Witco]  
 CAS 67762-85-0  
*Uses:* Surfactant, antiblock, gloss aid, flow control agent, leveling agent, lubricant, slip/mar resist. aid for adhesives, agric., chem. processing, coatings, fibers, household specialties, metal processing, mining, paper, personal care, petrol. processing, pigments, plastics, rubber, printing inks, textiles  
*Properties:* Colorless clear liq.; sol. in methanol, acetone, xylene, IPA; partly sol. in water; m.w. 20,000; sp.gr. 1.023; dens. 8.50 lb/gal; visc. 1700 cSt; HLB 9-12; pour pt. -48 C; cloud pt. 39 C (1% aq.); flash pt. (PMCC) 97 C; surf. tens. 28.2 dynes/cm (0.1% aq.); VOC 0.84%; 75% act.  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7200** [Crompton/Witco]  
*Chem. Descrip.:* Silicone glycol copolymer  
 CAS 68937-55-3  
*Uses:* Flow control agent, wetting agent, slip agent, dispersant, gloss aid, emulsifier for industrial coatings, household and institutional prods., textiles, inks; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Colorless clear liq.; sol. in water, methanol, IPA, acetone, xylene, methylene chloride; m.w. 19,000; sp.gr. 1.064; dens. 8.84 lb/gal; visc. 2500 cSt; HLB 13-17; pour pt. 4 C; cloud pt. 77 C (1% aq.); flash pt. (PMCC) 110 C; surf. tens. 34.2 dynes/cm (1.1% aq.); Ross-Miles foam 78 mm (0.1%, initial); VOC 0.95%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7210** [Crompton/Witco]  
*Chem. Descrip.:* Silicone glycol copolymer  
 CAS 68937-55-3  
*Uses:* Antifoam, flow control agent, leveling agent, wetting agent, slip agent, dispersant, gloss aid, emulsifier for industrial coatings, household and institutional prods., textiles, inks; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Colorless clear liq.; sol. in methanol, IPA, acetone, xylene, methylene chloride; partly sol. in water; m.w. 13,000; sp.gr. 1.020; dens. 8.47 lb/gal; visc. 1000 cSt; HLB 5-8; pour pt. -32 C; cloud pt. 25 C (1% aq.); flash pt. (PMCC) 96 C; surf. tens. 30.3 dynes/cm (1.1% aq.); Ross-Miles foam 18 mm (0.1%, initial); VOC 0.85%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7220** [Crompton/Witco]  
*Chem. Descrip.:* Silicone glycol copolymer  
 CAS 68937-55-3  
*Uses:* Surfactant, antifoam, antiblock, gloss aid, flow control agent, leveling agent for adhesives, agric., chem. processing, coatings, fibers, household specialties, metal processing, mining, paper, personal care, petrol. processing, pigments, plastics, rubber, printing inks, textiles; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210  
*Properties:* Colorless clear liq.; sol. in water, methanol, acetone, xylene, IPA; m.w. 17,000; sp.gr. 1.017; dens. 8.45 lb/gal; visc. 1100 cSt; HLB 5-8; pour pt. -18 C; cloud pt. < 25 C (1% aq.); flash pt. (PMCC) 143 C; surf. tens. 26.8 dynes/cm (0.1% aq.); VOC 0.69%; 100% act.  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7230** [Crompton/Witco]  
*Chem. Descrip.:* Silicone glycol copolymer  
 CAS 68937-55-3  
*Uses:* Flow control agent, leveling agent, wetting agent, slip agent, dispersant, gloss aid, emulsifier for industrial coatings, household and institutional prods., textiles, inks; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210

- Properties:* Pale yel. clear liq.; sol. in water, methanol, IPA, acetone, xylene, methylene chloride; m.w. 29,000; sp.gr. 1.033; dens. 8.59 lb/gal; visc. 4000 cSt; HLB 9-12; pour pt. -32 C; cloud pt. 40 C (1% aq.); flash pt. (PMCC) 135 C; surf. tens. 32.4 dynes/cm (1.1% aq.); Ross-Miles foam 80 mm (0.1%, initial); VOC 1.30%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7500** [Crompton/Witco]  
*Chem. Descrip.:* Dimethicone copolyol  
*Uses:* Surfactant, antifoam, dispersant, emulsifier, leveling agent, flow control agent, lubricant, slip agent for adhesives, automotive, chemical processing, coatings, petrol. extraction, paper, personal care prods., plastics and rubber, pharmaceutical, textile applics.  
*Properties:* Lt. yel. clear liq.; sol. in methanol, IPA, acetone, xylene, hexanes, methylene chloride; insol. in water; m.w. 3000; sp.gr. 0.982; dens. 8.16 lb/gal; visc. 140 cSt; HLB 5-8; pour pt. -43 C; flash pt. (PMCC) 121 C; VOC 1.13%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7608** [Crompton/Witco]  
*Chem. Descrip.:* Silicone glycol copolymer  
 CAS 67674-67-3  
*Uses:* Surfactant, gloss aid, flow control agent, leveling agent, lubricant, slip agent for adhesives, agric., chem. processing, coatings, fibers, household specialties, metal processing, mining, paper, personal care, petrol. processing, pigments, plastics, rubber, printing inks, textiles  
*Properties:* Colorless clear liq.; sol. in methanol, acetone, xylene, IPA; disp. in water; m.w. 600; sp.gr. 1.020; dens. 8.48 lb/gal; visc. 35 cSt; HLB 5-8; pour pt. -18 C; cloud pt. < 10 C (0.1%); flash pt. (PMCC) 118 C; surf. tens. 21.5 dynes/cm (0.1% aq.); Ross-Miles foam 71 mm (0.1%, initial); VOC 1.19%; 100% act.  
*Storage:* Store at R.T. in tightly sealed containers
- Silwet® L-7657** [Crompton/Witco]  
*Chem. Descrip.:* Polysiloxane polyether copolymer  
 CAS 68937-54-2  
*Uses:* Surfactant, lubricant for waterborne systems, adhesives, agric., chem. processing, coatings, fibers, household specialties, metal processing, mining, paper, personal care, petrol. processing, pigments, plastics, rubber, printing inks, textiles  
*Properties:* Colorless clear liq.; sol. in water, methanol, acetone, xylene, IPA; m.w. 5000; sp.gr. 1.090; dens. 9.06 lb/gal; visc. 600 cSt; HLB 13-17; pour pt. -18 C; cloud pt. 89 C (1% aq.); flash pt. (PMCC) 129 C; surf. tens. 31.5 dynes/cm (0.1% aq.); Ross-Miles foam 75 mm (0.1%, initial); VOC 0.80%; 100% act.; nonionic  
*Storage:* Store at R.T. in tightly sealed containers
- Sintrex EHR** [NOF]  
*Chem. Descrip.:* Sodium 2-ethylhexyl sulfate  
 CAS 126-92-1; EINECS/ELINCS 204-812-8  
*Uses:* Emulsifier for resin industry; textile scouring agent; dispersant for pulp/paper industry; shampoo; molding additive for ceramic industry  
*Properties:* Transparent liq.; anionic
- Sipernat® 22** [Degussa-Hüls]  
*Chem. Descrip.:* Syn. amorphous precipitated silica  
 CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Adsorbent, anticaking agent, and flow control agent for adhesives, sealants, detergents, foods (table salt, powd. sweetener), plastics, cosmetics industries; used as aid to convert liqs. into powds.; processing aid; food pkg. adhesives, coatings, cellophane, rubber articles; defoamer in food-contact coatings, paper/paperboard; hydrophilic  
*Use Level:* 0.1-0.5% (table salt), 0.5% (powd. sweetener)  
*Regulatory:* FDA 21CFR §73.1, 133.146, 160.105, 160.185, 172.230, 172.340, 172.480, 173.340, 175.105, 175.300, 176.200, 176.210, 177.1200, 177.2420, 177.2600, 178.321, 182.90, 573.940(b)(c)  
*Properties:* Wh. fluffy powd., 18 nm avg. particle size; dens. 270 g/l (tapped); surf. area 190 m<sup>2</sup>/g; pH 6.3 (5% aq. susp.); 98% assay
- Sipernat® 22LS** [Degussa-Hüls]  
*Chem. Descrip.:* Precipitated silica  
*Chem. Analysis:* SiO<sub>2</sub> (98%), moisture (5%)  
 CAS 1343-98-2; EINECS/ELINCS 215-683-2  
*Uses:* Thickener for cosmetics, pharmaceuticals, elec., insulation, paper, film, pesticides, plastics industries; carrier, grinding aid, suspending aid, free-flow agent in pesticides; thickener and thixotrope in filled polyester gel coats, laminating resins; antiblock in PE and PP blown films  
*Regulatory:* FDA approved



- Properties:* 3.5  $\mu$  avg. particle size; dens. 80 g/l (tapped); BET surf. area 190 m<sup>2</sup>/g; pH 6.2
- Sipernat® 22S** [Degussa-Hüls]  
*Chem. Descrip.:* Precipitated silica  
 CAS 1343-98-2; EINECS/ELINCS 215-683-2  
*Uses:* Flow control agent, anticaking agent for powd. detergents, TPEs, sealants, foodstuffs (spices, guar gum, dried soup, powd. cheese), pharmaceuticals, fire extinguishers; converts liqs. to powds., e.g., PVC stabilizers; food pkg. adhesives, coatings, cellophane, rubber articles; defoamer in food-contact coatings, paper/paperboard; hydrophilic  
*Use Level:* 0.25-2%; 0.1-2% (spices), 1% (guar gum, powd. cheese), 1-2% (soup)  
*Regulatory:* FDA 21CFR §73.1, 133.146, 160.105, 160.185, 172.230, 172.340, 172.480, 173.340, 175.105, 175.300, 176.200, 176.210, 177.1200, 177.2420, 177.2600, 178.321, 182.90, 573.940(b)(c)  
*Properties:* Wh. loose powd.; 18 nm avg. particle size; dens. 120 g/l (tapped); surf. area 190 m<sup>2</sup>/g; pH 6.3 (5% aq. susp.); 98% assay
- Sipernat® 50** [Degussa-Hüls]  
*Chem. Descrip.:* Precipitated silica  
 CAS 1343-98-2; EINECS/ELINCS 215-683-2  
*Uses:* Carrier, flow control agent, anticaking agent for cosmetics, detergents, food industries (spices, high fat seasoning, cake mixes); food pkg. adhesives, coatings, cellophane, rubber articles; defoamer in food-contact coatings, paper/paperboard  
*Use Level:* 0.25-2%; 0.1-2% (spices), 1% (high fat seasoning), 1.5% (cake mixes)  
*Regulatory:* FDA 21CFR §73.1, 133.146, 160.105, 160.185, 172.230, 172.340, 172.480, 173.340, 175.105, 175.300, 176.200, 176.210, 177.1200, 177.2420, 177.2600, 178.321, 182.90, 573.940(b)(c)  
*Properties:* Loose wh. powd.; pH 6.0-7.4 (5%); 7% max. moisture  
*Toxicology:* Inhalation may cause respiratory tract irritation
- Sipernat® 50S** [Degussa-Hüls]  
*Chem. Descrip.:* Syn. amorphous precipitated silica  
 CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Flow control agent, anticaking agent, and defoamer for food use (cocoa powd., dried soup, cake mix); food pkg. adhesives, coatings, paper, cellophane, rubber, etc.; defoamer in food-contact coatings, paper/paperboard; for prevention of plate out in PVC calendered films; anticaking agent for pre-expanded PS foam gran.; improves storability of phenolic and melamine resins  
*Use Level:* 0.25-2%; 0.5-2% (cocoa powd.), 0.5% (dried soup), 1.5% (cake mix)  
*Regulatory:* FDA 21CFR §73.1, 133.146, 160.105, 160.185, 172.230, 172.340, 172.480, 173.340, 175.105, 175.300, 176.200, 176.210, 177.1200, 177.2420, 177.2600, 178.321, 182.90, 573.940(b)(c)  
*Properties:* Wh. loose powd.; 7  $\mu$  avg. agglomerate size; tapped dens. 100 g/l; surf. area 480 m<sup>2</sup>/g; pH 6.7 (5%); 99% SiO<sub>2</sub>, 5% moisture  
*Toxicology:* Inhalation may cause respiratory tract irritation
- Sipernat® 300DS** [Degussa-Hüls]  
*Chem. Descrip.:* Precipitated silica  
*Chem. Analysis:* SiO<sub>2</sub> (98%), Al<sub>2</sub>O<sub>3</sub> (0.2%)  
 CAS 1343-98-2; EINECS/ELINCS 215-683-2  
*Uses:* Filler for plastics, paper and film industry; hydrophilic  
*Properties:* Powd.; 10 nm avg. particle size; dens. 90 g/l (tapped); DBP absorp. 260%; surf. area 300 m<sup>2</sup>/g; pH 6.5 (5% aq. susp.)
- Sipernat® 310** [Degussa-Hüls]  
*Chem. Descrip.:* Precipitated silica  
*Chem. Analysis:* SiO<sub>2</sub> (>97%), Na<sub>2</sub>SO<sub>4</sub> (< 3%)  
 CAS 1343-98-2; EINECS/ELINCS 215-683-2  
*Uses:* Filler for antiblocking of LDPE, PP, and flattening of PP tapes, and for paper applics.  
*Properties:* Powd.; 8 nm avg. particle size; dens. 130 g/l (tapped); DBP absorp. 210%; surf. area 650 m<sup>2</sup>/g; pH 7 (5% aq. susp.); 99% assay
- Sipernat® 320DS** [Degussa-Hüls]  
*Chem. Descrip.:* Precipitated silica  
 CAS 1343-98-2; EINECS/ELINCS 215-683-2  
*Uses:* Filler for plastics, silicone rubber, paper, and film industry applics.  
*Properties:* Wh. fluffy powd.; 18 nm avg. particle size; dens.  $\approx$  80 g/l; surf. area 170 m<sup>2</sup>/g; pH 6.3 (5% aq. susp.); 98% assay
- Sipernat® 500LS** [Degussa-Hüls]  
*Chem. Descrip.:* Amorphous precipitated silica  
*Chem. Analysis:* SiO<sub>2</sub> (99%), moisture (3%)
- CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Thickener for cosmetic creams and lotions; prevents ink migration in paper coatings; also in thermal insulation, films, pharmaceuticals; carrier, grinding aid, suspending aid, free-flow agent for pesticides; prevents plate out in PVC calendered films; silicon wafer polishing agent  
*Regulatory:* FDA approved  
*Properties:* Powd.; 3.5  $\mu$  avg. particle size; dens 80 g/l (tapped); BET surf. area 475 m<sup>2</sup>/g; pH 6.3 (5% aq. susp.)
- Sipol LAL-7** [Specialty Industrial Prods.]  
*Chem. Descrip.:* C<sub>12</sub>-C<sub>14</sub> primary alcohol (7 EO)  
 CAS 68439-50-9  
*Uses:* Emulsifier, detergent used in household and I&I cleaners/detergents, textile finishing, paper processing, and agric. adjuvants  
*Properties:* Liq.; sol. in isopropanol and water; HLB 12.2; hyd. no. 104-112; nonionic
- Sipol NP-10** [Specialty Industrial Prods.]  
*Chem. Descrip.:* Nonylphenol (10 EO)  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* Detergent, wetting agent, emulsifier used in detergent compounding, textile, leather, pulp/paper processing, acid cleaners, corrosion inhibitors, emulsion and soak tank cleaners; for indirect food contact; agric. inert  
*Regulatory:* FDA 21CFR §178.3400 compliant; approved as agric. inert  
*Properties:* Liq.; sol. in water, toluene, and perchloroethylene; insol. in min. oil, min. spirits; HLB 13.2; cloud pt. 60-65 C; nonionic
- Sipomer® COPS 1** [Rhodia HPCII]  
*Chem. Descrip.:* Sodium allyloxy hydroxypropyl sulfonate aq. sol'n.  
*Uses:* Surfactant, stabilizer for emulsion polymerization; latex stabilizer; reduces latex foaming; provides improved film props. for paints, adhesives, paper and textile coatings; copolymerizable; provides latex stability at low surfactant levels  
*Properties:* APHA 100 clear liq.; m.w. 218; sp.gr. 1.17; dens. 9.75 lb/gal; visc. 10 cps; f.p. -12 C; b.p. 100 C (760 mm); flash pt. > 100 C; pH 6-9 (10%); 39-42% act.; anionic
- Sipomer® SEM 25** [Rhodia HPCII]  
*Chem. Descrip.:* 58-62% Polyethoxy methacrylate, 18-22% methacrylic acid, 18-22% water, 150-250 ppm MEHQ  
*Uses:* Monomer for use in alkali-sol. associative thickeners used in architectural coatings, paper formulations, personal care formulations, adhesives, grouts and cements  
*Properties:* Pale yel. clear liq.; completely sol. in water; sp.gr. > 1; visc. 150-175 cps; f.p. < -30 C; flash pt. > 210 C; pH 4.3-4.4; 40% volatile
- Sipophos DA-6P** [Specialty Industrial Prods.]  
*Chem. Descrip.:* Isodecyl alcohol phosphate ester (6 EO)  
*Uses:* Emulsifier in textile wetting or scouring applics.; penetrant, coupling agent used in alkaline detergents and pulp/paper formulations  
*Properties:* Liq.; 99% act.
- SizeXcel® 1790** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Low m.w., high charge dens. polymer  
*Uses:* Resin used to manage cationic demand wherever anionics are present in thin or thick paper stock systems, acid or alkaline papers; can aid greater use of CaCO<sub>3</sub> contg. broke  
*Properties:* Yel. to amber liq.; visc. 100 cps; pH 7; 50% NV; cationic
- SizeXcel® 1799** [Georgia-Pacific Resins]  
*Chem. Descrip.:* High m.w., high charge dens. polymer  
*Uses:* Resin used to manage cationic demand wherever anionics are present in thin or thick paper stock systems; rec. for use at high temps. or high conductivities; can aid greater use of CaCO<sub>3</sub> contg. broke  
*Properties:* Yel. to amber liq.; visc. 5000 cps; pH 6; 50% NV; cationic
- Slimex®** [Hercules]  
*Uses:* Antimicrobial and slimeicide for slime control in whitewater and preservation of pulps
- Slip-Ayd® SL 555** [Elementis Spec. Colorants/Addit.]  
*Chem. Descrip.:* Polyolefin/carnauba blend  
*Uses:* Wax additive for solv.-free systems incl. UV, EB, two-component catalyzed and powd. coatings; food pkg. adhesives/coatings/paper, in water-borne or solvent-borne coatings; defoamer in food-contact coatings  
*Use Level:* 0.1-0.5%  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 176.200  
*Properties:* 6  $\mu$  particle size; sp.gr. 0.97; soften. pt. 82-86 C
- SM 1124XD** [Process Chems. LLC]  
*Uses:* Defoamer, drainage aid for kraft pulp/paper applics., for use in brownstock

washing, screen room, and bleach plant operations, on the paper machine, and in the effluent; water-based; does not contain EBS, min. oil, or dioxin precursors; does not contribute to deposit formation; suitable whether batch or continuous pulp is employed

*Properties:* Opaque wh. liq.; dens. 8.0-8.6 lb/gal; visc. 500-1150 cps

*Toxicology:* TSCA listed

*Storage:* Store in dry area

#### SM 2128 [GE Silicones]

*Chem. Descrip.:* Silicone aq. emulsion based on SF 18 (350)

*Uses:* Release agent for mech. rubber goods (automobile floor mats, shock mounts, fan belts, o-rings, footwear, floor tile), plastics, paper prods., indirect food contact, food handling (latex gloves), disposable food pkg.; latex dip additive

*Use Level:* 0.2-2.5% silicone (rubber release)

*Regulatory:* FDA compliance; SARA §302/311/312/313 nonreportable

*Properties:* Wh. liq.; odorless; sol. in water; sp. gr. 1; dens. 8.2 lb/gal; visc. 350 cst; f.p. 0 C; b.p. 100 C; flash pt. 215.5 C; pH ≈ 5-9; 37-41% total solids, 35% silicone; nonionic

*Toxicology:* May be harmful if swallowed; may cause mild skin irritation; may irritate eyes; not a primary eye or skin irritant; not a skin sensitizer

*Hazardous Decomp. Prods.:* (thermal): SiO<sub>2</sub>, formaldehyde

HMS: Health 0; Flammability 0; Reactivity 0

*Storage:* 12 mos storage stability

#### SMA® 1000 [Atofina; Atofina SA]

*Chem. Descrip.:* 1:1 Styrene/maleic anhydride copolymer

CAS 9011-13-6

*Uses:* Soil release agent in rug shampoos; paper sizing and coatings; commercial laundries; emulsion polymerization; oven cleaners; leveling agent for floor polishes; pigment dispersant in paints, inks, plastics; polymer additives; coatings for metals and plastics; powd. coatings; temporary coatings; aq. grinding fluids

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.1200, 177.1210, 177.1400, 182.99

*Properties:* Gardner 1-2 powd.; visc. 28 cP (20% sol'n., 30 C); m.p. 150-170 C; acid no. 465-495; 99% act.; anionic

#### SMA® 2000 [Atofina; Atofina SA]

*Chem. Descrip.:* Styrene/maleic anhydride copolymer

CAS 9011-13-6

*Uses:* Soil release agent in rug shampoos; paper sizing and coatings; commercial laundries; emulsion polymerization; oven cleaners; leveling agent for floor polishes; pigment dispersant in paints, inks, plastics; polymer additives; coatings for metals and plastics; powd. coatings; temporary coatings

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.1200, 177.1210, 177.1400, 182.99

*Properties:* Gardner 1-2 powd.; visc. 136 cP (20% sol'n., 30 C); m.p. 140-160 C; acid no. 335-375; 99% act.; anionic

#### SMA® 3000 [Atofina; Atofina SA]

*Chem. Descrip.:* Styrene/maleic anhydride copolymer

CAS 9011-13-6

*Uses:* Soil release agent in rug shampoos; paper sizing and coatings; commercial laundries; emulsion polymerization; oven cleaners; leveling agent for floor polishes; pigment dispersant in paints, inks, plastics; polymer additives; coatings for metals and plastics; powd. coatings; temporary coatings

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.1200, 177.1210, 177.1400, 182.99

*Properties:* Gardner 1 max. powd.; visc. gels; m.p. 115-130 C; acid no. 265-305; 99% act.; anionic

#### SNAP 2042 [Reichhold]

*Chem. Descrip.:* Styrene/butadiene/acrylonitrile latex

CAS 9003-56-9

*Uses:* Binder, dry str. agent, and gloss aid for all synthetically bound paper coatings, web and sheetfed offset papers, roto applics.; outstanding ink gloss; improved press performance; maintains high water absorbency

#### SNAP 2048 [Reichhold]

*Chem. Descrip.:* Styrene/butadiene/acrylonitrile latex

CAS 9003-56-9

*Uses:* Binder, dry str. agent and gloss aid for all synthetically bound paper coatings, web and sheetfed offset papers, roto applics.; outstanding ink gloss; improved press performance; maintains high water absorbency

#### SNAP 2054 [Reichhold]

*Chem. Descrip.:* Styrene/butadiene/acrylonitrile latex

CAS 9003-56-9

*Uses:* Binder, gloss aid for highly syn. binder systems typ. of LWC paper formulations, for web offset to roto applics.; outstanding ink gloss; maintains high water absorbency and porosity

#### Snowcal 75E (Export) [Omya Croxton+Garry]

*Chem. Descrip.:* Whiting

*Chem. Analysis:* CaCO<sub>3</sub> (97.8 ± 0.25%), moisture (0.1%)

CAS 471-34-1

*Uses:* Filler for paper

*Properties:* Superfine; nat. color; 0.005% on 45 µm sieve; 99 ± 1% finer than 10 µm, 45% finer than 2 µm; sp. gr. 2.7; TAPPI brightness 85.6 ± 0.6

#### Snowtex 20L [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Opalescent; 40-50 nm avg. particle diam.; sp. gr. 1.12-1.14 (20 C); visc. ≤ 3 mPa·s; pH 9.5-10; 20-21% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

#### Snowtex 40 [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Clear to opalescent; 10-20 nm avg. particle diam.; sp. gr. 1.28-1.35 (20 C); visc. ≤ 25 mPa·s; pH 9.0-10.5; 40% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

#### Snowtex 50 [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Clear to opalescent; 20-30 nm avg. particle diam.; sp. gr. 1.36-1.40 (20 C); visc. 5-50 mPa·s; pH 8.5-9.5; 47-49% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust);

inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex C** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica, stabilized  
EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Clear to opalescent; 10-20 nm avg. particle diam.; sp.gr. 1.12-1.14 (20 C); visc.  $\leq$  10 mPa·s; pH 8.5-9.0; 20-21% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex N** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica, stabilized with ammonia

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Clear to opalescent; 10-20 nm avg. particle diam.; sp.gr. 1.12-1.14 (20 C); visc.  $\leq$  6 mPa·s; pH 9-10; 20-21% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex O** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Clear to opalescent; 10-20 nm avg. particle diam.; sp.gr. 1.12-1.14 (20 C); visc.  $\leq$  3 mPa·s; pH 2-4; 20-21% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex OL** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Opalescent; 40-50 nm avg. particle diam.; sp.gr. 1.12-1.14 (20 C); visc.  $\leq$  3 mPa·s; pH 2-4; 20-21% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex PS-L** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Surf. treatment agent for fiber, paper, plastics, adhesives; binder for catalysts, ceramics, inorg. and glass fibers

*Properties:* Wh. transparent milky solid; 35-40 nm particle size; sp.gr. 1.24-1.26; visc.  $<$  150 mPa·s; f.p. 0 C; pH 9-10.5; 35-36% SiO<sub>2</sub>;  $<$  0.20% Na<sub>2</sub>O

**Snowtex PS-M** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Surf. treatment agent for fiber, paper, plastics, adhesives; binder for catalysts, ceramics, inorg. and glass fibers

*Properties:* Wh. transparent milky solid; 18-23 nm particle size; sp.gr. 1.12-1.14; visc.  $<$  150 mPa·s; f.p. 0 C; pH 9-10.5; 20-21% SiO<sub>2</sub>;  $<$  0.20% Na<sub>2</sub>O

**Snowtex S** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting; metal surf. treatment; paint vehicle; catalyst binder; paper treatment; binder for inorganic film; features exc. heat resist., antistatic props., transparency, gelation, large surf. area

*Properties:* 7-9 nm particle size; visc. 1-7 cp; pH 9.0-10.5; 30% SiO<sub>2</sub> in water

**Snowtex ST-20L** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 40-50 nm particle size; visc. 1-3 cps; pH 9.5-11; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-40** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 11-14 nm particle size; visc. 5-25 cps; pH 9-10.5; 40% SiO<sub>2</sub>; 60% water

**Snowtex ST-50** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 20-30 nm particle size; visc. 5-50 cps; pH 8.5-9.5; 48% SiO<sub>2</sub>; 52% water

**Snowtex ST-C** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica  
EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 11-14 nm particle size; visc. 1-10 cps; pH 8.5-9.5; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-N** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 11-14 nm particle size; visc. 1-6 cps; pH 9-10; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-O** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder for inorg. film, inorg. fibrous shapes of ceramic and glass fiber, and for treatment of steel; antistat; catalyst binder; textile treatment; painting vehicle; paper treatment

*Properties:* Transparent; 11-14 nm particle size; visc. 1-3 cps; pH 2-4; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-O-30** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Antistat; catalyst binder; binder for inorg. film; textile treatment; painting vehicle; metal surf. treatment; paper treatment; superior stability; exc. heat resist., gelation; lg. surf. area; exc. frictionizing

*Properties:* Transparent; 12 nm particle size; visc. 3 mPa·s; pH 2-4; 30% SiO<sub>2</sub>; 70% water

**Snowtex ST-O-40** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Antistat; catalyst binder; binder for inorg. film; textile treatment; painting vehicle; metal surf. treatment; paper treatment; superior stability; exc. heat resist., gelation; lg. surf. area; exc. frictionizing

*Properties:* Opalescent; 22 nm particle size; visc. 5 mPa·s; pH 2-4; 40% SiO<sub>2</sub>; 60% water

**Snowtex ST-OL** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 40-50 nm particle size; visc. 1-3 cps; pH 2-4; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-OL-40** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Antistat; catalyst binder; binder for inorg. film; textile treatment; painting vehicle; metal surf. treatment; paper treatment; superior stability; exc. heat resist., gelation; lg. surf. area; exc. frictionizing

*Properties:* Milky wh.; 45 nm particle size; visc. 3 mPa·s; pH 2-4; 40% SiO<sub>2</sub>; 60% water

**Snowtex ST-OS** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Antistat; catalyst binder; binder for inorg. film; textile treatment; painting vehicle; metal surf. treatment; paper treatment; superior stability; exc. heat resist., gelation; lg. surf. area; exc. frictionizing

*Properties:* Transparent; 9 nm particle size; visc. 2 mPa·s; pH 2-4; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-S** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 7-9 nm particle size; visc. 1-7 cps; pH 9-10.5; 30% SiO<sub>2</sub>; 70% water

**Snowtex ST-UP** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control agent, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; food pkg.; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; good film-forming props.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210,

177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Clear to opalescent; elongated, 5-20 nm width, 40-300 nm length; sp.gr. 1.12-1.14 (20 C); visc. 5-100 mPa·s; pH 9-10; 20-21% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex ST-XS** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting, inorg. film, catalysts; antistat; metal surf. treatment; textile and paper treatment; paint vehicle

*Properties:* 4-6 nm particle size; visc. 1-7 cps; pH 9-10; 20% SiO<sub>2</sub>; 80% water

**Snowtex ST-ZL** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder, antistat, slip control, gellant for textile and paper treatment; antisticking aid in cellophane film; binder in catalysts, inorg. film, ceramic fiber, precision casting, insulating materials; refractory material; glass fibers; vehicle for paints and adhesives for fabric and paper; improves adhesion, durability, abrasion resist. in coatings; antislip in floor waxes; in polishes for silicon semiconductor wafers; metal surf. treatment; batteries; food pkg. applics.

*Regulatory:* FDA 21CFR §172.230, 172.480, 175.105, 175.300, 175.320, 175.350, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1520, 177.2420, 177.2600, 178.3120, 182.90, 182.99, 573.940

*Properties:* Opalescent; 70-100 nm avg. particle diam.; sp.gr. 1.29-1.32 (20 C); visc. ≤ 5 mPa·s; pH 9-10; 40-41% SiO<sub>2</sub>

*Toxicology:* May irritate eyes; prolonged skin contact may cause irritation; OSHA (amorphous silica): PEL-TWA 20 mppcf, 0.8 mg/m<sup>3</sup> (total dust); inhaled dust or mist may cause pneumoconiosis and silicosis; noncarcinogenic

*Storage:* Store in tightly closed containers at R.T.; avoid direct exposure to sunlight

**Snowtex XS** [Nissan Chem. Ind.]

*Chem. Descrip.:* Colloidal silica

EINECS/ELINCS 231-545-4

*Uses:* Binder for precision casting; metal surf. treatment; paint vehicle; catalyst binder; paper treatment; binder for inorganic film; features exc. heat resist., antistatic props., transparency, gelation, large surf. area

*Properties:* 4-6 nm particle size; visc. 1-7 cp; pH 9.0-10.0; 20% SiO<sub>2</sub> in water

**Sodium MBT** [Flexsys]

*Chem. Descrip.:* Sodium mercaptobenzothiazole sol'n.

CAS 2492-26-4

*Uses:* Chem. intermediate; corrosion inhibitor in aq. systems, antifreezes, hydraulic fluids, coolants, air conditioning/refrigeration systems; collector in extraction of metals from sulfite or oxide compds. in froth flotation; water treatment agent; biocide; bactericide; fungicide; food pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in paper coatings, food-contact paper; slimicide in food-contact paper; food-contact textiles, glue

*Regulatory:* FDA 21 CFR §175.105, 176.200, 176.210, 176.300, 177.2800, 178.3120; BfVV XXI compliant

*Properties:* Amber to brn. liq.; sp.gr. 1.25-1.28; 49.5-51% conc.

*Storage:* Store above 0 C in well-ventilated area; avoid direct sunlight, excessive exposure to air

**Sodium Alginate HV NF/FCC** [Frutarom Meer]

*Chem. Descrip.:* Sodium alginate NF/FCC

CAS 9005-38-3

*Uses:* Emulsifier, stabilizer, suspending agent for ice cream, sherbets, soft drinks, bakery jellies, prevention of freezer burn; freeze/thaw stabilizer for lemon pie fillings; textile print paste thickener; paper sizing agent; food-grade

**Sodium Alginate LV** [Frutarom Meer]

*Chem. Descrip.:* Sodium alginate

CAS 9005-38-3

*Uses:* Emulsifier, stabilizer, suspending agent for ice cream, sherbets, soft

- drinks, bakery jellies, prevention of freezer burn; freeze/thaw stabilizer for lemon pie fillings; textile print paste thickener; paper sizing agent; food-grade  
*Properties:* Water-sol.
- Sodium Alginate LVC** [Frutarom Meer]  
*Chem. Descrip.:* Sodium alginate  
 CAS 9005-38-3  
*Uses:* Emulsifier for ice cream, sherbets, water ices; suspending agent in soft drinks; freeze/thaw stabilizer in lemon pie fillings; prevents freezer burn; gellant in puddings, fabrication of sausage casings; thickener in whipped cream, jellies, jams, meringue, fillings, sauces, cheese, candies, cake, syrups, bakery jellies; textile print paste thickener; paper sizing agent  
*Use Level:* 0.4-1.0%  
*Properties:* Off-wh. to tan free-flowing powd.; ≥ 98% thru 30 mesh; visc. ≥ 50 cps (1%); pH 5.5-8.0
- Sodium Alginate MV NF/FCC** [Frutarom Meer]  
*Chem. Descrip.:* Sodium alginate NF/FCC  
 CAS 9005-38-3  
*Uses:* Emulsifier, stabilizer, suspending agent for ice cream, sherbets, soft drinks, bakery jellies, prevention of freezer burn; freeze/thaw stabilizer for lemon pie fillings; textile print paste thickener; paper sizing agent; food grade  
*Properties:* Water-sol.
- Sodium Chlorite Sol'n. 50, Tech.** [Vulcan Perf. Chems.]  
*Chem. Descrip.:* Sodium chlorite  
 CAS 7758-19-2; EINECS/ELINCS 231-836-6  
*Uses:* Bacterial slimicide in paper mill systems; algicide in cooling towers; used in the electronics industry; as intermediate to generate sodium chloride, an oxidizing agent  
*Properties:* Wh. slightly cloudy liq.; dens. 11.7 lb/gal (35 C); cryst. pt. 25 C; 37% min. sodium chlorite
- Sodium Chlorite, Tech.** [Vulcan Perf. Chems.]  
*Chem. Descrip.:* Sodium chlorite  
 CAS 7758-19-2; EINECS/ELINCS 231-836-6  
*Uses:* Bacterial slimicide in paper mill systems; algicide in cooling towers; used in the electronics industry; as intermediate to generate sodium chloride, an oxidizing agent  
*Properties:* Wh. flakes; dens. 53 lb/ft<sup>3</sup> (loose); 69 lb/ft<sup>3</sup> (packed); 79% min. sodium chlorite
- Solan E** [Croda Oleochems.]  
*Chem. Descrip.:* PEG-75 lanolin  
 CAS 61790-81-6  
*Uses:* Emollient; superfatting agent for bar/liq. soaps, nail varnish removers; conditioner; superfatting agent, solubilizer for aq./aq.-alcoholic systems; solubilizer for perfumes; softener for paper tissues, cosmetic sponges; detergent cleansers; nongreasy vehicle in pharmaceuticals; plasticizer for hair sprays, mousses, and gels  
*Properties:* Yel./brn. solid; mild odor; water-sol.; drop pt. 45-50 C; HLB 16.2; acid no. 2 max.; iodine no. 4-8; sapon. no. 15-24; 100% conc.; nonionic
- Solan X** [Croda Oleochems.]  
*Chem. Descrip.:* PEG-150 lanolin  
 CAS 61790-81-6  
*Uses:* Emollient; superfatting agent for bar/liq. soaps, nail varnish removers; conditioner; superfatting agent, solubilizer for aq./aq.-alcoholic systems; solubilizer for perfumes; softener for paper tissues, cosmetic sponges; detergent cleansers; nongreasy vehicle in pharmaceuticals; plasticizer for hair sprays, mousses, and gels  
*Properties:* Yel. wax.; mild odor; water-sol.; drop pt. 52-54 C; acid no. 2 max.; sapon. no. 8.5-11.0
- Sol-Aqua-Fast®** [Crompton & Knowles]  
*Uses:* Direct dyes for fine papers, tissue grades, toweling, paperboard, and cover stocks
- Solar®** [BASF]  
*Uses:* Pigment dispersions for tinting wood-free papers and coatings, as well as for coloring grades requiring exc. lightfastness  
*Properties:* Anionic
- Solucote® 1003** [Soluol]  
*Chem. Descrip.:* Aliphatic waterborne PU  
*Uses:* Coating and impregnant for syn. fabrics and cordage; improves life of papermakers felt; med. firm; contains heat reactive crosslinker  
*Properties:* Dens. 8.7 lb/gal; visc. 25-125 cps (72 F); pH 7-8.5; tens. modulus 360 psi (100%); tens. str. 1000 psi; elong. 400%; 40 ± 2% solids
- Sol-U-Tein EA** [Fanning]  
*Chem. Descrip.:* Albumen  
 CAS 9006-50-2; EINECS/ELINCS 232-936-2  
*Uses:* Binder, coagulant, film-former, skin conditioner used in pharmaceuticals and personal care prods.; dye mordant in textiles, adhesives, veneers, sizing and making papers; gilding leather; book binding; food applic.  
*Properties:* Yel. powd.; 100% thru 80 mesh; 90% thru 100 mesh; bland odor; pH 6.5-8.0; 75% ovalbumin, ovoconalbumin, ovomucoid, ovomucin, ovoglobulin, lysozyme, and avidin
- Sorbitol Sol'n. High Mannitol** [ADM Food Addit.]  
*Chem. Descrip.:* Sorbitol  
 CAS 50-70-4; EINECS/ELINCS 200-061-5  
*Uses:* Sweetener, humectant, plasticizer, and stabilizer for foods and pharmaceuticals; food pkg. adhesives, coatings, polymers; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 176.210, 177.2420, 182.99, 184.1835; GRAS; USP, FCC compliance  
*Toxicology:* Noncarcinogenic  
*Environmental:* Biodeg.  
*Storage:* Store in tightly closed container
- Sorbitol Sol'n. Noncrystallizing** [ADM Food Addit.]  
*Chem. Descrip.:* Sorbitol with other polyhydric alcohols  
*Uses:* Noncariogenic sweetener rec. for dentifrices and sugar-free food applics.; as humectant in variety of food, pharmaceutical, cosmetic, and industrial applics.; provides inc. visc.; plasticizer, stabilizer; food pkg. adhesives, coatings, polymers; defoamer in food-contact paper/paperboard; formulated to resist crystallization  
*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 175.380, 176.210, 177.2420, 182.99, 184.1835; GRAS; NF, JECFA, E420 compliance  
*Properties:* Clear, colorless syrup; no odor; sweet bland taste; sol. in water; sp.gr. 1.290-1.320; visc. 190 cps; b.p. 105 C; ref. index 1.457-1.467; 45-55% assay  
*Environmental:* Biodeg.  
*Precaution:* Incompat. with strong oxidizing agents  
*Storage:* Store in dry, well-ventilated area in tightly closed containers
- Soygold® 1000** [Ag Environmental Prods.]  
*Chem. Descrip.:* Methyl soyate  
 CAS 67784-80-9  
*Uses:* Industrial solv. for petrol. and animal fat degreasing, precision cleaning, asphalt industry (release agent), concrete release, mold release, metal cutting (lubricant), adhesive removal, silk screen, printing, paints, glass cutting, automotive prods.; substitute for d-limonene, naphtha, min. spirits, etc.; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in surf.-lubricants for mfg. of food-contact metallic articles; environmentally responsible; contains no petrol. distillates; low VOCs; ultra low evaporative emissions; high flash pt.; EPA listed as approved replacement (SNAP); water rinsable  
*Regulatory:* FDA 21CFR §172.225, 174.5, 176.200, 177.2260, 178.3910; SARA §313 nonreportable; DOT regulated (Class 65)  
*Properties:* Clear to lt. yel. liq.; lt. musty odor; negligible sol. in water; sp.gr. 0.870; vapor pressure < 5 mm Hg (72 F); m.p. -1 C; b.p. 320 C; flash pt. (PMCC) 218 C; KB 58; VOC < 14%  
*Toxicology:* Nontoxic; LD50 (oral, rat) 17.4 g/kg; nonirritating to eyes and skin; TSCA listed  
*Environmental:* Readily biodeg.; LC50 (bluegill, 96 h) > 1000 mg/l  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO  
 HMIS: Health 0; Flammability 1; Reactivity 0
- Soygold® 2000** [Ag Environmental Prods.]  
*Chem. Descrip.:* Methyl soyate with 1-3% surfactant (CAS 9016-45-9)  
*Uses:* Industrial solv. for petrol. and animal fat degreasing, precision cleaning, asphalt industry (release agent), concrete release, mold release, metal cutting (lubricant), adhesive removal, silk screen, printing, paints, glass cutting, automotive prods.; substitute for d-limonene, naphtha, min. spirits, etc.; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in surf.-lubricants for mfg. of food-contact metallic articles; contains no petrol. distillates; low VOCs; ultra low evaporative emissions; high flash pt.; EPA listed as approved replacement (SNAP); water rinsable  
*Regulatory:* FDA 21CFR §172.225, 174.5, 176.200, 177.2260, 178.3910; SARA §313 nonreportable; DOT regulated (Class 65)  
*Properties:* Clear to lt. yel. liq.; lt. musty odor; negligible sol. in water; sp.gr. 0.87; vapor pressure < 5 mm Hg (72 F); m.p. -1 C; b.p. > 204 C; flash pt. (PMCC) 218 C; KB 58; VOC < 14%  
*Toxicology:* Nontoxic; LD50 (oral, rat) 17.4 g/kg; nonirritating to eyes and

- skin; TSCA listed  
*Environmental:* Readily biodeg.; LC50 (bluegill, 96 h) > 1000 mg/l  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO  
 HMIS: Health 0; Flammability 1; Reactivity 0
- SPA** [Raschig; Raschig AG]  
*Chem. Descrip.:* Acrylic acid-(3-sulfopropyl)-ester, potassium salt  
 CAS 31098-20-1; EINECS/ELINCS 250-465-0  
*Uses:* Used for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners, and poly-electrolytes; functional monomer
- SPA E** [Raschig; Raschig AG]  
*Chem. Descrip.:* 1-Propanesulfonic acid, 2-hydroxy-3-(2-propenyloxy), sodium salt  
 CAS 52556-42-0; EINECS/ELINCS 258-004-5  
*Uses:* Surfactant for vinylic systems, emulsion polymerization in paper, textile, fiber, and adhesives industries; gives antistatic props. and promotes adhesion of pigments; functional sulfate monomer; polymerizable
- Spartan CM** [Spartan Flame Retardants]  
*Chem. Descrip.:* Inorg.  
*Uses:* Flame retardant for cotton, wool, silk, and rayon, and for paper/paperboard  
*Use Level:* 12-15% (textile), 15-20% (paper)  
*Properties:* Granular
- Spartan FR-48** [Spartan Flame Retardants]  
*Chem. Descrip.:* Proprietary  
*Uses:* Flame retardant for use on paper, paperboard, ground paper prods., cotton batting, cellulose insulation; exc. wetting props.  
*Use Level:* 9-15%  
*Properties:* Clear to hazy yel. liq.; sp.gr. 1.255 (60 F); dens. 10.45 lb/gal; visc. 7.7 cps; pH 7.7 ± 0.2 (5%); 50% act.  
*Storage:* Store @ 40 F or above in stainless steel or FRP tanks
- Spartan X-12** [Spartan Flame Retardants]  
*Chem. Descrip.:* Inorg.  
*Uses:* Flame retardant for use on cotton, wool, silk, rayon, and linen, and for paper/paperboard (nonyellowing under heat exposure)  
*Use Level:* 12-15% (textile), 15-20% (paper)  
*Properties:* Wh. cryst. powd.; dissolves in hot water; pH 6.7 (11.5%)  
*Toxicology:* Low toxicity; not a skin irritant or sensitizer  
*Precaution:* Avoid contact with galvanized steel, zinc, and copper-bearing alloys
- SPE 9528** [Solutia]  
*Chem. Descrip.:* Tetrasodium salt of 1-hydroxy ethylenediphosphonic acid  
 CAS 3794-83-0; EINECS/ELINCS 223-267-7  
*Uses:* Sequestrant, dispersant, scale inhibitor for I&I cleaning, detergent, metal cleaning, pulp/paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination  
*Properties:* Wh. granular solid; 500 ± 150 μ mean particle size; 5% max. on 1180 μ; 4% thru 150 μ; bulk dens. 0.7-0.9 g/cm<sup>3</sup>; pH 11-12 (1%); 57 ± 3% act.; 9-15% moisture
- Spectrafil® LA** [Engelhard]  
*Chem. Descrip.:* Calcined kaolin  
*Uses:* Filler pigment for opacity and print-through resist. in uncoated publication papers contg. mech. pulp
- Spectrum DI** [Suyog]  
*Chem. Descrip.:* Surfactant and solvent blend  
*Uses:* Deinking agent for pulp/paper industry; produces stable emulsion on dil. with water  
*Use Level:* 0.4-0.5% emulsion for higher brightness  
*Properties:* Misc. with water; nonionic
- Spectrum X 6L** [Suyog]  
*Uses:* Defoamer and antifoam for pulp/paper mills; effective over wide pH range
- Spectrus™** [Hercules]  
*Uses:* Biocide for cooling water systems; oxidizing and nonoxidizing types
- SPI** [Raschig AG]  
*Chem. Descrip.:* Itaconic acid-bis-(3-sulfopropyl)-ester, dipotassium salt  
 CAS 93841-09-9  
*Uses:* Used for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners, and poly-

- electrolytes; functional monomer
- Spinomar NaSS** [Tosoh]  
*Chem. Descrip.:* Sodium p-styrenesulfonate  
 CAS 2695-37-6; EINECS/ELINCS 220-266-3  
*Uses:* Emulsifier for soapless emulsion of acrylic, vinyl acetate, and SBR latex, films; textile dye assistant; flocculant; scale inhibitor; sludge conditioner; hair fixative; cosmetic dispersant; artificial biomembranes; antistat for paper, fibers, plastic; pharmaceuticals; metal plating  
*Properties:* Wh. powd., nil odor; sol. in water; insol. in aliphatic, halogenated, or high alcohol solvs.; m.w. 206.20; apparent sp. dens. 0.5; decomp. pt. 330 C; flash pt. nil; 81.5% act.  
*Toxicology:* LD 50 (oral, mouse) 16 g/kg (as 40% olive oil susp.)  
*Storage:* Store in air-tight containers in dark place; if dried, subject to slow oxidation and/or polymerization
- SPM** [Raschig; Raschig AG]  
*Chem. Descrip.:* Potassium sulfopropyl methacrylate  
 CAS 31098-21-2; EINECS/ELINCS 250-466-6  
*Uses:* Used for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners and poly-electrolytes, flocculants, emulsions; emulsion stabilizer, allowing reduction of emulsifiers used in emulsion polymerization; functional monomer; produces highest quality polymers  
*Properties:* Wh. cryst. powd.; sol. > 2300 g/l in water, 135 g/l in methanol; sl. sol. in ethanol; almost insol. in acetone; m.w. 246.3; m.p. > 300 C (dec.); pH 4-10 (10% aq.); 90% min. assay  
*Storage:* 3 mos storage life when stored in cool, dark place @ R.T. in tightly closed drums
- SR 205** [Sartomer]  
*Chem. Descrip.:* Triethylene glycol dimethacrylate; with 80 ppm hydroquinone inhibitor  
 CAS 109-16-0; EINECS/ELINCS 203-652-6  
*Uses:* Reduces initial visc. and oil extractability, and improves ultimate hardness, heat distort., hot tear strength, and stain resistance in vinyl plastisols; used in cast acrylic sheet and rod, contact lens, elastomers, ion exchange resins, dental polymers, adhesives, coatings (paper, plastic), cosmetics, paints, sealants, photopolymers, electronics (photoresists, solder masks); noncorrosive, low visc., high boiling crosslinking monomeric ester  
*Properties:* APHA 25; colorless clear liq., mild, pleasant odor; sol. in alcohol, ether, ketones, esters, and low m.w. aliphatic hydrocarbons; m.w. 286; sp.gr. 1.070; dens. 8.96 lb/gal; visc. 11 cps; flash pt. (PMCC) 146 F; ref. index 1.4595; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 209** [Sartomer]  
*Chem. Descrip.:* Tetraethylene glycol dimethacrylate with 75 ppm hydroquinone inhibitor  
 CAS 109-17-1  
*Uses:* Crosslinking agent used in castings, plastisols, coatings, fibers, papers, adhesives (anaerobic), concrete polymers and sealants, dental polymers, elastomers, electronics (photoresists, solder masks), photopolymers, sealants; vulcanizing agent for peroxide curing of BR, CR, EPDM, NBR, IR, SBR; vulcanizing coagent with peroxide cure  
*Properties:* APHA 30 clear liq., mild pleasant odor; sol. in alcohols, esters, ethers, ketones, and aromatic hydrocarbons; insol. in water; m.w. 330.37; sp.gr. 1.077; dens. 9.0 lb/gal; visc. 14 cps; b.p. 220 C; acid no. 0.5; flash pt. (PMCC) 161 F; ref. index 1.4605-1.4610; 99% reactive esters
- SR 238** [Sartomer]  
*Chem. Descrip.:* 1,6-Hexanediol diacrylate; with 90 ppm hydroquinone inhibitor  
 CAS 13048-33-4; EINECS/ELINCS 235-921-9  
*Uses:* Used in adhesives; metal, optical, paper, plastic, PVC floor, textile and wood coatings; electronics; inks; paints; photopolymers  
*Properties:* APHA 20 clear liq.; musty odor; m.w. 226; sp.gr. 1.020; dens. 8.45 lb/gal; visc. 9 cps; flash pt. 152 F (PMCC); 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 268** [Sartomer]  
*Chem. Descrip.:* Tetraethylene glycol diacrylate with 125 ppm hydroquinone, 175 ppm MEHQ inhibitor  
 CAS 17831-71-9  
*Uses:* Used in coatings (optical, metal, paper, PVC floor, wood); low volatil-



- ity; offers chem. resist., flexibility, adhesion, hardness, abrasion resist. and impact strength  
*Properties:* APHA 50 clear liq.; musty, acrylic odor; m.w. 302; sp.gr. 1.114; dens. 9.3 lb/gal; visc. 20 cps; flash pt. 185 F (PMCC); 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 295** [Sartomer]  
*Chem. Descrip.:* Pentaerythritol tetraacrylate with 340 ppm MEHQ inhibitor CAS 4986-89-4  
*Uses:* Crosslinking agent in adhesives (binder), coatings (glass, metal, optical, paper, PVC floor, wood), elastomers, electronics (solder masks), inks (flexo, gravure, offset, screen), paints, sealants  
*Properties:* APHA 35 clear liq., musty odor; m.w. 352; sp.gr. 1.179; dens. 9.9 lb/gal; visc. 342 cps (38 C); m.p. 15-18 C; flash pt. (PMCC) 158 F; ref. index 1.4823; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 306HP** [Sartomer]  
*Chem. Descrip.:* Tripropylene glycol diacrylate with 175 ppm MEHQ inhibitor  
 EINECS/ELINCS 256-032-2  
*Uses:* Used for flexible packaging, printing, electronics, paper and wood coatings; monomer for high performance applics.; low extractables; solv. and chem. resist.; hard  
*Properties:* APHA 57 clear liq.; low odor; m.w. 300; sp.gr. 1.038; visc. 15 cps; ref. index 1.449; < 200 ppm acid
- SR 344** [Sartomer]  
*Chem. Descrip.:* PEG 400 diacrylate with 490 ppm MEHQ inhibitor  
*Uses:* Curing agent for radiation and peroxide cure systems incl. adhesives, coatings (glass, metal, optical, paper, plastic, PVC floor, wood), concrete polymers, inks (flexo, gravure, litho, offset, screen), photopolymers; difunctional monomer; produces soft, flexible films  
*Properties:* APHA 35 clear liq., mild odor; water-sol.; m.w. 508; sp.gr. 1.117; visc. 57 cps; flash pt. (PMCC) 51 F; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 351** [Sartomer]  
*Chem. Descrip.:* Trimethylolpropane triacrylate with 125 ppm hydroquinone and 175 ppm MEHQ inhibitors  
 CAS 15625-89-5; EINECS/ELINCS 239-701-3  
*Uses:* Curing agent for acrylics, adhesives, coatings (glass, metal, optical, paper, PVC floor, textile, wood), electronics, inks, paints, photopolymers; high boiling monomeric ester polymerized by common free radical initiators  
*Properties:* APHA 40 yel. clear, bright liq.; pungent odor; m.w. 296; sp.gr. 1.109; dens. 9.2 lb/gal; visc. 106 cps; b.p. 200 C; flash pt. (PMCC) 188 F; acid no. 0.7; ref. index 1.4735-1.4750; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 379** [Sartomer]  
*Chem. Descrip.:* Glycidyl methacrylate with 60 ppm hydroquinone inhibitor  
 CAS 106-91-2; EINECS/ELINCS 203-441-9  
*Uses:* Reactive diluent; in hydrogels for contact lenses and membranes, molding and casting compds.; impregnating paper, concrete, and wood, coatings (metal, powd.), printing inks, adhesives and sealants, elastomers, plastics, electronics (photoresists), chem. intermediates; monofunctional monomer; polymerized by applics. of heat, heat and peroxidic catalysts, and irradiation by UV, beta, gamma, or x-ray  
*Properties:* Clear liq., pungent odor; sol. in most organic solvs.; m.w. 142; sp.gr. 1.073; dens. 8.9 lb/gal; visc. 5 cps; b.p. 75 C; flash pt. (PMCC) 76 C; ref. index 1.4470; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 395** [Sartomer]  
*Chem. Descrip.:* Isodecyl acrylate (monomer) with 200 ppm MEHQ inhibitor  
 CAS 1330-61-6; EINECS/ELINCS 215-542-5  
*Uses:* Reactive diluent for radiation and peroxide cure applics.; curing agent for pressure-sensitive adhesives, screen inks, optical and paper coatings, and PVC floor and release coatings  
*Properties:* APHA 40 clear liq.; mild odor; m.w. 212; b.p. 121 (760 mm); sp.gr. 0.881; dens. 7.4 lb/gal; visc. 5 cps; ref. index 1.441; flash pt. (PMCC) 185 F; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 399** [Sartomer]  
*Chem. Descrip.:* Dipentaerythritol pentaacrylate with 270 ppm MEHQ inhibitor  
*Uses:* Curing agent; for acrylics, adhesives (binder, structural), coatings (glass, metal, paper, plastic, PVC floor, wood), electronics, inks (flexo, gravure, litho, offset, screen), paints, photopolymers, plastics, plastisols, sealants; high m.w., multifunctional acrylate monomer susceptible to polymerization by radiation and UV initiation  
*Properties:* APHA 50 clear liq., mild odor; sol. in esters, ketones; m.w. 524; sp.gr. 1.192; dens. 9.5 lb/gal; visc. 13,600 cps; acid no. 1.4; flash pt. (PMCC) 240 F; ref. index 1.4889; 99% reactive esters  
*Toxicology:* Low skin irritation  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 444** [Sartomer]  
*Chem. Descrip.:* Pentaerythritol triacrylate with 350 ppm MEHQ inhibitor  
 CAS 3524-68-3; EINECS/ELINCS 222-540-8  
*Uses:* Crosslinking agent used in adhesives (binder), coatings (glass, metal, optical, paper, PVC floor, wood), elastomers, electronics (solder masks), inks (flexo, gravure, offset, screen), sealants; trifunctional monomer; fast cure response  
*Properties:* APHA 50 clear liq., musty odor; m.w. 298; sp.gr. 1.162; dens. 9.9 lb/gal; visc. 520 cps; flash pt. (PMCC) 174 F; ref. index 1.4790; 99% reactive esters  
*Toxicology:* Low skin irritation  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 454** [Sartomer]  
*Chem. Descrip.:* PEG-3 trimethylolpropane triacrylate with 255 ppm MEHQ inhibitor  
*Uses:* Curing agent for radiation and peroxide cure systems incl. acrylics, adhesives (pressure sensitive, structural), coatings (glass, metal, optical, paper, PVC floor, release, textile, wood), concrete polymers; electronics (conformal, photoresists, solder masks), inks (flexo, gravure, litho, screen), paints, photopolymers; trifunctional monomer  
*Properties:* APHA 55 clear liq., mild odor; m.w. 428; sp.gr. 1.103; dens. 9.25 lb/gal; visc. 60 cps; flash pt. (PMCC) 188 F; ref. index 1.4686; surf. tens. 39.6 dynes/cm; 99% reactive esters  
*Toxicology:* Low skin irritation  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 454HP** [Sartomer]  
*Chem. Descrip.:* Ethoxylated, trimethylolpropane triacrylate with 300 ppm MEHQ inhibitor  
*Uses:* Used for electronics coating, wood/paper coatings, flooring, solder masks, and dry film applics.; fast curing monomer; solv. and chem. resist.; hard  
*Properties:* APHA 80 clear liq.; m.w. 428; sp.gr. 1.1043; visc. 62 cps; ref. index 1.4698; < 200 ppm acid
- SR 492** [Sartomer]  
*Chem. Descrip.:* PPG-3 trimethylolpropane triacrylate with 300 ppm MEHQ inhibitor  
*Uses:* Used for acrylics, adhesives, coatings (glass, metal, optical, paper, PVC floor, release, textile, wood), electronics, inks; offers fast cure, good flexibility  
*Properties:* APHA 65 clear liq.; sp.gr. 1.050; visc. 80 cps; 99% reactive esters  
*Toxicology:* Low skin irritation  
*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F
- SR 494** [Sartomer]  
*Chem. Descrip.:* Ethoxylated pentaerythritol tetraacrylate with 190 ppm MEHQ inhibitor  
*Uses:* Crosslinking agent for radiation and peroxide cure systems incl. adhesives (binder), chem. intermediates, coatings (glass, metal, paper, plastic, PVC floor, wood), elastomers; electronics (solder masks), inks (flexo, gravure, offset, screen), sealants; multifunctional monomer; fast cure response  
*Properties:* APHA 80 clear liq.; sp.gr. 1.128; visc. 150 cps; 99% reactive esters  
*Storage:* Store away from direct sunlight, oxidizing agents and materials

which may generate free radicals; storage temps. should not be > 90 F

**SR 495 [Sartomer]**

*Chem. Descrip.:* Caprolactone acrylate monomer with 690 ppm MEHQ inhibitor

*Uses:* Protective coating for metal, plastics, wood, and paper; adhesive for metal, plastics, PC, acrylic sheet, and paper; provides low odor, low irritation, high adhesion props. for UV/EB curing

*Properties:* APHA 50 color m.w. 344; sp.gr. 1.1; visc. 85 cps; flash pt. (SCC) 136 C; 99% reactive esters

*Toxicology:* Low eye/skin irritation and sensitization

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 499 [Sartomer]**

*Chem. Descrip.:* PEG-6 trimethylolpropane triacrylate with 135 ppm MEHQ inhibitor

*Uses:* Used in acrylics, adhesives (pressure sensitive, structural), coatings (glass, metal, optical, paper, PVC floor, release, textile, wood), electronics, inks, paints, and photopolymers; low shrinkage

*Properties:* APHA 50 clear liq.; sp.gr. 1.106; visc. 90 cps; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 502 [Sartomer]**

*Chem. Descrip.:* PEG-9 trimethylolpropane triacrylate with 90 ppm MEHQ inhibitor

*Uses:* Used in acrylics, adhesives (pressure sensitive, structural), coatings (glass, metal, optical, paper, PVC floor, release, textile, wood), inks, paints, and photopolymers; low shrinkage and fast cure

*Properties:* APHA 70 clear liq.; sp.gr. 1.1606; visc. 126 cps; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 506 [Sartomer]**

*Chem. Descrip.:* Isobornyl acrylate with 170 ppm MEHQ inhibitor  
CAS 5888-33-5; EINECS/ELINCS 227-561-6

*Uses:* Curing agent, reactive diluent for radiation and peroxide cure applics. incl. adhesives, coatings (glass, metal, optical, paper, PVC floor, release), concrete polymers, electronics (photoresists, solder masks), inks (screen), photopolymers; monomer

*Properties:* APHA 20 clear liq.; m.w. 208; sp.gr. 0.987; dens. 8.2 lb/gal; visc. 9 cps; flash pt. (PMCC) 240 F; ref. index 1.4722; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR-1010 [Sartomer]**

*Chem. Descrip.:* Triaryl sulfonium hexafluoroantimonate (50%) in propylene carbonate

*Uses:* Photoinitiator for epoxy and vinyl ether systems, in coatings (metal, paper, wood, plastic) and inks; enhances adhesion to metallic substrates; offers fast cure speeds in epoxy, vinyl ether, and other cationically cured resin systems

*Properties:* Gardner 3-6 amber clear liq.; dens. 11.7 lb/gal; visc. 60-90 cps; 48-52% solids; cationic

**SR-1011 [Sartomer]**

*Chem. Descrip.:* Triaryl sulfonium hexafluorophosphate (50%) in propylene carbonate

*Uses:* Photoinitiator for epoxy and vinyl ether systems, in coatings (metal, paper, wood, plastic) and inks; enhances adhesion to metallic substrates; offers fast cure speeds in epoxy, vinyl ether, and other cationically cured resin systems

*Properties:* Gardner 6 clear pale yel. liq.; dens. 11.0 lb/gal; visc. 60-90 cps; 48-52% solids; cationic

**SR-1012 [Sartomer]**

*Chem. Descrip.:* Diaryl iodonium hexafluoroantimonate

*Uses:* Photoinitiator for epoxy and vinyl ether systems, in coatings (metal, paper, wood, plastic) and inks; enhances adhesion to metallic substrates; offers fast cure speeds in epoxy, vinyl ether, and other cationically cured resin systems

*Properties:* Off-wh. powd.; good sol.; m.p. 90-92 C; 100% solids; cationic

**SR 9003 [Sartomer]**

*Chem. Descrip.:* Propoxylated neopentyl glycol diacrylate with 350 ppm hydroquinone inhibitor

*Uses:* Used in coatings (metal, plastic, paper, PVC floor, release and wood); adhesives; electronics; inks; photopolymers

*Properties:* APHA 35 clear liq.; m.w. 328; sp.gr. 1.005; visc. 15 cps; ref. index 1.4470; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 9020 [Sartomer]**

*Chem. Descrip.:* Glyceryl propoxy triacrylate with 300 ppm MEHQ inhibitor

*Uses:* Used in adhesives (binder, pressure sensitive, structural), coatings (glass, metal, wood, optical, paper, PVC floor, release, textile), electronics, inks, paints, and photopolymers; trifunctional monomer

*Properties:* APHA 20 clear liq.; m.w. 428; sp.gr. 1.089; visc. 95 cps; ref. index 1.4612; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 9020HP [Sartomer]**

*Chem. Descrip.:* Propoxylated glyceryl triacrylate

*Uses:* Used in flexible packaging, printing, electronics, paper and wood coatings, and flooring; monomer for high performance applics.; low extractables; solv. and chem. resist.; hard

*Properties:* APHA 40 clear liq.; low odor; m.w. 428 sp.gr. 1.093; visc. 96 cps; ref. index 1.4625; < 200 ppm acid

**SR 9021 [Sartomer]**

*Chem. Descrip.:* Highly propoxylated glyceryl triacrylate with 285 ppm MEHQ inhibitor

*Uses:* Used in adhesives (binder, pressure sensitive, structural), coatings (glass, metal, wood, optical, paper, PVC floor, release, textile), electronics, inks, paints, and photopolymers; trifunctional monomer; fast surf. cure

*Properties:* APHA 50 clear liq.; sp.gr. 1.064; visc. 95 cps; ref. index 1.4610; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 9035 [Sartomer]**

*Chem. Descrip.:* PEG-15 trimethylolpropane triacrylate with 475 ppm MEHQ inhibitor

*Uses:* Used in adhesives (binder, pressure sensitive, structural), coatings (glass, metal, wood, optical, paper, PVC floor, release, textile), electronics, inks, paints, and photopolymers; trifunctional monomer; fast surf. cure, flexible, low shrinkage

*Properties:* APHA 60 clear liq.; m.w. 1000; sp.gr. 1.113; visc. 168 cps; ref. index 1.4697; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 9041 [Sartomer]**

*Chem. Descrip.:* Pentaacrylate ester with 265 ppm MEHQ inhibitor

*Uses:* Crosslinking agent for radiation and peroxide cure systems incl. acrylics, adhesives (binder, structural), coatings (glass, metal, paper, plastic, PVC floor, wood), electronics, inks (flexo, gravure, litho, offset, screen), paints, photopolymers, plastics, plastisols, sealants; multifunctional monomer; fast cure response

*Properties:* APHA 65 clear liq.; sp.gr. 1.192; visc. 15,195 cps; ref. index 1.4887; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**SR 9209 [Sartomer]**

*Chem. Descrip.:* Alkoxyated aliphatic diacrylate ester with 335 ppm hydroquinone inhibitor

*Uses:* Used in coatings (metal, plastic, paper, PVC floor, release, wood); electronics; inks

*Properties:* APHA 70 clear liq.; sp.gr. 1.045; visc. 15 cps; 99% reactive esters

*Toxicology:* Low skin irritation

*Storage:* Store away from direct sunlight, oxidizing agents and materials which may generate free radicals; storage temps. should not be > 90 F

**Stabilix® [Hercules]**

- Uses:* Dispersant for control of deposits and stickies and to improve pulp quality and drainage
- Stabilizer 7000** [Raschig; Raschig AG]  
*Chem. Descrip.:* Bis (2,6-diisopropylphenyl) carbodiimide  
 CAS 2162-74-5; EINECS/ELINCS 218-487-5  
*Uses:* Stabilizer; process and post long-term protective agent against the effects of hydrolysis in polymers; stabilizer for PET exposed to high temps. and extreme environments, e.g., monofilaments for use in dryer felts for paper industry, TPU casting elastomers, EVA, PBT  
*Use Level:* 0.7-1.5%  
*Properties:* Wh. cryst., perceptible odor; sol. in acetone, insol. in water; m.w. 362.56; dens. 0.97 g/cc (20 C); bulk dens. 600-700 kg/m<sup>3</sup>; m.p. 48-50 C  
*Toxicology:* LD50 (oral, rat) 2395 mg/kg; nonirritating to skin and eyes; may cause sensitization, allergic skin reaction on repeated/prolonged exposure; TSCA listed  
*Precaution:* Incompat. with acids, alkalis, oxidizing agents; dust can form explosive mixts. with air; keep away from sources of ignition  
*Hazardous Decomp. Prods.:* NO<sub>x</sub>, isocyanates  
*Storage:* Store in cool place below 30 C in tightly closed original containers for 2 yr storage life
- Stabiloid® 833-0042** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Anatase wh. aq. disp.; dens. 15.1 lb/gal; VOC 0; 60% by wt. pigment solids; 25.1% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-0048** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile ink, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Rutile wh. aq. disp.; dens. 15.6 lb/gal; VOC 0; 60% by wt. pigment solids; 25.0% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-0549** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Red lt. aq. disp.; dens. 9.4 lb/gal; VOC 0; 21.5% by wt. pigment solids; 62.8% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-0575** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Red med. aq. disp.; dens. 9.5 lb/gal; VOC 0; 25% by wt. pigment solids; 59.3% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-0665** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Red dk. aq. disp.; dens. 9.2 lb/gal; VOC 0; 25% by wt. pigment solids; 59.3% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-1022** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Red oxide med. aq. disp.; dens. 16.1 lb/gal; VOC 0; 65% by wt. pigment solids; 19.9% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-1833** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.
- Properties:* Yel. oxide aq. disp.; dens. 14.5 lb/gal; VOC 0; 57% by wt. pigment solids; 31.1% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-2826** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Diarylide yel. aq. disp.; dens. 8.9 lb/gal; VOC 0; 16.7% by wt. pigment solids; 66% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-9919** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Carbon blk. aq. disp.; dens. 9.7 lb/gal; VOC 0; 27% by wt. pigment solids; 64.6% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabiloid® 833-9927** [Creanova]  
*Uses:* Colorant for use in water systems, paper coating and saturation, textile inks, latex paints, and latex compds.; high strength; glycol-free permitting use in coatings, adhesives, and films that cannot use potentially toxic solvs.  
*Properties:* Channel blk. aq. disp.; dens. 8.7 lb/gal; VOC 0; 7.2% by wt. pigment solids; 90% by wt. volatiles  
*Environmental:* No VOCs  
*Storage:* Protect from freezing
- Stabrom® 909** [Albemarle]  
*Chem. Descrip.:* Bromine  
 CAS 7726-95-6; EINECS/ELINCS 231-778-1  
 UN No. 3266  
*Uses:* Biocide, disinfectant, fungicide, algicide, slimicide for wastewater, commercial, and industrial recirculating cooling water systems, industrial once-thru cooling water systems, and pulp/paper mills; compat. with HDPE, PP, EPDM, PTFE, PVC, and VITON  
*Regulatory:* DOT regulated; EPA reg. no. 3377-55  
*Properties:* Yel. to orange clear liq.; mild sweet odor; sol. in water; sp.gr. 1.3746; dens. 1.3117 g/ml; visc. 2.168 cSt; vapor pressure 19 mm Hg; f.p. -0.3 C; b.p. 101-102 C; pH 12.4-13.7; 10.5-11.5% BrCl assay  
*Precaution:* Corrosive; incompat. with nylon
- Stafoam F** [NOF]  
*Chem. Descrip.:* Cocamide DEA (1:2)  
 CAS 61791-31-9; EINECS/ELINCS 263-163-9  
*Uses:* Detergent, rust inhibitor, foaming agent, penetrant for liq. detergents, metal cleaning, paper industry, textile processing; dye aux.; air entraining agent in construction industry  
*Properties:* Lt. yel. liq.; sp.gr. 0.995 (30 C); visc. 755 cps (30 C); surf. tens. 7 dynes/cm (0.1%); pH 9.5-10.5 (1% aq.)
- Stafoam FK** [NOF]  
*Chem. Descrip.:* Surfactant mixt.  
*Uses:* Scouring agent for textiles; cleaning agent for metal industry; air entraining agent for construction industry; detergent for paper industry  
*Properties:* Brn. transparent liq.; anionic/nonionic
- Staform P** [Frutarom Meer]  
*Chem. Descrip.:* Gum ghatti  
 CAS 9000-28-6  
*Uses:* Stabilizer, binder, emulsifier forming o/w emulsions; used in beverage emulsions where it forms orange oil emulsions, in table syrup emulsions; tablet binder and thick mucilage coatings in pharmaceuticals; binder in paper industry; emulsifier for petroleum and nonpetroleum waxes used in coating and barrier applics.  
*Properties:* Water-sol.
- Sta-Jel® 141** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Crosslinked potato starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides high visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Sta-Jel® 142** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Visc. modified potato starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6

- Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides med. visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Sta-Lok® 120, 160, 180, 182** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Waxy corn starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, retention aid, and dry str. agent for papermaking wet end  
*Properties:* Cationic
- Sta-Lok® 140** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Visc. modified waxy corn starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, retention aid, and dry str. agent for papermaking wet end; designed where lower visc. is required  
*Properties:* Cationic
- Sta-Lok® 156** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Waxy corn starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, dry str. agent for acid papermaking wet end; not rec. for alkaline systems; designed to have net cationic charge  
*Properties:* Amphoteric
- Sta-Lok® 300, 310, 330** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Dent corn starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, retention aid, dry str. agent for papermaking wet end, recycled board  
*Properties:* Cationic
- Sta-Lok® 356** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Dent corn starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, dry str. agent for acid papermaking wet end; not rec. for alkaline systems; designed to have net cationic charge  
*Properties:* Amphoteric
- Sta-Lok® 374, 376** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Dent corn starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, retention aid, dry str. agent for alkaline papermaking wet end; designed to have net cationic charge  
*Properties:* Amphoteric
- Sta-Lok® 400, 410, 430, 440** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Potato starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, retention aid, dry str. agent for papermaking wet end, recycled board  
*Properties:* Cationic
- Sta-Lok® 480** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Potato starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, dry str. agent for papermaking wet end, esp. for closed loop recycle paper machines  
*Properties:* Cationic/anionic
- Sta-Lok® 600** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Potato starch  
CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Drainage aid, dry str. agent for papermaking wet end, recycled board; designed for mills without cooking facilities  
*Properties:* Sol. in cold water; cationic/anionic
- Stanfax 234** [Para-Chem]  
*Chem. Descrip.:* Sodium lauryl sulfate  
CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* High-foaming surfactant for detergents, emulsion polymerization, textile/carpet applics., I&I applics., food-contact resinous and polymeric coatings/paper/rubber/textiles; all-purpose; compat. with most anionic, nonionic, and amphoteric surfactants  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.210, 177.1210, 177.2600, 177.2800, 178.3400  
*Properties:* 29.5% act.; anionic
- Stanfax 234LCP** [Para-Chem]  
*Chem. Descrip.:* Sodium lauryl sulfate  
CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* High-foaming surfactant for detergents, emulsion polymerization, textile/carpet applics., I&I applics., food-contact resinous and polymeric coatings/paper/rubber/textiles; low cloud pt.  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.210, 177.1210, 177.2600, 177.2800, 178.3400  
*Properties:* 29.5% act.; anionic
- Stanfax 238** [Para-Chem]  
*Chem. Descrip.:* Ammonium laureth sulfate  
CAS 32612-48-9  
*Uses:* Surfactant, foaming agent for personal care, industrial use, lt. duty detergents, textiles, carpet, emulsion polymerization, I&I applics.; component of food-contact paper/paperboard; all-purpose; compat. with most anionic, nonionic, and amphoteric surfactants  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* 27.5% act.; anionic
- Stanfax 320** [Para-Chem]  
*Chem. Descrip.:* Ammonium stearate  
CAS 1002-89-7; EINECS/ELINCS 213-695-2  
*Uses:* Surfactant, foaming agent for acrylic foam coatings, drapery foam and coatings, upholstery backing, filler coatings, filter media saturants; intermediate for conversion to metal stearates; food-contact adhesives, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.170  
*Properties:* 32% act.; anionic
- Stanfax 388** [Para-Chem]  
*Chem. Descrip.:* Ammonium stearate  
CAS 1002-89-7; EINECS/ELINCS 213-695-2  
*Uses:* Foaming agent for acrylic foam coatings, upholstery, drapery, filler coatings, filter media saturant; intermediate for metal stearates; food-contact adhesives, paper/paperboard; low ammonia  
*Regulatory:* FDA 21CFR §175.105, 176.170  
*Properties:* 32% act.; anionic
- Stanfax 560** [Para-Chem]  
*Chem. Descrip.:* Sodium sulfonate  
*Uses:* Surfactant for closed systems, emulsion polymerization; component of food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* 23% act.; anionic  
*Environmental:* Non-biodeg.
- Stanfax 968** [Para-Chem]  
*Chem. Descrip.:* Ammonium laureth sulfate  
CAS 32612-48-9  
*Uses:* Surfactant for industrial use, lt. duty detergents, textile/carpet applics.; component of food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170  
*Properties:* 27.5% act.; anionic
- Stanfax 996** [Para-Chem]  
*Chem. Descrip.:* Sodium lauryl sulfate  
CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant for personal care, shampoos, hand soaps, bath prods., shaving creams, rug shampoos, liq. laundry detergents, fine fabric wash; defoamer in food-contact paper/paperboard; emulsifier in food-contact articles  
*Regulatory:* FDA 21CFR §176.210, 178.3400  
*Properties:* 29.5% act.; anionic
- Stanfax 997** [Para-Chem]  
*Chem. Descrip.:* Sodium lauryl sulfate  
CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant for personal care, shampoos, hand soaps, bath prods., shaving creams, rug shampoos, emulsion polymerization, liq. laundry detergents, fine fabric wash; defoamer in food-contact paper/paperboard; emulsifier in food-contact articles  
*Regulatory:* FDA 21CFR §176.210, 178.3400  
*Properties:* 29.5% act.; anionic
- Stanfax 1012** [Para-Chem]  
*Chem. Descrip.:* Ammonium laureth sulfate  
CAS 32612-48-9  
*Uses:* Surfactant for emulsion polymerization; food-contact adhesives/paper  
*Regulatory:* FDA 21CFR §175.105, 176.170  
*Properties:* 30% act.; anionic
- Stanfax 1066** [Para-Chem]  
*Chem. Descrip.:* Sodium laureth sulfate  
CAS 9004-82-4; EINECS/ELINCS 221-416-0  
*Uses:* Surfactant for emulsion polymerization; food-contact adhesives/paper

- Regulatory:* FDA 21CFR §175.105, 176.170  
*Properties:* 30% act.; anionic
- Staramic® 105** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Hydroxypropylated, crosslinked dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides med. visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Staramic® 747** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Hydroxyethylated dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides med. visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Starcote®** [Atofina]  
*Chem. Descrip.:* Styrene-acrylic emulsions  
 CAS 9010-92-8  
*Uses:* Hydrophobicity agent for paper/board surfaces; improves ink jet printability and toner adhesion during laser printing on office papers; component of paper/paperboard in contact with aq./fatty/dry foods  
*Regulatory:* FDA 21CFR §176.170, 176.180; BgVV XXXVI compliance  
*Properties:* Very low particle size disp.
- Star\*pol® 136** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Hydroxypropylated crosslinked waxy corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides high visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Star\*pol® 410** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides high visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Star\*pol® 468, 469, 600** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Hydroxypropylated crosslinked dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides high visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Star\*pol® 700, 800** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Visc. modified waxy corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Thickener, binder in paper coatings, building prods. (wall joint compds.), adhesives; provides high visc. at relatively low solids on prep. in cold water  
*Properties:* Sol. in cold water
- Star® Sodium Silicate** [PQ]  
*Chem. Descrip.:* Sodium silicate  
*Chem. Analysis:* SiO<sub>2</sub> (25.5%), Na<sub>2</sub>O (10.6%)  
 CAS 1344-09-8; EINECS/ELINCS 215-687-4  
*Uses:* Detergent, deflocculant, bleaching enhancer, alkalinity agent in deinking paper stock; peroxide stabilizer in repulping and postbleaching; slurry thinner in ceramics; peroxide bleaching in textiles; buffer in pad-batch dyeing  
*Properties:* Clear sol'n.; dens. 11.7 lb/gal (20 C); visc. 60 cps; pH 11.9
- Starwax® 100** [Baker Petrolite]  
*Chem. Descrip.:* Hard microcryst. wax consisting of n-paraffinic, branched paraffinic, and naphthenic hydrocarbons  
 CAS 63231-60-7; EINECS/ELINCS 264-038-1  
*Uses:* Wax used in hot-melt coatings and adhesives; paper coatings; printing inks; lubricant and processing aid in plastics modification; lacquers, paints, and varnishes; binder in ceramics, potting/impregnant in elec./electronic components; rubber and elastomers (plasticizer, antisenescing, antiblock, antiozonant); emulsion wax size in papermaking; fabric softener ingred.; in emulsion and latex coatings; in cosmetic hand creams and lipsticks; chewing gum base; food pkg.  
*Regulatory:* Incl. FDA §172.230, 172.615, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 178.3710, 179.45  
*Properties:* Color 1.0 (D1500) wax; very low sol. in org. solvs.; sp.gr. 0.93; visc. 15 cps (99 C); m.p. 88 C
- Staybelite®** [Hercules/Resins]

- Chem. Descrip.:* Acidic resin made by partially hydrogenating wood rosin  
*Uses:* Plasticizer, tackifier, or processing aid for reclaimed, natural, and syn. rubbers; component in sealing wax, optical lens pitch, elec. cables, waxes for paper coating, syn. resins, metal resinates, soldering fluxes, and ceramic ink vehicles; thermoplastic resin  
*Properties:* Very pale brittle solid; sp.gr. 1.045; soften. pt. (Drop) 75 C; acid no. 160; sapon. no. 157
- Staybelite® Ester 10** [Hercules/Resins]  
*Chem. Descrip.:* Glycerol hydrogenated rosinatate  
*Uses:* In solv., hot-melt, and emulsion adhesives based on thermoplastic and elastomeric materials; in emulsion form as tackifier for natural rubber, SBR, and neoprene latexes; as tackifier in industrial tape masses; in lamination of metal, foil, paper, etc.; in hot-melt-applied barrier coatings, chlorinated rubber finishes, etc.; as modifier for paraffin wax; used in food-pkg. and -processing operations; thermoplastic  
*Properties:* USDA Rosin WG solid, flakes; sol. in esters, ketones, higher alcohols, glycol ethers, and aliphatic, aromatic, and chlorinated hydrocarbons; sp.gr. 1.07; dens. 1.07 kg/l; G-H visc. I-M (75% solids in toluene); Hercules drop soften. pt. 83 C; acid no. 8
- Staysize® 140** [Tate & Lyle N. Am.]  
*Chem. Descrip.:* Acetylated, visc. modified dent corn starch  
 CAS 9005-25-8; EINECS/ELINCS 232-679-6  
*Uses:* Retention aid for papermaking size press and textile warp sizing; designed where inc. starch retention during repulping is required to improve BOD and COD levels in mill effluents  
*Properties:* Cationic
- St. Croix Hardwood** [Georgia-Pacific Resins]  
*Chem. Descrip.:* Northern bleached hardwood from maple (55%), birch (23%), aspen (7%), and beech (15%)  
*Uses:* Market pulp as furnish for bond and copy paper, carbonless, photographic, machine glazed, and coated paper grades; good cleanliness; elemental chlorine-free; rec. for papers requiring a closed surf. for coating holdout  
*Properties:* 0.75 mm fiber length; 0.102 mg/m coarseness; brightness (ISO) 90.5
- Steamate™** [Hercules]  
*Uses:* Corrosion inhibitor in pulp/paper mill condensate systems
- STEPANOL® LCP** [Stepan]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Detergent, foam booster for shampoos, bubble baths, dishwash detergents, general cleaners, rug shampoos, and upholstery cleaners; food-contact paper/paperboard; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; food-contact rubber articles, textiles; emulsifier in mfg. of food-contact articles; low cloud pt.  
*Regulatory:* Kosher; FDA 21CFR §172.822, 176.170, 176.210, 177.1210, 177.1630, 177.2600, 177.2800, 178.3400; EU, Japan, Canada, and Australia listed  
*Properties:* Clear low-visc. liq.; sol. in water; sp.gr. 1.03; dens. 8.6 lbs/gal; visc. 20 cps; f.p. 11 C; pour pt. 14 C; flash pt. (PMCC) > 94 C; pH 7-8.5 (10%); 0% RVOC; 28-30% act.; anionic  
*Toxicology:* Sl. toxic orally; mod. eye irritant; mild skin irritant  
*Environmental:* Biodeg.  
*Storage:* Store in sealed containers in cool, dry place @ 90-125 F
- Sterling® R** [Cabot/Special Blacks]  
*Chem. Descrip.:* Carbon black  
 CAS 1333-86-4; EINECS/ELINCS 215-609-9  
*Uses:* Colorant for gravure and one-time carbon paper inks; blue tone; lampblack replacement  
*Properties:* Fluffy; 75 nm particle size; sp.gr. 1.8; dens. 16 lb/ft<sup>3</sup>; surf. area 25 m<sup>2</sup>/g; oil absorp. 71 cc/100 g; 1% volatile  
 HMIS: Health 0; Flammability 1; Reactivity 0
- Sterocoll® BL** [BASF]  
*Chem. Descrip.:* Acrylamide-acrylic acid copolymer w/o emulsion  
*Uses:* Thickener for paper/paperboard coatings; enhances runnability of metered size presses by reducing backing roll buildup; inc. visc. not dependent on pH  
*Properties:* Anionic
- Sterocoll® FD** [BASF]  
*Chem. Descrip.:* High solids acrylic ester-carboxylic acid copolymer disp.  
*Uses:* Thickener for paper/paperboard coatings; provides good balance of water retention and thickening to coating colors; improves runnability; con-

tains no plasticizers or solvs.

*Properties:* Anionic

**Sterocoll® FS** [BASF]

*Chem. Descrip.:* High solids acrylic ester-carboxylic acid copolymer disp.

*Uses:* Thickener for paper/paperboard coatings incl. food pkg.; modifies visc., water retention, and rheology of coating colors; contains no plasticizers or solvs.; mech. and shear-stable

*Properties:* Anionic

**Stixso® RR** [PO]

*Chem. Descrip.:* Sodium silicate sol'n.

*Chem. Analysis:* SiO<sub>2</sub> (30%), Na<sub>2</sub>O (9.22%)

CAS 1344-09-8; EINECS/ELINCS 215-687-4

*Uses:* Binder for abrasives in ceramics, paperboard mfg.; detergent, dispersant, emulsifier, deflocculant, bleaching enhancer, alkalinity agent in deinking paper stock; peroxide stabilizer in repulping and postbleaching

*Properties:* Syrupy liq.; sp.gr. 1.41 (20 C); dens. 11.8 lb/gal; visc. 830 cps; pH 11.3

*Toxicology:* Alkalinity can irritate eyes and skin

*Environmental:* Environmentally friendly

*Storage:* For extended storage, use tightly closed drums, steel containers, or containers of nonreactive materials

**Struktol® Calcium Stearate** [Struktol]

*Chem. Descrip.:* Calcium stearate

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Processing aid and release agent for plastics and rubber; processing aid in PVC extrusion, pipe, siding, inj. molded fittings, in wire drawing operations; anticaking agent in dry blending operations; food-pkg. adhesives/coatings/paper/cellophane/polymers/rubber; high purity, clear melt, nonwetable, low dusting

*Use Level:* 0.3-3 parts

*Regulatory:* FDA 21CFR §173.340, 175.105, 175.320, 176.170, 176.200, 177.1200, 177.2410, 177.2600, 178.2010, 181.29, 184.1229

*Properties:* Powd.; 7.5% max. on 200 mesh, 1% max. on 100 mesh; bulk dens. 20-22 lb/ft<sup>3</sup>; m.p. 148-150 C; 4% max. moisture; 11.2% max. CaO

*Storage:* Unlimited storage stability in cool, dry area

**Struktol® PE H-100** [Struktol]

*Chem. Descrip.:* Low m.w. polyethylene homopolymer wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Processing aid, dispersant, and compounding additive, improving flow in NR and SR; provides release from equip. with improved pigment dispersion and finish to molded articles; used in adhesives and coatings, food pkg., food pkg. adhesives, pressure-sensitive food pkg. adhesives, resinous/polymeric food-contact coatings, food-contact paper/paperboard, cellophane, lubricants for incidental food contact

*Use Level:* 1-4%

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3570, 178.3850 compliant

*Properties:* Wh. waxy gran. or powd.; sp.gr. 0.91; visc. 180 cps (140 C); drop pt. 102 ± 5 C; acid no. nil

**Struktol® PE H-100 PL** [Struktol]

*Chem. Descrip.:* Polyethylene homopolymer wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Processing aid, dispersion and compounding additive, flow agent, release agent for nat. and syn. elastomers; improved pigment dispersion and finish in molded articles; food-contact adhesives/coatings/paper/cellophane/polymers/rubber

*Use Level:* 1-4%

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3570, 178.3850 compliant

*Properties:* Wh. waxy gran. or powd.; sp.gr. 0.91; visc. 180 cps (140 C); drop pt. 102 ± 5 C; acid no. nil

**Struktol® TR 016** [Struktol]

*Chem. Descrip.:* Blend of calcium fatty acid salt and amide with sites avail. for hydrogen bonding

*Uses:* Dispersant for highly filled systems; processing aid, internal lubricant for polyolefins, PVC, PS, ABS, PET, TPO, TPE systems; coupling agent between polymer systems and fillers; approved for food and drug contact incl. food-contact adhesives/coatings/paper/cellophane/rubber articles

*Use Level:* 0.25-1.0%

*Regulatory:* FDA 21CFR §173.340, 175.105, 175.300, 175.320, 176.170, 176.200, 177.1200, 177.1400, 177.2260, 177.2410, 177.2600, 178.2010, 178.3860, 179.45, 181.29, 184.1229

*Properties:* Pale yel. pellets or microbeads, neutral odor; sp.gr. 1.0; m.p. 99 C; flash pt. > 290 C

*Toxicology:* Harmless

*Storage:* > 2 yrs storage stability under normal storage conditions

**Struktol® TR 044** [Struktol]

*Chem. Descrip.:* Fatty acid ester blend

*Uses:* Processing aid, flow agent, release agent for polymers; dispersant for powd. materials, providing more uniform filler incorporation; food pkg. adhesives, paper, cellophane; defoamer in food-contact paper/paperboard; antioxidant/stabilizer in food-grade polymers; reduces decomp. risk in highly loaded compds.

*Use Level:* 0.5-2%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 177.1200, 178.2010

*Properties:* Lt. powd.; sp.gr. 0.95; bulk dens. 32 lb/ft<sup>3</sup>; drop pt. 57 C; acid no. < 10

*Storage:* 2 yrs min. stability under normal storage conditions

**Struktol® TR 121** [Struktol]

*Chem. Descrip.:* Oleamide

CAS 301-02-0; EINECS/ELINCS 206-103-9

*Uses:* Slip agent for polyethylene films; lubricant and mold release for inj. molding applics., processing thermoplastic resins, thermoplastic elastomers, and thermoset rubber systems; dispersant; food pkg. adhesives, coatings, paper, polymers, films

*Use Level:* 1-3% (rubber), 0.05% (plastic films), > 0.5% (plastic mold release)

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.180, 177.1210, 177.1350, 177.1400, 179.45

*Properties:* Cream-colored pellets; 85% 2-4 mm; insol. in water; limited sol. in alcohols, ketones, aromatic solvs.; bulk dens. 37.5 lb/ft<sup>3</sup>; m.p. 70-76 C; acid no. 1 max.; iodine no. 80-90; flash pt. (COC) 210 C; 98% amide

*Precaution:* Nonflamm.

*Storage:* Negligible corrosivity; storage at normal temps. will not affect prod., but extended storage should be avoided

**Struktol® TR 131** [Struktol]

*Chem. Descrip.:* Erucamide

CAS 112-84-5; EINECS/ELINCS 204-009-2

*Uses:* Slip agent for polyolefin films; release agent for polymer systems; dispersant in color concs. and printing inks; process aid/lubricant for thermoplastic elastomers, thermoplastic resins, thermoset rubber systems; food pkg. adhesives, coatings, paper, cellophane, polymers, films

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.180, 177.1200, 177.1210, 177.1350, 177.1400, 178.3860, 179.45

*Properties:* Gardner 4 max. color, faint odor; sp.gr. 0.93; bulk dens. 34.7 lb/ft<sup>3</sup> (beads), 37.5 lb/ft<sup>3</sup> (pellets); m.p. 79-85 C; acid no. 3 max.; iodine no. 72-78; flash pt. (COC) 220 C; 99% amide

*Precaution:* Nonflamm.; keep away from strong oxidizing agents; rotate inventory

*Storage:* Noncorrosive; normal storage will not affect prod., but extended storage above 175 C should be avoided

**Styrofan®** [BASF AG]

*Chem. Descrip.:* Polymer dispersions based on styrene/butadiene

CAS 9003-55-8

*Uses:* Gloss binders for paper and board coating; raw material for prod. of laminating adhesives; binders for bonding fiber webs

**Styrofan® BN 4901 X** [BASF]

*Chem. Descrip.:* Carboxylated polystyrene latex

*Uses:* Gloss aid for paper/paperboard coatings; imparts high gloss during finishing

*Properties:* Med. particle size

**Styronal™ BN 4204** [BASF]

*Chem. Descrip.:* Carboxylated styrene-butadiene disp.

*Uses:* Binder for coated rotogravure paper; yields paper coatings with exc. compressibility and smoothness

**Styronal™ BN 4606X** [BASF]

*Chem. Descrip.:* Carboxylated styrene-butadiene disp.

*Uses:* Binder for paper coatings; good balance of binding str., sheet and print gloss; exc. runnability esp. in high solids coatings

**Styronal™ ND 430** [BASF]

*Chem. Descrip.:* Carboxylated styrene-butadiene aq. disp.

*Uses:* Binder for paper coatings, size press applics., mfg. of laminating adhesives; exc. heavy ion stability

**Styronal™ ND 656** [BASF]



- Chem. Descrip.:* Carboxylated styrene-butadiene aq. disp.  
*Uses:* Binder for paper/paperboard coatings; general purpose offset binder; good balance of wet and dry str. and gloss
- Styronal™ ND 810** [BASF]  
*Chem. Descrip.:* Carboxylated styrene-butadiene disp.  
*Uses:* Gloss aid for paper and paperboard coatings; exc. mech. and chem. stability
- Styronal™ ND 834** [BASF]  
*Chem. Descrip.:* Carboxylated styrene-butadiene disp.  
*Uses:* Gloss aid for paper coatings; cobinder in paper saturation to reinforce substrates; combines high resilience and low film-forming temps. in saturation formulation
- Styronal™ NX 4489 X** [BASF]  
*Chem. Descrip.:* Styrene/butadiene/acrylonitrile aq. disp.  
 CAS 9003-56-9  
*Uses:* Binder for coating paper and board; exc. runnability in blade coaters for web offset and rotogravure applics.; exc. wet and dry str. and print gloss
- Styronal™ NX 4515 X** [BASF]  
*Chem. Descrip.:* Carboxylated styrene-butadiene disp.  
*Uses:* Binder for coating paper and board; exc. runnability in blade coating operations; superb wet and dry str.
- Styronal™ NX 4626** [BASF]  
*Chem. Descrip.:* Styrene/butadiene/acrylic aq. disp.  
*Uses:* Binder for coating paper and board; exc. runnability; good balance of wet and dry str. with exc. print gloss
- Styronal™ NX 4680** [BASF]  
*Chem. Descrip.:* Styrene/butadiene/acrylonitrile aq. disp.  
 CAS 9003-56-9  
*Uses:* Binder for coating paper and board, esp. for exc. wet pick and size press stability in offset applics.; exc. runnability in blade coating operations; exc. wet and dry str. and print gloss
- Sucrose Benzoate Regular and Coatings Grade** [Velsicol]  
*Chem. Descrip.:* Sucrose benzoate  
 CAS 12738-64-6; EINECS/ELINCS 235-795-5  
*Uses:* Resin modifier for coatings, inks, adhesives, lacquers, and UV inks; modifier for clear lacquers, providing exceptional clarity with high gloss, for use in clear coatings for wood, paper, and metal; metallic and pigmented coatings; powd. coatings; UV-cure and rotogravure inks; offers high film hardness combined with good flexibility; exc. UV stability, compat. with a broad range of resins, plasticizers, and solvs.  
*Properties:* APHA 30 max. (50% toluene sol'n.) glassy clear solid; misc. with acetone, benzene, CCl<sub>4</sub>, DIBK, DOP, MIBK, MEK, PEGs, toluene, xylene; m.w. 1070; sp.gr. 1.25; soften pt. (R&B) 98 C; acid no. < 0.01; iodine no. < 0.01; sapon. no. 153; hyd. no. 0.9; flash pt. (TOC) 500 F  
*Toxicology:* LD50 (oral) > 5 g/kg, not a primary skin or eye irritant
- Sulfoc Flocculants** [Suyog]  
*Chem. Descrip.:* Sodium salt of polyacrylic acid and/or polyacrylamide  
*Uses:* Flocculant for solid-liq. separation systems (sedimentation, filtration, flotation, centrifugation) for sugar, paper/pulp, asbestos, petroleum, iron ore, rock phosphate, copper and zinc ore, coal mining, boiler/lime water treatment, paints, pigments, industrial/sewage/waste water treatment, alum, aluminum sulfate, phosphoric acid, magnesium salt, borax, and boric acid industries
- Sugum 300 NS** [Sood Paper & Allied Chems.]  
*Chem. Descrip.:* Fortified rosin disp.  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Sizing agent for neutral to alkaline papermaking; effective at pH 6.8-7.5; rec. where CaCO<sub>3</sub>, kaolin, or talc are used; sizing develops in the drying process; highly stable  
*Properties:* Wh. disp.; ≈ 1 μ particle size; sp.gr. 1.030; visc. 5 mPa·s; pH 6.3-6.5; 30 ± 1% solids; anionic  
*Storage:* Store @ 5-35 C in closed tanks
- Sugum 300 WR** [Sood Paper & Allied Chems.]  
*Chem. Descrip.:* Fortified rosin disp.  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Sizing agent for neutral papermaking; rec. at pH 6.5-7.2; rec. where CaCO<sub>3</sub>, kaolin, or talc are used; sizing develops in the drying process; highly stable  
*Properties:* Wh. disp.; ≈ 1 μ particle size; sp.gr. 1.030; visc. 5 mPa·s; pH > 6.2; 30 ± 1% solids; anionic  
*Storage:* Store @ 5-35 C in closed tanks
- Sugum 500** [Sood Paper & Allied Chems.]

- Chem. Descrip.:* Fortified rosin soap size  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Sizing agent for papermaking; reacts anionically flocculating with aluminum sulfate due to affinity for cellulose; produces flocs which attach to fibers and inc. hydrophobicity of sheet; most effective at pH 4.5-5.0  
*Properties:* Pale brn. free-flowing visc. liq.; easily dilutable in cold water; sp.gr. 1.17; flash pt. nonflamm.; pH 9-10.5; 50 ± 1% solids; anionic  
*Toxicology:* Nontoxic; sl. irritation may occur to persons with sensitive skin  
*Storage:* Unlimited shelf life
- Sugum 700** [Sood Paper & Allied Chems.]  
*Chem. Descrip.:* Fortified rosin  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Sizing agent for papermaking; reacts anionically flocculating with aluminum sulfate due to affinity for cellulose; produces flocs which attach to fibers and inc. hydrophobicity of sheet; most effective at pH 4.5-5.0  
*Properties:* Pale brn. very visc. paste; easily dilutable in cold water; sp.gr. 1.26; pH 9-11; 70 ± 1% solids; anionic  
*Toxicology:* Nontoxic; sl. irritation may occur to persons with sensitive skin  
*Storage:* Unlimited shelf life
- SULFONIC 100** [Stepan]  
*Chem. Descrip.:* Dodecyl benzene sulfonic acid  
 CAS 68608-88-8; EINECS/ELINCS 271-807-5  
*Uses:* Surfactant intermediate; drilling foaming agent; catalyst in acid-catalyzed reactions; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §176.210, 178.3400; kosher  
*Properties:* Dk. visc. liq.; sp.gr. 1.03; dens. 8.56 lb/gal; visc. 500 cps; f.p. 9 C; pour pt. 12 C; flash pt. (PMCC) > 94 C; pH < 1; 96% min. act.; anionic  
*Toxicology:* Handle with extreme care; avoid contact with eyes and skin  
*Environmental:* Biodeg.  
*Storage:* Store in closed containers in cool, dry place
- Sulfopon® 101** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate C<sub>12</sub>C<sub>18</sub>  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant for shampoos, bubble baths, and lt. duty detergents, mfg. of polymer disps.; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Liq.; 28-30% act.; anionic
- Sulfopon® 101 Special** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Basic surfactant for shampoos, specialty cleaners, and lt.-duty detergents; emulsifier for emulsion polymerization, mfg. of polymer disps.; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; low freezing pt.  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Colorless liq. to paste; odorless; unlimited sol. in water; m.w. 302; sp.gr. 1.0 (20 C); visc. 1000 mPa·s max.; pour pt. ≤ 25 C; cloud pt. < 15 C; flash pt. none; pH 7.5-8.5 (101%); 29-31% act. in water; anionic  
*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; irritating to eyes, skin, and mucous membranes  
*Environmental:* > 90% biodeg.; LC50 (fish) > 10-100 mg/l; EC50 (bacteria) > 100 mg/l  
*Hazardous Decom. Prods.:* None  
*Storage:* Store in frost-free area in tightly closed containers
- Sulfopon® 101 Special RHD** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate; preserved with Kathon CG  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant for all types of polymer disps.; food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Liq.; 28-31% conc.; anionic
- Sulfotex OA** [Cognis/Care Chems.; Cognis Canada]  
*Chem. Descrip.:* Sodium 2-ethylhexyl sulfate  
 CAS 126-92-1; EINECS/ELINCS 204-812-8  
*Uses:* Foaming agent, wetting agent for animal glue on paper and paperboard and food processing; detergent and dispersant in industrial cleaners; mercerizing agent in dyeing of fibers; effective in high electrolyte concs.  
*Properties:* Lt. amber; dens. 9.2 lb/gal; pH 8.0-10.0 (10%); 43-46% act.; anionic  
*Environmental:* Biodeg.

**Sumaclear 800B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 200 mg/l*Properties:* Sl. yel. clear liq.; char. odor; sp.gr. 1.30-1.34; pH 3.1-4.0; 21.5-22.9% Al<sub>2</sub>O<sub>3</sub>, 11.4-12.1% aluminum, 8.1-9.0% chloride**Sumaclear 801B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 200 mg/l*Properties:* Sl. yel. clear liq.; char. odor; sp.gr. 1.30-1.34; pH 3.1-4.0; 20.2-21.7% Al<sub>2</sub>O<sub>3</sub>, 10.7-11.5% aluminum, 8.3-9.2% chloride**Sumaclear 802B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 130 mg/l*Properties:* Colorless to sl. yel. clear liq.; char. odor; sp.gr. 1.30-1.34; pH 3.1-4.0; 21.5-22.9% Al<sub>2</sub>O<sub>3</sub>, 11.4-12.1% aluminum, 8.1-9.0% chloride**Sumaclear 803B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 130 mg/l*Properties:* Colorless to sl. colorless clear liq.; char. odor; sp.gr. 1.27-1.32; pH 3.1-4.0; 20.2-21.7% Al<sub>2</sub>O<sub>3</sub>, 10.7-11.5% aluminum, 7.8-8.7% chloride**Sumaclear 804B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 200 mg/l*Properties:* Sl. yel. clear liq.; char. odor; sp.gr. 1.17-1.20; pH 2.3-2.8; 9.4-11.2% Al<sub>2</sub>O<sub>3</sub>, 5-5.9% aluminum, 11.2-11.8% chloride**Sumaclear 805B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 130 mg/l*Properties:* Sl. yel. clear liq.; char. odor; sp.gr. 1.16-1.34; pH 2.3-2.8; 8.9-10% Al<sub>2</sub>O<sub>3</sub>, 4.7-5.3% aluminum, 10.5-11.4% chloride**Sumaclear 820B** [Summit Research Labs]*Chem. Descrip.:* Inorg. and org. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 90 mg/l*Properties:* Yel. to gold liq.; char. odor; sp.gr. 1.25-1.32; pH 3.1-4.0; 17.8-19.8% Al<sub>2</sub>O<sub>3</sub>, 9.4-10.5% aluminum, 8.7-9.4% chloride**Sumaclear 1000** [Summit Research Labs]*Chem. Descrip.:* Inorg. polymers*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Use Level:* 50-100 ppm*Regulatory:* NSF approved up to 250 mg/l*Properties:* Colorless clear liq.; char. odor; sp.gr. 1.33-1.35; pH 4-4.4 (15%); 23-24% Al<sub>2</sub>O<sub>3</sub>, 12.1-12.7% aluminum, 7.9-8.4% chloride**Sumaclear 2000** [Summit Research Labs]*Chem. Descrip.:* Aluminum polymer*Uses:* Coagulant/flocculant for wastewater and potable water treatment, papermaking*Regulatory:* Liq.**Sumaclear P10, P20** [Summit Research Labs]*Chem. Descrip.:* Polyamine*Uses:* Coagulant/flocculant for wastewater and potable water treatment, papermaking*Regulatory:* NSF certified for potable water*Properties:* Liq.**Sumaclear P30, P35** [Summit Research Labs]*Chem. Descrip.:* Poly (diallyldimethylammonium chloride)

CAS 26062-79-3

*Uses:* Coagulant/flocculant for wastewater and potable water treatment, papermaking*Regulatory:* NSF certified for potable water*Properties:* Liq.**Sumalchlor 50** [Summit Research Labs]*Uses:* Coagulant, flocculant for wastewater and potable water treatment, pulp/paper industry; particularly low in sulfate, iron, and other trace metal impurities*Regulatory:* NSF approved up to 250 mg/l*Properties:* Colorless clear liq.; char. odor; sp.gr. 1.33-1.35; pH 4-4.4 (15%); 23-24% Al<sub>2</sub>O<sub>3</sub>, 12.1-12.7% aluminum, 7.9-8.4% chloride**Sumalchlor 100, 200** [Summit Research Labs]*Chem. Descrip.:* Aluminum polymer*Uses:* Coagulant/flocculant for wastewater and potable water treatment, papermaking*Regulatory:* Powd.**Sunbond® 853** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Vinyl acrylic and sizing agent*Uses:* Saturant for size press applics. for wallpaper and label grades*Properties:* Dens. 8.7 lb/gal; pH 4.0; 45% total solids**Sunbond® 857** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Vinyl acrylic and sizing agent*Uses:* Saturant for size press applics. for wallpaper and label grades*Properties:* Dens. 8.6 lb/gal; pH 4.0; 39% total solids**Sunbond® 925** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Carboxylated vinyl acrylic terpolymer latex*Uses:* Binder improving coating str. and water resist. in paper and board coatings; produces exc. surf. str. for offset printability*Properties:* Dens. 8.9 lb/gal; pH 6.5; 50% total solids**Sunbond® 936** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Polyvinyl acetate homopolymer

CAS 9003-20-7

*Uses:* Binder improving coating str. and water resist. in paperboard coatings; designed for coating color stability on high speed coaters*Properties:* Dens. 9.0 lb/gal; pH 6.5; 49.5% total solids**Sunbond® CP-58** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Vinyl acrylic and sizing agent*Uses:* Saturant for size press applics. for wallpaper and label grades*Properties:* Dens. 8.6 lb/gal; pH 4.5; 44% total solids**SunCryl® CP-50** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Soft self-crosslinked vinyl acrylic polymer*Uses:* Saturant for size press applics.*Properties:* Dens. 8.8 lb/gal; pH 4.0; 45% total solids**SunCryl® CP-75** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Soft self-crosslinked vinyl acrylic polymer*Uses:* Saturant for size press applics.*Properties:* Dens. 8.8 lb/gal; pH 4.0; 45% total solids**Sunkem® 301** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, gloss aid, release agent for improved surf. finish of coated paper/paperboard in gloss calendering process; allows better finishing with machine calendering equip.*Properties:* Dens. 8.1 lb/gal; pH 10.0; 40% total solids**Sunkem® 329** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant, gloss aid, release agent for improved surf. finish of coated paper/paperboard in gloss calendering process; allows better finishing with machine calendering equip.*Properties:* Dens. 8.3 lb/gal; pH 8.0; 25% total solids**Sunkote® 450** [OMNOVA Sol'ns./Paper]*Chem. Descrip.:* Calcium stearate

CAS 1592-23-0; EINECS/ELINCS 216-472-8

*Uses:* Lubricant, leveling agent for improved surf. finish of coated paper/

- paperboard in calendering process  
*Properties:* Dens. 8.4 lb/gal; pH 11.0; 50% total solids
- Sunkote® 452** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Calcium stearate  
 CAS 1592-23-0; EINECS/ELINCS 216-472-8  
*Uses:* Lubricant, leveling agent for improved surf. finish of coated paper/paperboard in calendering process  
*Properties:* Dens. 8.4 lb/gal; pH 11.0; 50% total solids
- Sunkote® 455** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Calcium stearate  
 CAS 1592-23-0; EINECS/ELINCS 216-472-8  
*Uses:* Lubricant, leveling agent for improved surf. finish of coated paper/paperboard in calendering process  
*Properties:* Dens. 8.4 lb/gal; pH 11.0; 55% total solids
- Sunkote® 460** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Calcium stearate and polyethylene  
*Uses:* Lubricant for improved surf. finish of coated paper/paperboard in calendering process; designed for high shear coating applics. and for pigmented size press formulations  
*Properties:* Dens. 8.4 lb/gal; pH 11.0; 60% total solids
- Sunrez® 700C** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Cyclic amide condensate  
*Uses:* Insolubilizer for paper coatings incl. food-contact paper; reacts with functional groups of coating binders; reduces water sensitivity; inc. number of impressions and print quality in the offset printing process  
*Regulatory:* FDA approved  
*Properties:* Dens. 9.1 lb/gal; pH 4.0; 45% total solids
- Sunrez® 700M** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Cyclic amide condensate  
*Uses:* Insolubilizer for paper coatings incl. food-contact paper; reacts with functional groups of coating binders; reduces water sensitivity; inc. number of impressions and print quality in the offset printing process  
*Regulatory:* FDA approved  
*Properties:* Dens. 9.7 lb/gal; pH 6.0; 45% total solids
- Sunrez® 747** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Cyclic amide condensate  
*Uses:* Insolubilizer for paper coatings incl. food-contact paper; reacts with functional groups of coating binders; reduces water sensitivity; inc. number of impressions and print quality in the offset printing process  
*Regulatory:* FDA approved  
*Properties:* Dens. 9.8 lb/gal; pH 4.5; 45% total solids
- Sunsize® 4133** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Stearylated melamine  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.2 lb/gal; pH 6.0; 40% total solids
- Sunsize® 4134** [OMNOVA Sol'n./Paper]  
*Chem. Descrip.:* Stearylated melamine/paraffin wax  
*Uses:* Surf. sizing agent, water resist. aid for size press applic.  
*Properties:* Dens. 8.2 lb/gal; pH 6.0; 40% total solids
- Suntori 311** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Mixt. of mineral oil; activator  
*Uses:* Drier for papermaking; release agent designed for processing of thin papers such as tissues and toilet rolls  
*Use Level:* Spray 20-100 times diluted sol'n. to dryer  
*Properties:* Lt. yel. limpid visc. liq.; pH 7 (1%); nonionic
- Suntori C-500** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Mixt. of silicone oil, mineral oil; activator  
*Uses:* Drier for papermaking; release agent designed for processing of thin papers, either adding into slurry or spraying to dryer method  
*Use Level:* Mod. diluted sol'n. to riffer, head box, etc. for total of 0.1-0.5% per pulp or spray 100-1000 times diluted sol'n. to dryer  
*Properties:* Straw-colored transparent liq.; pH 7 (5%); cationic
- Suntori KL** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Alkylamide condensation prod.  
*Uses:* Drier for papermaking; release agent for processing of rayon paper or thin papers such as tissues and toilet rolls  
*Use Level:* 10-50 times diluted sol'n. to riffer, head box, etc. for total of 0.1-0.5% per pulp  
*Properties:* Lt. yellowish wh. liq.; pH 5.5; cationic
- Suntori P-40** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Polyethylene wax  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Drier for papermaking; release agent designed for process of thin papers; exhibits exc. self-fixation at low add-on levels  
*Use Level:* 100-200 times diluted sol'n. to riffer, head box, etc. for total of 0.05-0.2% per pulp  
*Properties:* Lt. yellowish brn. visc. liq.; pH 6 (5%); cationic
- Suntori WP** [Nicca Chem. Co Ltd]  
*Chem. Descrip.:* Paraffin wax  
 CAS 8002-74-2; EINECS/ELINCS 232-315-6  
*Uses:* Water repellent, sizing auxiliary for papermaking  
*Use Level:* 10-20 times diluted sol'n. for total of 2-6% per paper  
*Properties:* Wh. milky emulsion; pH 8; anionic
- Sunwhite BY Liq.** [Sun Rise Chem. Ind.]  
*Chem. Descrip.:* Stilbene deriv.  
*Uses:* Fluorescent whitening agent for paper wet end, size press, and surf. coatings; for addition at the pulper or mixing chest; must not be applied with the alum or cationic auxs.  
*Properties:* Lt. brn. clear liq.; pH 10 ± 5; anionic
- Sunwhite BYX H/C** [Sun Rise Chem. Ind.]  
*Chem. Descrip.:* Stilbene deriv.  
*Uses:* Fluorescent whitening agent for paper wet end, size press, and surf. coatings; for addition at the pulper or mixing chest; must not be applied with the alum or cationic auxs.  
*Properties:* Ylsh. fine powd.; pH 10 ± 5; anionic
- Sunwhite CST** [Sun Rise Chem. Ind.]  
*Chem. Descrip.:* Stilbene deriv.  
*Uses:* Fluorescent whitening agent for paper surf. coatings and size press; extremely acid resist.; effective to pH 1; low affinity  
*Properties:* Brn. clear liq.; pH 10-11; 33 ± 1.5% solids; anionic
- Super 50** [EPC Papierchemie GmbH]  
*Chem. Descrip.:* Fully saponified, highly fortified rosin soap  
 CAS 8050-09-7; EINECS/ELINCS 232-475-7  
*Uses:* Sizing agent for paper, cardboard, food pkg. (Germany)  
*Use Level:* 0.5-2.0%  
*Regulatory:* BgVV XXXVI compliant  
*Properties:* Brn.; dilutable with cold or hot water at any mixing ratio; sp.gr. 1.15 g/cc; visc. < 150 s (Ford 4 mm, 21 C); pH 10-12 (50 g/l H<sub>2</sub>O); 50 ± 1% act.; cationic  
*Toxicology:* Alkalinity of prod. may cause skin irritation  
*Environmental:* Toxic to fish; do not allow to reach public sewers  
*Storage:* 6 mos storage stability at 5-70 C; do not store in nonferrous metal or aluminum
- Super Nevtac® 99** [Neville]  
*Chem. Descrip.:* Syn. polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for PP, PE, NR, SIS block copolymers, EVA, polyisoprene, butyl rubber used in solv. and hot-melt adhesives, coatings, rubber prods., concrete-curing compds., and caulking compds.; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, rubber articles  
*Regulatory:* FDA 21 CFR §175.105, 175.125, 175.300, 175.320, 176.170, 176.180, 177.1210, 177.2600  
*Properties:* Gardner 5 (50% in toluene) solid, flakes; sol. in esters, ethers, ketones (except acetone), and chlorinated, aromatic, naphthenic, and terpene hydrocarbons; m.w. 1040; sp.gr. 0.98; soften. pt. (R&B) 99 C; flash pt. (COC) 450 F
- Super Wet 102R** [Sam Shin]  
*Uses:* Insolubilizer improving printability, ink receptivity, brightness, opacity, and gloss in coated paper; improves wet pick and wet rub resist.; improves antiblistering  
*Use Level:* 0.4-1.0% to total pigment amt.  
*Properties:* Pale ylsh. liq.; visc. < 50 cps; pH 8 ± 1; 30 ± 1% solids; cationic  
*Storage:* 6 mos shelf life below 30 C; store in tightly closed containers in cool, well-ventilated area
- Super Wet EXP-1** [Sam Shin]  
*Uses:* Insolubilizer improving printability, ink receptivity, brightness, opacity, and gloss in coated paper; improves wet pick and wet rub resist.; improves antiblistering  
*Use Level:* 0.4-1.0% to total pigment amt.  
*Properties:* Pale ylsh. liq.; visc. 100 ± 50 cps; pH 8 ± 1; 50 ± 1% solids; cationic  
*Storage:* 6 mos shelf life below 30 C; store in tightly closed containers in cool, well-ventilated area
- Supragil RM/77 DL** [Rhodia HPCI]

- Chem. Descrip.:* Sodium naphthalene sulfonate  
CAS 1321-69-3  
*Uses:* Dispersant, sec. emulsifier, protective colloid for polymerization, elastomers; food pkg. adhesives, paper/paperboard; avoid undesired premature coagulum during polymerization phase; designed to avoid polymer coloring  
*Use Level:* 0.2-1.5% (as powd.) on latex  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180  
*Properties:* Liq.; 45% solids in water
- Suprapal®** [BASF AG]  
*Chem. Descrip.:* Styrene copolymer  
*Uses:* For roadmarking paints, gravure and flexographic printing inks, paper coatings, zinc dust primers
- Suresize®** [Vinings Ind.]  
*Uses:* Surf. sizing agent for printing and writing papers; provides improved ink and water holdout; controls sheet porosity
- Sure Sol®-290** [Koch Chem. Spec.]  
*Chem. Descrip.:* sec-Butylbiphenyl  
*Uses:* For carbonless paper industry
- Sure Sol®-300** [Koch Chem. Spec.]  
*Chem. Descrip.:* Di/tri-isopropylbiphenyl  
*Uses:* For carbonless paper, coatings, and resin industries  
*Properties:* Odorless
- Sure Sol®-330** [Koch Chem. Spec.]  
*Chem. Descrip.:* Diisopropylbiphenyl  
CAS 69009-90-1  
*Uses:* For heat transfer, carbonless paper, coatings, and resin industries  
*Properties:* Odorless
- Sure Sol®-333** [Koch Chem. Spec.]  
*Chem. Descrip.:* Sure Sol®-290/Sure Sol®-300 blend  
*Uses:* For carbonless paper industry
- Sure Sol®-450** [Koch Chem. Spec.]  
*Chem. Descrip.:* Triisopropylbenzene  
CAS 717-74-8; EINECS/ELINCS 211-941-3  
*Uses:* For carbonless paper and elec. industries
- Sure Sol®-480** [Koch Chem. Spec.]  
*Chem. Descrip.:* Propylated naphthalene  
*Uses:* For carbonless paper and elec. industries
- Surfactant 10G** [Arch Chems.]  
*Chem. Descrip.:* p-Nonylphenoxy-polyglycidol  
*Uses:* Surfactant used in agric. chemical emulsions, leather processing, paints, emulsion polymerization, waste paper deinking, alkaline cleaners, photographic film emulsions, and coating formulations  
*Properties:* Amber liq.; mild odor; sol. in alcohols, polyethers, acids; sp.gr. 1.032-1.114; dens. 8.6-9.3 lb/gal; visc. 110-195 cps; pour pt. -9 to -14 C; b.p. 93-103 C; cloud pt. > 100 C (0.5% aq.); pH 7.1-7.9 (1% aq.); surf. tens. 27-30 dynes/cm (0.1% act.); 50% act.; nonionic
- Surfonic® CO-15** [Huntsman]  
*Chem. Descrip.:* PEG-15 castor oil  
CAS 61791-12-6  
*Uses:* Emulsifier; dispersant; surfactant, antistat, leveling agent for leather, textiles, pulp/paper, agric., cutting oils for metalworking  
*Properties:* M.w. 1600; HLB 8.2; hyd. no. 105; cloud pt. 59 C (10% in 25% butyl diglycol); pH 6.5; nonionic
- Surfonic® CO-20** [Huntsman]  
*Chem. Descrip.:* PEG-20 castor oil  
CAS 61791-12-6  
*Uses:* Emulsifier; dispersant; surfactant, antistat, leveling agent for leather, textiles, pulp/paper, agric., cutting oils for metalworking  
*Properties:* Liq.; m.w. 1820; HLB 9.7; hyd.no. 92; cloud pt. 62 C (10% in 25% butyl diglycol); pH 7.0; 100% conc.; nonionic
- Surfonic® CO-25** [Huntsman]  
*Chem. Descrip.:* PEG-25 castor oil  
CAS 61791-12-6  
*Uses:* Emulsifier; dispersant; surfactant, antistat, leveling agent for leather, textiles, pulp/paper, agric., cutting oils for metalworking  
*Properties:* Liq.; m.w. 2040; HLB 10.7; hyd.no. 82.5; cloud pt. 66 C (10% in 25% butyl diglycol); pH 7.0; 100% conc.; nonionic
- Surfonic® CO-30** [Huntsman]  
*Chem. Descrip.:* PEG-30 castor oil  
CAS 61791-12-6  
*Uses:* Emulsifier; dispersant; surfactant, antistat, leveling agent for leather, textiles, pulp/paper, agric., cutting oils for metalworking  
*Properties:* Liq.; m.w. 2260; HLB 11.7; hyd.no. 74.5; cloud pt. 71 C (10% in 25% butyl diglycol); pH 7.0; 100% conc.; nonionic
- Surfonic® CO-42** [Huntsman]  
*Chem. Descrip.:* PEG-42 castor oil  
CAS 61791-12-6  
*Uses:* Emulsifier; dispersant; surfactant, antistat, leveling agent for leather, textiles, pulp/paper, agric., cutting oils for metalworking  
*Properties:* Liq.; m.w. 2700; HLB 13.0; hyd.no. 62.3; cloud pt. 67 C (10% in 25% DEGBE); pH 7.5; 100% conc.; nonionic
- Surfonic® DA-4** [Huntsman]  
*Chem. Descrip.:* Isodeceth-4  
CAS 61827-42-7  
*Uses:* W/o and o/w emulsifier, wetting agent, detergent, degreaser for hard surf. cleaners, textile processing, pulp/paper, and agric. formulations; sulfation intermediate  
*Properties:* Paste; disp. in water; m.w. 334; HLB 10.5; hyd. no. 168; 100% act.; nonionic  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture
- Surfonic® DA-6** [Huntsman]  
*Chem. Descrip.:* Isodeceth-6  
CAS 61827-42-7  
*Uses:* Detergent, degreaser, o/w emulsifier, wetting agent for hard surf. cleaners, textile processing, pulp/paper, and agric. formulations; sulfation intermediate  
*Properties:* Paste; sol. in water; m.w. 424; sp.gr. 1.0014; visc. 109 cps; HLB 12.5; hyd. no. 132; pour pt. 12.8 C; cloud pt. 42 C (1% DI water); 100% act.; nonionic  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture
- Surfonic® DDP-40** [Huntsman]  
*Chem. Descrip.:* Dodoxynol-4  
CAS 9014-92-0  
*Uses:* Surfactant, w/o emulsifier, wetting agent used in paper industry to mfg. paper towels and tissues, in solv. and dry cleaner formulations; emulsifier for agric. oils and degreasers; rewetting agent; low foaming  
*Properties:* Liq.; water-insol.; m.w. 438; HLB 8.0; hyd. no. 128; cloud pt. 54 C (10% in 25% butoxy diglycol); 100% act.; nonionic
- Surfonic® DDP-50** [Huntsman]  
*Chem. Descrip.:* Dodoxynol-5  
CAS 9014-92-0  
*Uses:* Surfactant, w/o emulsifier, wetting agent used in paper industry to mfg. paper towels and tissues, in solv. and dry cleaner formulations; emulsifier for agric. oils and degreasers; rewetting agent; low foaming  
*Properties:* Liq.; water-insol.; m.w. 482; HLB 9.1; hyd. no. 116; 100% act.; nonionic
- Surfonic® DNP-70** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-7  
CAS 9014-93-1  
*Uses:* W/o emulsifier, wetting agent, surfactant for agric. formulations, emulsion polymerization, leather working; surfactant intermediate; food pkg. coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings; forms stable w/o emulsions  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99  
*Properties:* Liq.; insol. in water; m.w. 648; sp.gr. 0.9919 (20/20 C); HLB 9.5; hyd. no. 87.5; pour pt. -5 C; cloud pt. 68 C (10% in 25% butoxy diglycol); 100% act.; nonionic  
*Environmental:* Biodeg.
- Surfonic® DNP-80** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-8  
CAS 9014-93-1  
*Uses:* W/o emulsifier, wetting agent, dispersant for emulsion polymerization, detergents, acid cleaners, hard surf. cleaners, textile processing, wax emulsification, pigment printing and agric. formulations; surfactant intermediate; food pkg. coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99  
*Properties:* Liq.; insol. in water; m.w. 692; sp.gr. 1.016 (20/20 C); HLB 10.2; hyd. no. 81; pour pt. -2 C; cloud pt. 71 C (10% in 25% butoxy diglycol); 100% act.; nonionic

- Environmental:* Biodeg.
- Surfonic® DNP-100** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-10  
 CAS 9014-93-1  
*Uses:* W/o and o/w emulsifier, wetting agent, dispersant for emulsion polymerization, detergents, acid cleaners, hard surf. cleaners, textile processing, wax emulsification, pigment printing and agric. formulations; surfactant intermediate; food pkg. coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99  
*Properties:* Liq.; disp. in water; m.w. 780; sp.gr. 1.014 (20/20 C); HLB 11.3; hyd. no. 71; pour pt. 10 C; cloud pt. 75 C (10% in 25% butoxy diglycol); 100% act.; nonionic  
*Environmental:* Biodeg.
- Surfonic® DNP-140** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-14  
 CAS 9014-93-1  
*Uses:* Degreaser; cleaning surfactant; lubrication oil additive; stabilizer; emulsifier; demulsifier; antioxidant for plastics and rubber; plasticizer in varnishes, resins, lacquers, and plastics; surfactant in pulp/paper, emulsion polymerization  
*Properties:* Sol. in water; m.w. 1000; f.p. 27 C; HLB 13.2; hyd. no. 57.5; cloud pt. 52 C (1% in DI water); nonionic
- Surfonic® DNP-700** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-70  
 CAS 9014-93-1  
*Uses:* O/w emulsifier, solubilizer, surfactant, stabilizer used in detergents, emulsion polymerization, hard surf. cleaners, agric. formulations, pulp/paper processing, textile mfg.  
*Properties:* Solid; highly water-sol.; m.w. 3420; sp.gr. 1.047 (60 C); f.p. 57 C; HLB 18.0; hyd. no. 16.4; wetting 347 s (0.1% aq.); 100% act.; nonionic  
*Environmental:* Biodeg.
- Surfonic® DNP-1000** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-100  
 CAS 9014-93-1  
*Uses:* O/w emulsifier, solubilizer, surfactant, stabilizer used in detergents, emulsion polymerization, hard surf. cleaners, agric. formulations, pulp/paper processing, textile mfg.  
*Properties:* Solid; highly water-sol.; m.w. 4740; sp.gr. 1.053 (60 C); f.p. 60 C; HLB 18.6; hyd. no. 13; wetting 516 s (0.1% aq.); 100% act.; nonionic  
*Environmental:* Biodeg.
- Surfonic® DNP-1500** [Huntsman]  
*Chem. Descrip.:* Nonyl nonoxynol-150  
 CAS 9014-93-1  
*Uses:* O/w emulsifier, solubilizer, surfactant, stabilizer used in detergents, emulsion polymerization, hard surf. cleaners, agric. formulations, pulp/paper processing, textile mfg.; food pkg. coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99  
*Properties:* Solid; highly water-sol.; m.w. 6950; sp.gr. 1.067 (60 C); f.p. 64 C; HLB 19.0; hyd. no. 11; wetting 768 s (0.1% aq.); 100% act.; nonionic  
*Environmental:* Biodeg.
- Surfonic® DOS-70MS** [Huntsman]  
*Chem. Descrip.:* Dioctyl sodium sulfosuccinate  
 CAS 577-11-7; EINECS/ELINCS 209-406-4  
*Uses:* Dewatering aid for lime mud; wetting agent
- Surfonic® JL-80X** [Huntsman]  
*Chem. Descrip.:* Alkoxypolyalkoxyethanol  
*Uses:* Surfactant, emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household detergents, industrial prods., agric. sprays, dry cleaning, metal cleaners, ceramics, concrete, textile processing; wash deinking agent for pulp/paper; low foaming  
*Use Level:* 0.1-0.5% (paper deinking)  
*Properties:* Clear liq.; water-sol.; sp.gr. 1.0072; dens. 8.4 lb/gal; visc. 159.4 SUS (100 F); HLB 13.1; f.p. -5 C; hyd. no. 92; cloud pt. 56-63 C (1% aq.); flash pt. (PMCC) 320 F; pH 6.0-7.5 (1% aq.); surf. tens. 29.24 dynes/cm (0.1%); Draves wetting < 1.0 s (0.25%); Ross-Miles foam 75 mm (initial, 0.1%, 120 F); 100% act.; nonionic  
*Toxicology:* LD50 (oral, rat) 2.6 ml/kg; sl. toxic by ingestion; irritating to eyes  
*Environmental:* Biodeg.

- Surfonic® L12-2.6** [Huntsman]  
*Chem. Descrip.:* C10-12 pareth-3  
 CAS 66455-15-0  
*Uses:* Emulsifier, wetting agent, dispersant, detergent for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment  
*Properties:* Insol. in water; m.w. 278; visc. 21 cps; HLB 8.2; hyd. no. 199; pour pt. 15 C; nonionic
- Surfonic® L12-3** [Huntsman]  
*Chem. Descrip.:* C10-12 pareth-3  
 CAS 66455-15-0  
*Uses:* Surfactant, w/o and o/w emulsifier, wetting agent for detergents, laundry prespotters, hard surf. cleaners, personal care prods.; adjuvant for agric. pesticides; sulfation intermediate; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Clear to sl. turbid liq.; water-insol.; m.w. 295; sp.gr. 0.9317; dens. 7.8 lb/gal; visc. 33 cps; HLB 9.0; hyd. no. 190; pour pt. -12.2 C; flash pt. (PMCC) 137.7 C; pH 5.5-6.5 (1% in aq. IPA); 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture
- Surfonic® L12-6** [Huntsman]  
*Chem. Descrip.:* C10-12 pareth-6  
 CAS 66455-15-0  
*Uses:* Surfactant, wetting agent, o/w emulsifier for detergents, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; rewetting agent for paper (corrugated and liner board); food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Clear to sl. turbid liq.; water-sol.; m.w. 428; sp.gr. 0.9820; dens. 8.2 lb/gal; visc. 43 cps; HLB 12.4; hyd. no. 133; pour pt. 10 C; cloud pt. 48-52 C (1% aq.); flash pt. (PMCC) 162.7 C; pH 5.5-6.5 (1% in aq. IPA); Draves wetting 4.0 s (0.1%); 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture
- Surfonic® L12-8** [Huntsman]  
*Chem. Descrip.:* C10-12 pareth-8  
 CAS 66455-15-0  
*Uses:* Surfactant, wetting agent, o/w emulsifier for detergents, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Liq.; sol. in water; m.w. 516; sp.gr. 1.0045; visc. 98 cps; HLB 13.6; hyd. no. 109; pour pt. 18.3 C; cloud pt. 80 C (1% in DI water); flash pt. (PMCC) 204.4 C; Draves wetting 8.4 s (0.1%); 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture
- Surfonic® L24-1.3** [Huntsman]  
*Chem. Descrip.:* C12-14 pareth-1  
 CAS 68439-50-9  
*Uses:* Surfactant, w/o emulsifier for detergents, personal care prods.; sulfation intermediate; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Liq.; insol. in water; m.w. 253; sp.gr. 0.8785; visc. 19 cps; HLB 4.5; hyd. no. 222; pour pt. 10 C; flash pt. (PMCC) 151.7 C; 100% act.; nonionic  
*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L24-3 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-3

CAS 68439-50-9

*Uses:* Surfactant, w/o and o/w emulsifier, wetting agent for detergents, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; sulfation intermediate; rewetting agent for paper (corrugated and liner board); food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard; food-contact slimicide

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 178.3910, 181.30, 182.99; EINECS, DSL, MITI listed

*Properties:* Clear to sl. turbid liq.; water-insol.; m.w. 330; dens. 7.8 lb/gal; HLB 8.0; hyd. no. 173; pour pt. 4.4 C; flash pt. (PMCC) 151.7 C; pH 5.5-6.5 (1% in aq. IPA); 100% act.; nonionic

*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L24-4 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-4

CAS 68439-50-9

*Uses:* Surfactant, w/o and o/w emulsifier, wetting agent for detergents, laundry prespotters, personal care prods.; intermediate; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed

*Properties:* Liq.; insol. in water; m.w. 373; sp.gr. 0.9432; visc. 31 cps; HLB 9.4; hyd. no. 150; pour pt. 4.4 C; flash pt. (PMCC) 173.9 C; 100% act.; nonionic

*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L24-5 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-5

CAS 68439-50-9

*Uses:* Emulsifier, wetting agent, dispersant, detergent for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Disp. in water; m.w. 417; HLB 10.6; hyd. no. 136; nonionic

**Surfonic® L24-7 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-7

CAS 68439-50-9

*Uses:* Surfactant, wetting agent, o/w emulsifier for detergents, laundry prespotters, hard surf. cleaners, personal care prods.; adjuvant for agric. pesticides; pitch dispersant for pulp/paper processing; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed

*Properties:* Clear to sl. turbid liq.; water-sol.; m.w. 487; sp.gr. 0.9824; dens. 8.1 lb/gal; visc. 47 cps; HLB 11.9; hyd. no. 117; pour pt. 15 C; cloud pt. 48-52 C (1% aq.); flash pt. (PMCC) 190.6 C; pH 5.5-6.5 (1% in aq. IPA); Draves wetting 8.7 s (0.1%); 100% act.; nonionic

*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L24-9 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-8.2

CAS 68439-50-9

*Uses:* Surfactant, wetting agent, o/w emulsifier for detergents, laundry prespotters, hard surf. cleaners, personal care prods.; adjuvant for agric. pesticides; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed

*Properties:* Clear to sl. turbid semiliq.; water-sol.; m.w. 561; sp.gr.0.9935; dens. 8.3 lb/gal; visc. 61 cps; HLB 13.0; hyd. no. 100; pour pt. 20 C; cloud pt. 73-77 C (1% aq.); flash pt. (PMCC) 162.8 C; pH 5.5-6.5 (1% in aq. IPA); Draves wetting 13.9 s (0.1%); 100% act.; nonionic

*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L24-12 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-10.8

CAS 68439-50-9

*Uses:* Surfactant, o/w emulsifier, solubilizer for detergents, laundry prespotters, hard surf. cleaners, personal care prods.; adjuvant for agric. pesticides; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed

*Properties:* Waxy solid; water-sol.; m.w. 703; dens. 8.4 lb/gal; HLB 14.4; hyd. no. 83; pour pt. 28 C; cloud pt. 65-71 C (1% in 10% NaCl); flash pt. (PMCC) 204.4 C; pH 5.5-6.5 (1% in aq. IPA); Draves wetting 35.1 s (0.1%); 100% act.; nonionic

*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L24-17 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-17

CAS 68439-50-9

*Uses:* Emulsifier, wetting agent, dispersant, detergent for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Sol. in water; m.w. 932; visc. 62 cps (37.8 C); HLB 15.8; hyd. no. 67; pour pt. 85 C; cloud pt. 76 C (1% in 10% NaCl); nonionic

**Surfonic® L24-22 [Huntsman]**

*Chem. Descrip.:* C12-14 pareth-22

CAS 68439-50-9

*Uses:* Emulsifier, wetting agent, dispersant, detergent for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Solid; sol. in water; m.w. 1165; HLB 16.6; hyd. no. 48; pour pt. 39.4 C; nonionic

**Surfonic® L24-1280 [Huntsman]**

*Uses:* Deinking agent for wh. paper grade; low dirt count, high brightness

*Use Level:* 0.4-0.8%

*Properties:* Liq.; nonionic

**Surfonic® L28-890 [Huntsman]**

*Chem. Descrip.:* Linear alcohol ethoxylate

*Uses:* Detergent and wetting agent for textile, leather, paint, pulp/paper, household and industrial detergents

*Properties:* Clear liq.; sp.gr. 1.002; visc. 140 cps; HLB 12.6; cloud pt. 64-68 C (1% aq.); ref. index 1.4492; 90% act.; nonionic

**Surfonic® L46-7 [Huntsman]**

*Chem. Descrip.:* C14-16 pareth-7

*Uses:* Surfactant, detergent, o/w emulsifier, wetting agent, foaming agent, penetrant, intermediate for detergent, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed

*Properties:* Clear to sl. turbid semisolid; water-sol.; m.w. 534; sp.gr. 0.9790; dens. 8.0 lb/gal; visc. 63 cps; HLB 11.6; hyd. no. 107; pour pt. 22 C; cloud pt. 48-52 C (1% aq.); flash pt. (PMCC) 204.4 C; pH 5.5-6.5 (1% in aq. IPA); Draves wetting 20.6 s (0.1%); 100% act.; nonionic

*Toxicology:* TSCA listed

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® L68-18 [Huntsman]**

*Chem. Descrip.:* Linear alcohol ethoxylate

CAS 68439-49-6

*Uses:* Solubilizer, o/w emulsifier used in detergents, laundry prespots, hard surf. cleaners, personal care prods.; adjuvant for agric. pesticides; food pkg.



adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Waxy solid; sol. in water; m.w. 1043; HLB 15.2; hyd. no. 54; pour pt. 5 C; 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture

**Surfonic® L108/85-5** [Huntsman]  
*Chem. Descrip.:* Alcohol ethoxylate  
 CAS 68439-45-2  
*Uses:* Degreaser, o/w emulsifier, wetting agent, dispersant, detergent for consumer detergents, cosmetics, skin creams/lotions, shampoos, bubble baths, agric., min. processing, pulp/paper, textiles, water treatment; low haze and clear points  
*Properties:* Liq.; sol. in water; m.w. 354; sp.gr. 0.9768; HLB 12.4; hyd. no. 156; cloud pt. 43 C (1% in DI water); flash pt. (PMCC) 132.2 C; 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture

**Surfonic® L610-3** [Huntsman]  
*Chem. Descrip.:* Ethoxylated alcohol  
 CAS 70879-83-3  
*Uses:* O/w and w/o emulsifier, wetting agent, detergent, surfactant for hard surf. cleaners, industrial and household cleaners, gypsum board mfg., laundry prespotters, metal cleaners, latex paints; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard; rec. for aq. systems requiring low foaming  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30; EINECS, DSL, MITI listed  
*Properties:* Liq.; insol. in water; m.w. 276; sp.gr. 0.9408; visc. 20 cps; HLB 9.6; hyd. no. 210; pour pt. -9.4 C; flash pt. (PMCC) 79.4 C; 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture

**Surfonic® L1270-2** [Huntsman]  
*Chem. Descrip.:* Linear alcohol ethoxylate  
 CAS 68439-50-9  
*Uses:* W/o emulsifier for personal care and light-duty cleaning prods.; sulfation intermediate; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Liq.; insol. in water; m.w. 281; sp.gr. 0.9057; visc. 22 cps; HLB 5.4; hyd. no. 200; pour pt. 7.2 C; flash pt. (PMCC) 148.8 C; 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.  
*Storage:* Hygroscopic; protect from moisture

**Surfonic® L1285-2** [Huntsman]  
*Chem. Descrip.:* Linear alcohol ethoxylate  
 CAS 68439-50-9  
*Uses:* W/o emulsifier for personal care and lt.-duty cleaning prods.; sulfation intermediate; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.3120, 178.3400, 181.30, 182.99; EINECS, DSL, MITI listed  
*Properties:* Liq.; insol. in water; m.w. 278; sp.gr. 0.9027; visc. 23 cps; HLB 6.4; hyd. no. 202; pour pt. 7.2 C; flash pt. (PMCC) 148.8 C; 100% act.; nonionic  
*Toxicology:* TSCA listed  
*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® LF-17** [Huntsman]  
*Chem. Descrip.:* Primary alcohol-EO adduct, modified  
 CAS 69013-18-9  
*Uses:* Wetting agent, detergent for aq. systems, metal cleaners, latex paints, textiles, paper, rinse aids, industrial and home mech. dishwashing compds.; defoamer in some systems; low foaming  
*Properties:* Pale yel. clear liq.; sol. in water; sp.gr. 1.003; visc. 54.5 cSt (100 F); f.p. -2 C; HLB 12.2; cloud pt. 32-37 C (1% aq.); flash pt. (PMCC) 295 F; surf. tens. 33.0 dynes/cm (0.1%); Draves wetting 7.2 s (0.25%); Ross-Miles foam 6 mm (initial, 0.1%, 120 F); 100% act.; nonionic  
*Toxicology:* LD50 (oral, rat) 3.53 g/kg; sl. toxic by ingestion, skin absorption; mod. irritating to eyes and skin  
*Environmental:* Biodeg.

**Surfonic® LF-18** [Huntsman]  
*Chem. Descrip.:* Alcohol alkoxyolate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Disp. in water; sp.gr. 1.013; visc. 243 cps; f.p. -6 C; cloud pt. 17 C (1% aq.); nonionic

**Surfonic® LF-37** [Huntsman]  
*Chem. Descrip.:* Alkyl polyoxyalkylene ether  
*Uses:* Surfactant, wetting agent, detergent for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents; low foaming  
*Properties:* Liq.; disp. in water; sp.gr. 0.9904; visc. 95 cps; f.p. -12 C; cloud pt. 17 C (1% aq.); 100% conc.; nonionic

**Surfonic® LF-40** [Huntsman]  
*Chem. Descrip.:* Alkoxyated alcohol  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents; low foaming  
*Properties:* Liq.; disp. in water; sp.gr. 0.9652; visc. 48 cps; wetting 11.8 s (0.1% in deionized water); 100% conc.; nonionic

**Surfonic® LF-41** [Huntsman]  
*Chem. Descrip.:* Alkoxyated nonylphenol  
 CAS 68891-11-2  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents; low foaming  
*Properties:* Liq.; sol. in water; sp.gr. 1.0343; visc. 270 cps; cloud pt. 37 C (1% aq.); wetting 4.3 s (0.1%, in deionized water); 100% conc.; nonionic

**Surfonic® LF-47** [Huntsman]  
*Chem. Descrip.:* Alcohol alkoxyolate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Insol. in water; sp.gr. 0.969; visc. 140 cps; f.p. < -20 C; nonionic

**Surfonic® LF-68** [Huntsman]  
*Chem. Descrip.:* Alcohol alkoxyolate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Insol. in water; sp.gr. 0.9742; visc. 119 cps; f.p. -4 C; cloud pt. 7.5 ml water (water titration); nonionic

**Surfonic® LF-0312** [Huntsman]  
*Chem. Descrip.:* Alcohol alkoxyolate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Disp. in water; sp.gr. 1.013; visc. 240 cps; f.p. -6 C; cloud pt. 17 C (1% aq.); nonionic

**Surfonic® N-10** [Huntsman]  
*Chem. Descrip.:* Nonoxynol-1  
 CAS 9016-45-9; EINECS/ELINCS 248-762-5  
*Uses:* W/o emulsifier, foam stabilizer, defoamer, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol, cosmetic, latex paint, cutting oil, janitorial supply industries; coemulsifier for surfactant and solvent blends; food pkg. adhesives, coatings, paper, cellophane, animal glues; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200,

177.1200, 177.1210, 178.3120

*Properties:* Clear sl. visc. liq.; water-insol.; oil-sol.; m.w. 273; sp.gr. 0.980 (20/20 C); dens. 8.1 lb/gal; visc. 575 cps; HLB 3.9; hyd. no. 206; pour pt. -9 C; flash pt. (PMCC) 171 C; Ross-Miles foam 5 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-31.5** [Huntsman]

*Chem. Descrip.:* Nonoxynol-3

CAS 9016-45-9

*Uses:* W/o emulsifier, defoamer, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol, cosmetic, latex paint, cutting oil, janitorial supply industries, solv. emulsion cleaners, dry cleaning detergents; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 178.3120

*Properties:* Clear sl. visc. liq.; water-insol., oil-sol.; m.w. 358; sp.gr. 1.01; dens. 8.4 lb/gal; visc. 294 cps; HLB 7.7; hyd. no. 157; pour pt. -4 C; flash pt. (PMCC) 207 C; ref. index 1.4950; Ross-Miles foam 8 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-40** [Huntsman]

*Chem. Descrip.:* Nonoxynol-4

CAS 9016-45-9; EINECS/ELINCS 230-770-5

*Uses:* W/o emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol., cosmetic, latex paint, cutting oil, janitorial supply industries, solv. emulsion cleaners, dry cleaning detergents; latex stabilizer; detergent for petrol. oils; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Clear sl. visc. liq.; insol. in water; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, Stoddard; m.w. 396; sp.gr. 1.026; dens. 8.5 lb/gal; visc. 255 cps; HLB 8.9; hyd. no. 142; pour pt. -7 C; flash pt. (PMCC) 182 C; ref. index 1.4979; surf. tens. 27.5 dynes/cm (0.1%); Ross-Miles foam 10 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-60** [Huntsman]

*Chem. Descrip.:* Nonoxynol-6

CAS 9016-45-9

*Uses:* W/o and o/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol, cosmetic, latex paint, cutting oil, janitorial supply industries; de-icing aid; rust inhibitor; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Clear sl. visc. liq.; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, Stoddard solv.; disp. in water; m.w. 484; sp.gr. 1.041; dens. 8.7 lb/gal; visc. 239 cps; f.p. < 0 C; HLB 10.9; hyd. no. 116; pour pt. -7 C; flash pt. (PMCC) 221 C; ref. index 1.4938; surf. tens. 28.7 dynes/cm (0.1%); Draves wetting 6 s (0.25%); Ross-Miles foam 12 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-70** [Huntsman]

*Chem. Descrip.:* Nonoxynol-7

CAS 9016-45-9; EINECS/ELINCS 248-292-0

*Uses:* Surfactant, detergent, wetting agent, surf. tens. reducer, penetrant, dispersant for agric., metal/min. processing, pulp/paper, household laundry detergents, industrial cleaners, textiles, emulsion polymerization; low to mod. foaming; generally inert

*Properties:* Disp. in water; m.w. 528; HLB 11.7; hyd. no. 106; cloud pt. 77 C (1% in 10% NaCl); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-80** [Huntsman]

*Chem. Descrip.:* Nonoxynol-8

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier, dispersant for leather, paint, textiles, pesticides, pulp/paper, emulsion polymerization; base surfactant for household and industrial detergents

*Properties:* Clear liq.; water-sol.; HLB 12.4; cloud pt. 23-27 C (1% aq.);

100% act.; nonionic

**Surfonic® N-85** [Huntsman]

*Chem. Descrip.:* Nonoxynol-8.5

CAS 9016-45-9

*Uses:* W/o emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, petrol, cosmetics, latex paints, cutting oils, janitorial supply industries; wash deinking agent for pulp/paper; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Use Level:* 0.1-0.5% (paper deinking)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Liq.; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, water; m.w. 594; sp.gr. 1.056; dens. 8.8 lb/gal; visc. 251 cps; f.p. -1 C; HLB 12.6; hyd. no. 94; pour pt. 10 C; cloud pt. 44 C (1% aq.); flash pt. (PMCC) 243 C; ref. index 1.4923; surf. tens. 30.5 dynes/cm (0.1%); Draves wetting 3.5 s (0.25%); Ross-Miles foam 40 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-95** [Huntsman]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries, food pkg.; pitch dispersant for pulp/paper mill applics.; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Colorless to straw clear sl. visc. liq., sl. odor; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, water; m.w. 632; sp.gr. 1.061; dens. 8.8 lb/gal; visc. 293 cps; f.p. 5 C; HLB 13.1; hyd. no. 90; cloud pt. 54.2 (1% aq.); flash pt. (PMCC) 238 C; ref. index 1.4893; pH 7.0; surf. tens. 30.8 dynes/cm (0.1%); Draves wetting 3 s (0.25%); Ross-Miles foam 80 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 3 g/kg (sl. toxic); eye irritant; sl. to severe skin irritant

*Environmental:* Biodeg.

**Surfonic® N-100** [Huntsman]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Clear sl. visc. liq.; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, water; m.w. 660; sp.gr. 1.064; dens. 8.8 lb/gal; visc. 250 cps; f.p. 8 C; HLB 13.3; hyd. no. 85; cloud pt. 65 C (1% aq.); flash pt. (PMCC) 213 C; ref. index 1.4888; surf. tens. 31.0 dynes/cm (0.1%); Draves wetting 4 s (0.25%); Ross-Miles foam 85 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-102** [Huntsman]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Clear sl. visc. liq.; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, water; m.w. 668; sp.gr. 1.065; dens. 8.8 lb/gal; visc. 290 cps; f.p. 9 C; HLB

13.5; hyd. no. 84; cloud pt. 81 C (1% aq.); flash pt. (PMCC) 204 C; ref. index 1.4884; surf. tens. 31.2 dynes/cm (0.1%); Draves wetting 4.5 s (0.25%); Ross-Miles foam 85 mm (initial, 0.1%, 120 F); 100% act.; non-ionic

*Environmental:* Biodeg.

**Surfonic® N-110** [Huntsman]

*Chem. Descrip.:* Nonoxynol-11

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, surf. tens. reducer, penetrant, dispersant for agric., metal/min. processing, pulp/paper, household laundry detergents, industrial cleaners, textiles, emulsion polymerization; low to mod. foaming; generally inert

*Properties:* Sol. in water; m.w. 704; visc. 278 cps; HLB 13.8; hyd. no. 79.7; cloud pt. 72 C (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-120** [Huntsman]

*Chem. Descrip.:* Nonoxynol-12

CAS 9016-45-9

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol, cosmetic, latex paint, cutting oil, janitorial supply industries; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 176.300, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Clear sl. visc. liq.; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, water; m.w. 748; sp.gr. 1.070; dens. 8.9 lb/gal; visc. 308 cps; f.p. 14 C; HLB 14.1; hyd. no. 75; cloud pt. 81 C (1% aq.); flash pt. (PMCC) 204 C; ref. index 1.4869; surf. tens. 32.3 dynes/cm (0.1%); Draves wetting 7 s (0.25%); Ross-Miles foam 110 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-150** [Huntsman]

*Chem. Descrip.:* Nonoxynol-15

CAS 9016-45-9

*Uses:* O/w emulsifier, detergent, degreaser, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol, cosmetic, latex paint, cutting oil, janitorial supply industries; rec. for acid cleaners, hard surf. cleaners; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper/paperboard; enhanced high temp. stability

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1210, 178.3120

*Properties:* Wh. waxy solid; sol. in acetone, methanol, xylene, CCl<sub>4</sub>, water; m.w. 880; sp.gr. 1.065 (30/4 C); dens. 8.95 lb/gal; visc. 306 cps; f.p. 23 C; HLB 15.0; hyd. no. 64; cloud pt. 94 C (1% aq.); flash pt. (PMCC) 224 C; ref. index 1.4815 (30 C); surf. tens. 34.2 dynes/cm (0.1%); Draves wetting 17 s (0.25%); Ross-Miles foam 120 mm (initial, 0.1%, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-200** [Huntsman]

*Chem. Descrip.:* Nonoxynol-20

CAS 9016-45-9

*Uses:* O/w emulsifier, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, crude oils, cosmetic, latex paint, cutting oil, janitorial supply industries, emulsion polymerization; effective emulsifier for waxes, oils, fats, and solvs.; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120

*Properties:* Waxy solid; water-sol.; m.w. 1100; dens. 9.0 lb/gal; f.p. 34 C; HLB 15.8; hyd. no. 51; cloud pt. 72-73 C (1% in 10% brine); flash pt. (PMCC) 232 C; 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-300** [Huntsman]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* O/w emulsifier, detergent, penetrant, solubilizer, dispersant for household cleaners, textile, agric., metal cleaning, petrol, cosmetic, latex paint, cutting oil, janitorial supply industries, emulsion polymerization; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact

articles; defoamer in food-contact coatings; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99

*Properties:* Solid; sol. in water; m.w. 1540; dens. 9.1 lb/gal; visc. 150-170 SUS (210 F); f.p. 44 C; HLB 17.1; hyd. no. 39; pour pt. 38 C; cloud pt. > 100 C (1% aq.); flash pt. (PMCC) > 232 C; ref. index 1.4690 (50 C); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-400** [Huntsman]

*Chem. Descrip.:* Nonoxynol-40

CAS 9016-45-9

*Uses:* O/w emulsifier, solubilizer used in textile scouring, agric. formulations, emulsion polymerization; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99

*Properties:* Solid; sol. in water; m.w. 1980; HLB 17.8; hyd. no. 28; f.p. 43 C; flash pt. (PMCC) 277 C; 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-500** [Huntsman]

*Chem. Descrip.:* Nonoxynol-50

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, surf. tens. reducer, penetrant, dispersant for agric., metal/min. processing, pulp/paper, household laundry detergents, industrial cleaners, textiles, emulsion polymerization; low to mod. foaming; generally inert

*Properties:* Sol. in water; m.w. 2420; f.p. 57 C; HLB 18.2; hyd. no. 24; 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® N-550** [Huntsman]

*Chem. Descrip.:* Nonoxynol-55

CAS 9016-45-9

*Uses:* O/w emulsifier, solubilizer for floor finishes; freeze/thaw stabilizer in latexes; intermediate for solv. emulsion cleaners; food-contact coatings, paper, cellophane, animal glues; defoamer in food-contact coatings; exc. stability at high temps.

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 182.99

*Properties:* Solid; highly water-sol.; m.w. 2640; HLB 18.3; hyd. no. 20; f.p. 57 C; nonionic

*Environmental:* Biodeg.

**Surfonic® N-700** [Huntsman]

*Chem. Descrip.:* Nonoxynol-70

CAS 9016-45-9

*Uses:* O/w emulsifier, solubilizer for floor finishes; freeze/thaw stabilizer in latexes; intermediate for solv. emulsion cleaners; food-contact coatings, paper, cellophane, animal glues; defoamer in food-contact coatings; exc. stability at high temps.

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 182.99

*Properties:* Solid; highly water-sol.; m.w. 3300; HLB 18.7; hyd. no. 17; f.p. 58 C; nonionic

*Environmental:* Biodeg.

**Surfonic® N-1000** [Huntsman]

*Chem. Descrip.:* Nonoxynol-100

CAS 9016-45-9

*Uses:* O/w emulsifier, solubilizer used in mfg. of asphalt and emulsion polymerization; food-contact coatings, paper, cellophane, animal glues; defoamer in food-contact coatings; exc. stability at high temps.

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120

*Properties:* Solid; highly water-sol.; m.w. 4620; HLB 19.0; hyd. no. 13; f.p. 60 C; 100% conc.; nonionic

*Environmental:* Biodeg.

**Surfonic® NB-307** [Huntsman]

*Chem. Descrip.:* Nonoxynol-30

CAS 9016-45-9

*Uses:* O/w emulsifier, solubilizer, and stabilizer for polymers, dye assistant, textile scouring agents, agric. formulations, emulsion polymerization; food pkg. adhesives, coatings, paper, cellophane, polymers; emulsifier in mfg. of

food-contact articles; defoamer in food-contact coatings; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99

*Properties:* Liq.; water-sol.; m.w. 1540; HLB 17.1; hyd. no. 39; pour pt. 2 C; cloud pt. 78 C (1% in 10% NaCl); flash pt. (COC) > 196 C; 70% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® NB-407** [Huntsman]

*Chem. Descrip.:* Nonoxynol-40

CAS 9016-45-9

*Uses:* O/w emulsifier, solubilizer, and stabilizer for polymers, dye assistant, textile scouring agents, agric. formulations, emulsion polymerization; food pkg. adhesives, coatings, paper, cellophane, polymers; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99

*Properties:* Liq.; water-sol.; m.w. 1980; HLB 17.8; hyd. no. 28; 70% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® NB-557** [Huntsman]

*Chem. Descrip.:* Nonoxynol-55

CAS 9016-45-9

*Uses:* O/w emulsifier for emulsion polymerization; emulsifier and stabilizer for asphalt emulsion; solubilizer; food pkg. coatings, paper, cellophane, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 182.99

*Properties:* Liq.; water-sol.; m.w. 2640; dens. 1.101 g/ml; visc. 1266 cps; HLB 18.3; pour pt. 13 C; flash pt. (PMCC) > 99 C; 70% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® NB-1007** [Huntsman]

*Chem. Descrip.:* Nonoxynol-100

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, surf. tens. reducer, penetrant, dispersant for agric., metal/min. processing, pulp/paper, household laundry detergents, industrial cleaners, textiles, emulsion polymerization; low to mod. foaming; generally inert

*Properties:* Sol. in water; m.w. 4620; HLB 19; pour pt. 0 C; 70% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® OP-15** [Huntsman]

*Chem. Descrip.:* Octoxynol-1.5

CAS 9002-93-1; EINECS/ELINCS 264-520-1

*Uses:* W/o emulsifier for surfactant and solv. prep. blends such as in pesticides, dry cleaning formulations, and polishes; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 182.99

*Properties:* Liq.; insol. in water; highly oil-sol.; m.w. 277; sp.gr. 0.985 (20/20 C); visc. 790 cps; HLB 5.1; hyd. no. 214; pour pt. -9 C; nonionic

*Environmental:* Biodeg.

**Surfonic® OP-35** [Huntsman]

*Chem. Descrip.:* Octoxynol-3.5

CAS 9002-93-1

*Uses:* W/o emulsifier, wetting agent, dispersant, detergent used for herbicides, metal cleaners, floor cleaners; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings; low foaming

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 182.99

*Properties:* Liq.; insol. in water; sp.gr. 1.023 (20/20 C); visc. 370 cps; HLB 8.6; hyd. no. 163; pour pt. -23 C; nonionic

*Environmental:* Biodeg.

**Surfonic® OP-50** [Huntsman]

*Chem. Descrip.:* Octoxynol-5

CAS 9002-93-1

*Uses:* W/o and o/w emulsifier for oils and fats; surfactant, wetting agent, emulsifier used in detergents, metal and hard surf. cleaners, solv. emulsion cleaners, pesticides, paper processing, textile mfg.; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings; emulsifier in mfg. of food-contact articles; multipurpose

*Regulatory:* FDA 21CFR §172.710, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Liq.; disp. in water; m.w. 426; sp.gr. 1.040 (20/20 C); visc. 290 cps; HLB 10.3; hyd. no. 141; pour pt. -9 C; 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® OP-70** [Huntsman]

*Chem. Descrip.:* Octoxynol-7

CAS 9002-93-1

*Uses:* Hard surface detergent; o/w emulsifier for oils and fats; wetting agent, emulsifier used in detergents, metal and hard surf. cleaners, solv. emulsion cleaners, pesticides, paper processing, textile mfg.; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings; emulsifier in mfg. of food-contact articles; low foaming

*Regulatory:* FDA 21CFR §172.710, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Liq.; sol. in water; m.w. 514; sp.gr. 1.054 (20/20 C); visc. 260 cps; HLB 12.0; hyd. no. 108; pour pt. -26 C; cloud pt. 23 C (1% DI water); 100% conc.; nonionic

*Environmental:* Biodeg.

**Surfonic® OP-100** [Huntsman]

*Chem. Descrip.:* Octoxynol-10

CAS 9002-93-1

*Uses:* Surfactant, o/w emulsifier used in household and industrial detergents, hot soak tank cleaners, metal cleaners; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings; emulsifier in mfg. of food-contact articles; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §172.710, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Liq.; sol. in water; m.w. 646; sp.gr. 1.065 (20/20 C); visc. 240 cps; HLB 13.6; pour pt. 2 C; cloud pt. 66 C (1% in DI water); Draves wetting 3.6 s (0.1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® OP-120** [Huntsman]

*Chem. Descrip.:* Octoxynol-12

CAS 9002-93-1

*Uses:* O/w emulsifier, solubilizer used in metal cleaning, industrial and household liq. detergents and cleaners, hard surf. cleaners, floor cleaners, detergent sanitizers; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings; emulsifier in mfg. of food-contact articles; rec. for high temp. and high electrolyte applics.

*Regulatory:* FDA 21CFR §172.710, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.1010, 178.3120, 178.3400, 182.99

*Properties:* Liq.; water-sol.; m.w. 734; sp.gr. 1.071 (20/20 C); visc. 330 cps; HLB 14.4; hyd. no. 77; cloud pt. 58 C (1% in 10% NaCl); Draves wetting 5.7 s (0.1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® OPB-167** [Huntsman]

*Chem. Descrip.:* Octoxynol-16 in water

CAS 9002-93-1

*Uses:* Coemulsifier for petrol. oils and solvs.; emulsifier in emulsion polymerization; wetting agent for acid and alkaline household and industrial detergents; surfactant in textiles, pulp/paper processing

*Properties:* Sol. in water; m.w. 910; visc. 470 cps; HLB 15.5; pour pt. 16 C; cloud pt. 67 C (1% in 19% NaCl); nonionic

**Surfonic® OPB-407** [Huntsman]

*Chem. Descrip.:* Octoxynol-40

CAS 9002-93-1

*Uses:* O/w emulsifier and stabilizer for polymers and waxes; dye assistant; textile scouring agent; solubilizer; food pkg. adhesives, coatings, paper, cellophane, polymers; defoamer in food-contact coatings; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 175.300, 176.170, 176.180, 176.200, 177.1200, 177.1210, 178.3120, 178.3400, 182.99

*Properties:* Liq.; water-sol.; m.w. 1966; sp.gr. 1.102 (20/20 C); visc. 490 cps; f.p. 10 C; HLB 17.9; hyd. no. 28; cloud pt. 75 C (1% in 10% NaCl); Draves wetting 367 s (0.1% aq.); 70% act.; nonionic

*Environmental:* Biodeg.

**Surfonic® P-1** [Huntsman]

*Chem. Descrip.:* Alcohol alkoxylate

*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-

- purpose laundry detergents  
*Properties:* Sol. in water; sp.gr. 0.975; visc. 90 cps; f.p. -30 C; cloud pt. 25 C (1% aq.); wetting 16 s (0.1%, in deionized water); nonionic
- Surfonic® P-3** [Huntsman]  
*Chem. Descr.:* Alcohol alkoxylate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Sol. in water; sp.gr. 0.973; visc. 56 cps; f.p. -30 C; cloud pt. 35 C (1% aq.); wetting 7.2 s (0.1%, in deionized water); nonionic
- Surfonic® P-5** [Huntsman]  
*Chem. Descr.:* Alcohol alkoxylate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Sol. in water; sp.gr. 0.985; visc. 85 cps; f.p. -26 C; cloud pt. 45 C (1% aq.); wetting 9.7 s (0.1%, in deionized water); nonionic
- Surfonic® P-6** [Huntsman]  
*Chem. Descr.:* Alcohol alkoxylate  
*Uses:* Surfactant for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, low foaming heavy-duty and all-purpose laundry detergents  
*Properties:* Sol. in water; sp.gr. 1.018; f.p. 4 C; cloud pt. 35 C (10% in 25% butyl diglycol); wetting 12.6 s (0.1%, in deionized water); nonionic
- Surfonic® POA-25R2** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.02; visc. 580 cps; HLB 6.3; f.p. - 5 C; cloud pt. 30 C (1%); nonionic
- Surfonic® POA-L42** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.04; visc. 225-310 cps; HLB 4.2; f.p. - 26 C; cloud pt. 37 C (1%); nonionic
- Surfonic® POA-L44** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.04; visc. 440 cps; HLB 16; pour pt. 16 C; cloud pt. 71 C (10%); nonionic
- Surfonic® POA-L61** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.02; visc. 366 cps; HLB 3; pour pt. - 30 C; cloud pt. 24 C (1%); nonionic
- Surfonic® POA-L62** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.04; visc. 450 cps; HLB 7; pour pt. - 4 C; cloud pt. 32 C (1%); nonionic
- Surfonic® POA-L62LF** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6
- Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.04; visc. 300-650 cps; HLB 6.6; pour pt. - 10 C; cloud pt. 28 C (1%); nonionic
- Surfonic® POA-L64** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.04; visc. 400-800 cps; HLB 15; pour pt. 16 C; cloud pt. 57 C (10%); nonionic
- Surfonic® POA-L81** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Disp. in water; sp.gr. 1.02; visc. 518 cps; HLB 2; pour pt. - 20 C; cloud pt. 20 C (1%); nonionic
- Surfonic® POA-L101** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Insol. in water; sp.gr. 1.02; visc. 800 cps; HLB 1; pour pt. - 23 C; cloud pt. 15 C (1%); nonionic
- Surfonic® POA-LF1** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.01; visc. 366 cps; HLB 3; pour pt. - 25 C; cloud pt. 24 C (1%); nonionic
- Surfonic® POA-LF2** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.04; visc. 320-450 cps; cloud pt. 32 C (1%); nonionic
- Surfonic® POA-LF5** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Sol. in water; sp.gr. 1.01; visc. 108 cps; cloud pt. 25 C (10%); nonionic
- Surfonic® POA-S38** [Huntsman]  
*Chem. Descr.:* EO/PO block copolymer  
CAS 9003-11-6  
*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper  
*Properties:* Solid; sol. in water; cloud pt. 100 C min. (10%); nonionic
- Surfonic® TDA-9** [Huntsman]  
*Chem. Descr.:* Isotrideceth-9  
*Uses:* O/w emulsifier, dispersant, wetting agent, detergent, degreaser for hard surf. cleaners, textile processing; pitch dispersant for pulp/paper processing

*Properties:* Liq.; sol. in water; m.w. 595; HLB 13.3; hyd. no. 94; pour pt. 18 C; cloud pt. 54 C (1% DI water); 100% act.; nonionic

*Environmental:* Biodeg.

*Storage:* Hygroscopic; protect from moisture

**Surfonic® TOFA-5** [Huntsman]

*Chem. Descrip.:* PEG-5 tallate

CAS 61791-00-2

*Uses:* Emulsifier for min. and animal oils, cosmetics, agric.; defoamer in effluent treatment, pulp/paper processes; low foaming additive in detergents, I&I hard surf. cleaners, pulp/paper chems.

*Properties:* M.w. 535; HLB 8.2; hyd. no. 113; sapon. no. 108; pH 7.0; nonionic

**Surfonic® TOFA-6** [Huntsman]

*Chem. Descrip.:* PEG-6 tallate

CAS 61791-00-2

*Uses:* Emulsifier for min. and animal oils, cosmetics, agric.; defoamer in effluent treatment, pulp/paper processes; low foaming additive in detergents, I&I hard surf. cleaners, pulp/paper chems.

*Properties:* M.w. 558; HLB 9.7; sapon. no. 104; nonionic

**Surfonic® TOFA-X10** [Huntsman]

*Chem. Descrip.:* PEG-10 tallate

CAS 61791-00-2

*Uses:* Emulsifier for min. and animal oils, cosmetics, agric.; defoamer in effluent treatment, pulp/paper processes; low foaming additive in detergents, I&I hard surf. cleaners, pulp/paper chems.

*Properties:* M.w. 817; HLB 13.0; sapon. no. 66; nonionic

**Surfonic® TOFA-20** [Huntsman]

*Chem. Descrip.:* PEG-20 tallate

CAS 61791-00-2

*Uses:* Emulsifier for min. and animal oils, cosmetics, agric.; defoamer in effluent treatment, pulp/paper processes; low foaming additive in detergents, I&I hard surf. cleaners, pulp/paper chems.

*Properties:* M.w. 1415; HLB 14.8; sapon. no. 48; nonionic

**Surfynol® 61** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* 3,5-Dimethyl 1-hexyn-3-ol

CAS 107-54-0; EINECS/ELINCS 203-500-9

*Uses:* Surfactant, wetting agent used for paper coatings, inks, floor polishes, and glass cleaning formulations; cleaner in silicon wafer industry

*Properties:* Colorless clear liq., camphoric odor; misc. with acetone, benzene, CCl<sub>4</sub>, diethylene glycol, ethanol, ethyl acetate, kerosene, MEK, min. oil, min. spirits, petrol. ether, Stod., naphtha; sp.gr. 0.8545; dens. 7.2 lb/gal; f.p. -68 C; b.p. 151 C; HLB 6-7; flash pt. (TOC) 135 F; ref. index 1.4353; surf. tens. 56.4 (0.1% aq.); Draves wetting < 300 s (0.1%); 100% act.; nonionic

**Surfynol® 104A** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* Tetramethyl decylenediol and 2-ethyl hexanol

*Uses:* Defoamer, wetting agent for PVC prod., emulsion polymerization, pesticides, coatings, dyestuffs, paper coatings, aq. systems; lubricant for metalworking formulations

*Regulatory:* EPA approved

*Properties:* Lt. yel. liq.; sp.gr. 0.869; dens. 7.2 lb/gal; HLB 4.0; m.p. < 0 C; surf. tens. 33.0 (0.1% aq.); 50% conc.; nonionic

**Surfynol® 104BC** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* Tetramethyl decylenediol in 2-butoxy ethanol

*Uses:* Wetting agent, defoamer in aq. systems, e.g., coatings, adhesives, inks, cements, metalworking fluids, latex dipping and paper coatings

*Properties:* Lt. yel. mobile liq., menthol odor; sol. < 1% in water; sp.gr. 0.903; dens. 7.6 lb/gal; vapor pressure 11 mm Hg; HLB 4.0; m.p. < -40 C; b.p. 111 C (100 mm); flash pt. (Seta CC) 76 C; 50% conc.; nonionic

*Toxicology:* LD50 (oral, rat) 1400 mg/kg, (dermal, rabbit) > 10,000 mg/kg; severe eye irritant; mod. skin irritant; mod. respiratory tract irritant; absorp. thru skin may cause headache, nausea; TSCA listed

*Precaution:* Combustible; ignition will cause class B fire; incompat. with oxidizing agents, dehydrating agents, alkalis

*Hazardous Decomp. Prods.:* Flamm. HC fragments, CO, CO<sub>2</sub>, irritating and toxic fumes at elevated temps.

*Storage:* Store in cool, dry, ventilated area in closed containers; keep away from oxidizers, heat, flame

**Surfynol® 104DPM** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* 50% Surfynol 104 in dipropylene glycol monomethyl ether

*Uses:* Wetting agent and defoamer for coatings (acrylic, alkyd, epoxy, SBR, PU, PVAc), inks, adhesives, paper coatings, overprint varnishes, fountain

sol'ns., pigments, dye milling, agric., foundry, hard-surf. cleaners, emulsion polymerization; exc. dynamic wetting and foam control

*Regulatory:* DOT nonregulated; SARA §313 nonreportable; SARA §312 hazard

*Properties:* Lt. yel. liq., menthol odor; sol. 0.2% in water; sp.gr. 0.928, dens. 7.8 lb/gal, m.p. -5 C; b.p. 212 C; HLB 4; flash pt. (CC) 89 C; 75% act.

*Toxicology:* LD50 (oral, rat) > 1860 mg/kg, (skin, rabbit) > 2000 mg/kg; severe eye irritant; mild skin irritant; TSCA listed

*Precaution:* Combustible; keep away from oxidizers, heat, flames, sparks; incompat. with reactive metals, hypochlorite, dehydrators; reaction with peroxides may result in violent decomp. of peroxide, possibly explosion

*Hazardous Decomp. Prods.:* May generate CO, CO<sub>2</sub>, flamm. hydrocarbon fragments, aldehydes, ketones upon burning

HMS: Health 2; Flammability 2; Reactivity 0

*Storage:* Store in cool, dry area in closed containers

**Surfynol® 104E** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* 50% Surfynol 104 (tetramethyl decylenediol); 50% ethylene glycol

*Uses:* Wetting agent, defoamer, dispersant, visc. stabilizer for emulsion polymerization, PVC prod., coatings, latex dipping, paper coatings, foundry, adhesives, dyes, pigments, oil field, hard surf. cleaners, metalworking fluids, textiles, cement, electroplating

*Regulatory:* EPA approved

*Properties:* Lt. yel. clear liq., sol. 0.2% in water; sp.gr. 0.999, dens. 8.3 lb/gal, m.p. < 0 C; HLB 4; surf. tens. 36.2 (0.1% aq.); 50% conc.; nonionic

**Surfynol® 104H** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* Tetramethyl decylenediol in ethylene glycol

*Uses:* Wetting agent, defoamer in aq. systems, e.g., coatings, adhesives, inks, cements, metalworking fluids, latex dipping and paper coatings

*Properties:* Lt. yel. clear liq.; sp.gr. 0.951; dens. 7.9 lb/gal; HLB 4.0; m.p. 10 C; surf. tens. 33.8 (0.1% aq.); 75% conc.; nonionic

**Surfynol® 104NP** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* 50% Surfynol 104 (tetramethyl decylenediol) in n-propyl alcohol

*Uses:* Surfactant, wetting agent, dispersant, visc. stabilizer, and defoamer for aq. systems incl. coatings, printing inks, wood finishes, overprint varnishes, fountain sol'ns., pressure-sensitive adhesives, paper coatings, agric., metalworking fluids, cement

*Properties:* Lt. yel. liq.; sp.gr. 0.856; dens. 7.1 lb/gal; m.p. -20 C; HLB 4.0; 50% act.; nonionic

**Surfynol® 104PA** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* Tetramethyl decylenediol in IPA

*Uses:* Wetting agent, defoamer in aq. systems, e.g., coatings, adhesives, inks, cements, metalworking fluids, latex dipping, paper coatings, emulsion polymerization, PVC prod.

*Properties:* Lt. yel. liq.; sp.gr. 0.839 (25 C); dens. 8.1 lb/gal; HLB 4.0; m.p. -16 C; 50% conc.; nonionic

**Surfynol® 104PG-50** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* 50% Surfynol 104 (tetramethyl decylenediol); 50% propylene glycol

*Uses:* Wetting agent, defoamer for coatings, paper coatings, aq. inks, overprint varnishes, fountain sol'ns., adhesives, pigments, dye milling, agric., foundry, hard-surf. cleaners, emulsion polymerization, electroplating

*Properties:* Lt. yel. liq., sol. 0.2% in water; sp.gr. 0.971, dens. 8.1 lb/gal, m.p. -16 C, HLB 4; 50% conc.; nonionic

**Surfynol® 420** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* PEG-1.3 tetramethyl decylenediol

*Uses:* Wetting agent, defoamer, dispersant for aq. coatings, inks, adhesives, agric., electroplating, oil field chems., paper coatings; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.200

*Properties:* Straw-colored liq.; sol. in CCl<sub>4</sub>, xylene, ethylene glycol, min. oil; sl. sol. in dist. water; sp.gr. 0.943; visc. < 250 cps; HLB 4.0; pour pt. -13 F; pH 6-8 (1% aq.); surf. tens. 32 dynes/cm (0.1%); nonionic

**Surfynol® 440** [Air Prods./Perf. Chem.s.]

*Chem. Descrip.:* PEG-3.5 tetramethyl decylenediol

CAS 9014-85-1

*Uses:* Defoamer, rewetting agent, and leveling agent for paperboard coatings, agric., water-based industrial finishes; metal cleaning and plating bath additive; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.200; EPA compliance

*Properties:* Straw clear liq.; sol. in CCl<sub>4</sub>, xylene, ethylene glycol, min. oil; sl. sol. in dist. water; sp.gr. 0.982; HLB 8.0; pour pt. -55 F; pH 6-8 (1% aq.); surf. tens. 33.2 dynes/cm (0.1% aq.); 100% conc.; nonionic

**Surfynol® 465** [Air Prods./Perf. Chems.]

*Chem. Descr.:* PEG-10 tetramethyl decynediol  
CAS 9014-85-1

*Uses:* Wetting agent, defoamer for aq. coatings, inks, adhesives; surfactant for emulsion polymerization; electroplating additive; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1210, EPA compliance

*Properties:* Straw clear liq.; sol. in water, CCl<sub>4</sub>, xylene, ethylene glycol, min. oil; sp.gr. 1.038; visc. < 200 cps; HLB 13.0; pour pt. 44 F; cloud pt. 63 C (5%); pH 6-8 (1% aq.); surf. tens. 33.2 (0.1% aq.); 100% conc.; nonionic

**Surfynol® 485** [Air Prods./Perf. Chems.]

*Chem. Descr.:* PEG-30 tetramethyl decynediol  
CAS 9014-85-1

*Uses:* Wetting agent, defoamer for aq. coatings, inks, adhesives, agric., electroplating, oil field chems., paper coatings, emulsion polymerization; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 177.1210, EPA compliance

*Properties:* Straw clear liq.; sol. in water, CCl<sub>4</sub>, xylene, ethylene glycol, min. oil; sp.gr. 1.080; visc. < 350 cps; HLB 17.0; pour pt. 85 F; cloud pt. > 100 C (5%); pH 6-8 (1% aq.); surf. tens. 40.1 (0.1% aq.); 100% conc.; nonionic

**Surfynol® 502** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Nonsilicone acetylenic diol-based surfactant

*Uses:* Defoamer, flow control agent, leveling agent for coatings (acrylic, alkyd, epoxy, SBR, PU, PVAc), paper coatings, aq. inks, overprint varnishes, fountain sol'ns., dye milling, adhesives, latex dipping, foundry, hard-surf. cleaners; in adhesives for food pkg.; provides exc. defect-free coverage over difficult-to-wet substrates in aq. systems; used over plastics, metals, wood, previously coated materials, inks

*Regulatory:* FDA 21CFR §175.105

*Properties:* Straw-colored clear liq.; sol. 0.15% in water; sp.gr. 0.9436; visc. 170 cps; f.p. 32 F; pour pt. 77 F; cloud pt. none; pH 6.6; surf. tens. 35.2 dynes/cm (dynamic, 0.1% aq.); 78% act.

*Toxicology:* TSCA listed

**Surfynol® 504** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Nonsilicone, solvent-free acetylenic diol-based

*Uses:* Wetting agent for coatings (acrylic, alkyd, epoxy, SBR, PU, PVAc), paper coatings, aq. inks, overprint varnishes, adhesives; food pkg. adhesives, coatings, paper; provides exc. defect-free coverage over difficult-to-wet substrates (plastics, metal, wood, previously coated materials) in aq. systems

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180

*Properties:* Straw-colored clear liq.; sol. 0.55 % in water; sp.gr. 1.0514; visc. 260 cps; f.p. 5 F; pour pt. 32 F; cloud pt. none; pH 6.9; surf. tens. 31.4 dynes/cm (0.1% aq.); 80% act.

**Surfynol® DF-37** [Air Prods./Perf. Chems.; Air Prods. Nederland BV]

*Chem. Descr.:* Silicone-free org. acetylenic-based defoamer

*Uses:* Dewebbing agent; defoamer, wetting agent for latex gloves, aq. coating dipping processes, paper coatings, and other aq. systems (inks, adhesives, coatings, agric., cement, metalworking fluids); food pkg. adhesives, coatings, paper, rubber articles; minimizes web formation

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.2600

*Properties:* Translucent pale yel. liq.; emulsifiable in water; sp.gr. 0.941; b.p. > 380 F; flash pt. > 280 F; 100% act.

**Surfynol® DF-70** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Organic defoamer

*Uses:* Defoamer for aq. systems, printing inks, coatings, paper coatings, adhesives, esp. acrylic and styrene-acrylic formulations; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210

*Properties:* Pale tan opaque liq.; disp. in water; sp.gr. 0.90; visc. 800 cps; b.p. 106 C; flash pt. (Seta) > 229 F; pH 6.9 (5% disp.); 100% act.

**Surfynol® DF-75** [Air Prods./Perf. Chems.; Air Prods. Nederland BV]

*Chem. Descr.:* Silicone-free organic-based defoamer

*Uses:* Defoamer for aq. systems, e.g., inks, adhesives, coatings, overprint varnishes, paper coatings, acrylic systems; defoamer in food-contact coatings, paper/paperboard; food pkg. adhesives, coatings; minimal contribution to VOC emissions

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.200, 176.210

*Properties:* Amber opaque liq.; disp. in water; sp.gr. 0.99; b.p. 240 F; flash pt. > 400 F; pH 8.0 (5% disp.); 100% act.

**Surfynol® DF-110D** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Higher m.w. acetylenic glycol in dipropylene glycol

*Uses:* Defoamer, de-air entrainment aid for aq. coatings, inks, adhesives, and highly pigmented systems (concrete, paper coatings, grouts, ceramics), PVC prod., emulsion polymerization

*Properties:* Liq.; HLB 3.0; nonionic

**Surfynol® DF-110L** [Air Prods./Perf. Chems.; Air Prods. Nederland BV]

*Chem. Descr.:* Higher m.w. acetylenic glycol in mixed glycols

*Uses:* Defoamer, de-air entrainment aid for aq. coatings, inks, adhesives, and highly pigmented systems (concrete, paper coatings, grouts, ceramics), PVC prod., emulsion polymerization

*Properties:* Liq.; HLB 3.0; nonionic

**Surfynol® DF-695** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Silicone emulsion

*Uses:* Defoamer for water-based coatings (acrylic, alkyd, epoxy, SBR, PU, PVAc) and inks, esp. useful in acrylic-resinated systems; food pkg. adhesives, coatings; defoamer in food-contact coatings; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200

*Properties:* Milky liq.; emulsifiable in water; sp.gr. 1.04; visc. 9000 cps; pH 7.3; 0.3% VOC

**Surfynol® PC** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Acetylenic glycol

CAS 126-86-3; EINECS/ELINCS 204-809-1

*Uses:* Defoamer in paper coating and adhesive latexes; antishock agent for paper coatings

*Properties:* Lt. yel. clear mobile liq.; sp.gr. 0.985; dens. 8.0 lb/gal; pour pt. 15 F; cloud pt. 47 F; 100% conc.; nonionic

**Surfynol® PG-50** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Tetramethyl decynediol in propylene glycol

*Uses:* Wetting agent and defoamer in water-based systems, e.g., coatings, adhesives, inks, cements, metalworking fluids, latex dipping and paper coatings

*Properties:* 50% conc.; nonionic

**Surfynol® PSA-336** [Air Prods./Perf. Chems.]

*Uses:* Surfactant for use in waterborne pressure-sensitive and laminating adhesives; powerful wetting agent providing exc. wetting of low-visc. adhesives over difficult-to-wet surfs. like films and silicone release liners; food pkg. adhesives, coatings, paper; solvent-free; low foaming tendencies

*Use Level:* 0.3-1%

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180

**Surfynol® SE** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Derived from Surfynol 104 (tetramethyl decynediol)

*Uses:* Wetting agent, foam control agent in pressure-sensitive adhesives, aq. lubricants, water-based paints, inks, dye processing, agric. formulations, and paper coatings

*Regulatory:* EPA approved

*Properties:* Lt. yel. liq.; misc. @ 50% in acetone, xylene, kerosene, perchloroethylene, IPA, butyl Cellosolve, propylene glycol; sp.gr. 0.94; dens. 7.8 lb/gal; visc. 160 cps; HLB 4-5; surf. tens. 32 dynes/cm (0.1%); Draves wetting 17 s (0.1%); nonionic

**Surfynol® SE-F** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Surfactant blend

*Uses:* Wetting agent, foam control agent for aq. pressure-sensitive adhesives, aq. lubricants, paints, paper coatings, dye processing, and aq. inks; defoamer in food-contact coatings; food pkg. adhesives, coatings, paper

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.200

*Properties:* Liq.; HLB 4-5; nonionic

**Surfynol® SM-740** [Air Prods./Perf. Chems.]

*Chem. Descr.:* Polyether-modified silicone prod.

*Uses:* Surfactant, slip agent, mar resist. aid, lubricant, scratch resist. aid for coating and ink films for waterborne or solvent-borne formulations incl. wood and container coatings (acrylic, alkyd, epoxy, SBR, PU, PVAc), overprint varnishes and flexible pkg. inks; food pkg. adhesives, coatings, paper

*Use Level:* 0.25-1%



*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180

*Properties:* Clear visc. liq., mild pleasant odor; completely sol. in water; sp.gr. 0.982; dens. 8.7 lb/gal (70 F); visc. < 200 cps; vapor pressure 9.3 mm Hg; b.p. 93 C; flash pt. (Seta) > 230 F; < 1% VOC; 100% act.

*Toxicology:* Mod. eye and respiratory tract irritant; absorp. thru skin may cause nausea, headache; ing. may cause headache, nausea, vomiting; TSCA listed

*Precaution:* Combustible; ignition will cause class B fire; incompat. with oxidizing agents

*Hazardous Decomp. Prods.:* CO, SiO<sub>2</sub>, irritating and toxic fumes at elevated temps.

*Storage:* Store in cool, dry, ventilated area in closed containers away from heat, flames, ignition sources

#### Surfynol® SM-745 [Air Prods./Perf. Chems.]

*Chem. Descrip.:* Polyether-modified silicone prod. in n-butyl alcohol

*Uses:* Slip agent, mar resist. aid, lubricant, and scratch resist. aid for coating and ink films for waterborne or solvent-borne formulations incl. wood and container coatings (acrylic, alkyd, epoxy, SBR, PU, PVAc), overprint varnishes and flexible pkg. inks; food pkg. adhesives, coatings, paper

*Use Level:* 0.25-1%

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180

*Properties:* Lt. tan clear visc. liq., butyl alcohol odor; sl. sol. in water; sp.gr. 0.9; dens. 7.6 lb/gal; visc. 50 cps; b.p. 117 C; flash pt. (Seta) 102 F; 50% VOC; 50% act.

*Toxicology:* Mod. eye and respiratory tract irritant; inh. of vapors may cause coughing and chest pain; ing. may cause headache, nausea, vomiting; TSCA listed

*Precaution:* Combustible; ignition will cause class B fire; incompat. with oxidizing agents

*Hazardous Decomp. Prods.:* CO, SiO<sub>2</sub>, irritating and toxic fumes at elevated temps.

*Storage:* Store in cool, dry, ventilated area in closed containers away from oxidizers, heat, flame, ignition sources

#### Surfynol® TG [Air Prods./Perf. Chems.]

*Chem. Descrip.:* Tetramethyl decynediol and ethylene glycol

*Uses:* Pigment and substrate wetting agent/grinding agent used in latex and water-reducible paints, adhesives, paper coatings, and pigmented aq. systems

*Properties:* Lt. yel. clear liq.; sp.gr. 1.000; HLB 9-10; surf. tens. 27.6 (0.1% aq.); 83% conc.; nonionic

#### Surmax® CS-504 [Chemax]

*Chem. Descrip.:* Surfactant

*Uses:* Surfactant for formulating detergent concs.; mod. foaming agent, wetting agent, detergent for metalworking formulas, paint strippers, tire cleaners, transportation cleaners, dairy and food plant cleaners, paper felt washing, sanitizers, wax strippers; alkaline-stable

*Properties:* Clear amber to brn. liq.; mild odor; sol. in min. acids; sp.gr. 1.19; visc. 1390 cps; pour pt. < 15 F; cloud pt. > 100 C (1% aq.); flash pt. (COC) > 100 C; pH 7 (5% aq.); surf. tens. 38 dynes/cm (0.05% aq.); 80% active in water; modified anionic

*Toxicology:* Nontoxic; moderate to severe eye and skin irritant; LD50 (oral) > 5 g/kg; LD50 (dermal) > 2 g/kg

*Environmental:* Biodeg.

#### Surmax® CS-515 [Chemax]

*Chem. Descrip.:* Surfactant

*Uses:* Surfactant for formulating detergent concs.; mod. foaming agent, wetting agent, detergent for metalworking formulas, paint strippers, tire cleaners, transportation cleaners, dairy and food plant cleaners, paper felt washing, sanitizers, wax strippers; alkaline-stable

*Properties:* Clear amber to brn. liq.; mild odor; sol. in min. acids; sp.gr. 1.20; visc. 1490 cps; pour pt. < 15 F; cloud pt. > 100 C (1% aq.); flash pt. (COC) > 100 C; pH 7 (5% aq.); surf. tens. 40 dynes/cm (0.05% aq.); 80% active in water; modified anionic

*Toxicology:* Nontoxic; moderate to severe eye and skin irritant; LD50 (oral) > 5 g/kg; LD50 (dermal) > 2 g/kg

*Environmental:* Biodeg.

#### Surmax® CS-521 [Chemax]

*Chem. Descrip.:* Surfactant

*Uses:* Surfactant for formulating detergent concs.; wetting agent, detergent for metalworking formulas, paint strippers, tire cleaners, transportation cleaners, dairy and food plant cleaners, paper felt washing, sanitizers, wax strippers; alkaline-stable; low foaming

*Properties:* Clear amber to brn. liq.; mild odor; sol. in min. acids; sp.gr. 1.17; visc. 1280 cps; pour pt. < 15 F; cloud pt. > 100 C (1% aq.); flash pt. (COC) > 100 C; pH 7 (5% aq.); surf. tens. 57 dynes/cm (0.05% aq.); 80% active in water; modified anionic

*Toxicology:* Nontoxic; moderate to severe eye and skin irritant; LD50 (oral) > 5 g/kg; LD50 (dermal) > 2 g/kg

*Environmental:* Biodeg.

#### Surmax® CS-522 [Chemax]

*Chem. Descrip.:* Surfactant

*Uses:* Surfactant for formulating detergent concs.; wetting agent, detergent for metalworking formulas, paint strippers, tire cleaners, transportation cleaners, dairy and food plant cleaners, paper felt washing, sanitizers, wax strippers; alkaline-stable; low foaming

*Properties:* Clear amber to brn. liq.; mild odor; sol. in min. acids; sp.gr. 1.18; visc. 1550 cps; pour pt. < 15 F; cloud pt. > 100 C (1% aq.); flash pt. (COC) > 100 C; pH 7 (5% aq.); surf. tens. 51 dynes/cm (0.05% aq.); 80% active in water; modified anionic

*Toxicology:* Nontoxic; moderate to severe eye and skin irritant; LD50 (oral) > 5 g/kg; LD50 (dermal) > 2 g/kg

*Environmental:* Biodeg.

#### Surmax® CS-555 [Chemax]

*Chem. Descrip.:* Surfactant

*Uses:* Surfactant for formulating detergent concs.; wetting agent, detergent for metalworking formulas, paint strippers, tire cleaners, transportation cleaners, dairy and food plant cleaners, paper felt washing, sanitizers, wax strippers; alkaline-stable

*Properties:* Liq.; 60% act.; modified anionic

*Environmental:* Biodeg.

#### Surmax® CS-586 [Chemax]

*Chem. Descrip.:* Surfactant

*Uses:* Surfactant for formulating detergent concs.; wetting agent, detergent for metalworking formulas, paint strippers, tire cleaners, transportation cleaners, dairy and food plant cleaners, paper felt washing, sanitizers, wax strippers; alkaline-stable

*Properties:* Liq.; 80% act.; modified anionic

*Environmental:* Biodeg.

#### Suspengel 200 [Cimbar Perf. Mins.]

*Chem. Descrip.:* Montmorillonite

*Chem. Analysis:* SiO<sub>2</sub> (63.6%), Al<sub>2</sub>O<sub>3</sub> (21.4%), Fe<sub>2</sub>O<sub>3</sub> (3.8%), Na<sub>2</sub>O (2.7%), MgO (2%)

CAS 1318-93-0; EINECS/ELINCS 215-288-5

*Uses:* Filler used in coatings, adhesives, caulks, sealants, ceramics, pesticides, fertilizers, fungicides, foundry/refractory, water and waste treatment, pond/lake sealing, paper industry

*Properties:* 80% thru 200 mesh (dry); sp.gr. 2.5; bulk dens. 72 (compacted); apparent visc. 9.5 cps; surf. area 20 m<sup>2</sup>/g; oil absorp. 38 lb/100lb; pH (6%) 9

#### Suspengel 325 [Cimbar Perf. Mins.]

*Chem. Descrip.:* Montmorillonite

*Chem. Analysis:* SiO<sub>2</sub> (63.6%), Al<sub>2</sub>O<sub>3</sub> (21.4%), Fe<sub>2</sub>O<sub>3</sub> (3.8%), Na<sub>2</sub>O (2.7%), MgO (2%)

CAS 1318-93-0; EINECS/ELINCS 215-288-5

*Uses:* Filler used in coatings, adhesives, caulks, sealants, ceramics, pesticides, fertilizers, fungicides, foundry/refractory, water and waste treatment, pond/lake sealing, paper industry

*Properties:* 98% thru 325 mesh (dry); sp.gr. 2.5; bulk dens. 60 (compacted); apparent visc. 12.5 cps; surf. area 20 m<sup>2</sup>/g; oil absorp. 41 lb/100lb; pH (6%) 9

#### Suspengel Plus 200 [Cimbar Perf. Mins.]

*Chem. Descrip.:* Montmorillonite

*Chem. Analysis:* SiO<sub>2</sub> (63.3%), Al<sub>2</sub>O<sub>3</sub> (21.4%), Fe<sub>2</sub>O<sub>3</sub> (3.8%), Na<sub>2</sub>O (2.5%), MgO (2.3%)

CAS 1318-93-0; EINECS/ELINCS 215-288-5

*Uses:* Filler used in coatings, adhesives, caulks, sealants, ceramics, pesticides, fertilizers, fungicides, foundry/refractory, water and waste treatment, pond/lake sealing, paper industry

*Properties:* 80% thru 200 mesh (dry); sp.gr. 2.5; bulk dens. 72 (compacted); apparent visc. 18 cps; surf. area 20 m<sup>2</sup>/g; absorp. 20 m<sup>2</sup>/g; oil absorp. 34 lb/100lb; pH (6%) 9

#### Suspengel Plus 325 [Cimbar Perf. Mins.]

*Chem. Descrip.:* Montmorillonite

*Chem. Analysis:* SiO<sub>2</sub> (63.3%), Al<sub>2</sub>O<sub>3</sub> (21.4%), Fe<sub>2</sub>O<sub>3</sub> (3.8%), Na<sub>2</sub>O (2.5%),

- MgO (2.3%)  
 CAS 1318-93-0; EINECS/ELINCS 215-288-5  
*Uses:* Filler used in coatings, adhesives, caulks, sealants, ceramics, pesticides, fertilizers, fungicides, foundry/refractory, water and waste treatment, pond/lake sealing, paper industry  
*Properties:* 98% thru 325 mesh (dry); sp.gr. 2.5; bulk dens. 61 (compacted); apparent visc. 20 cps; surf. area 20 m<sup>2</sup>/g; absorp. 20 m<sup>2</sup>/g; oil absorp. 37 lb/100lb; pH (6%) 9
- Suwax** [Sood Paper & Allied Chems.]  
*Chem. Descrip.:* Modified wax emulsion  
*Uses:* Paper aux. for controlling rosin consumption in sizing of paper and boards; added at hydropulper or mixing chest prior to addition of rosin; imparts better finish, gloss, and printing qualities; good stability to acids  
*Properties:* PH 5.5-6.5; 16 ± 1% solids; nonionic  
*Storage:* 6 mos shelf life
- SWS-101 Dimethyl Fluids** [Wacker Silicones]  
*Chem. Descrip.:* Dimethylpolysiloxane terminated with nonreactive trimethylsilyloxy groups  
 CAS 9006-65-9  
*Uses:* For dielec. coolants, brake fluids, lubricants, auto care prods., release, heat transfer, aerosols, damping media, household prods., antifoam agents, cosmetics, shock absorbers; lubricant, antitackifier, emollient, and water barrier for skin care prods.; food pkg. adhesives; defoamer in food-contact coatings, paper/paperboard; features inertness, heat and oxidative stability, exc. elec. props.  
*Regulatory:* FDA 21CFR §173.340, 175.105, 176.200, 176.210; EPA 40CFR §181.1001(c)(d)  
*Properties:* Colorless clear liq.; misc. with nonpolar liqs. (hydrocarbons, chlorinated hydrocarbons, ethers); range of visc.; ref. index 1.35-1.41; dielec. str. 350 V/mil; dielec. const. 2.7 (100 cycles); vol. resist. 1 x 10<sup>14</sup> ohm-cm (500 V)
- Sylophobic** [Fuji Silysia]  
*Chem. Descrip.:* Syn. amorphous silica treated to be hydrophobic on surface; based on Sylysia grades  
 CAS 112926-00-8; EINECS/ELINCS 231-545-4  
*Uses:* Improves water, weather, and chem. resist. in paints; antiblocking agent in plastics; improves adhesion and water resist. in adhesives; anti-bleeding agent, thickener for inks and papers for printing; also for cosmetics
- Sylvaros® R** [Arizona]  
*Chem. Descrip.:* Polymerized rosin  
*Uses:* Tackifier for pressure-sensitive adhesives, construction adhesives, pick-up gums for labeling; adhesion promoter for difficult-to-bond substrates; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870  
*Properties:* Gardner 8 color; soften. pt. (R&B) 77 C; acid no. 157
- Sylvatic® 5N** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210; only as reactant in oil-based or fatty acid-based alkyd resins  
*Properties:* Gardner 10 max. liq.; acid no. 60-66
- Sylvatic® 40N** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings, paper; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210  
*Properties:* Gardner 7+ max. color; soften. pt. (R&B) 42 C; acid no. 3-11
- Sylvatic® 80N** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870  
*Properties:* Gardner 7 max. color; soften. pt. (R&B) 81 C; acid no. 3-11
- Sylvatic® 100NS** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings, paper; de-
- foamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210  
*Properties:* Gardner 9 max. color; soften. pt. (R&B) 100 C; acid no. 5-13
- Sylvatic® 105NS** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings, paper; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210  
*Properties:* Gardner 8 max. color; soften. pt. (R&B) 105 C; acid no. 5-13
- Sylvatic® 295** [Arizona]  
*Chem. Descrip.:* Polymerized rosin  
*Uses:* Tackifier for pressure-sensitive adhesives, construction adhesives, pick-up gums for labeling; adhesion promoter for difficult-to-bond substrates; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870  
*Properties:* Gardner 7 color; visc. 9000-13,000 cps (250 F); soften. pt. (R&B) 97 C; acid no. 158-165
- Sylvatic® 1085** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870  
*Properties:* Gardner 5 max. color; soften. pt. (R&B) 85 C; acid no. 3-11
- Sylvatic® 1100** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings, paper; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210  
*Properties:* Gardner 5 max. color; soften. pt. (R&B) 100 C; acid no. 5-13
- Sylvatic® 1103** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings, paper; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210  
*Properties:* Gardner 5 max. color; soften. pt. (R&B) 102 C; acid no. 5-13
- Sylvatic® 2110** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for adhesives; food pkg. adhesives, coatings, paper; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210  
*Properties:* Gardner 5 max. color; soften. pt. (R&B) 108 C; acid no. 9 max.
- Sylvatic® 4083** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for food pkg. adhesives, resinous/polymeric food-contact coatings, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210  
*Properties:* Gardner 4+ color; soften. pt. (R&B) 97 C; acid no. 60
- Sylvatic® 4105** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for food pkg. adhesives, resinous/polymeric food-contact coatings, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210  
*Properties:* Gardner 4+ color; soften. pt. (R&B) 106 C; acid no. 10
- Sylvatic® 4136** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for food pkg. adhesives, resinous/polymeric food-contact coatings, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210  
*Properties:* Gardner 4+ color; soften. pt. (R&B) 85 C; acid no. 9
- Sylvatic® 4203** [Arizona]  
*Chem. Descrip.:* Rosin ester  
*Uses:* Tackifier for food pkg. adhesives, resinous/polymeric food-contact coatings, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210

*Properties:* Gardner 4 color; soften. pt. (R&B) 99 C; acid no. 13

**Sylvatac® 4216** [Arizona]

*Chem. Descrip.:* Rosin ester

*Uses:* Tackifier for food pkg. adhesives, resinous/polymeric food-contact coatings, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210

*Properties:* Gardner 4+ color; soften. pt. (R&B) 102 C; acid no. 9

**Sylvatac® R85** [Arizona]

*Chem. Descrip.:* Polymerized rosin

*Uses:* Tackifier for pressure-sensitive adhesives, construction adhesives, pick-up gums for labeling; adhesion promoter for difficult-to-bond substrates; food pkg. adhesives, pressure-sensitive adhesives, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870

*Properties:* Gardner 6 color; visc. 9440 cps (225 F); soften. pt. (R&B) 84 C; acid no. 155-162

**Sylvatac® RX** [Arizona]

*Chem. Descrip.:* Polymerized rosin

*Uses:* Tackifier for pressure-sensitive adhesives, construction adhesives, pick-up gums for labeling; adhesion promoter for difficult-to-bond substrates; food pkg. adhesives, pressure-sensitive adhesives, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870

*Properties:* Gardner 7- color; soften. pt. (R&B) 74 C; visc. 5150 cps (225 F); acid no. 141-149

**Sylaysia 250** [Fuji Silaysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (lacquers, phenolic, amino-alkyd, vinyl, acrylic, PU, water-based, melamine-alkyd), paper, printing inks; moisture control and anticaking agent in powd. paint; antislip and matting agent in thermal and copy papers; gellant; adhesion thickener; adhesive; polishing

*Properties:* Wh. powd., odorless, tasteless; 2.7 µm avg. particle size; sp.gr. 2.15; surf. area 300 m<sup>2</sup>/g; oil absorp. 310 ml/100 g; brightness 92; ref. index 1.46; pH 3.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

**Sylaysia 250N** [Fuji Silaysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.5%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (lacquer, phenolic, amino-alkyd, vinyl, acrylic, PU, water-based, melamine-alkyd), paper, printing inks; moisture control and anticaking agent in powd. paints; antislip, matting agent in thermal and copy papers; gellant; adhesion thickener; adhesive; catalyst carrier; polishing

*Regulatory:* FDA 21CFR §160.105, 160.182, 172.480; USDA cleared for certain uses in salt and seasonings, curing mixts. for meat/poultry

*Properties:* Wh. free-flowing powd., odorless, tasteless; 2.50-3.50 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; surf. area 300 m<sup>2</sup>/g; oil absorp. 270-350 ml/100 g (linseed oil); brightness 90 min.; ref. index 1.46; pH 6.0-8.0 (5% aq. slurry)

*Toxicology:* Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

*Environmental:* Not known to have any adverse effect on aquatic environment

*Precaution:* Nonflamm.; reacts with HF

HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Keep tightly sealed to protect quality

**Sylaysia 256N** [Fuji Silaysia]

*Chem. Descrip.:* Syn. amorphous silica, surface treated with hydrocarbon-type wax

*Chem. Analysis:* SiO<sub>2</sub> (99.4%)

*Uses:* Flattening agent for paints (amino-alkyd, acrylic, PU, polyester), printing inks; food-contact paper/paperboard

*Regulatory:* FDA 21CFR § 172.230, 176.170

*Properties:* Wh. free-flowing powd., odorless, tasteless; 2.50-3.50 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; brightness 90 min.; ref. index 1.46; pH 6.0-8.3 (5% aq. slurry)

*Toxicology:* Nuisance dust; dust may cause irritation of skin, mucous membranes; silica component: LD50 (oral, rat) > 31,600 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 10 mg/m<sup>3</sup>; not considered an ocular irritant

*Environmental:* Not known to have any adverse effect on aquatic environment

*Precaution:* Reacts with HF; can burn explosively if a cloud of dust is generated and exposed to ignition source

*Storage:* Keep tightly sealed to protect quality

**Sylaysia 310** [Fuji Silaysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.5%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for polyester paints, paper, printing inks; moisture control and anticaking agent in powd. paints, cosmetics, and pharmaceuticals; antislip agent, matting agent in thermal and copy papers; antiblocking agent for plastic films (OPP, PET, PVC, nylon); gellant; thickener; adhesives; catalyst carrier; polishing

*Regulatory:* FDA 21CFR §160.105, 160.182, 172.480; USDA cleared for certain uses in salt and seasonings, curing mixts. for meat/poultry

*Properties:* Wh. free-flowing powd., odorless, tasteless; 1.1-1.5 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; oil absorp. 250-350 ml/100 g (linseed oil); brightness 94 min.; ref. index 1.46; pH 6.8-8.0 (5% aq. slurry)

*Toxicology:* Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

*Environmental:* Not known to have any adverse effect on aquatic environment

*Precaution:* Nonflamm.; reacts with HF

HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Keep tightly sealed to protect quality

**Sylaysia 320** [Fuji Silaysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (lacquers), paper, printing inks; moisture control and anticaking agent in powd. paints, pharmaceuticals, cosmetics; carrier for pharmaceuticals and cosmetics; antislip agent, matting agent for thermal and copy papers; matting, antiblocking agent for plastic films (PET, nylon); adhesives; gellant; catalyst carrier; thickener; polishing

*Properties:* Wh. powd., odorless, tasteless; 2.7 µm avg. particle size; sp.gr. 2.15; surf. area 300 m<sup>2</sup>/g; oil absorp. 310 ml/100 g; brightness 92; ref. index 1.46; pH 3.0 (5% slurry)

*Toxicology:* Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

*Environmental:* Not known to have any adverse effect on aquatic environment

*Precaution:* Nonflamm.; reacts with HF

HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Keep tightly sealed to protect quality

**Sylaysia 350** [Fuji Silaysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.5%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (lacquer, phenolic, amino-alkyd, vinyl, acrylic, PU, water-based, melamine-alkyd), paper, printing inks; moisture control and anticaking agent in powd. paints, cosmetics, and pharmaceuticals; antislip agent, matting agent in thermal and copy papers; gellant; thickener; adhesives; catalyst carrier; polishing

*Regulatory:* FDA 21CFR §160.105, 160.182, 172.480; USDA cleared for certain uses in salt and seasonings, curing mixts. for meat/poultry

*Properties:* Wh. free-flowing powd., odorless, tasteless; 1.7-2.1 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; surf. area 300 m<sup>2</sup>/g; oil absorp. 300-350 ml/100 g (linseed oil); brightness 95 min.; ref.

index 1.46; pH 6.8-8.0 (5% aq. slurry)

**Toxicology:** Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Nonflamm.; reacts with HF

HMS: Health 0; Flammability 0; Reactivity 0

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 430 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica

**Chem. Analysis:** SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

**Uses:** Flattening agent for paints (acrylic, water-based), paper, printing inks; moisture control and anticaking agent in powd. paints, pharmaceuticals, cosmetics; carrier for pharmaceuticals and cosmetics; antislip agent, matting agent for thermal and copy papers; matting agent, antiblocking agent for plastic films (IPP, CP, PET, PE, nylon); adhesives; catalyst carrier

**Properties:** Wh. powd., odorless, tasteless; 2.5 µm avg. particle size; insol. in water; sp.gr. 2.15; surf. area 300 m<sup>2</sup>/g; oil absorp. 220 ml/100 g; brightness 95; ref. index 1.46; pH 7.5 (5% slurry)

**Toxicology:** Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Nonflamm.; reacts with HF

HMS: Health 0; Flammability 0; Reactivity 0

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 435 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica, surf. treated with magnesium silicofluoride

**Chem. Analysis:** SiO<sub>2</sub> (99%), magnesium silicofluoride (3.6%)

**Uses:** Flattening agent for paints (lacquers, amino-alkyd, vinyl, acrylic, polyester, water-based, melamine-alkyd), paper, printing inks; antislip, matting agent in thermal and copy papers; antiblocking agent for OPP

**Properties:** Wh. free-flowing powd., odorless, tasteless; 2.2-2.9 µm avg. particle size; 0.05% max. 45 µ sieve; silica gel is insol. in water, coating is readily sol.; sp.gr. 2.1; oil absorp. 200-250 ml/10 g (linseed oil); brightness 95 min.; ref. index 1.46; pH 2.2-3.0 (5% aq. slurry)

**Toxicology:** LD50 (oral, rat) 7000-8000 mg/kg; dust may cause irritation of skin, mucous membranes; ACGIH TLV 5.8 mg/m<sup>3</sup> (total dust); not a primary skin or ocular irritant; magnesium silicofluoride highly toxic

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Nonflamm.; reacts with HF; silicofluorides decompose at high temps. giving off toxic fumes

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 436 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica, surf. treated with hydrocarbon-type wax

**Chem. Analysis:** SiO<sub>2</sub> (99.4%)

**Uses:** Flattening agent for paints (lacquers, amino-alkyd, vinyl, acrylic, PU, polyester, melamine-alkyd), printing inks; matting agent, antiblocking agent for plastic films (IPP, PE); food-contact paper/paperboard

**Regulatory:** FDA 21CFR § 172.230, 176.170

**Properties:** Wh. free-flowing powd., odorless, tasteless; 2.50-3.50 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; brightness 90 min.; ref. index 1.46; pH 6.0-8.3 (5% aq. slurry)

**Toxicology:** Nuisance dust; dust may cause irritation of skin, mucous membranes; silica component: LD50 (oral, rat) > 31,600 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 10 mg/m<sup>3</sup>; not considered an ocular irritant

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Reacts with HF; can burn explosively if a cloud of dust is generated and exposed to ignition source

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 440 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica

**Chem. Analysis:** SiO<sub>2</sub> (99.5%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

**Uses:** Flattening agent for paints (vinyl, acrylic, PU, water-based, melamine-alkyd), paper, printing inks; moisture control and anticaking agent in powd. paints; antislip agent, matting agent in thermal and copy papers; matting agent, antiblocking agent for plastic films (IPP, CPP, PET, PE, nylon); catalyst carrier

**Properties:** Wh. free-flowing powd., odorless, tasteless; 1.1-1.5 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; surf. area 300 m<sup>2</sup>/g; oil absorp. 250-350 ml/100 g (linseed oil); brightness 94 min.; ref. index 1.46; pH 6.8-8.0 (5% aq. slurry)

**Toxicology:** Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Nonflamm.; reacts with HF

HMS: Health 0; Flammability 0; Reactivity 0

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 445 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica, surf. treated with magnesium silicofluoride

**Chem. Analysis:** SiO<sub>2</sub> (99%), magnesium silicofluoride (3.6%)

**Uses:** Flattening agent for paints (lacquers, amino-alkyd, acrylic, polyester, melamine-alkyd), paper, printing inks; antislip agent, matting agent in thermal and copy papers; antiblocking agent for OPP

**Properties:** Wh. powd., odorless, tasteless; 3.5 µm avg. particle size; silica gel is insol. in water, coating is readily sol.; sp.gr. 2.15; oil absorp. 210 ml/100 g; ref. index 1.46; pH 2.5 (5% slurry)

**Toxicology:** LD50 (oral, rat) 7000-8000 mg/kg; dust may cause irritation of skin, mucous membranes; ACGIH TLV 5.8 mg/m<sup>3</sup> (total dust); not a primary skin or ocular irritant; magnesium silicofluoride highly toxic

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Nonflamm.; reacts with HF; silicofluorides decompose at high temps. giving off toxic fumes

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 450 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica

**Chem. Analysis:** SiO<sub>2</sub> (99.5%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

**Uses:** Flattening agent for paints (vinyl, acrylic, polyester, water-based, melamine-alkyd), paper, printing inks; moisture control and anticaking agent in powd. paints; antislip agent, matting agent in thermal and copy papers; antiblocking agent for plastic films (IPP, CPP, PE, PVC); catalyst carrier

**Properties:** Wh. free-flowing powd., odorless, tasteless; 4.4-6.1 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; surf. area 300 m<sup>2</sup>/g; oil absorp. 170-230 ml/100 g (linseed oil); brightness 93 min.; ref. index 1.46; pH 6.0-8.0 (5% aq. slurry)

**Toxicology:** Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

**Environmental:** Not known to have any adverse effect on aquatic environment

**Precaution:** Nonflamm.; reacts with HF

HMS: Health 0; Flammability 0; Reactivity 0

**Storage:** Keep tightly sealed to protect quality

#### Sylsya 456 [Fuji Silysia]

**Chem. Descrip.:** Syn. amorphous silica, surf. treated with hydrocarbon-type wax

**Chem. Analysis:** SiO<sub>2</sub> (99.4%)

**Uses:** Flattening agent for paints (lacquers, amino-alkyd, vinyl, acrylic, PU, polyester, melamine-alkyd), printing inks; matting agent, antiblocking agent for plastic films (IPP, PE); food-contact paper/paperboard

**Regulatory:** FDA 21CFR § 172.230, 176.170

**Properties:** Wh. free-flowing powd., odorless, tasteless; 4.9-6.2 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; brightness 95 min.; ref. index 1.46; pH 6.0-8.3 (5% aq. slurry)

**Toxicology:** Nuisance dust; dust may cause irritation of skin, mucous membranes; silica component: LD50 (oral, rat) > 31,600 mg/kg (48 h), (dermal,

rabbit) > 2000 mg/kg (48 h); ACGIH TLV 10 mg/m<sup>3</sup>; not considered an ocular irritant

*Environmental:* Not known to have any adverse effect on aquatic environment

*Precaution:* Reacts with HF; can burn explosively if a cloud of dust is generated and exposed to ignition source

*Storage:* Keep tightly sealed to protect quality

#### Sylsia 470 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.5%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for water-based paints; moisture control and anticaking agent in powd. paints; antislip agent, matting agent in thermal and copy papers; antiblocking agent for plastic films (PET, PE); catalyst carrier

*Properties:* Wh. free-flowing powd., odorless, tasteless; 9-16 µm avg. particle size; 0.05% max. 45 µ sieve; insol. in water; sp.gr. 2.1; surf. area 300 m<sup>2</sup>/g; oil absorp. 170-220 ml/100 g (linseed oil); brightness 92 min.; ref. index 1.46; pH 6.0-8.0 (5% aq. slurry)

*Toxicology:* Dust may cause irritation of skin, mucous membranes; LD50 (oral, rat) > 31,000 mg/kg (48 h), (dermal, rabbit) > 2000 mg/kg (48 h); ACGIH TLV 6 mg/m<sup>3</sup> (total dust); very low oral toxicity; not considered an ocular irritant

*Environmental:* Not known to have any adverse effect on aquatic environment

*Precaution:* Nonflamm.; reacts with HF

HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Keep tightly sealed to protect quality

#### Sylsia 530 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (vinyl, acrylic); moisture control and anticaking agent in powd. paints, pharmaceuticals, cosmetics; carrier for pharmaceuticals, cosmetics; antislip agent, matting agent for thermal and copy papers; adhesives; matting agent, antiblocking agent for plastic films (IPP, CPP, OPP, PET, PE); anticaking agent for resins

*Properties:* Wh. powd., odorless, tasteless; 1.9 µm avg. particle size; sp.gr. 2.15; surf. area 500 m<sup>2</sup>/g; oil absorp. 170 ml/100 g; brightness 92; ref. index 1.46; pH 7.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

#### Sylsia 540 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (vinyl, acrylic); moisture control and anticaking agent in powd. paints, pharmaceuticals, cosmetics; carrier for pharmaceuticals, cosmetics; antislip agent, matting agent for thermal and copy papers; adhesives; matting agent, antiblocking agent for plastic films (IPP, CPP, OPP, PET, PE); anticaking agent for resins

*Properties:* Wh. powd., odorless, tasteless; 2.3 µm avg. particle size; sp.gr. 2.15; surf. area 500 m<sup>2</sup>/g; oil absorp. 160 ml/100 g; brightness 92; ref. index 1.46; pH 7.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

#### Sylsia 550 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Flattening agent for paints (vinyl, acrylic); moisture control and anticaking agent in powd. paints, pharmaceuticals, cosmetics; carrier for pharmaceuticals, cosmetics; antislip agent, matting agent for thermal and copy papers; adhesives; matting agent, antiblocking agent for plastic films (IPP, CPP, OPP, PET, PE); anticaking agent for resins

*Properties:* Wh. powd., odorless, tasteless; 2.7 µm avg. particle size; sp.gr. 2.15; surf. area 500 m<sup>2</sup>/g; oil absorp. 160 ml/100 g; brightness 92; ref. index 1.46; pH 7.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

#### Sylsia 730 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Moisture control and anticaking agent in pharmaceuticals, cosmetics; antislip agent, matting agent for thermal and copy papers; antiblocking agent

for plastic films (IPP, CPP, OPP, PET, PE, nylon); anticaking agent for resins

*Properties:* Wh. powd., odorless, tasteless; 3.0 µm avg. particle size; sp.gr. 2.15; surf. area 700 m<sup>2</sup>/g; oil absorp. 95 ml/100 g; brightness 95; ref. index 1.46; pH 4.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

#### Sylsia 740 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Moisture control and anticaking agent in pharmaceuticals, cosmetics; carrier for pharmaceuticals, cosmetics; antislip agent, matting agent for thermal and copy papers; polishing applics.; antiblocking agent for plastic films (IPP, CPP, PET, PE, nylon); anticaking agent for resins

*Properties:* Wh. powd., odorless, tasteless; 3.5 µm avg. particle size; sp.gr. 2.15; surf. area 700 m<sup>2</sup>/g; oil absorp. 95 ml/100 g; brightness 95; ref. index 1.46; pH 4.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

#### Sylsia 770 [Fuji Silysia]

*Chem. Descrip.:* Syn. amorphous silica

*Chem. Analysis:* SiO<sub>2</sub> (99.7%)

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Uses:* Antislip agent, matting agent for thermal and copy papers; polishing applics.; antiblocking agent for plastic films (IPP, CPP, PET, PE, nylon); anticaking agent for resins; moisture removal

*Properties:* Wh. powd., odorless, tasteless; 6.0 µm avg. particle size; sp.gr. 2.15; surf. area 700 m<sup>2</sup>/g; oil absorp. 95 ml/100 g; brightness 95; ref. index 1.46; pH 4.0 (5% slurry)

*Precaution:* Dissolves in HF and strong bases

#### Syncol® [BK Giulini Chemie]

*Chem. Descrip.:* Nitrogen-contg. polymers and adducts of polyethylene oxide

*Uses:* Adhesive for flying reel change in paper mfg. and printing

#### Synox HB-1094 [Hoover Color]

*Chem. Descrip.:* Syn. black iron oxide

CAS 1317-61-9; EINECS/ELINCS 215-277-5

*Uses:* Pigment for coatings, paper, inks, building and concrete prods.

*Properties:* Blk. color; 0.02% on 325 mesh; sp.gr. 5.00; tap dens. 1.00 g/cc; oil absorp. 22 lbs/100 lbs; pH 8.0; 98% FeOOH

#### Synox HG-5040 [Hoover Color]

*Chem. Descrip.:* Chromium oxide green

CAS 1308-38-9; EINECS/ELINCS 215-160-9

*Uses:* Pigment for coatings, rubber, plastics, ceramics, paper, inks, building and concrete prods.; nonfading, suitable for high heat

*Properties:* Grn. color; 0.10% on 325 mesh; sp.gr. 5.10; tap dens. 1.10 g/cc; oil absorp. 18 lbs/100 lbs; pH 8.0; 99% Cr<sub>2</sub>O<sub>3</sub>

#### Synox HG-5050 [Hoover Color]

*Chem. Descrip.:* Chromium oxide green

CAS 1308-38-9; EINECS/ELINCS 215-160-9

*Uses:* Pigment for coatings, rubber, plastics, ceramics, paper, inks, building and concrete prods.; nonfading, suitable for high heat

*Properties:* Grn. color; 0.10% on 325 mesh; sp.gr. 5.10; tap dens. 1.80 g/cc; oil absorp. 12 lbs/100 lbs; pH 8.0; 99% Cr<sub>2</sub>O<sub>3</sub>

#### Synox HG-5060 [Hoover Color]

*Chem. Descrip.:* Chromium oxide green

CAS 1308-38-9; EINECS/ELINCS 215-160-9

*Uses:* Pigment for coatings, rubber, plastics, ceramics, paper, inks, building and concrete prods.; nonfading, suitable for high heat

*Properties:* Grn. color; 0.10% on 325 mesh; sp.gr. 5.10; tap dens. 1.35 g/cc; oil absorp. 16 lbs/100 lbs; pH 8.0; 99% Cr<sub>2</sub>O<sub>3</sub>

#### Synox HG-5080 [Hoover Color]

*Chem. Descrip.:* Chromium oxide green

CAS 1308-38-9; EINECS/ELINCS 215-160-9

*Uses:* Pigment for coatings, rubber, plastics, ceramics, paper, inks, building and concrete prods.; nonfading, suitable for high heat

*Properties:* Grn. color; 0.10% on 325 mesh; sp.gr. 5.10; tap dens. 2.20 g/cc; oil absorp. 21.7 lbs/100 lbs; pH 8.0; 99% Cr<sub>2</sub>O<sub>3</sub>

#### Synox HR-1200 [Hoover Color]

*Chem. Descrip.:* Syn. red iron oxide

CAS 1332-37-2

*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics

- Properties:* Gardner 5-6 color; sp.gr. 0.94; visc. 300-800 cps (190 C); m.p. 133 C; sapon. no. 75-85; drop pt. 142-148 C; hardness 0.1-0.3 dmm
- Synox HR-1201** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.01% on 325 mesh; sp.gr. 5.15; tap dens. 0.92 g/cc; oil absorp. 21 lbs/100 lbs; pH 7.0; 99%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HR-1202** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.002% on 325 mesh; sp.gr. 4.90; tap dens. 0.92 g/cc; oil absorp. 16 lbs/100 lbs; pH 7.0; 97%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HR-1203** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.002% on 325 mesh; sp.gr. 4.90; tap dens. 0.95 g/cc; oil absorp. 15 lbs/100 lbs; pH 7.0; 97%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HR-1204** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.002% on 325 mesh; sp.gr. 4.90; tap dens. 0.98 g/cc; oil absorp. 15 lbs/100 lbs; pH 7.0; 97%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HR-1205** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.002% on 325 mesh; sp.gr. 4.90; tap dens. 1.10 g/cc; oil absorp. 18 lbs/100 lbs; pH 7.0; 97%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HR-1208** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.01% on 325 mesh; sp.gr. 5.15; tap dens. 1.32 g/cc; oil absorp. 14 lbs/100 lbs; pH 7.0; 99%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HR-1209** [Hoover Color]  
*Chem. Descrip.:* Syn. red iron oxide  
CAS 1332-37-2  
*Uses:* Pigment for paint and coatings, concrete and building prods., paper, abrasives, plastics, rubber, chems., textile inks, and ceramics  
*Properties:* Red color; 0.01% on 325 mesh; sp.gr. 5.15; tap dens. 1.33 g/cc; oil absorp. 14 lbs/100 lbs; pH 7.0; 99%+ Fe<sub>2</sub>O<sub>3</sub>
- Synox HY-600M** [Hoover Color]  
*Chem. Descrip.:* Syn. yellow iron oxide  
*Uses:* Pigment for coatings, paper, inks, building and concrete prods.  
*Properties:* Yel. color; 0.01% on 325 mesh; sp.gr. 4.03; tap dens. 0.84 g/cc; oil absorp. 35 lbs/100 lbs; pH 7.0; 86%+ FeOOH
- Synox HY-605M** [Hoover Color]  
*Chem. Descrip.:* Syn. yellow iron oxide  
*Uses:* Pigment for coatings, paper, inks, building and concrete prods.  
*Properties:* Yel. color; 0.01% on 325 mesh; sp.gr. 4.03; tap dens. 0.75 g/cc; oil absorp. 36 lbs/100 lbs; pH 7.0; 86%+ FeOOH
- Synox HY-610M** [Hoover Color]  
*Chem. Descrip.:* Syn. yellow iron oxide  
*Uses:* Pigment for coatings, paper, inks, building and concrete prods.  
*Properties:* Yel. color; 0.01% on 325 mesh; sp.gr. 4.03; tap dens. 0.93 g/cc; oil absorp. 34 lbs/100 lbs; pH 7.0; 86%+ FeOOH
- Synox HY-620M** [Hoover Color]  
*Chem. Descrip.:* Syn. yellow iron oxide  
*Uses:* Pigment for coatings, paper, inks, building and concrete prods.  
*Properties:* Yel. color; 0.01% on 325 mesh; sp.gr. 4.03; tap dens. 1.02 g/cc; oil absorp. 34 lbs/100 lbs; pH 7.0; 86%+ FeOOH
- Synperonic 10/6-100%** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* PEG-6 isodecanol  
CAS 61827-42-7  
*Uses:* Emulsifier, wetting agent, degreaser for industrial and domestic cleaners (hard surf. cleaners, window cleaners, bottle wash, hand cleaners), metal degreasing, paper wetting, textiles (wool scouring, dye leveling, kier boiling); sulfation feedstock  
*Properties:* Colorless liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>, veg. oil; insol. in kerosene; sp.gr. 0.99; HLB 12.6; acid no. 0.2; hyd. no. 130; pour pt. 11 C; cloud pt. 37 C (1% aq.); surf. tens. 27.5 mN/m (0.1%); Draves wetting 4 s (0.1%); Ross-Miles foam 108 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; nonionic  
*Environmental:* Biodeg.
- Synperonic 10/7-100%** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* PEG-7 isodecanol  
CAS 61827-42-7  
*Uses:* Wetting agent, detergent, solubilizer, emulsifier, scouring agent, dye leveling agent for industrial/domestic cleaners (hard surf. cleaners, window cleaners, hand cleaners), metal degreasing, metalworking fluids, paper wetting, textiles (kier boiling, dye leveling, water treatment, wool scouring); effective at low temps.  
*Properties:* Colorless liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>, veg. oil; insol. in kerosene; sp.gr. 1.00; HLB 13.4; acid no. 0.2; hyd. no. 120; pour pt. 14 C; cloud pt. 60 C (1% aq.); surf. tens. 30.0 mN/m (0.1%); Draves wetting 7 s (0.1%); Ross-Miles foam 115 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; nonionic  
*Environmental:* Biodeg.
- Synperonic 13/9** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* PEG-9 tridecanol  
CAS 24938-91-8  
*Uses:* Wetting agent, detergent, scouring agent, dye leveling agent for industrial and domestic cleaning, coal dust suppression, metal degreasing, metalworking fluids, paper wetting, textiles (kier boiling, dye leveling, wool scouring); solubilizer and emulsifier for essential oils, aromatic solvs., fats, and waxes; general purpose; effective at low temps.  
*Properties:* Pale yel. liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>, veg. oil; insol. in kerosene; sp.gr. 0.99 (20 C); HLB 13.6; acid no. 0.2; hyd. no. 94; pour pt. 16 C; cloud pt. 57 C (1% aq.); surf. tens. 31.1 mN/m (0.1%); Draves wetting 4.5 s (0.1%); Ross-Miles foam 122 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; also avail. @ 90% dilution; nonionic  
*Environmental:* Biodeg.
- Synperonic 13/10** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* PEG-10 tridecanol  
CAS 24938-91-8  
*Uses:* Wetting agent, detergent, solubilizer, emulsifier, scouring agent, dye leveling agent for domestic cleaning (all-purpose, hard surf. cleaners), coal dust suppression, metalworking fluids and pickling baths, paper wetting, textiles (kier boiling, dye leveling, wool scouring); effective at low temps.  
*Properties:* Pale yel. liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>; insol. in kerosene, veg. oil; sp.gr. 0.99 (20 C); HLB 14.1; acid no. 0.2; hyd. no. 88; pour pt. 18 C; cloud pt. 70 C (1% aq.); surf. tens. 31.5 mN/m (0.1%); Draves wetting 5 s (0.1%); Ross-Miles foam 122 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; also avail. @ 90% and 80% dilutions; nonionic  
*Environmental:* Biodeg.
- Synperonic 91/6** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* C9-11 parath-6  
CAS 68439-46-3  
*Uses:* Detergent, emulsifier, wetting agent, scouring agent for textiles (wool scouring), agric. chems., coal dust suppression, household and I&I cleaning (hard surf. cleaners, laundry, lt. duty liqs., solv. cleaners/degreasers), leather finishing/processing, oil field chems., paper deinking  
*Properties:* Colorless liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>; insol. in kerosene; sp.gr. 0.99; m.p. 10 C; HLB 12.5; acid no. 0.2 max.; hyd. no. 140; cloud pt. 52 C (1% aq.); surf. tens. 31 mN/m (0.1%); Draves wetting 5 s (0.1%); Ross-Miles foam 150 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; nonionic  
*Environmental:* Fully biodeg.
- Synperonic 91/8** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* C9-11 parath-8  
CAS 68439-46-3  
*Uses:* Detergent, emulsifier, wetting agent, scouring agent for agric. chems., household and I&I cleaning (hard surf. cleaners, laundry, lt. duty liqs., solv. cleaner/degreasers, metal soaking), leather finishing/processing, oil field

chems., paper deinking, textiles (wool scouring)

*Properties:* Colorless hazy liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>; insol. in kerosene; sp.gr. 1.00; m.p. 15 C; HLB 13.9; acid no. 0.2 max.; hyd. no. 115; cloud pt. 80 C (1% aq.); surf. tens. 33 mN/m (0.1%); Draves wetting 6 s (0.1%); Ross-Miles foam 150 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; nonionic

*Environmental:* Fully biodeg.

**Syneronic 91/8T** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* C9-11 pareth-8

CAS 68439-46-3

*Uses:* Detergent, emulsifier, wetting agent, scouring agent for agric. chems., household and I&I cleaning (hard surf. cleaners, laundry, lt. duty liqs., solv. cleaner/degreasers, metal soaking), leather finishing/processing, oil field chems., paper deinking, textiles (wool scouring); low free-alcohol version of Syneronic 91/8;

*Properties:* Colorless hazy liq.; sol. in water, ethanol, chloroform, CCl<sub>4</sub>; insol. in kerosene; sp.gr. 1.01; m.p. 20 C; HLB 14.1; acid no. 0.2 max.; hyd. no. 106; cloud pt. 83 C (1% aq.); surf. tens. 33 mN/m (0.1%); Draves wetting 6 s (0.1%); Ross-Miles foam 155 mm (initial, 50 ppm CaCO<sub>3</sub>); 100% conc.; nonionic

*Environmental:* Fully biodeg.

**Syneronic A7** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* C13-15 pareth-7

CAS 68131-39-5

*Uses:* Wetting agent, detergent, scouring agent, dye leveling agent, emulsifier for agric. chems., carboxymethylate mfg., coal dust suppression, household and I&I cleaners (laundry, lt. duty liqs., polishes, window cleaners), steel phosphation, tin plating, paper wetting, skin care gels, textiles (wool scouring, fiber lubricant/antistat for spinning, cotton dye leveling)

*Properties:* Wh. paste; sol. in water, glycol ethers, alcohol, chloroform, CCl<sub>4</sub>; sp.gr. 0.96; visc. 60 cps; HLB 12.2; acid no. 0.2 max.; hyd. no. 105; pour pt. 24 C; cloud pt. 47 C (1% aq.); pH 6-8 (1% aq.); surf. tens. 31.9 mN/m (0.1%); Draves wetting 14 s (0.1%); Ross-Miles foam 110 mm (initial, 50 ppm CaCO<sub>3</sub>); 99% min. act.; nonionic

*Environmental:* Readily biodeg.

**Syneronic A9** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* C13-15 pareth-9

CAS 68131-39-5

*Uses:* Wetting agent, detergent, scouring agent, dye leveling agent, emulsifier for coal dust suppression, I&I cleaning, steel phosphation, tin plating, oil field chems., paper reclamation

*Properties:* Wh. paste; sol. in water, glycol ethers, alcohol, chloroform, CCl<sub>4</sub>; sp.gr. 0.98; visc. 35 cps (40 C); HLB 13.0; acid no. 0.2 max.; pour pt. 26 C; cloud pt. 65 C (1% aq.); pH 6-8 (1% aq.); surf. tens. 33.6 mN/m (0.1%); Draves wetting 22 s (0.1%); Ross-Miles foam 112 mm (initial, 50 ppm CaCO<sub>3</sub>); 99% min. act.; nonionic

*Environmental:* Readily biodeg.

**Syneronic A11** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* C13-15 pareth-11

CAS 68131-39-5

*Uses:* Wetting agent, detergent, scouring agent, dye leveling agent, emulsifier for agric. chems., household and I&I cleaning (bottle washing, laundry, lt. duty liqs., polishes, janitorial), cutting oils, steel phosphation, oil field chems., paper reclamation, textiles (cotton dye leveling, fiber lubricant/antistat for spinning, polyester dyeing)

*Properties:* Wh. solid; sol. in water, glycol ethers, alcohol, chloroform, CCl<sub>4</sub>; sp.gr. 0.99; visc. 42 cps (40 C); HLB 13.9; acid no. 0.2 max.; hyd. no. 81; pour pt. 27 C; cloud pt. 87 C (1% aq.); pH 6-8 (1% aq.); surf. tens. 35.5 mN/m (0.1%); Draves wetting 27 s (0.1%); Ross-Miles foam 117 mm (initial, 50 ppm CaCO<sub>3</sub>); 99% min. act.; nonionic

*Environmental:* Readily biodeg.

**Syneronic OP7.5** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Octoxynol-7.5

CAS 9002-93-1

*Uses:* Detergent for textile and paper processing; emulsifier for creams, lotions; solubilizer for topical pharmaceuticals and shampoos

*Properties:* Pale yel. liq.; HLB 11.7; 100% conc.; nonionic

**Syneronic OP8** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Octoxynol-8

CAS 9002-93-1

*Uses:* Detergent for textile and paper processing; emulsifier for creams, lotions; solubilizer for topical pharmaceuticals and shampoos

*Properties:* Pale yel. liq.; HLB 12.6; 100% conc.; nonionic

**Syneronic OP10** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Octoxynol-10

CAS 9002-93-1

*Uses:* Detergent, wetting agent, emulsifier; for textile and paper processing; emulsifier for creams, lotions; solubilizer for topical pharmaceuticals and shampoos

*Properties:* Pale yel. liq.; sol. in water, alcohol, glycol ethers; dens. 1.062 g/ml; visc. 393 cps; HLB 13.3; cloud pt. 63-67 C (1% aq.); pour pt. 7 C; surf. tens. 31.8 dynes/cm; pH 6-8 (1% aq.); 99% min. act.; nonionic

**Syneronic OP10.5** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Octoxynol-10.5

CAS 9002-93-1

*Uses:* Detergent for textile and paper processing; emulsifier for creams, lotions; solubilizer for topical pharmaceuticals and shampoos

*Properties:* Pale yel. liq.; HLB 13.5; 100% conc.; nonionic

**Syneronic OP11** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Octoxynol-11

CAS 9002-93-1

*Uses:* Detergent for textile and paper processing; emulsifier for creams, lotions; solubilizer for topical pharmaceuticals and shampoos

*Properties:* Pale yel. liq.; sol. in water, alcohol, glycol ethers; dens. 1.067 g/ml; visc. 371 cps; HLB 13.6; cloud pt. 79-82 C (1% aq.); pour pt. 8 C; surf. tens. 31.0 dynes/cm; pH 6-8 (1% aq.); 99% min. act.; nonionic

**Syneronic PE/L61** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Poloxamer 181

CAS 9003-11-6

*Uses:* Surfactant; demulsifier; antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper; textile wet end processing; detergent for I&I applics. (auto dishwash rinse aids, dairy and brewery bottle washing, hard surf. cleaners); multiuse

*Properties:* Colorless liq.; sol. in ethanol, toluene; partly sol. in kerosene; insol. in water; m.w. 2100; sp.gr. 1.02; hyd. no. 53; pour pt. -30 C; cloud pt. 17 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 36.6 mN/m (0.1%, 20 C); Ross-Miles foam 5 mm (initial, 0.1%); 100% conc.; nonionic

**Syneronic PE/L62LF** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* POP/POE block copolymer

CAS 9003-11-6

*Uses:* Surfactant, wetting agent, emulsifier, dispersant, detergent for I&I cleaning (auto dishwash rinse aids, dairy and brewery bottle washing, hard surf. cleaners); antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper; textile wet end processing

*Properties:* Colorless liq.; sol. in water, ethanol, toluene; m.w. 2350; sp.gr. 1.03; hyd. no. 47.3; pour pt. -9 C; cloud pt. 22 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 39.2 mN/m (0.1%, 20 C); Draves wetting > 360 s (0.1%); Ross-Miles foam 9 mm (initial, 0.1%); 100% conc.; nonionic

**Syneronic PE/L81** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Poloxamer 231

CAS 9003-11-6

*Uses:* Surfactant, wetting agent, emulsifier, dispersant, antifoam, demulsifier for I&I cleaners (auto dishwash rinse aids, dairy and brewery bottle washing, hard surf. cleaners), textile spin finish lubricants; antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper; multiuse

*Properties:* Colorless liq.; sol. in ethanol, toluene; partly sol. in kerosene; insol. in water; m.w. 2750; sp.gr. 1.02; hyd. no. 41; pour pt. -27 C; cloud pt. 16 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 35 mN/m (0.1%, 20 C); Ross-Miles foam 9 mm (initial, 0.1%); 100% conc.; nonionic

**Syneronic PE/L101** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Poloxamer 331

CAS 9003-11-6

*Uses:* Surfactant, wetting agent, antifoam, emulsifier, demulsifier, dispersant for I&I cleaners (auto dishwash rinse aids, dairy and brewery bottle washing, hard surf. cleaners); antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper; multiuse

*Properties:* Colorless liq.; sol. in ethanol, toluene; insol. in water, ethylene glycol; m.w. 3800; sp.gr. 1.02; hyd. no. 29.5; pour pt. -9 C; cloud pt. 11 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 32.4 mN/m (0.1%, 20 C); Ross-Miles foam 17 mm (initial, 0.1%); 100% conc.; nonionic

**Syneronic PE/L121** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Poloxamer 401

CAS 9003-11-6



- Uses:* Surfactant, wetting agent, antifoam, emulsifier, demulsifier, dispersant for I&I cleaners (auto dishwasher rinse aids, dairy and brewery bottle washing, hard surf. cleaners), personal care lotions (shave, suntan, antiperspirants, bath oils); antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper; multiuse
- Properties:* Colorless liq.; sol. in ethanol, toluene; insol. in water, ethylene glycol; m.w. 4400; sp.gr. 1.02; hyd. no. 25.5; pour pt. -6 C; cloud pt. 10 C (10% aq.); pH 6.3 (2.5% aq.); surf. tens. 32.5 mN/m (0.1%, 20 C); Ross-Miles foam 24 mm (initial, 0.1%); 100% conc.; nonionic
- Syneronic T1701** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* Poloxamine 701  
 CAS 11111-34-5  
*Uses:* Antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper  
*Properties:* Yel. liq.; insol. in water; m.w. 3700; sp.gr. 1.02; hyd. no. 61.5; pour pt. -24 C; cloud pt. 16.5 C (10% aq.); pH 10 (2.5% aq.); surf. tens. 34.2 mN/m (0.5%, 20 C); Ross-Miles foam 3 mm (initial, 0.1%); 100% conc.; nonionic
- Syneronic T1301** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]  
*Chem. Descrip.:* Poloxamine 1301  
 CAS 11111-34-5  
*Uses:* Antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, water treatment, pulp/paper  
*Properties:* Yel. liq.; insol. in water; m.w. 6900; sp.gr. 1.02; hyd. no. 33; pour pt. -15 C; cloud pt. 12.5 C (10% aq.); pH 10 (2.5% aq.); surf. tens. 33 mN/m (0.5%, 20 C); Ross-Miles foam 9 mm (initial, 0.1%); 100% conc.; nonionic
- Syntergent K** [Cognis/Chems. Group; Cognis/Textiles]  
*Chem. Descrip.:* Fatty amido condensate  
*Uses:* Detergent for textile, leather, paper, and metalworking  
*Properties:* Liq.; 30% conc.; nonionic
- Synthamin 3000** [EPC Papierchemie GmbH]  
*Chem. Descrip.:* Styrene copolymer aq. sol'n.  
*Uses:* Surf. sizing agent for paper, cardboard, graphical papers, food pkg. (Germany); rec. for use in the size press, billblade, and speed sizer, together with starch or CMC sol'n.; very low foaming  
*Use Level:* 4-15 g/l  
*Regulatory:* BgVV XXXVI compliant  
*Properties:* Light, sl. turbid liq.; char. odor; sp.gr.  $\approx$  1.035 g/m<sup>3</sup>; visc. < 500 mPa·s; pH 8-10; 23  $\pm$  1.5% solids; anionic  
*Storage:* 1 yr storage stability; avoid contact with aluminum and nonferrous metals; insensitive to frost; may safely be used after thawing
- Synthamin 7000** [EPC Papierchemie GmbH]  
*Chem. Descrip.:* Styrene-acrylic ester copolymer  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent for paper, cardboard, printing and copying paper incl. inkjet and laser papers, graphical papers, food pkg. (Germany); very high stability; high efficiency; suitable for continuous or batch use  
*Use Level:* 4-15 g/l  
*Regulatory:* BgVV XXXVI compliant  
*Properties:* Light microdispersion; char. odor; sp.gr.  $\approx$  1.04 g/m<sup>3</sup>; visc. < 100 mPa·s; pH 8.5-9.5; 23  $\pm$  1.5% solids; anionic  
*Storage:* 3 mos min. storage stability; avoid contact with aluminum and nonferrous metals; sensitive to frost
- Synthemul® 447** [Reichhold]  
*Chem. Descrip.:* Vinyl acetate homopolymer latex  
 CAS 9003-20-7  
*Uses:* Base coat binder in free-sheet paper coatings, bleached and unbleached board; exc. blister resist., runnability, glueability; compat. with carbonates
- Synthemul® 550** [Reichhold]  
*Chem. Descrip.:* Vinyl acetate acrylate latex  
*Uses:* Binder for all paperboard applics.; as sole binder or in conjunction with Tylac® S/B latexes; exc. str., gloss, ink/varnish holdout, fold crack resist., cobinder compat.  
*Properties:* 15% acrylate (dry basis)
- Synthemul® 551** [Reichhold]  
*Chem. Descrip.:* Vinyl acetate acrylate latex  
*Uses:* Binder for all paperboard applics.; as sole binder or in conjunction with Tylac® S/B latexes; exc. str., gloss, ink/varnish holdout, fold crack resist., cobinder compat.  
*Properties:* 55% total solids; 30% acrylate (dry basis)
- Synthemul® 552** [Reichhold]  
*Chem. Descrip.:* Vinyl acetate acrylate latex  
*Uses:* Binder for all paperboard applics.; as sole binder or in conjunction with Tylac® S/B latexes; exc. str., gloss, ink/varnish holdout, fold crack resist., cobinder compat.  
*Properties:* 50% acrylate (dry basis)
- Synthemul® 883** [Reichhold]  
*Chem. Descrip.:* Vinyl acetate homopolymer latex  
 CAS 9003-20-7  
*Uses:* Base coat binder for free-sheet paper coatings, bleached and unbleached board; very high mech. stability; exc. wet rub resist., ink/varnish holdout, str. and stiffness  
*Properties:* Sm. particle size
- Synthemul® 40430-20** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Styrene-acrylic copolymer  
 CAS 9010-92-8  
*Uses:* Adhesive base for uncoated paper and mastic; multipurpose; good borax stability  
*Properties:* Dens. 8.5-8.7 lb/gal; visc. 100-600 cps; pH 8-9; 49-51% solids; anionic
- Synthemul® 40503-00** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Vinyl acetate homopolymer emulsion  
 CAS 9003-20-7  
*Uses:* Binder for paper coatings; formaldehyde-free  
*Properties:* Emulsion; 0.17  $\mu$  particle size; dens. 9.1 lb/gal; visc. 150 cps; pH 6.0; 50% solids; anionic
- Synthemul® 40550-00** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Vinyl acetate acrylate emulsion polymer  
*Uses:* Binder used for paper coatings; low acrylic level  
*Properties:* Emulsion; 0.20  $\mu$  particle size; dens. 9.0 lb/gal; visc. 200 cps; pH 6.0; 50% solids; anionic
- Synthemul® 40551-03** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Vinyl acrylic emulsion polymer  
*Uses:* Binder used for paper coatings; med. acrylic level  
*Properties:* Emulsion; 0.20  $\mu$  particle size; dens. 9.0 lb/gal; visc. 200 cps; pH 7.0; 50% solids; anionic
- Synthemul® 40552-00** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Vinyl acetate acrylate emulsion polymer  
*Uses:* Binder used for paper coatings; high acrylic level; ex. str. and gloss; exceptional ink and varnish holdout and fold crack resist.  
*Properties:* Emulsion; 0.20  $\mu$  particle size; dens. 9.0 lb/gal; visc. 200 cps; pH 7.0; 50% solids; anionic
- Synthemul® 40554-00** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Vinyl acrylic emulsion polymer  
*Uses:* Paper applics.; exc. mech. stability  
*Properties:* PH 5.5;  $\approx$  47% NV
- Synthemul® 97635** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Functionally modified vinyl acetate  
 CAS 108-05-4; EINECS/ELINCS 203-545-4  
*Uses:* Release coating for uncoated paper, mylar film, cellulose acetate, and metalized polyester, for pressure sensitive tape applic.; water-based  
*Properties:* Wh. milky emulsion; sp.gr. 1.0911; dens. 9.1 lb/gal; visc. 300 cps; pH 7.5-8.8; 45  $\pm$  1% NV; anionic  
*Storage:* Keep from freezing
- Synthemul® 97635-00** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Functionally modified vinyl acetate  
 CAS 108-05-4; EINECS/ELINCS 203-545-4  
*Uses:* Release coating for uncoated paper, mylar film, cellulose acetate, and metalized polyester, for pressure-sensitive tape applics.; water-based  
*Properties:* Wh. milky emulsion; sp.gr. 1.0911 (of solids); dens. 9.1 lb/gal; visc. 300 cps; pH 7.5-8.8; 45  $\pm$  1% NV; anionic  
*Storage:* Keep from freezing
- Synthemul® 97883-01** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Vinyl acetate homopolymer emulsion  
 CAS 9003-20-7  
*Uses:* Binder for paper/paperboard coatings  
*Properties:* Small particle size emulsion; 0.13  $\mu$  particle size; dens. 9.1 lb/gal; visc. 100 cps; pH 7.2; 47% solids; anionic
- Synthemul® 97982-00** [Reichhold/Emulsion Polymers]  
*Chem. Descrip.:* Acrylic emulsion  
*Uses:* Pressure-sensitive adhesive base for uncoated paper, mylar film, cellulose acetate, metalized polyester, and pressure sensitive tape; exc.

clarity and UV stability; med. peel and tack values; exc. rheology for coating; good borax stability

*Properties:* 0.30-0.40 particle size; dens. 8.5-8.7 lb/gal; visc. 500-1200 cps; surf. tens. 43-49 dynes/cm; pH 4.8-5.2; 55-57% solids; anionic

**Synthro®-Fix WF** [Synthron SA]

*Uses:* Dye fixing agent for mfg. of highly colored paper; trash fixing agent for stickies and wh. pitch control in wet-end paper mfg.; inc. uniformity of shades; formaldehyde-free; avoid problems of visual pollution in the wastewater

**Synthro®-Nyl NS 1920 P** [Synthron SA]

*Uses:* Fireproofing agent for paper sticking and coating applics.; only sl. hygroscopic

**Synthro®-Nyl PN 912 S** [Synthron SA]

*Uses:* Fireproofing agent for paper sticking and coating applics.; no yellowing or adverse effects on the mech. props. of the paper

**Synthro®-Pac 812 L** [Synthron SA]

*Uses:* Trash fixing agent, retention aid, drainage aid for wet-end paper mfg.; provides better machinability

**Synthro®-Pel FOX** [Synthron SA]

*Chem. Descrip.:* Fluorinated resin

*Uses:* Oilproofing agent for paper and greaseproof paper mfg.

*Properties:* Cationic

**Synthro®-Pel FOX 505** [Synthron SA]

*Chem. Descrip.:* Fluorinated resin

*Uses:* Oilproofing agent for paper and greaseproof paper mfg. incl. food pkg.

*Regulatory:* FDA and BGA compliances

*Properties:* Cationic

**Synthro®-Pel SCR** [Synthron SA]

*Chem. Descrip.:* Chromium salts-based

*Uses:* Antistick agent for paper sticking and coating applics.

**Synthro®-Pel WA 491** [Synthron SA]

*Uses:* Water vapor barrier for paper sticking and coating applics. incl. food pkg.; component of paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §176.170, 176.180; BGA XXXVI compliance

**Synthro®-Pel XF** [Synthron SA]

*Uses:* Fluorinated resin extender for paper mfg., reducing cost of oilproofing treatments

**Synthro®-Pon DI 215** [Synthron SA]

*Uses:* Deinking agent, wetting agent for pulp mfg.

*Properties:* Flash pt. > 40 C

*Environmental:* Biodeg.

**Synthro®-Pon DI 237** [Synthron SA]

*Uses:* Deinking agent for flotation and washing type deinking processes in pulp mfg.

*Properties:* Solid

**Synthro®-Sol DC 819 L** [Synthron SA]

*Uses:* Dispersant, trash fixing agent for org. matter in wet-end paper mfg.

*Properties:* Anionic

**Synthro®-Sol DC 856 L** [Synthron SA]

*Uses:* Dispersant, deinking agent, grinding aid for pulp mfg.

**Synthro®-Stab TF** [Synthron SA]

*Uses:* Formaldehyde absorbent/deodorizer for paper sticking and coating applics.

**Synthro®-Stab Z** [Synthron SA]

*Uses:* Insolubilizer and crosslinking agent for paper and board sticking and coating applics.; formaldehyde-free; alkaline; act. at low temps.

# T

**T-1133A** [Wolstenholme Int'l.]

*Chem. Descrip.:* Water-based carbon black disp. with nonionic surfactant  
*Uses:* For formulation of corrugated inks and envelope inks, polyboard and film inks, acrylic, urethane, primer, and alkyd coatings, paper applics.  
*Properties:* Blk. resin; dens. 10-10.5 lb/gal; pH 8.6-9.4; 47.5-50% total solids; 39.5-41% carbon; nonionic

**T-2005A** [Wolstenholme Int'l.]

*Chem. Descrip.:* Water-based carbon black disp. with anionic surfactant and nonmercurial preservative  
*Uses:* Pigment base for applics. that require low foaming props. and good tint str., and for paper applics.  
*Properties:* Blk. resin; dens. 10 lb/gal; pH 9.3-10.2; 38.5-42.1% total solids; 33.0-36.1% carbon; anionic

**T-9087A** [Wolstenholme Int'l.]

*Chem. Descrip.:* Carbon black aq. disp. with surfactant and nonmercurial preservative  
*Uses:* Pigment base for applics. requiring low foaming and masstone jetness, and for paper applics.  
*Properties:* Dens. 9-10; pH 9.5-10.5; 30% carbon; 35% total solids; anionic

**Tacolyn® 3085** [Hercules/Resins]

*Chem. Descrip.:* Syn. resin disp.  
*Uses:* Tackifier for acrylic, nat. rubber, SBR, EVA, and polychloroprene latexes used in tape, label, pressure-sensitive, contact, and construction adhesives; latex modifier; food pkg. adhesives, paper/paperboard; solv.-free, resist. to oxidation, UV radiation  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180 compliant; Germany approved for food pkg./processing

*Properties:* < 1 µ particle size; visc. 2400 cps; pH 9.6; 55% total solids  
*Storage:* Store closed and keep from freezing

**Tafigel® PUR 40** [Münzing Chemie GmbH; King Ind.]

*Chem. Descrip.:* Polyurethane-based  
*Uses:* Associative thickener, rheology modifier, visc. builder, stabilizer for aq. systems, for use in indoor and outdoor paints, latex and anticorrosive paints, syn. resin-bound renderings, adhesives, paper, and paste fillers  
*Use Level:* 0.3-2.0%

*Properties:* Wh. lightly transparent liq. emulsion; disp. in water; dens. 1.06 g/ml (20 C); pH ≈ 6.5; 40% act. in water/butyltriglycol (40/20); nonionic  
*Storage:* 1 yr shelf life stored in closed container in cool (15-25 C), dry place; not sensitive to freezing

**Tallofin®** [Stockhausen]

*Uses:* Antiscalant, slimicide for control of deposits and slime in the paper machine circuit; reduces corrosive deposits/slime; suppresses odor-developing bacteria; combats stickies and resin; improves runnability

**Tamol® 731A** [Rohm & Haas]

*Chem. Descrip.:* Isobutylene/maleic anhydride copolymer  
 CAS 26426-80-2  
*Uses:* Corrosion/scale inhibitor used in various aq. systems (boiler feed water, recirculated cooling water) over wide temp. range; dispersant for dyes, pigments, latex paints; food pkg. adhesives, paper/paperboard; inhibits scale deposits on equip. surfs., promotes efficient heat transfer, decreases equip. damage  
*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Pale yel. clear liq.; m.w. 15,000; dens. 9.2 lb/gal; visc. 19-182 cps; f.p. 28 F; pH 9.5-10.5 (10% aq.); surf. tens. 64 dynes/cm (0.1%); 24-26% total solids

*Toxicology:* LD50 (oral, rabbit) > 5 g/kg, (skin, rabbit) > 2 g/kg; contact causes irritation of eyes and skin

*Storage:* Keep from freezing

**Tamol® 808** [Rohm & Haas]

*Chem. Descrip.:* Partial sodium salt of PMAA  
 CAS 25086-62-8

*Uses:* Corrosion/scale inhibitor used in various aq. systems (boiler feed water, recirculated cooling water) over wide temp. range; dispersant, antiprecipitant; food pkg. adhesives, paper/paperboard; inhibits scale deposits on equip. surfs., promotes efficient heat transfer, decreases equip. damage  
*Regulatory:* FDA 21CFR §175.105, 176.180

*Properties:* Sl. yel. clear liq.; m.w. 30,000; dens. 9.1 lb/gal; visc. 300-1500 cps; pH 4.5-5.5; surf. tens. 71 dynes/cm (1%); 20.5-22.5% total solids

*Toxicology:* LD50 (oral, rabbit) > 5 g/kg; contact causes irritation of eyes and skin

*Storage:* Keep from freezing

**Tamol® 819** [Rohm & Haas]

*Chem. Descrip.:* Sodium naphthalene sulfonate  
 CAS 9084-06-4

*Uses:* Dispersant for cement, pigments, carbon blk., dyes in leather, textile, and paper industries

*Properties:* Tan spray-dried solid; bulk dens. 40 lb/ft<sup>3</sup>; pH 8.8-10.0 (1% aq.); 93% min. act.; anionic

**Tamol® 850** [Rohm & Haas]

*Chem. Descrip.:* Sodium polymethacrylate aq. sol'n.  
 CAS 25086-62-8

*Uses:* Scale inhibitor for boiler and cooling water treatment, aq. systems; antiprecipitant; dispersant for inorg. pigments, flats thru semigloss latex paints, caulks, sealants, paper industry; food pkg. adhesives, coatings, paper; low foaming

*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 176.170, 176.180  
*Properties:* Lt. yel. clear liq.; m.w. 30,000; dens. 9.9 lb/gal; visc. 250 cps; pour pt. 32 F; pH 9.0-10.8; surf. tens. 71 dyne/cm (1%); 29-31% total solids; anionic

*Toxicology:* LD50 (oral, rabbit) > 5 g/kg, (skin, rabbit) > 2 g/kg; contact causes irritation of eyes and skin

**Tamol® 960** [Rohm & Haas]

*Chem. Descrip.:* Sodium polymethacrylate aq. sol'n.  
 CAS 25086-62-8

*Uses:* Scale inhibitor for boiler and cooling water treatment, aq. systems; antiprecipitant; dispersant for inorg. pigments; food pkg. adhesives, coatings, paper; low foaming  
*Regulatory:* FDA 21CFR §173.310, 175.105, 175.300, 176.170, 176.180

*Properties:* Pale yel. clear liq.; m.w. 5000; dens. 10.6 lb/gal; visc. 550 cps; pour pt. 32 F; pH 8-9; surf. tens. 63 dynes/cm (1%); 40% act.; anionic  
*Toxicology:* LD50 (oral, rabbit) > 5 g/kg; contact causes irritation of eyes and skin

**Tamol® L Conc.** [Rohm & Haas]

*Chem. Descrip.:* Sodium naphthalene sulfonate  
 CAS 9084-06-4

*Uses:* Dispersant, tanning agent for leather; sec. dispersant for polymerization of rubber, in paper/pulp slurries

*Properties:* Amber liq.; dens. 10.4 lb/gal; visc. 20 cps; f.p. 28 F; pH 9.4 (1% aq.); surf. tens. 71 dyne/cm (1%); 47% act.; anionic

**Taurine-913** [Taurus Tech.]

*Chem. Descrip.:* Organosulfur compd. (dithiocarbamates)

*Uses:* Biocide, fungicide, slimicide for alkaline pulps, treatment of mill waters; effective against mesophilic and thermophilic bacteria, fungi; effective over wide pH range; nonfoaming; noncorrosive; cost effective

*Use Level:* 0.1-0.5 kg/ton finished paper

*Properties:* Golden yel.; sp.gr. 1.15-1.20; pH 9-10

*Toxicology:* Causes eye and skin irritation; harmful if swallowed

*Environmental:* Self-degradable; eco-friendly

*Storage:* Store in shade; avoid exposure to acidic environment

#### Taurine-DBNPA [Taurus Tech.]

*Chem. Descrip.:* 2,2-Dibromo-3-nitropropionamide (20%), inert ingreds. (80%)  
CAS 10222-01-2

*Uses:* Bactericide, fungicide, yeast control in paper mills

*Use Level:* 300-500 ppm on total water used in the pulper

*Properties:* Pale liq.; dens. 1.25 g/l

#### Taurine-DCS [Taurus Tech.]

*Chem. Descrip.:* Hydrocarbon/surfactant aq. formulation

*Uses:* Paper machine cleaner

*Use Level:* 300-500 ppm on total water used in the pulper

#### Taurine-DEI [Taurus Tech.]

*Uses:* Paper aux. for deinking of heavily printed paper; dispersant for pulp; released ink is completely dispersed; most floats to surf. of pulper where it can be scooped off while the rest of the ink gets washed off on the paper machine wire; good stability to hard water, acid, alkali, salt, anionics

*Use Level:* 0.3-0.6% (dry stock in pulper)

*Properties:* Highly visc.; readily dilutable with water; stock sol'ns. higher than 100 g/l are turbid; pH 6-7 (1%); anionic

*Toxicology:* May cause eye and skin irritation; may be harmful if swallowed

#### Taurine-DFX [Taurus Tech.]

*Uses:* Dye fixing agent for paper industry; dispersant for dyes in papermaking; stabilizer for rosin size emulsions in papermaking; water-based; dye is retained even by bleached fibrous material with good yield

*Properties:* Colorless to pale yel.; freely sol. in water; pH 4 ± 0.5 (10%); 60 ± 2% solids; cationic

#### Taurine-KWT [Taurus Tech.]

*Chem. Descrip.:* Organosulfur cyclic compd.

*Uses:* Biocide, fungicide for industrial use, wet stage use, aq. compositions, paints, adhesives, cellulose, polymer sol'ns./emulsions, fillers, inks, metal-working fluids, paper stocks, textiles, leather; preservative for slurries and high visc. suspensions such as coatings and clays; rec. for systems with longer retention time; broad spectrum activity; nonvolatile; heat-stable

*Use Level:* 0.05-0.1% (emulsions), 0.1-0.2% (paper, leather, textiles)

*Properties:* Colorless to lt. amber liq.; mild odor; sol. in water and org. solvs.; flash pt. > 100 C; pH 5.0 max.

*Toxicology:* Low toxicity; avoid skin contact

#### Taurine-MBT [Taurus Tech.]

*Chem. Descrip.:* Methylene-bis-thiocyanate-based  
CAS 6317-18-6

*Uses:* Biocide for paper stocks; preservative for slurries and high visc. suspensions such as coatings and clays; rec. for anaerobic sulfate reducing bacteria which cause corrosion; fast acting; highly potent; cost effective

#### Taurine-QFD [Taurus Tech.]

*Chem. Descrip.:* Long chain aldehyde

*Uses:* Biocide for recycled wh. water treatment in papermaking; broad spectrum; cost effective

#### TBP [FMC]

*Chem. Descrip.:* Tributyl phosphate

CAS 126-73-8; EINECS/ELINCS 204-800-2

*Uses:* Antifoam in paper coatings, aq. adhesives, inks, casein sol'ns., textile sizes, and detergent sol'ns.; plasticizer and solvent for NC, cellulose acetate, chlorinated rubber, and vinyls; solvent for natural gums and syn. resins; flame retardant for cellulose, epoxies, PS, PVAc, PVC; component in extraction of rare earth metal salts

*Properties:* Pt-Co 50 max. liq.; char. odor; m.w. 266; f.p. < -80 C; b.p. 137-145 C; sol. in org. liqs., min. oil, and gasoline; sp.gr. 0.978 ± 0.003; dens. 975 kg/m<sup>3</sup>; visc. 3.7 cp; pour pt. < -80 C; ref. index 1.423 ± 0.001; flash pt. 166 C; fire pt. 182 C

#### T-Det® A126 [Harcros]

*Chem. Descrip.:* PEG-6 alcohol  
CAS 66455-15-0

*Uses:* Surfactant for use in detergents, laundry prespotters, hard surf. cleaners, emulsifiers, personal care prods., agric. adjuvants; food pkg. adhe-

sives, coatings, paper, animal glues; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 178.3120, 178.3400, 180.1001(c)(e)

*Properties:* Opaque liq.; water-sol.; sp.gr. 0.982; dens. 8.17 lb/gal; HLB 12.4; pour pt. 50 F; cloud pt. 122 F (1% sol'n.); flash pt. (PMCC) > 325 F; pH 5-7 (1% 10/6 IPA/H<sub>2</sub>O); 99.5% act.; nonionic

#### T-Det® A243 [Harcros]

*Chem. Descrip.:* PEG-3 alcohol  
CAS 68439-50-9

*Uses:* Surfactant for use in detergents, laundry prespotters, hard surf. cleaners, I&I applics., emulsifiers, personal care prods., agric.; food pkg. adhesives, coatings, paper, animal glues; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 178.3120, 178.3400, 180.1001(c)(e)

*Properties:* Opaque liq.; oil-sol.; sp.gr. 0.923; dens. 7.69 lb/gal; HLB 8.0; pour pt. 40 F; cloud pt. 45 ml H<sub>2</sub>O/g; flash pt. (PMCC) > 350 F; pH 5-7 (1% 10/6 IPA/H<sub>2</sub>O); 99.5% act.; nonionic

#### T-Det® A247 [Harcros]

*Chem. Descrip.:* PEG-7 alcohol  
CAS 68439-50-9

*Uses:* Surfactant for use in detergents, laundry prespotters, hard surf. cleaners, emulsifiers, personal care prods., paint, agric.; food pkg. adhesives, coatings, paper, animal glues; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 178.3120, 178.3400, 180.1001(c)(e)

*Properties:* Opaque liq.; water-sol.; sp.gr. 0.982; dens. 8.17 lb/gal; HLB 12.9; pour pt. 60 F; cloud pt. 122 F; flash pt. (PMCC) > 375 F; pH 5-7 (1% 10/6 IPA/H<sub>2</sub>O); 99.5% act.; nonionic

#### T-Det® A249 [Harcros]

*Chem. Descrip.:* PEG-9 alcohol  
CAS 68439-50-9

*Uses:* Surfactant for use in detergents, laundry pre-spotters, hard surf. cleaners, emulsifiers, personal care prods., agric.; food pkg. adhesives, coatings, paper, animal glues; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 178.3120, 178.3400, 180.1001(c)(e)

*Properties:* Opaque liq.; water-sol.; sp.gr. 0.994; dens. 8.26 lb/gal; HLB 13.0; pour pt. 70 F; cloud pt. 167 F; flash pt. (PMCC) > 325 F; pH 5-7 (1% 10/6 IPA/H<sub>2</sub>O); 99.5% act.; nonionic

#### T-Det® A467 [Harcros]

*Chem. Descrip.:* PEG-7 alcohol  
CAS 68213-23-0

*Uses:* Surfactant for use in detergents, laundry prespotters, hard surf. cleaners, household and industrial cleaners, metal degreasing, emulsifiers, personal care prods., agric.; food pkg. adhesives, coatings, paper, animal glues; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 178.3120, 178.3400, 180.1001(c)(e)

*Properties:* Opaque liq.; water-sol.; sp.gr. 0.979; dens. 8.14 lb/gal; HLB 11.6; pour pt. 70 F; cloud pt. 122 F; flash pt. (PMCC) > 400 F; pH 5-7 (1% 10/6 IPA/H<sub>2</sub>O); 99.5% act.; nonionic

#### T-Det® A2412 [Harcros]

*Chem. Descrip.:* PEG-12 alcohol  
CAS 68439-50-9

*Uses:* Surfactant, dispersant, wetting agent, solubilizer for use in detergents, hard surf. cleaners, emulsifiers, agric. adjuvants; food pkg. adhesives, coatings, paper, animal glues; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 178.3120, 178.3400, 180.1001(c)(e)

*Properties:* Opaque semi-solid; water-sol.; sp.gr. 1.007 (100 F); dens. 8.38 lb/gal (100 F); HLB 14.4; pour pt. 85 F; cloud pt. 155 F; flash pt. (PMCC) > 400 F; pH 5-7 (1% 10/6 IPA/H<sub>2</sub>O); 99.5% act.; nonionic

#### T-Det® C-20 [Harcros]

*Chem. Descrip.:* PEG-20 castor oil  
CAS 61791-12-6

*Uses:* Emulsifier, surfactant for leather, metal, textile processing, paints, paper, ink, rubber, polishes, and agric. applics.; food pkg. adhesives

- Regulatory:* FDA 21CFR §175.105, 180.1001c,d,e  
*Properties:* Yel. liq.; water-disp.; sp.gr. 1.03 (68 F); dens. 8.58 lb/gal (68 F); HLB 13.0; pour pt. 20 F; cloud pt. 115 F (1% IPA/NaCl/water); flash pt. (PMCC) > 200 F; pH 5-7 (1% aq.); 99.5% min. act.; nonionic
- T-Det® C-40** [Harcros]  
*Chem. Descrip.:* PEG-40 castor oil  
 CAS 61791-12-6  
*Uses:* Emulsifier, solubilizer, degreaser, lubricant, dispersant, penetrant used in leather, paper, textile and metal processing, rubber, paints; dispersant for pigment slurries; leveling agent; defoamer; stabilizer; wax and polish preparations; in adhesives for food pkg.  
*Regulatory:* FDA 21CFR §175.105, 180.1001c,d,e  
*Properties:* Yel. liq.; mild, oily odor; sol. in acetone, butyl Cellosolve, CCl<sub>4</sub>, ethanol, ether, ethylene glycol, methanol, veg. oil, water, xylene; sp.gr. 1.05; dens. 8.7 lb/gal; HLB 14.2; pour pt. 60 F; flash pt. (PMCC) > 200 F; pH 6.0 (1%); 99.5% min. act.; nonionic
- T-Det® DD-10** [Harcros]  
*Chem. Descrip.:* Dodoxynol-10  
 CAS 9014-92-0  
*Uses:* Emulsifier; surfactant for solvs.; detergent for paper, textile and industrial cleaner formulations; dispersant for paint pigments; emulsifier in mfg. of food-contact articles; low foaming  
*Regulatory:* FDA 21CFR §178.3400, 180.1001c,d,e  
*Properties:* Pale yel. liq.; mild aromatic odor; disp. in water; sp.gr. 1.05; dens. 8.75 lb/gal; HLB 13.1; cloud pt. 112 F (1%); flash pt. (PMCC) > 300 F; pour pt. 48 F; pH 7 (1%); 99.5% min. act.; nonionic
- T-Det® EPO-61** [Harcros]  
*Chem. Descrip.:* EO/PO block copolymer  
 CAS 106392-12-5  
*Uses:* Wetting agent, defoamer for paper mfg., water treating compds., metal cleaning, rinse aids, mech. dishwash, textiles; crude oil demulsifier; emulsifier and wetting agent in agric. toxicant formulations; food pkg. adhesives, paper  
*Regulatory:* FDA 21CFR §175.105, 176.180, 180.1001c,d,e  
*Properties:* Clear liq.; sol. in ethanol, toluene, xylene, perchlorethylene; disp. in water; sp. gr. 1.01; dens. 8.34 lb/gal; visc. 271 cps; HLB 3.0; pour pt. -28 C; cloud pt. 23 C (1%); flash pt. > 200 C; pH 5-7 (1% aq.); 99.5% min. act.; nonionic
- T-Det® EPO-62L** [Harcros]  
*Chem. Descrip.:* PO/EO block copolymer  
 CAS 106392-12-5  
*Uses:* Surfactant, emulsifier, defoamer for metal cleaners, degreasers, rinse aids, mech. dishwash, hard surf. cleaners, textiles, paper, agric. applics.; food pkg. adhesives, paper; low foaming  
*Regulatory:* FDA 21CFR §175.105, 176.180, 180.1001c,d,e  
*Properties:* Clear liq.; water-sol.; sp.gr. 1.03; dens. 8.6 lb/gal; HLB 7.0; pour pt. 27 F; cloud pt. 89 F (1%); flash pt. (PMCC) > 250 F; pH 4-8 (1% aq.); 100% conc.; nonionic
- T-Det® EPO-64L** [Harcros]  
*Chem. Descrip.:* PO/EO block copolymer  
 CAS 106392-12-5  
*Uses:* Wetting agent, surfactant, defoamer for metal cleaning compds., rinse aids, mech. dishwash, hard surf. cleaners, paper, textiles; emulsifier for agric. toxicants; demulsifier; food pkg. adhesives, paper; low foaming  
*Regulatory:* FDA 21CFR §175.105, 176.180, 180.1001c,d,e  
*Properties:* Clear liq.; water-sol.; sp.gr. 1.04; dens. 8.7 lb/gal; HLB 15.0; pour pt. 48 F; cloud pt. 138 F (1%); flash pt. (PMCC) > 250 F; pH 4-8 (1% aq.); 100% conc.; nonionic
- T-Det® EPO-104** [Harcros]  
*Chem. Descrip.:* EO/PO block copolymer  
 CAS 106392-12-5  
*Uses:* Detergent, emulsifier, dispersant, and wetting agent for agric. applics.; food pkg. adhesives, paper, cellophane, films; defoamer in food-contact coatings  
*Regulatory:* FDA 21CFR §175.105, 176.200, 177.1200, 177.1400, 178.3120, 180.1001(c)(e)  
*Properties:* Paste; water-sol.; sp.gr. 1.04; dens. 8.7 lb/gal; HLB 13; pour pt. 90 F; cloud pt. 180 F (1%); flash pt. (PMCC) > 250 F; pH 5-7 (1% aq.); 99.5% act.; nonionic
- T-Det® N-6** [Harcros]  
*Chem. Descrip.:* Nonoxynol-6  
 CAS 9016-45-9  
*Uses:* Emulsifier for silicones, household waxes and polishes; wetting agent; detergent and dispersant for petrol. and fuel oils; agric. toxicant formulations; dry cleaning soap additive; leather and metal processing; solvent cleaner; deinking agent for paper; food pkg. adhesives; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 178.3400, 180.1001c,d,e  
*Properties:* Pale yel. liq.; mild aromatic odor; sol. in butyl Cellosolve, CCl<sub>4</sub>, corn oil, diesel fuel, ethanol, kerosene, Stod., xylene; dens. 8.7 lb/gal; sp.gr. 1.04; visc. 58 SUS (210 F); HLB 10.9; flash pt. > 400 F (OC); pour pt. < 0 F; pH 7; 99.5% min. act.; nonionic
- T-Det® N-8** [Harcros]  
*Chem. Descrip.:* Nonoxynol-8  
 CAS 9016-45-9  
*Uses:* Detergent, wetting agent, emulsifier, solubilizer, degreaser for textile, leather and paint processing, agric. toxicant, household and industrial cleaning formulations; pigment dispersant; rewetting agent, deinking agent, felt washing, leveling agent in paper mfg.; oil recovery operations; food pkg. adhesives; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 178.3400, 180.1001c,d,e  
*Properties:* Clear visc. liq.; mild aromatic odor; dens. 8.75 lb/gal; sp.gr. 1.05; visc. 63 SUS (210 F); HLB 12.4; cloud pt. 78 F (1%); flash pt. 500 F (OC); pH 6 (1%); 99.5% min. act.; nonionic
- T-Det® N-9.5** [Harcros]  
*Chem. Descrip.:* Nonoxynol-10  
 CAS 9016-45-9; EINECS/ELINCS 248-294-1  
*Uses:* Detergent, wetting agent, emulsifier, solubilizer, degreaser, foaming agent for textiles, leather and paint processing, agric. toxicant, household and industrial cleaning formulations; pigment dispersant; rewetting agent, deinking agent, felt washing, leveling agent in paper mfg.; oil recovery operations; food pkg. adhesives; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 178.3400, 180.1001c,d,e  
*Properties:* Clear visc. liq.; mild aromatic odor; sol. in butyl Cellosolve, CCl<sub>4</sub>, ethanol, ethylene glycol, HAN, toluene, water, xylene; dens. 8.8 lb/gal; sp.gr. 1.06; visc. 68 SUS (210 F); HLB 13.1; cloud pt. 135 F (1%); flash pt. 500 F (OC); pH 7 (1%); 99.5% min. act.; nonionic
- TEBAC** [Raschig AG]  
*Chem. Descrip.:* N,N,N-Triethyl-benzenemethanaminium chloride  
 CAS 56-37-1; EINECS/ELINCS 200-270-1  
*Uses:* Phase transfer catalyst; catalyst; antistat; plasticizer; additive for toners and paper; biocide
- TEC** [Morflex]  
*Chem. Descrip.:* Triethyl citrate NF/FCC  
 CAS 77-93-0; EINECS/ELINCS 201-070-7  
*Uses:* Plasticizer for aq.-based pharmaceutical coatings; food additive; food-contact coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.300, 175.320, 175.380, 175.390, 176.170, 177.1210, 181.27, 182.1911, 184.199, GRAS  
*Properties:* Sol. 6.5 g/100 ml water; m.w. 276.3; sp.gr. 1.135-1.139; dens. 9.48 lb/gal; visc. 35.2 cps; b.p. 127 C (1 mm); pour pt. -50 F; flash pt. (COC) 155 C; ref. index 1.439-1.441; 99% min. assay
- Tech Pet F™** [Crompton/Witco]  
*Chem. Descrip.:* Petrolatum tech.  
 CAS 8009-03-8; EINECS/ELINCS 232-373-2  
*Uses:* Binder, carrier, lubricant, moisture barrier, plasticizer, protectant, softener for tech. applics. (elec., paper and pkg., plastics, rubber, textiles, industrial use)  
*Properties:* Dk. brn.; m.p. 50-65 C
- TEGO® RC 704** [Goldschmidt AG]  
*Chem. Descrip.:* Silicone  
*Uses:* Used for supertight paper and syn. film release coatings, esp. applicable for specialty adhesive tapes (e.g., diaper tapes); radiation-curable  
*Properties:* Greenish color; sp.gr. 1.09-1.11; visc. ≈ 2000 mPa·s; flash pt. > 100 C; 100% act.  
*Storage:* 1 yr shelf life in sealed, lightproof containers @ < 30 C
- TEGO® RC 705** [Goldschmidt AG]  
*Chem. Descrip.:* Silicone acrylate  
*Uses:* For paper and syn. film release coatings; EB/UV-curable  
*Properties:* Greenish clear color; sp.gr. 1.035-1.055; visc. 250-450 mPa·s; flash pt. > 100 C; 100% act.  
*Storage:* 1 yr. shelf life in sealed lightproof containers @ < 30 C
- TEGO® RC 706** [Goldschmidt AG]  
*Chem. Descrip.:* Silicone acrylate

*Uses:* For paper and syn. film release coatings; EB/UV-curable  
*Properties:* Greenish clear color; sp.gr. 0.985-1.005; visc. 120-180 mPa·s; flash pt. > 100 C; 100% act.

*Storage:* 1 yr. shelf life in sealed lightproof containers @ < 30 C

**TEGO® RC 708** [Goldschmidt AG]

*Chem. Descrip.:* Silicone acrylate

*Uses:* For paper and syn. film release coatings; EB/UV-curable

*Properties:* Ylsh. clear color; sp.gr. 1.027-1.037; visc. 2000 mPa·s; flash pt. > 100 C; 100% act.

*Storage:* 1 yr. shelf life in sealed lightproof containers @ < 30 C

**TEGO® RC 711** [Goldschmidt AG]

*Chem. Descrip.:* Silicone acrylate

*Uses:* For paper and syn. film release coatings; adhesion promoter; EB/UV-curable

*Properties:* Greenish clear color; sp.gr. 1.045-1.055; visc. 400-700 mPa·s; flash pt. > 100 C; 100% act.

*Storage:* 1 yr shelf life in sealed lightproof containers @ < 30 C

**TEGO® RC 726** [Goldschmidt AG]

*Chem. Descrip.:* Silicone acrylate

*Uses:* For paper and syn. film release coatings; EB/UV-curable

*Properties:* Ylsh. clear color; sp.gr. 0.97-0.99; visc. 1000 mPa·s; flash pt. > 100 C; 100% act.

*Storage:* 1 yr. shelf life in sealed lightproof containers @ < 30 C

**TEGO® Airex 901 W** [Tego; Tego GmbH]

*Chem. Descrip.:* Organo-modified polysiloxane, contains fumed silica

*Uses:* Defoamer/deaerator for water-based airless spray-applied wood and furniture coatings; food pkg. adhesives; defoamer in food-contact paper/paperboard; prevents microfoam; solv.-free; zero VOCs

*Use Level:* 0.2-0.5%

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2600; US, EU, Japan listed

*Properties:* Sp.gr. 1.003-1.008; visc. 50-150 mPa·s; 100% act.

*Toxicology:* TSCA listed

*Storage:* 1 yr. shelf life in closed containers

**TEGO® Airex 960** [Tego; Tego GmbH]

*Chem. Descrip.:* Modified polysiloxane in xylene solv.

*Uses:* Deaerator for med. and high polar coating systems, esp. PU paints, high solids alkyds, ES spray systems, and urethane-polyesters; food-contact coatings; defoamer in food-contact paper/paperboard

*Use Level:* 0.2-0.8% based on total formulation

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210; BgVV recommended

*Properties:* Clear liq., aromatic odor; insol. in water; sp.gr. 0.91; dens. 7.6 lb/gal; visc. 4-8 mPa·s; b.p. 282-286 F; flash pt. 25 C; ref. index 1.473-1.476; 25% act.

*Toxicology:* TSCA listed

*Precaution:* DOT: flamm. liq.

*Storage:* 1 yr. min. storage stability in closed containers

**TEGO® Airex 970** [Tego; Tego GmbH]

*Chem. Descrip.:* Modified polysiloxane in xylene solv.

*Uses:* Deaerator for med.-polar solv.-based systems, esp. NC-containing systems, vinyl paints, and acid-curing baking finishes (alkyd-melamine and urea, acrylic-melamine, epoxy ester, high solids OEM finishes); food-contact coatings; defoamer in food-contact paper/paperboard

*Use Level:* 0.2-0.8% based on total formulation

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2600

*Properties:* Clear liq., aromatic odor; insol. in water; sp.gr. 0.92; dens. 7.66 lb/gal; b.p. 282-286 F; flash pt. 25 C; ref. index 1.473-1.476; 25% act.

*Toxicology:* TSCA listed

*Precaution:* DOT: flamm. liq.

*Storage:* 1 yr. min. storage stability in closed containers

**TEGO® Antifoam 1-60** [Goldschmidt; Goldschmidt AG]

*Chem. Descrip.:* Polysiloxane-polyether copolymer, polyalkylsiloxane emulsion

*Uses:* Antifoam for wastewater treatment, distillation, bioprocesses, agric. applics., surfactants; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance; listed in TSCA, EINECS, DSL, AICS

*Properties:* Emulsion; 10% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 1-62** [Goldschmidt AG]

*Chem. Descrip.:* Silicone oil-based antifoam emulsion

*Uses:* Antifoam for liq. detergents, slurry compaction, cleaning/dishwashing

agents, care agents, softeners, wastewater treatment; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 10% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-18** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane emulsion

*Uses:* Antifoam for PVC polymerization, blow down, and demonomerization; defoamer for metalworking, in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 20% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-57** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane emulsion

*Uses:* Antifoam for polymer dispersions, final applics.; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 20% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-67** [Goldschmidt AG]

*Chem. Descrip.:* Silicone oil-based emulsion

*Uses:* Antifoam for surfactant concs. and ready-to-use sol'ns., detergents (liq., cleaning agents, dishwashing, care agents); defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 20% act.; anionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-80** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane emulsion

*Uses:* Antifoam for polymer dispersions, final applics.; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 20% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-82** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane emulsion

*Uses:* Antifoam for polymer dispersions, final applics., processing, pump over, demonomerization, and polymerization; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 20% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-89** [Goldschmidt; Goldschmidt AG]

*Chem. Descrip.:* Polysiloxane-polyether copolymer aq. emulsion

*Uses:* Antifoam for polymer dispersions, final applics., processing, pump over, demonomerization, and polymerization; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance;

listed in TSCA, EINECS, DSL, AICS

*Properties:* Emulsion; 20% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 2-92** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane emulsion

*Uses:* Antifoam for polymer dispersions, final applics., processing, and pump over; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Emulsion; 20% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 14** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane-based compd.

*Uses:* Antifoam for metalworking; surfactant concs., detergents; defoamer in food-contact paper/paperboard; self-emulsifying conc. org.

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* 100% act.; nonionic

*Toxicology:* TSCA listed

**TEGO® Antifoam 28** [Goldschmidt AG]

*Chem. Descrip.:* Organo-modified siloxane-based compd.

*Uses:* Antifoam for textile auxiliaries, surfactant concs., detergents (liq., cleaning agents, dishwashing, care agents); defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance

*Properties:* Conc.; 100% act.

- Toxicology:* TSCA listed
- TEGO® Antifoam 81** [Goldschmidt AG]  
*Chem. Descrip.:* Organo-modified siloxane-based compd.  
*Uses:* Antifoam; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Conc.; 100% act.  
*Toxicology:* TSCA listed
- TEGO® Antifoam 93** [Goldschmidt AG]  
*Chem. Descrip.:* Organo-modified siloxane  
*Uses:* Antifoam for textile auxiliaries, surfactant concs.; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Conc.; 100% act.  
*Toxicology:* TSCA listed
- TEGO® Antifoam 105** [Goldschmidt AG]  
*Chem. Descrip.:* Silicone oil  
*Uses:* Antifoam for paper stock preparation, paper machine, sheet forming and coating, and wastewater; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Emulsion; 10% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam 200** [Goldschmidt AG]  
*Chem. Descrip.:* Organo-modified siloxane  
*Uses:* Antifoam for paper stock preparation, paper machine, sheet forming and coating; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Emulsion; 20% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam 201** [Goldschmidt AG]  
*Chem. Descrip.:* Organo-modified siloxane  
*Uses:* Antifoam for paper stock preparation, paper machine, sheet forming and coating, and wastewater; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Emulsion; 20% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam 202** [Goldschmidt AG]  
*Chem. Descrip.:* Organo-modified siloxane  
*Uses:* Antifoam for paper stock preparation, paper machine, sheet forming and coating, and wastewater; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Emulsion; 20% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam 793** [Goldschmidt; Goldschmidt AG]  
*Chem. Descrip.:* Polysiloxane-polyether copolymer  
*Uses:* Antifoam for surfactants, textile auxiliaries, pretreatment, and dyeing, metalworking, cutting fluids, agric. formulations; defoamer in food-contact paper/paperboard; self-emulsifying  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance; listed in TSCA, EINECS, DSL, AICS  
*Properties:* Conc.; 100% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam 1488** [Goldschmidt; Goldschmidt AG]  
*Chem. Descrip.:* Polysiloxane-polyether copolymer aq. emulsion  
*Uses:* Antifoam for polymer dispersions, PVC, final applics., processing, pump over, demonomerization, polymerization, textiles, metalworking, surfactant concs.; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance; listed in TSCA, EINECS, DSL, AICS  
*Properties:* 20% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam 3062** [Goldschmidt; Goldschmidt AG]  
*Chem. Descrip.:* Polysiloxane-polyether copolymer  
*Uses:* Antifoam for surfactants, textile auxiliaries, metalworking, cutting fluids, agric. formulations, epoxy resins; defoamer in food-contact paper/paperboard; org.  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance; listed in TSCA, EINECS, DSL, AICS  
*Properties:* Conc.; 100% act.  
*Toxicology:* TSCA listed
- TEGO® Antifoam KE 400** [Goldschmidt; Goldschmidt AG]  
*Chem. Descrip.:* Vegetable oils, polysiloxane-polyether copolymer emulsion  
*Uses:* Antifoam for PVC prod., polymer dispersions; processing aid for
- water-based polymerization of thermoplastics and elastomers; in stripping of PVC latex in emulsion, suspension, and micro-suspension polymerization; defoamer in food-contact paper/paperboard; not rec. for strongly alkaline media (i.e., pH > 10)  
*Use Level:* 0.01-0.2%  
*Regulatory:* FDA 21CFR §176.210; listed in TSCA, EINECS, DSL, MITI, AICS  
*Properties:* Milky wh. emulsion; easily diluted with water; dens. 0.96 g/cm<sup>3</sup>; visc. 300-600 MPa·s; 60% act.; nonionic  
*Toxicology:* TSCA listed  
*Storage:* 6 mos min. storage stability in closed containers; store under frost-free conditions
- TEGO® Antifoam KE 600** [Goldschmidt; Goldschmidt AG]  
*Chem. Descrip.:* Polyether, polysiloxane-polyether copolymer  
*Uses:* Antifoam for PVC polymerization, blow down, and demonomerization, cutting fluids, surfactant concs., paper stock preparation, paper machine, sheet forming and coating, and wastewater; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance; listed in TSCA, EINECS, DSL, AICS  
*Properties:* Emulsion; 60% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 6** [Goldschmidt AG]  
*Chem. Descrip.:* Org. oil compd.  
*Uses:* Org. antifoam for PVC, polymerization and blow down, wastewater treatment; defoamer in food-contact paper/paperboard; self-emulsifying  
*Regulatory:* FDA 21CFR §176.210; Korea, and MITI compliance  
*Properties:* Conc.; 100% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 10** [Goldschmidt AG]  
*Chem. Descrip.:* Org. oil compd.  
*Uses:* Org. antifoam for PVC, polymerization and blow down, metalworking; defoamer in food-contact paper/paperboard; self-emulsifying  
*Regulatory:* FDA 21CFR §176.210; Korea, and MITI compliance  
*Properties:* Conc.; 100% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 53** [Goldschmidt AG]  
*Chem. Descrip.:* Org. oil compd.  
*Uses:* Org. antifoam for polymer dispersions and PVC, wastewater treatment; defoamer in food-contact paper/paperboard; self-emulsifying  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Conc.; 100% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 95** [Goldschmidt; Goldschmidt AG]  
*Chem. Descrip.:* Vegetable oils, polysiloxane-polyether copolymer emulsion  
*Uses:* Antifoam for PVC prod., polymer dispersions; defoamer in food-contact paper/paperboard; self-emulsifying  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance; listed in TSCA, EINECS, DSL, AICS  
*Properties:* Conc.; 40% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 100** [Goldschmidt AG]  
*Chem. Descrip.:* Org. oil compd.  
*Uses:* Antifoam for wastewater treatment; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Conc., self-emuls.; 100% act.; nonionic  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 911** [Goldschmidt AG]  
*Chem. Descrip.:* Org. oil compd.  
*Uses:* Antifoam for wastewater treatment, distillation, and bioprocesses; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Conc.; 100% act.  
*Toxicology:* TSCA listed
- TEGO® Antifoam KS 1100** [Goldschmidt AG]  
*Chem. Descrip.:* Org. oil compd.  
*Uses:* Antifoam for paper stock preparation, paper machine, sheet forming and coating, and wastewater; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance  
*Properties:* Conc., self-emuls.; 100% act.; nonionic  
*Toxicology:* TSCA listed



**TEGO® Antifoam MR 1000** [Goldschmidt AG]*Chem. Descrip.:* Org. oil compd.*Uses:* Org. antifoamer for metalworking; defoamer in food-contact paper/paperboard; self-emulsifying*Regulatory:* FDA 21CFR §176.210; Korea, and MITI compliance*Properties:* Conc.: 100% act.; nonionic*Toxicology:* TSCA listed**TEGO® Antifoam MR 1015** [Goldschmidt; Goldschmidt AG]*Chem. Descrip.:* Polysiloxane-polyether copolymer, polyalkylsiloxane emulsion*Uses:* Antifoam for polymer dispersions, final applics., textiles pretreatment/dyeing/printing/finishing, metalworking, surfactant concs., and ready-to-use sol'ns; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance;

listed in TSCA, EINECS, DSL, AICS

*Properties:* Emulsion; 70% act.; nonionic*Toxicology:* TSCA listed**TEGO® Antifoam MR 1016** [Goldschmidt AG]*Chem. Descrip.:* Silicone oil-based emulsion*Uses:* Antifoam for polymer dispersions, final applics., textiles pretreatment/dyeing/printing, metalworking, liq. detergents, slurry compaction, cleaning/dishwashing agents, care agents, wastewater treatment; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance*Properties:* Emulsion; 10% act.; nonionic*Toxicology:* TSCA listed**TEGO® Antifoam N** [Goldschmidt AG]*Chem. Descrip.:* Silicone oil-based emulsion*Uses:* Antifoam for distillation, bioprocesses, epoxy resins; defoamer in food-contact paper/paperboard; org.*Regulatory:* FDA 21CFR §176.210, BGA, TSCA, MITI listed*Properties:* Conc.: 100% act.*Toxicology:* TSCA listed**TEGO® Antifoam WM 20** [Goldschmidt AG]*Chem. Descrip.:* Silicone oil*Uses:* Antifoam for liq. detergents, slurry compaction, cleaning/dishwashing agents, care agents, and softeners; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.210; BGA, Korea, and MITI compliance*Properties:* Emulsion; 20% act.; nonionic*Toxicology:* TSCA listed**TEGO® Dispers 740 W** [Tego; Tego GmbH]*Chem. Descrip.:* Modified fatty acid deriv.*Uses:* Dispersant; very good color str. development, wetting of org. and inorg. pigments for architectural coatings and inks; defoamer in food-contact paper/paperboard; solv.-free; no nonylphenol ethoxylate*Use Level:* 2-70%*Regulatory:* FDA 21CFR §176.210 approved*Properties:* Gardner 0-4 clear to sl. turbid liq.; visc. 550-950 mPa·s; pH 6.5-8 (10%); 100% act.; nonionic*Toxicology:* TSCA listed*Storage:* 1yr. shelf life in closed containers**TEGO® Flow 354** [Tego; Tego GmbH]*Chem. Descrip.:* Cetyl dimethicone copolyol*Uses:* Flow control agent, leveling agent, anticratering agent, surf. tens. reducer in paper/board coatings, ink jet inks, printing inks, varnishes; exc. compat. in common water-based binders*Use Level:* 0.3-5.0% (paper/board coatings), 0.3-3.0% (ink jet inks), 0.1-1.0% (printing inks, varnishes)*Properties:* Clear liq.; sol. (1:100) in water, alcohols, glycols, min. oil; sp.gr. 0.915-0.945; visc. 900-2300 mPa·s; ref. index 1.437-1.443; 100% act.*Storage:* 12 mos min. storage stability in original sealed containers stored @ R.T.**TEGO® Foamex 800** [Tego; Tego GmbH]*Chem. Descrip.:* Polysiloxane-polyether copolymer o/w emulsion; contains hydrophobic silica*Uses:* Defoamer for water-based emulsion paints and water-thinnable systems, PU paints, PU-acrylics, furniture paint, wood varnish, adhesives, dispersion paints, building paints, polymer dispersions, food-contact paper/paperboard*Use Level:* 0.2-1.5% on total formulation*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved  
*Properties:* Wh. thixotropic liq.; misc. with water; sp.gr. 1.0 g/cc; dens. 8.3 lb/gal; visc. 530 mPa·s; pH 7-9; 20% act. in water; 23-27% NV; nonionic*Toxicology:* TSCA listed*Storage:* 6 mos storage stability in closed containers under frost-free conditions (@ < 40 C)**TEGO® Foamex 805** [Tego; Tego GmbH]*Chem. Descrip.:* Polysiloxane-polyether copolymer o/w emulsion

CAS 68937-54-2

*Uses:* Defoamer for water-based emulsion paints and water-thinnable systems, PU paints, PU-acrylics, furniture paint, wood varnish, adhesives, dispersion paints, polymer dispersions, food-contact paper/paperboard*Use Level:* 0.2-1.5%*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved*Properties:* Wh. thixotropic liq.; sp.gr. 1.0 g/cc; dens. 8.3 lb/gal; visc. 150 mPa·s; pH 7-9; 20% act., 22-26% NV; nonionic*Toxicology:* TSCA listed*Storage:* 6 mos storage stability in closed containers under frost-free conditions (@ < 40 C)**TEGO® Foamex 810** [Tego; Tego GmbH]*Chem. Descrip.:* Polysiloxane-polyether copolymer in combination with org. polymer; contains hydrophobic silica

CAS 68937-54-2

*Uses:* Defoamer for aq. coatings and inks, industrial coatings, wood lacquers, printing inks, pigment pastes, food-contact paper/paperboard*Use Level:* 0.05-0.2%*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved*Properties:* Gardner 3 max. turbid liq.; sp.gr. 1.0; dens. 8.3 lb/gal; visc. 500-1000 mPa·s; flash pt. 90 C; 100% act.; 95-100% NV; nonionic*Toxicology:* TSCA listed*Storage:* 1 yr storage life in closed container**TEGO® Foamex 815** [Tego; Tego GmbH]*Chem. Descrip.:* O/w emulsion of polysiloxane-polyether copolymer; contains hydrophobic silica

CAS 68937-54-2

*Uses:* Defoamer for aq. coatings and printing inks, building protection coatings based on styrene-acrylic emulsions, wood and furniture lacquers, emulsion mfg., printing inks and overprint varnishes based on pure acrylic resins; defoamer in food-contact paper/paperboard*Use Level:* 0.1-1.5%*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved*Properties:* Wh. thixotropic liq.; dens. 1.0 g/cm<sup>3</sup>; visc. 400 mPa·s; pH 7-9; 20% act.; 22-26% NV; nonionic*Toxicology:* TSCA listed*Storage:* 6 mos storage life in closed container @ < 40 C; keep from freezing**TEGO® Foamex 825** [Tego; Tego GmbH]*Chem. Descrip.:* Hydrophobic polysiloxane-polyether copolymer o/w emulsion; contains hydrophobic silica

CAS 68937-54-2

*Uses:* Defoamer for aq. coatings and printing inks, building protection coatings (satin gloss and gloss coatings), wood and furniture lacquers, emulsion mfg., printing inks and overprint varnishes based on pure acrylic resins, industrial coatings; defoamer in food-contact paper/paperboard*Use Level:* 0.1-1.0%*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved*Properties:* Wh. thixotropic liq.; dens. 1.0 g/cm<sup>3</sup>; visc. 400 mPa·s; pH 7-9; 20% act.; 24.5-28.5% NV; nonionic*Storage:* 6 mos storage life in closed container @ < 40 C; keep from freezing**TEGO® Foamex 835** [Tego; Tego GmbH]*Chem. Descrip.:* O/w emulsion of dimethyl polysiloxane, contains hydrophobic silica*Uses:* Defoamer for aq. coatings and printing inks, printing inks for porous substrates, plasters, high visc. emulsion paints, overprint varnishes; defoamer in food-contact paper/paperboard*Use Level:* 0.03-0.3%*Regulatory:* FDA 21CFR §176.210; BgVV approved*Properties:* Wh. thixotropic liq.; sp.gr. 1.0; dens. 8.3 lb/gal; flash pt. none; pH 5-7; 50% act.; 51-53% NV; nonionic*Toxicology:* TSCA listed*Storage:* 6 mos storage life in closed container below 40 C; keep from freezing**TEGO® Foamex 1435** [Tego; Tego GmbH]

*Chem. Descrip.:* Polysiloxane w/o emulsion

*Uses:* Defoamer for water-thinnable printing inks, high visc. emulsion paints and renders, food-contact paper/paperboard

*Use Level:* 0.25-0.75%

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600

*Properties:* Wh. thixotropic liq.; misc. with water; sp.gr. 1.0; dens. 8.3 lb/gal; visc. 200-500 mPa·s; flash pt. none; 20% act. in water; nonionic

*Toxicology:* TSCA listed

*Storage:* 6 mos min. storage stability in closed containers under frost-free conditions

**TEGO® Foamex 1488** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethicone copolyol emulsion

*Uses:* Defoamer for water-based emulsion paints and water-thinnable systems, building protection coatings (acrylic, styrene-acrylic, PVA), wood/furniture varnishes, anticorrosive coatings/industrial paints (alkyd, polyester, acrylic), polymer emulsions; defoamer in food-contact paper/paperboard

*Use Level:* 0.1-1.0%

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved

*Properties:* Wh. thixotropic liq.; sp.gr. 1.0 g/cc; dens. 8.3 lb/gal; visc. 150 mPa·s; flash pt. none; pH 7-9 (1:10); 20% act. in water; 22-26% NV; nonionic/anionic

*Toxicology:* TSCA listed

*Storage:* 6 mos storage stability in closed containers under frost-free conditions (@ < 40 C)

**TEGO® Foamex 1495** [Tego; Tego GmbH]

*Chem. Descrip.:* O/w emulsion of hydrophobic polysiloxane-polyether copolymer, contains hydrophobic silica

*Uses:* Defoamer for aq. coatings and printing inks, facade coatings, satin gloss coatings based on styrene-acrylic and terpolymer emulsions, aq. printing inks and overprint varnishes, emulsion mfg., food-contact paper/paperboard

*Use Level:* 0.1-1.0%

*Regulatory:* FDA 21CFR §175.105, 176.210; BgVV recommended

*Properties:* Wh. thixotropic liq.; sp.gr. 1.0; dens. 8.3 lb/gal; visc. 230 mPa·s; flash pt. none; pH 7-9 (1:10); 25% act.; 28-32% NV; nonionic

*Toxicology:* TSCA listed

*Storage:* 6 mos. storage life in closed container below 40 C; keep from freezing

**TEGO® Foamex 3062** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethicone copolyol

CAS 67762-96-3

*Uses:* Defoamer for water-based emulsion paints and water-thinnable systems, building protection coatings (acrylic, styrene-acrylic, PVA), wood/furniture varnishes, printing inks, food-contact paper/paperboard

*Use Level:* 0.05-0.15%

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2600; BgVV approved

*Properties:* Gardner 3 max. sl. turbid liq.; sp.gr. 1.0; dens. 8.3 lb/gal; visc. 650-1250 mPa·s; flash pt. > 100 C; 100% act.; 97-100% NV

*Toxicology:* TSCA listed

*Storage:* 1 yr min. storage stability in closed containers

**TEGO® Foamex 7447** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethicone copolyol emulsion

*Uses:* Defoamer for water-based emulsion paints and water-thinnable systems, building protection coatings (acrylic, styrene-acrylic, PVAc), wood/furniture varnishes, anticorrosion/industrial paints (alkyd, polyester, acrylic), printing inks, polymer disp.; defoamer in food-contact paper/paperboard

*Use Level:* 0.2-1.5%

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BgVV approved

*Properties:* Wh. thixotropic liq.; sp.gr. 1.0; dens. 8.3 lb/gal; visc. 120-250 mPa·s; flash pt. none; pH 7-9 (1:10); 20% act. in water, 22-26% NV; nonionic

*Toxicology:* TSCA listed

*Storage:* 6 mos min. storage stability in closed containers under frost-free conditions (@ < 40 C)

**TEGO® Foamex 8020** [Tego; Tego GmbH]

*Chem. Descrip.:* Polyether siloxane copolymer emulsion, contains fumed silica

*Uses:* Defoamer for acrylic, styrene-acrylic; prevents and destroys foam during mfg. and applic. of waterborne coatings and printing inks; defoamer in food-contact paper/paperboard

*Use Level:* 0.1-1.0%

*Regulatory:* FDA 21CFR §176.210 compliant

*Properties:* Wh. liq.; visc. 250-400 mPa·s; 20% act.; 23-27% NV

*Toxicology:* TSCA listed

**TEGO® Foamex 8030** [Tego; Tego GmbH]

*Chem. Descrip.:* Polyether siloxane copolymer emulsion, contains fumed silica

*Uses:* Defoamer for water-based architectural coating, food-contact paper/paperboard

*Use Level:* 0.1-1%

*Regulatory:* FDA 21CFR §176.210; US, EU, Canada, Japan, Australia listed

*Properties:* Wh. liq.; visc. 250-400 mPa·s; 20% act.; 23-27% NV

*Toxicology:* TSCA listed

*Storage:* 6 mos. shelf life in closed containers @ < 40 C; keep from freezing

**TEGO® Foamex 826** [Tego; Tego GmbH]

*Chem. Descrip.:* Polyether siloxane copolymer emulsion contg. fumed silica

*Uses:* Defoamer for water-based systems, architectural coatings, pigmented coatings based on elastic polymers, decorative coatings, industrial coatings, food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600; BGVV approved

*Properties:* Wh. thixotropic liq.; pH 7-9 (1:10); 20% act.

*Storage:* 6 mos storage stability when stored frost-free in closed containers below 40 C

**TEGO® Foamex KS 4** [Tego; Tego GmbH]

*Chem. Descrip.:* Vegetable oil with tip of silicone

*Uses:* Defoamer for water-based architectural coatings, paints, plasters; defoamer for food-contact paper/paperboard mfg.; silicone-free

*Use Level:* 0.1-1%

*Regulatory:* FDA 21CFR §176.210 compliant; US, EU, and Canada listed

*Properties:* Sl. turbid ysh. liq.; visc. 400-1000 mPa·s; pH 6-8; 100% act.

*Toxicology:* TSCA listed

*Storage:* 1 yr. shelf life in closed containers

**TEGO® Foamex N** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethyl polysiloxane with hydrophobic silica

*Uses:* Defoamer conc. for med., high solid and solv.-free paint systems, building protection coatings, anticorrosive coatings, high visc. paints, pigmented UV-cured coatings and finishes, solv.-based gravure and flexo inks, food-contact paper/paperboard

*Use Level:* 0.05-0.5% on total formulation

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2600; BgVV approved

*Properties:* Sol. in isopropanol, butylacetate, xylene, and min. spirits; sp.gr. 1.0; dens. 8.2 lb/gal; visc. 200-600 mPa·s; flash pt. > 200 C; ref. index 1.402-1.406; 100% act.

*Toxicology:* TSCA listed

*Storage:* 1 yr min. storage stability in closed containers; stir well before use

**TEGO® Glide 100** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethicone copolyol

*Uses:* Surf. control additive, mar resist. aid and flow control agent for water and solv.-based paints (alkyd, sat. polyester, polyacrylate), building protection coatings, anticorrosive paints, car finishes, printing inks; defoamer in food-contact paper/paperboard

*Use Level:* 0.1-1.0%

*Regulatory:* FDA 21CFR §176.210 compliant; BgVV approved

*Properties:* Gardner < 3 color; sp.gr. 1.02-1.04; dens. 8.3 lb/gal; visc. 800 ± 150 mm<sup>2</sup> s<sup>-1</sup>; flash pt. 41 C; ref. index 1.445-1.455; surf. tens. 21 dynes/cm (20 C); 100% act.

*Toxicology:* TSCA listed

*Precaution:* DOT: combustible liq.

*Storage:* 1 yr min. storage stability in closed containers

**TEGO® Glide 403** [Tego; Tego GmbH]

*Chem. Descrip.:* Polysiloxane-polyether copolymer

CAS 68937-54-2

*Uses:* Slip agent, flow control agent, leveling agent, anticratering agent, antiblocking agent, release agent in paper/board coatings, industrial coatings, printing inks, preprint applics.; food pkg. adhesives; defoamer in food-contact paper/paperboard; exc. compat. in common water-based binders; very good release, slip, and mar resist.

*Use Level:* 0.3-5.0% (paper coatings), 0.1-1.0% (water-based coatings), 0.1-0.3% (solv.-based coatings), 0.1-1.0% (printing inks)

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600

*Properties:* Pale yel. liq.; sol. (1:100) in water, alcohol, esters, ketones,

aromatic hydrocarbons; sp.gr. 1.014-1.034; dens. 8.6 lb/gal; visc. 2100-3300 mPa·s; pH 5.5-7.5; ref. index 1.445-1.455 (20 C); 100% act.

Storage: 12 mos min. storage stability in original sealed containers @ R.T.

**TEGO® Glide 404** [Tego; Tego GmbH]

*Chem. Descrip.:* Polysiloxane-polyether copolymer

CAS 68937-54-2

*Uses:* Slip agent, flow control agent, anticratering agent, surf. tens. reducer in paper/board coatings, industrial coatings, printing inks, ink jet inks, varnishes; exc. compat. in common water-based binders

*Use Level:* 0.3-3.0% (paper coatings), 0.1-1.0% (industrial coatings), 0.3-3.0% (ink jet inks), 0.1-1.0% (printing inks, varnishes)

*Properties:* Lt. yel. liq.; sol. (1:100) in water, alcohol, glycols; sp.gr. 1.014-1.034; visc. 37-47 mPa·s; ref. index 1.370-1.380 (20 C)

Storage: 12 mos min. storage stability in original sealed containers @ R.T.

**TEGO® Glide B 1484** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethicone copolyol

*Uses:* Slip agent, flow agent, leveling agent, deaerator for solv.-based systems, epoxy resins, epoxide, PU, acrylate/isocyanate, and alkyd/melamine paint systems, floor coatings, car finishes, wood/furniture varnishes; defoamer in food-contact paper/paperboard; improves scratch resistance

*Use Level:* 0.05-0.25% (paints), 0.2-1.0% (epoxy coatings)

*Regulatory:* FDA 21CFR §176.210; BGVV approved

*Properties:* Gardner 3 max. color; sol. in most org. solvs.; insol. in water; sp.gr. 1.00; dens. 8.3 lb/gal; visc. 350-550 mPa·s; flash pt. 65 C; ref. index 1.439-1.443; 100% act.

*Toxicology:* TSCA listed

*Precaution:* DOT: combustible liq.

Storage: 1 yr min. storage stability in closed containers @ R.T.

**TEGO® Glide ZG 400** [Tego; Tego GmbH]

*Chem. Descrip.:* Dimethicone copolyol

*Uses:* Surfactant, mar resistant additive for water- and solv.-based paints (alkyd, alkyd-melamine, PU, vinyl), building protection coatings, anticorrosive paints, wood/furniture varnishes, printing inks; defoamer in food-contact paper/paperboard; hydrolytically stable

*Use Level:* 0.05-0.15% on total formulation (paints), 0.1-1.0% (printing inks)

*Regulatory:* FDA 21CFR §176.210 approved; BgVV approved

*Properties:* Gardner < 2 clear to sl. turbid liq.; sp.gr. 1.025-1.045; dens. 8.6 lb/gal; visc. 750-1250 mPa·s; flash pt. 83 C; ref. index 1.450-1.454; 100% act.

*Toxicology:* TSCA listed

*Precaution:* DOT: combustible liq.

Storage: 1 yr. shelf life in closed containers

**TEGO® Photo Compound 750** [Goldschmidt AG]

*Chem. Descrip.:* TEGO® RC 711 (80%) and oligomeric  $\alpha$ -cleavage photoinitiator (20%)

*Uses:* For UV curing of TEGO® RC Series

*Use Level:* 10-20 parts

*Properties:* Sl. yel. greenish color; visc. 1700 mPa·s (20 C); flash pt. > 100 C

Storage: 6 mos. shelf life in dark, cool, dry place; avoid exposure to direct daylight

**TEGO® Photoinitiator A 12** [Goldschmidt AG]

*Uses:* Photoinitiator for use with TEGO® RC Series when cured by UV radiation; solv.-free

*Use Level:* 2-5%

*Properties:* Colorless to sl. yel. color; sp.gr. 1.08; visc. 20-25 mPa·s (20 C); b.p. 250 C; flash pt. > 100 C; 100% act.

Storage: 1 yr. shelf life in sealed org. containers under cool, dry conditions

**TEGOPREN® 5803** [Goldschmidt; Goldschmidt AG]

*Chem. Descrip.:* Polysiloxane-polyether copolymer

*Uses:* Additive for boosting the performance of defoaming compds.; increases the spreading performance of org. oils; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210; listed in TSCA inventory

*Properties:* Oil-sol.; 100% act.

*Toxicology:* TSCA listed

**TEGOPREN® 5852** [Goldschmidt AG]

*Chem. Descrip.:* Polyether siloxane

*Uses:* Antifoam; dispersant for aq. and org. systems; paper/pulping aux.; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210, BGA, MITI, and Korea compliance

*Properties:* Sol. in alcohol, aromatic, chlorinated HC, ester oil; disp. in water;

cloud pt. < 25 C; 100% act.

*Toxicology:* TSCA listed

**TEGOPREN® 5863** [Goldschmidt; Goldschmidt AG]

*Chem. Descrip.:* Polysiloxane-polyether copolymer

*Uses:* O/w emulsifier; additive for boosting the performance of defoaming compds.; increases the spreading performance of org. oils; flow improver for gran. powds.; hydrophilic softener; fabric softener; paper/pulping aux.; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210, BGA, MITI, and Korea compliance; listed in TSCA inventory

*Properties:* Sol. in water, alcohol, aromatics, chlorinated HC, ester oil; cloud pt. 42 C; surf. tens. 30 mN/m (0.1% water); 100% act.

*Toxicology:* TSCA listed

**TEGOPREN® 5884** [Goldschmidt; Goldschmidt AG]

*Chem. Descrip.:* Polysiloxane-polyether copolymer

*Uses:* Softeners and finishes for textiles and other applics.; defoamer in food-contact paper/paperboard; hydrophilic

*Regulatory:* FDA 21CFR §176.210; TSCA listed

*Properties:* Sol. in alcohol, aromatics, chlorinated HC, ester oil; sol. hot in water; cloud pt. 71 C; 100% act.

*Toxicology:* TSCA listed

**TEGO® Silicone Acrylate RC** [Goldschmidt]

*Chem. Descrip.:* Silicone acrylate

*Uses:* For release coatings to be cured by EB/UV-radiation in the paper and film industries

**TEGO® Wet 260** [Tego; Tego GmbH]

*Chem. Descrip.:* Polysiloxane-polyether copolymer

CAS 68937-54-2

*Uses:* Substrate wetting agent for low- or zero-VOC coatings and printing inks; used in wood and furniture lacquers, spray or roller coatings, appliance coatings, aq. primers for plastics, water-borne fillers for automotive coatings; printing inks for plastic and paper, overprint varnish; good recoatability, low tendency to stabilize foam

*Use Level:* 0.1-0.7% as supplied

*Properties:* Gardner 3 max. color; sp.gr. 1.01-1.03; dens. 8.5 lb/gal; visc. 30-150 mPa·s; flash pt. > 100 C; pH 4-10; 100% act., 95-100% NV; nonionic

*Toxicology:* TSCA listed

Storage: 1 yr storage life in closed container

**Tektamer® 38** [Nalco]

*Chem. Descrip.:* 1,2-Dibromo-2,4-dicyanobutane

CAS 35691-65-7; EINECS/ELINCS 252-681-0

*Uses:* Antimicrobial preservative for aq. systems, paints, emulsions, adhesives, joint cements, pigment dispersions, metalworking fluids, inks, polishes, waxes, cosmetics and personal care prods.; food pkg. adhesives, paper

*Use Level:* 0.025-0.075% (aq. paints), 0.01-0.05% (latex emulsions), 0.025-0.15% (adhesives), 1-4% (metalworking concs.), 0.01-0.1% (waxes, polishes), 0.01-0.75% (inks)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; EPA reg. no. 10445-33

*Properties:* Off-wh. to lt. tan powd., mildly pungent odor; sol. 1700 ppm in water @ 20 C; sol. 325 g/100 ml in dimethylformamide, 301 g acetone, 218 g chloroform, 138 g ethyl acetate, 121 g benzene; bulk dens.  $\approx$  48 lb/ft<sup>3</sup>; m.p. 50-53 C; 98% min. act.

*Toxicology:* Corrosive; causes eye damage and skin irritation; harmful or fatal if swallowed

*Environmental:* Minimal environmental impact

Storage: Store out of direct sunlight to maintain below its m.p.; exposure above 50 C will cause caking; keep containers tightly closed

**Tektamer® 38 A.D.** [Nalco]

*Chem. Descrip.:* 1,2-Dibromo-2,4-dicyanobutane aq. disp.

CAS 35691-65-7; EINECS/ELINCS 252-681-0

*Uses:* Antimicrobial preservative for aq. systems, paints, emulsions, adhesives, joint cements, pigment dispersions, metalworking fluids, inks, polishes, waxes, cosmetics and personal care prods.; food pkg. adhesives, paper; food-contact slimicide

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA reg. no. 10445-56

*Properties:* Off-wh. to wh. liq.; sp.gr. 1.1 (20 C); visc. 1800-2400 cps; f.p. 0 C; 25% min. act.

*Toxicology:* Corrosive to eyes; causes eye damage and skin irritation

*Environmental:* Minimal environmental impact

*Storage:* Ship and store @ 0-42 C; keep from freezing; store away from heat  
**Tektamer® 38 L.V.** [Nalco]

*Chem. Descrip.:* 1,2-Dibromo-2,4-dicyanobutane aq. disp.

CAS 35691-65-7; EINECS/ELINCS 252-681-0

*Uses:* Antimicrobial preservative for aq. systems, paints, emulsions, adhesives, joint cements, pigment dispersions, metalworking fluids, inks, polishes, waxes, cosmetics and personal care prods.; food pkg. adhesives, paper

*Use Level:* 0.1-0.3% (aq. paints), 0.04-0.2% (latex emulsions), 0.04-0.6% (adhesives), 0.04-0.4% (waxes, polishes), 0.04-0.3% (inks), 0.04-0.1% (dispersed pigments), 0.2-0.4% (joint cements), 0.1-0.4% (metalworking fluids)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180; EPA reg. no. 10445-56

*Properties:* Off-wh. low-visc. liq.; sp.gr. 1.15-1.17 (20 C); visc. 125-400 cps; f.p. 0 C; 25% min. act. in water

*Toxicology:* Corrosive to eyes; causes eye damage and skin irritation

*Environmental:* Minimal environmental impact

*Storage:* Ship and store @ 0-42 C; keep from freezing; store away from heat

**Tenase® 1200** [Genencor Int'l.]

*Chem. Descrip.:* Bacterial  $\alpha$ -amylase

CAS 9000-92-4; EINECS/ELINCS 232-567-7

*Uses:* Enzyme for starch liquefaction for baking (antistaling agent), brewing (starch haze removal), candy, cereal (reduces visc.), cocoa, distilling, fermentation, starch (prod. of low DE syrups), paper size and coatings, textile desizing, starch adhesives, cleaning starch processing equip.

*Properties:* Lt. tan to wh. impalpable dry powd., free of offensive odor and taste; water-sol.

*Storage:* Activity loss  $\leq$  10% in 1 yr stored in sealed containers under cool dry conditions; 5 C storage extends life

**Tergitol® 15-S-3** [Union Carbide]

*Chem. Descrip.:* C11-15 pareth-3

CAS 68131-40-8

*Uses:* Detergent, emulsifier, wetting agent, intermediate used in textiles, solv. cleaners, dry cleaning, metalworking fluids, water treatment, oil field chems., pulp/paper deinking, latex emulsions, plastics antistat, agric.; defoamer for aq. systems

*Regulatory:* FDA, EPA compliance

*Properties:* Clear liq.; sol. in oil, chlorinated solvs., most org. solvs.; m.w. 336; sp.gr. 0.930; dens. 7.74 lb/gal; visc. 26 cs; HLB 8.3; hyd. no. 167; pour pt. -46 C; cloud pt. < 0 (1% aq.); flash pt. (PMCC) 174 C; pH 4.0 (1% in aq. IPA); 100% act.; nonionic

*Environmental:* Biodeg.

**Tergitol® 15-S-5** [Union Carbide]

*Chem. Descrip.:* C11-15 pareth-5

CAS 68131-40-8

*Uses:* Detergent, emulsifier, wetting agent, intermediate for household and industrial detergents, textiles, dry cleaning, water treatment, metalworking/cleaning, oil field chems., pulp/paper deinking, agric.; latex emulsion stabilizer; plastics antistat; defoamer for aq. systems; fuel de-icing

*Regulatory:* FDA, EPA compliance

*Properties:* Clear liq.; sol. in oils, chlorinated solvs., most org. solvs.; m.w. 415; sp.gr. 0.965; dens. 8.03 lb/gal; visc. 35 cP; HLB 10.6; hyd. no. 135; cloud pt. < 0 C (1% aq.); flash pt. (PMCC) 178 C; pour pt. -24 C; pH 6-8 (1%); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 8570 mg/kg, (skin, rabbit) 4000 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; irritating to skin and eyes

*Environmental:* Biodeg.

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>

**Tergitol® 15-S-7** [Union Carbide]

*Chem. Descrip.:* C11-15 pareth-7

CAS 68131-40-8

*Uses:* Detergent, emulsifier, wetting agent, dye leveling agent, coupler, dispersant, stabilizer for household and industrial detergents, paper, textiles, leather, paints, agric., metal cleaners, oil field chems., water treatment, electronics; intermediate

*Regulatory:* FDA, EPA compliance

*Properties:* Clear liq.; sol. in water, chlorinated solvs., most org. solvs.; m.w. 515; sp.gr. 0.992; dens. 8.26 lb/gal; visc. 51 cP; HLB 12.4; hyd. no. 109; pour pt. 2 C; cloud pt. 37 C (1% aq.); flash pt. (PMCC) 187 C; pH 6.8 (1% aq.); surf. tens. 28 dynes/cm (0.1% aq.); Draves wetting 7 s (0.1%); Ross Miles foam 125 mm (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Tergitol® 15-S-9** [Union Carbide]

*Chem. Descrip.:* C11-15 pareth-9

CAS 68131-40-8

*Uses:* Detergent, emulsifier, wetting agent, dye leveling agent, coupling agent for household and industrial detergents, paper, textiles, leather, paints, agric., metal cleaning, oil field chems., water treatment, electronics; intermediate

*Regulatory:* FDA, EPA compliance

*Properties:* Clear liq.; sol. in water, chlorinated solvs., most polar org. solvs.; m.w. 584; sp.gr. 1.006; dens. 8.37 lb/gal; visc. 60 cP; HLB 13.3; hyd. no. 96; pour pt. 9 C; cloud pt. 60 C (1% aq.); flash pt. (PMCC) 193 C; pH 7.1 (1%); surf. tens. 30 dynes/cm (0.1% aq.); Draves wetting 8 s (0.1%); Ross-Miles foam 95 mm (0.1% aq.); 100% act.; nonionic

*Toxicology:* LD50 (oral, rat) 2380 mg/kg, (skin, rabbit) 2000 mg/kg; mod. toxic by ing. and skin contact; skin and severe eye irritant

*Environmental:* Biodeg.

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>

**Tergitol® 15-S-12** [Union Carbide]

*Chem. Descrip.:* C11-15 pareth-12

CAS 68131-40-8

*Uses:* Detergent, wetting agent, emulsifier, coupling agent, dispersant, dye leveling agent, stabilizer for household/industrial detergents, paper, textiles, fiber lubricants, paints, agric., metal cleaners, oil field chems., water treatment, electronics, leather; rec. for elevated temp. and high electrolyte applics.

*Regulatory:* FDA, EPA compliance

*Properties:* Clear liq.; sol. in water, chlorinated solvs., most polar org. solvs.; m.w. 738; sp.gr. 1.020; dens. 8.49 lb/gal; visc. 85 cP; HLB 14.7; hyd. no. 76; pour pt. 20 C; cloud pt. 88 C (1% aq.); flash pt. (PMCC) > 227 C; pH 6.2 (1%); surf. tens. 31 dynes/cm (0.1% aq.); Draves wetting 24 s (0.1%); Ross-Miles foam 125 mm (1%, initial); 100% act.; nonionic

*Toxicology:* Skin and severe eye irritant

*Environmental:* Biodeg.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

**Tergitol® 15-S-15** [Union Carbide]

*Chem. Descrip.:* C11-15 pareth-15

CAS 68131-40-8

*Uses:* Emulsifier, detergent, wetting agent for alkaline industrial cleaners/degreasers, textile scouring, dye carriers, demulsification of petrol. oil emulsions, oil field chems.; pulp/paper processing aid; stabilizer for syn. latexes; for use at elevated temps., in presence of electrolytes

*Regulatory:* FDA, EPA compliance

*Properties:* Wh. waxy semisolid; sol. in water, chlorinates solvs, polar org. solvs.; m.w. 877; sp.gr. 1.009 (55/20 C); dens. 8.40 (55 C); visc. 43 cP (50 C); HLB 15.6; hyd. no. 64; pour pt. 28 C; cloud pt. > 100 C (1% aq.); flash pt. (PMCC) 246 C; pH 6.4 (1% aq.); surf. tens. 34 dynes/cm (0.1% aq.); Ross-Miles foam 130 mm (0.1% aq., initial); 100% act.; nonionic

*Environmental:* Biodeg.

**Tergitol® Min-Foam 1X** [Union Carbide]

*Chem. Descrip.:* C11-15 alcohols reacted with EO and PO

CAS 68551-14-4

*Uses:* Surfactant, foam depressant, wetting agent, detergent for household/industrial cleaners, dry cleaning, textile processing, metal cleaning, circuit board cleaners, leather, paper deinking

*Properties:* Clear liq., mild char. odor; sol. in water, xylene, butyl Cellosolve, anhyd. IPA, perchloroethylene, oils; m.w. 645; sp.gr. 0.995; dens. 8.28 lb/gal; visc. 57 cP; HLB 11.4; hyd. no. 87; solid. pt. -42 C; pour pt. -38 C; cloud pt. 40 C (1% aq.); flash pt. (PMCC) 111 C; pH 6.7 (1% aq.); surf. tens. 29 dynes/cm (0.1% aq.); Draves wetting 6 s (0.1% aq.); Ross-Miles foam 120 mm (0.1% aq., initial); 100% act.; nonionic

*Toxicology:* Skin and eye irritant

*Environmental:* Biodeg.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

**Tergitol® Min-Foam 2X** [Union Carbide]

*Chem. Descrip.:* C11-15 alcohols reacted with EO and PO

CAS 68551-14-4

*Uses:* Surfactant, antifoam, detergent for household/industrial detergents, machine dishwashing, rinse aid, acid metal cleaners, textile dyeing/processing/scouring, circuit board cleaners, paper deinking, water treatment; completely rinsable

*Properties:* Clear liq.; sol. in xylene, butyl Cellosolve, anhyd. IPA, perchlo-

roethylene, oils; m.w. 630; sp.gr. 0.978; dens. 8.14 lb/gal; visc. 49 cP; HLB 13.8; hyd. no. 89; solid. pt. -47 C; pour pt. -42 C; cloud pt. 20 C (1% aq.); flash pt. (PMCC) 155 C; pH 6.6 (1% aq.); surf. tens. 29 dynes/cm (0.1% aq.); Ross-Miles foam 45 mm (0.1% aq., initial); 100% act.; non-ionic

*Environmental:* Biodeg.

**Tergitol® NP-4** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-4

CAS 9016-45-9; EINECS/ELINCS 230-770-5

*Uses:* Detergent, wetting agent, emulsifier, dispersant used in dry cleaning detergents, household and industrial cleaners, adhesives, agric., emulsification/disp. PVAc; emulsifier for silicones and min. oils; freeze/thaw stabilizer for latex emulsions; food pkg. adhesives; sanitizing sol'ns. for food contact; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Colorless clear liq.; char. odor; oil-sol.; sol. in kerosene, aliphatic hydrocarbons, butyl acetate, butyl Cellosolve, corn and wh. min. oil, diesel fuel, anhyd. IPA, Stod., toluene; m.w. 396; sp.gr. 1.031; dens. 8.57 lb/gal; visc. 445 cs; HLB 8.9; b.p. > 300 C; flash pt. 480 F (COC); cloud pt. 0 C; 100% act.; nonionic

**Tergitol® NP-6** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-6

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier, dispersant used in dry cleaning detergents, household and industrial cleaners, adhesives, agric., emulsification/disp. PVAc; emulsifier for silicones and min. oils; freeze/thaw stabilizer for latex emulsions; food pkg. adhesives; defoamer in food-contact paper/paperboard; sanitizing sol'ns. for food contact; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Colorless clear liq.; char. odor; sol. in kerosene, aliphatic hydrocarbons, butyl acetate, butyl Cellosolve, corn and wh. min. oil, diesel fuel, anhyd. IPA, Stod., toluene; m.w. 484; sp.gr. 1.055; dens. 8.67 lb/gal; visc. 373 cs; HLB 10.9; b.p. > 300 C; flash pt. 360 F (PMCC); cloud pt. 0 C (0.5% aq.); pH 5-7.5; 100% act.; nonionic

**Tergitol® NP-7** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-7

CAS 9016-45-9; EINECS/ELINCS 248-292-0

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Pt-Co 75 max. clear liq.; mild char. odor; sol. in butyl acetate, butyl Cellosolve, corn oil, anhyd. IPA, toluene, water; m.w. 528; sp.gr. 1.055; dens. 8.71 lb/gal; visc. 338 cs; HLB 11.7; solid. pt. -6 C; b.p. > 250 C; flash pt. 525 F (COC); cloud pt. 20 C; pH 5-8 (10% aq.); 100% act.; nonionic

**Tergitol® NP-8** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-8

CAS 9016-45-9

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Pt-Co 50 max. clear liq.; mild char. odor; sol. in butyl acetate, butyl Cellosolve, ethylene glycol, anhyd. IPA, toluene, water; m.w. 572; sp.gr. 1.056; visc. 325; HLB 12.3; solid. pt. -3 C; b.p. 250 C; flash pt. 400 F (PMCC); cloud pt. 43 C; pH 5.0-8.0 (10% aq.); surf. tens. 30 dynes/cm (0.1% aq.); 100% act.; nonionic

**Tergitol® NP-9** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-9

CAS 9016-45-9

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

*Regulatory:* FDA 21CFR §175.105, 176.210, 176.300, 178.1010(b), 178.3400, 182.99; USDA approved; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Yel. clear liq.; mild char. odor; sol. in butyl acetate, butyl Cellosolve, ethylene glycol, anhyd. IPA, toluene, water; m.w. 616; sp.gr. 1.057; dens. 8.80 lb/gal; visc. 318 cs; HLB 12.9; solid. pt. 0 C; b.p. > 250 C; flash pt. 540 F (COC); cloud pt. 54 C; pH 5-8 (10% aq.); surf. tens. 30 dynes/cm (0.1% aq.); 100% act.; nonionic

**Tergitol® NP-9.5** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-9.5

CAS 9016-45-9

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

*Regulatory:* FDA 21CFR §175.105, 176.210, 176.300, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Liq.; misc. with chlorinated and aromatic solvs.; m.w. 634; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 240 cP; HLB 13.1; hyd. no. 88; pour pt. 5 C; cloud pt. 59 C (1%); surf. tens. 31 dynes/cm; Ross-Miles foam 90 mm (1%, initial); 100% act.; nonionic

**Tergitol® NP-10** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

*Regulatory:* FDA 21CFR §175.105, 176.210, 176.300, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Yel. clear liq.; mild char. odor; sol. in butyl acetate, butyl Cellosolve, ethylene glycol, anhyd. IPA, toluene, water; m.w. 682; sp.gr. 1.062; dens. 8.84 lb/gal; visc. 327 cs; HLB 13.6; solid. pt. 7 C; b.p. > 250 C; flash pt. 500 F (COC); cloud pt. 63 C (0.5% aq.); 100% act.; nonionic

**Tergitol® NP-11** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-11

CAS 9016-45-9

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

*Regulatory:* FDA 21CFR §175.105, 176.210, 176.300, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

*Properties:* Liq.; misc. with chlorinated and aromatic solvs.; m.w. 678; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 260 cP; HLB 13.5; hyd. no. 83; pour pt. 12 C; cloud pt. 72 C (1%); surf. tens. 34 dynes/cm; Ross-Miles foam 95 mm (1%, initial); 100% act.; nonionic

**Tergitol® NP-12** [Union Carbide]

*Chem. Descrip.:* Nonoxynol-12

CAS 9016-45-9

*Uses:* Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/

disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

**Regulatory:** FDA 21CFR §175.105, 176.210, 176.300, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

**Properties:** Liq.; misc. with chlorinated and aromatic solvs.; m.w. 704; sp.gr. 1.06; dens. 8.8 lb/gal; visc. 240 cP; HLB 13.8; hyd. no. 80; pour pt. 13 C; cloud pt. 78 C (1%); surf. tens. 34 dynes/cm; Ross-Miles foam 100 mm (1%, initial); 100% act.; nonionic

**Tergitol® NP-13** [Union Carbide]

**Chem. Descrip.:** Nonoxynol-13  
CAS 9016-45-9

**Uses:** Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

**Regulatory:** FDA 21CFR §175.105, 176.210, 178.1010(b), 178.3400, 182.99; EPA 40CFR §180.1001(c),(d),(e)

**Properties:** Yel. clear liq.; mild char. odor; sol. in butyl acetate, butyl Cellosolve, ethylene glycol, anhyd. IPA, toluene, water; m.w. 792; sp.gr. 1.071; dens. 8.90 lb/gal; visc. 410 cs; HLB 14.4; solid. pt. 16 C; b.p. > 250 C; cloud pt. 83 C (0.5% aq.); pH 5.0-8.0 (10% aq.); surf. tens. 34 dynes/cm (0.1% aq.); 100% act.; nonionic

**Tergitol® NP-15** [Union Carbide]

**Chem. Descrip.:** Nonoxynol-15  
CAS 9016-45-9

**Uses:** Surfactant; detergent and wetting agent for adhesives/sealants, agric. emulsifiers, auto/brass/copper/silver polish, dairy and food plant cleaners, deinking/wetting/rewetting agent, detergent in industrial and household cleaners; dispersant for polymers/pigments; dust control/mining; emulsification/disp. polyvinyl acetate; emulsifier for fats/waxes/kerosene/min. oil, polyester resin; metal cleaning; textile wetting agent; wet/spread agents in water-based paints; food pkg.; all-purpose

**Regulatory:** FDA 21CFR §175.105, 176.210; EPA 40CFR §180.1001(e)

**Properties:** Liq.; HLB 15.0; 100% conc.; nonionic

**Tergitol® TMN-3** [Union Carbide]

**Chem. Descrip.:** Isolaureth-3  
CAS 60828-78-6

**Uses:** Emulsifier, wetting agent, coupling agent, penetrant, leveling agent for textile processing, lubricants, water treatment, solv. cleaners/degreasers, metalworking fluids, dry cleaning, oil field chems., pulp/paper deinking; defoamer for aq. systems; intermediate for anionic surfactants used in household, industrial, and personal care prods.

**Regulatory:** FDA, EPA compliance

**Properties:** Clear liq.; sol. in chlorinated solvs., most polar and nonpolar solvs, oils; m.w. 312; sp.gr. 0.930; dens. 7.74 lb/gal; visc. 19 cP; solid. pt. -40 C; HLB 8.1; hyd. no. 180; pour pt. -49 C; cloud pt. < 0 C (1% aq.); flash pt. (PMCC) 130 C; pH 7.2 (10% in aq. IPA); 100% act.; nonionic

**Tergitol® TMN-10** [Union Carbide]

**Chem. Descrip.:** Isolaureth-10  
CAS 60828-78-6

**Uses:** Emulsifier, wetting agent, spreading agent, penetrant, detergent, leveling agent for high temp. applics., textile wet processing, fiber lubricants, agric., paper deinking, metal cleaners, acid cleaners, water treatment, leather, circuit board cleaners

**Regulatory:** FDA, EPA compliance

**Properties:** Clear liq.; sol. in water, most polar solvs.; m.w. 683; sp.gr. 1.044; dens. 8.69 lb/gal; visc. 96 cP; HLB 14.1; hyd. no. 82; pour pt. -16 C; cloud pt. 77 C (1% aq.); solid. pt. -7.5 C; flash pt. (PMCC) none; pH 6.4 (10% aq.); surf. tens. 27 dynes/cm (0.1% aq.); Draves wetting 9 s (0.1% aq.); Ross-Miles foam 117 mm (0.1% aq., initial); 90% act. in water; nonionic  
**Toxicology:** LD50 (oral, rat) 5650 mg/kg; mildly toxic by ing.; skin and severe eye irritant

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Teric™ 12A3** [Huntsman]

**Chem. Descrip.:** PEG-3 C12-C15 alcohol  
CAS 68131-39-5

**Uses:** Wetting agent, emulsifier, dispersant for oil- and water-based systems,

consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

**Properties:** Visc. 28 cps (20 C); HLB 7.1; hyd. no. 175; pour pt. < 0 C; 0.15% water; nonionic

**Environmental:** Biodeg.

**Teric™ 12A9** [Huntsman]

**Chem. Descrip.:** PEG-9 C12-C15 alcohol  
CAS 68131-39-5

**Uses:** Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

**Properties:** Visc. 32 cps (50 C); HLB 13.6; hyd. no. 84; pour pt. 20 C; cloud pt. 80-85 C; surf. tens. 30.2 mN/m (0.1%); wetting 10 s (0.1%); Ross-Miles foam 11.7 cm (0.1%, initial); 0.5% water; nonionic

**Environmental:** Biodeg.

**Teric™ 12A23** [Huntsman]

**Chem. Descrip.:** PEG-23 C12-C15 alcohol  
CAS 68131-39-5

**Uses:** Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

**Properties:** Visc. 75 cps (50 C); HLB 16.6; hyd. no. 46; pour pt. 35 C; cloud pt. > 100 C; surf. tens. 35.7 mN/m (0.1%); wetting 42 s (0.1%); Ross-Miles foam 10.5 cm (0.1%, initial); 0.5% water; nonionic

**Environmental:** Biodeg.

**Teric™ 12M2** [Huntsman]

**Chem. Descrip.:** PEG-2 cocamine  
CAS 61791-14-8

**Uses:** Dispersant, emulsifier, stabilizer used in metal, stone, paper and textile processing; formulation of lubricants and dye bath auxs.; emulsion stabilizer; fat liquoring compds.; wetting agent of hydrophobic surfaces

**Properties:** Liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min. and veg. oil; disp. in water; sp.gr. 0.913; visc. 166 cps; m.p. -1 ± 2 C; HLB 11.4; surf. tens. 28.2 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 12M5** [Huntsman]

**Chem. Descrip.:** PEG-5 cocamine  
CAS 61791-14-8

**Uses:** Dispersant, emulsifier, stabilizer used in metal, stone, paper and textile processing; formulation of lubricants and dye bath auxs.; emulsion stabilizer; fat liquoring compds.; wetting agent of hydrophobic surfaces

**Properties:** Liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, min., veg. and paraffin oil, olein; disp. in water; sp.gr. 0.971; visc. 311 cps; m.p. -9 ± 2 C; HLB 12.4; surf. tens. 29.2 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 12M15** [Huntsman]

**Chem. Descrip.:** PEG-15 cocamine  
CAS 61791-14-8

**Uses:** Dispersant, emulsifier, stabilizer used in metal, stone, paper and textile processing; formulation of lubricants and dye bath auxs.; emulsion stabilizer; fat liquoring compds.; wetting agent of hydrophobic surfaces

**Properties:** Liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, veg. oil, olein; sp.gr. 1.038; visc. 343 cps; m.p. -11 ± 2 C; HLB 15.7; cloud pt. > 100 C; surf. tens. 39.6 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 13A7** [Huntsman]

**Chem. Descrip.:** Isotrideceth-7

**Uses:** Emulsifier for agric.; intermediate for carboxymethylate mfg., sulfation; filter cake dewatering agent; dust suppressant in coal industry; domestic and window cleaners; leather finishing; wetting agent for paper and cellulose, textiles

**Properties:** APHA 100 color; sol. in water, aromatics, ethyl acetate, glycol ethers, trichlorethylene, ethanol, olein, ethylene glycol; sp.gr. 0.984; visc. 80 cps; HLB 11.8; hyd. no. 112-118; pour pt. 0 C; pH 5.5-7.5; surf. tens. 26 dynes/cm (0.1%); 100% act.; nonionic

**Teric™ 13A9** [Huntsman]

**Chem. Descrip.:** Isotrideceth-9

**Uses:** Wetting agent, dispersant, emulsifier, detergent used in pigment disps., agric. and horticultural applics., solv. emulsion cleaners, paper; wool dye leveling agent

**Properties:** Hazen 150 liq.; sol. in water, ethyl acetate, ethyl lcinol, ethanol; sp.gr. 1.018; visc. 142 cps; m.p. < 0 C; HLB 13.3; cloud pt. 63 ± 2 C; pH

6-8 (1% aq.); surf. tens. 27.9 dynes/cm (0.1%); wetting 2 s (0.1%); Ross-Miles foam 12.5 cm (0.1%, initial); 95% act.; nonionic

**Teric™ 16A16** [Huntsman]

*Chem. Descrip.:* PEG-16 C16-C18 alcohol

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 65 cps (50 C); HLB 14.9; hyd. no. 60; pour pt. 38 C; cloud pt. > 100 C; surf. tens. 37.1 mN/m (0.1%); wetting 28 s (0.1%); Ross-Miles foam 7.3 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 16A22** [Huntsman]

*Chem. Descrip.:* PEG-22 C16-C18 alcohol

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 92 cps (50 C); HLB 15.8; hyd. no. 42; pour pt. 40 C; cloud pt. > 100 C; surf. tens. 41.3 mN/m (0.1%); wetting 48 s (0.1%); Ross-Miles foam 10.3 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 16A29** [Huntsman]

*Chem. Descrip.:* PEG-29 C16-C18 alcohol

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 105 cps (50 C); HLB 17.7; hyd. no. 36; pour pt. 45 C; cloud pt. > 100 C; surf. tens. 46 mN/m (0.1%); wetting 80 s (0.1%); Ross-Miles foam 8.7 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 16M2** [Huntsman]

*Chem. Descrip.:* PEG-2 soya amine

CAS 61791-24-0

*Uses:* Wetting agent, dispersant, emulsifier for waxes and fats; formulation of leather dressing and metal cleaning compds., fiber lubricant applics. in the bldg. industry; formulation of lubricants and dye bath auxs.; wetting agent of hydrophobic surfs. used in metal, stone, paper, and textile processing; emulsion stabilizer; fat liquoring compds.

*Properties:* Liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min., paraffin and veg. oil, olein; sp.gr. 0.906; visc. 191 cps; m.p.  $-15 \pm 2$  C; HLB 9.5; surf. tens. 26.6 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 16M10** [Huntsman]

*Chem. Descrip.:* PEG-10 soya amine

CAS 61791-24-0

*Uses:* Wetting agent, dispersant, emulsifier for fats and waxes used in leather dressing compds.; fat liquoring compds.; fiber lubricant; formulation of lubricants and dye bath auxs.; wax emulsions for fiber board pkg. and particle board for bldg. industry; wetting agent of hydrophobic surfs. used in metal, stone, paper, and textile processing; emulsion stabilizer

*Properties:* Liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min., veg. and paraffin oil, olein; sp.gr. 0.994; visc. 219 cps; m.p.  $-22 \pm 2$  C; HLB 12.1; cloud pt.  $89 \pm 2$  C; surf. tens. 36.1 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 16M15** [Huntsman]

*Chem. Descrip.:* PEG-15 soya amine

CAS 61791-24-0

*Uses:* Wetting agent and dispersant used in metal, cleaning, leather dressing and dye leveling compds., agric. sprays; emulsifier for fats and waxes; fiber lubricant; formulation of lubricants and dye bath auxs.; wax emulsion for the bldg. industry; wetting agent of hydrophobic surfs. used in metal, stone, paper, and textile processing; emulsion stabilizer; fat liquoring compds.

*Properties:* Liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol; sp.gr. 1.021; visc. 266 cps; m.p.  $-18 \pm 2$  C; HLB 13.8; cloud pt. > 100 C; surf. tens. 37.4 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 17A2** [Huntsman]

*Chem. Descrip.:* PEG-2 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 37 cps (20 C); HLB 6.0; hyd. no. 153; pour pt. 11 C; 0.5%

water; nonionic

*Environmental:* Biodeg.

**Teric™ 17A3** [Huntsman]

*Chem. Descrip.:* PEG-3 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 41 cps (20 C); HLB 7.5; hyd. no. 138; pour pt. 13 C; 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 17A6** [Huntsman]

*Chem. Descrip.:* PEG-6 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 60 cps (20 C); HLB 10.2; hyd. no. 107; pour pt. 15 C; 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 17A8** [Huntsman]

*Chem. Descrip.:* PEG-8 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 35 cps (50 C); HLB 11.6; hyd. no. 91; pour pt. 17 C; cloud pt. 41 C; surf. tens. 30.8 mN/m (0.1%); wetting 24 s (0.1%); Ross-Miles foam 9.6 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 17A10** [Huntsman]

*Chem. Descrip.:* PEG-10 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 43 cps (50 C); HLB 12.7; hyd. no. 81; pour pt. 24 C; cloud pt. 70-75 C; surf. tens. 32.9 mN/m (0.1%); wetting 27 s (0.1%); Ross-Miles foam 10.8 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 17A13** [Huntsman]

*Chem. Descrip.:* PEG-13 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 45 cps (50 C); HLB 13.0; hyd. no. 74; pour pt. 25 C; cloud pt. 79-81 C; surf. tens. 33 mN/m (0.1%); wetting 17 s (0.1%); Ross-Miles foam 10.4 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 17A25** [Huntsman]

*Chem. Descrip.:* PEG-25 cetyl oleyl alcohol

CAS 8065-81-4

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Properties:* Visc. 92 cps (50 C); HLB 16.2; hyd. no. 43; pour pt. 37 C; cloud pt. > 100 C; surf. tens. 42 mN/m (0.1%); wetting 102 s (0.1%); Ross-Miles foam 11.3 cm (0.1%, initial); 0.5% water; nonionic

*Environmental:* Biodeg.

**Teric™ 18M2** [Huntsman]

*Chem. Descrip.:* PEG-2 stearamine

CAS 9003-93-4; EINECS/ELINCS 233-520-3

*Uses:* Wetting agent; dispersant; emulsion stabilizer; emulsifier used in agric. toxicants and processing of textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases

*Properties:* Solid; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min., paraffin and veg. oil, olein; sp.gr. 0.887 (50 C); visc. 75 cps (50 C); m.p.  $50 \pm 2$  C; HLB 8.5; pH 8-10 (1% aq.); 100% act.; nonionic

**Teric™ 18M5** [Huntsman]

*Chem. Descrip.:* PEG-5 stearamine



- CAS 26635-92-7  
*Uses:* Wetting agent; dispersant; emulsion stabilizer; emulsifier used in agric. toxicants and processing of textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases; softener and antistat in solv. cleaning of textiles and compd. of plastics  
*Properties:* Solid; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min., paraffin and veg. oil, olein; disp. in water; sp.gr. 0.935 (50 C); visc. 46 cps (50 C); m.p. 35 ± 2 C; HLB 9.5; pH 8-10 (1% aq.); 100% act.; nonionic
- Teric™ 18M10** [Huntsman]  
*Chem. Descrip.:* PEG-10 stearamine  
 CAS 26635-92-7  
*Uses:* Wetting agent; dispersant; emulsion stabilizer; emulsifier used in agric. toxicants, textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases; softener, antistat for plastics, textiles  
*Properties:* Liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, veg. oil, olein; sp.gr. 0.997; visc. 255 cps; m.p. 18 ± 2 C; HLB 11.2; cloud pt. > 100 C; surf. tens. 34.0 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic
- Teric™ 18M20** [Huntsman]  
*Chem. Descrip.:* PEG-20 stearamine  
 CAS 26635-92-7  
*Uses:* Wetting agent; dispersant; emulsion stabilizer; emulsifier used in agric. toxicants and processing of textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases  
*Properties:* Paste; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, olein; sp.gr. 1.025 (50 C); visc. 66 cps (50 C); m.p. 28 ± 2 C; HLB 14.5; cloud pt. > 100 C; surf. tens. 40.3 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic
- Teric™ 18M30** [Huntsman]  
*Chem. Descrip.:* PEG-30 stearamine  
 CAS 26635-92-7  
*Uses:* Wetting agent; dispersant; emulsion stabilizer; emulsifier used in agric. toxicants and processing of textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases  
*Properties:* Solid; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol; sp.gr. 1.038 (50 C); visc. 116 cps (50 C); m.p. 28 ± 2 C; HLB 17.8; cloud pt. > 100 C; surf. tens. 43.0 dynes/cm; pH 8-10 (1% aq.); 100% act.; nonionic
- Teric™ 127** [Huntsman]  
*Chem. Descrip.:* Fatty acid EO condensate  
*Uses:* Antifoam; emulsifier; coemulsifier of veg. and min oils, paraffinic waxes and solvs.; lubricant for textile processing; foam control agent in paper mfg., industrial fermentation and distillation, textile dyeing  
*Properties:* Hazen > 250 liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, veg. oil, olein; sp.gr. 0.978; visc. 87 cps; m.p. < 0 C; HLB 7.7; pH 8 (1% aq.); 100% act.; nonionic
- Teric™ 128** [Huntsman]  
*Chem. Descrip.:* Ethoxylated alkyl phenol  
*Uses:* Wetting agent, deinking agent for paper recycling; emulsifier; low foaming  
*Properties:* Liq.; 100% conc.; nonionic
- Teric™ 164** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mechanical dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents; low foaming  
*Properties:* Visc. 65 cps (20 C); HLB 10.8; pour pt. 2 C; hyd. no. 84; cloud pt. 39 C (1%); 0.5% water; nonionic
- Teric™ 165** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mechanical dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents; low foaming  
*Properties:* Visc. 68 cps (20 C); HLB 12.5; pour pt. 3 C; cloud pt. 30-38 C (1%); 10% water; nonionic
- Teric™ 167** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mechanical dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents; low foaming  
*Properties:* Visc. 20 cps (20 C); pour pt. 4 C; 1% water; nonionic
- Teric™ 168** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents
- Teric™ 170** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mechanical dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents; low foaming  
*Properties:* Visc. 560 cps (20 C); pour pt. < 0 C; hyd. no. 225; 1% water; nonionic
- Teric™ 171** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mechanical dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents; low foaming  
*Properties:* Visc. 450 cps (20 C); pour pt. < 0 C; hyd. no. 136; cloud pt. 71-75 C (1%); 0.5% water; nonionic
- Teric™ 173** [Huntsman]  
*Uses:* Surfactant, defoamer for metal cleaning, textile processing, paper mfg., water treatment, mech. dishwashing detergents, and low foaming heavy-duty/all-purpose laundry detergents
- Teric™ BL8** [Huntsman]  
*Chem. Descrip.:* C9-11 alcohol alkoxyolate  
*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment  
*Properties:* Visc. 63 cps (20 C); HLB 13.7; hyd. no. 92; pour pt. < 0 C; cloud pt. 57-61 C; surf. tens. 30.3 mN/m (0.1%); wetting 3 s (0.1%); Ross-Miles foam 13.1 cm (0.1%, initial); 0.5% water; nonionic  
*Environmental:* Biodeg.
- Teric™ G9A2** [Huntsman]  
*Chem. Descrip.:* PEG-2 C9-C11 alcohol  
 CAS 68439-46-3  
*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment  
*Properties:* Visc. 25 cps (20 C); HLB 8.7; hyd. no. 225; pour pt. < 0 C; 0.2% water; nonionic  
*Environmental:* Biodeg.
- Teric™ G9A6** [Huntsman]  
*Chem. Descrip.:* C9-11 parath-6  
 CAS 68439-46-3  
*Uses:* Emulsifier for agric., solvs.; filter cake dewatering; dust suppression in coal industry; domestic, laundry, hard surf. and window cleaners; leather; paper deinking; skin care prods.; textile wetting, carbonizing, leveling, scouring; surfactant for formulation of hard surf. cleaners, degreasers and dispersants in industrial and domestic applics.  
*Properties:* APHA 100 color; sol. in water, aromatics, ethyl acetate, glycol ethers, trichlorethylene, ethanol, ethylene glycol; sp.gr. 0.987; visc. 38 cps; HLB 12.4; pour pt. < 0 C; cloud pt. 50-55 C; pH 6-8; surf. tens. 24.0 dynes/cm (0.1%); 100% act.; nonionic
- Teric™ G9A8** [Huntsman]  
*Chem. Descrip.:* C9-11 parath-8  
 CAS 68439-46-3  
*Uses:* Emulsifier, dispersant, wetting agent for domestic, hard surf., laundry cleaners; paper deinking; degreaser, wetting agent for textiles  
*Properties:* APHA 100 color; sol. in water, aromatics, ethyl acetate, glycol ethers, trichlorethylene, ethanol, ethylene glycol; sp.gr. 0.988 (50 C); visc. 21 cps (50 C); HLB 13.7; pour pt. 13 C; cloud pt. 75-80 C; pH 6-8; surf. tens. 27.0 dynes/cm (0.1%); 100% act.; nonionic
- Teric™ G9A10** [Huntsman]  
*Chem. Descrip.:* C9-11 parath-10  
 CAS 68439-46-3  
*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment  
*Properties:* Visc. 25 cps (50 C); HLB 14.7; hyd. no. 93; pour pt. 22 C; surf. tens. 33 mN/m (0.1%); wetting 16 s (0.1%); Ross-Miles foam 14.2 cm (0.1%, initial); 0.5% water; nonionic  
*Environmental:* Biodeg.
- Teric™ G12A6** [Huntsman]  
*Chem. Descrip.:* C12-15 parath-6  
 CAS 68131-39-5  
*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment, hard surf. abrasives, metal descaling, domestic and

industrial use in laundries, sanitizing, dairy detergents; intermediate for metal cleaning

*Properties:* Hazen 250 liq. to paste; sp.gr. 0.955; visc. 24 cps (50 C); m.p.  $10 \pm 2$  C; HLB 11.2; cloud pt.  $40 \pm 2$  C; surf. tens. 27.8 dynes/cm; pH 6-8 (1% aq.); surf. tens. 27.7 mN/m (0.1%); wetting 7 s (0.1%); Ross-Miles foam 7 cm (0.1%, initial); 100% act.; nonionic

*Environmental:* Biodeg.

#### Teric™ G12A7 [Huntsman]

*Chem. Descrip.:* C12-15 parath-7

CAS 68131-39-5

*Uses:* Surfactant for skin care gels, dairy cleaning, laundry prods., lt. duty detergents, paper processing; fiber lubricant/antistat for textile spinning, cotton dye leveling

*Properties:* APHA 100 color; sol. in water, aromatics, ethyl acetate, glycol ethers, trichlorethylene, ethanol, ethylene glycol; sp.gr. 0.958 (50 C); visc. 26 cps (50 C); HLB 12.1; pour pt. 15 C; cloud pt. 48-52 C; pH 6-8; surf. tens. 30 dynes/cm (0.1%); wetting 8 s (0.1%); Ross-Miles foam 9.1 cm (0.1%, initial); 100% act.; nonionic

#### Teric™ G12A12 [Huntsman]

*Chem. Descrip.:* C12-15 parath-12 (11.5 EO)

CAS 68131-39-5

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment, hard surf. abrasives, metal descaling; intermediate for metal cleaning

*Properties:* Hazen 250 solid; sp.gr. 0.993; visc. 37 cps; m.p.  $24 \pm 2$  C; HLB 14.4; cloud pt.  $92 \pm 2$  C; surf. tens. 35.6 dynes/cm; pH 6-8 (1% aq.); surf. tens. 35.6 mN/m (0.1%); wetting 17 s (0.1%); Ross-Miles foam 12.6 cm (0.1%, initial); 100% act.; nonionic

*Environmental:* Biodeg.

#### Teric™ N2 [Huntsman]

*Chem. Descrip.:* Nonoxynol-2

CAS 9016-45-9; EINECS/ELINCS 248-291-5

*Uses:* W/o emulsifier, defoamer, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries, solv. emulsion cleaners, dry cleaning detergents; intermediate for prod. of anionics; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper/paperboard

*Properties:* Hazen 100 liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min., paraffin and veg. oil, olein; disp. in water; sp.gr. 1.001; visc. 620 cps; m.p. < 0 C; HLB 5.7; hyd. no. 178-185; pour pt. < 0 C; pH 6-8 (1% aq.); 100% act.; nonionic

#### Teric™ N4 [Huntsman]

*Chem. Descrip.:* Nonoxynol-4

CAS 9016-45-9; EINECS/ELINCS 230-770-5

*Uses:* W/o emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, metalworking lubricants, tank cleaning, dry cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries; antistat; lubricant; latex stabilizer; detergent for petrol. oils; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper

*Properties:* Hazen 100 liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, min., paraffin and veg. oil, olein; disp. in water; sp.gr. 1.023; visc. 370 cps; m.p. < 0 C; HLB 8.9; hyd. no. 138-145; pH 6-8 (1% aq.); 100% act.; nonionic

#### Teric™ N5 [Huntsman]

*Chem. Descrip.:* Nonoxynol-5 (5.5 EO)

CAS 9016-45-9; EINECS/ELINCS 247-555-7

*Uses:* W/o emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, metalworking lubricants, tank cleaning, dry cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries; antistat; lubricant; latex stabilizer; detergent for petrol. oils; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper

*Properties:* Hazen 100 liq.; sol. in benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, kerosene, veg. oil, olein; disp. in water; sp.gr. 1.035; visc. 355 cps; m.p. < 0 C; HLB 10.5; hyd. no. 118-126; pH 6-8 (1% aq.); 100% act.; nonionic

#### Teric™ N6 [Huntsman]

*Chem. Descrip.:* Nonoxynol-6

CAS 9016-45-9

*Uses:* W/o and o/w emulsifier, wetting agent, detergent, surf. tens. reducer, penetrant, solubilizer, dispersant for household cleaners, industrial cleaners, textiles, agric., metal/min. processing, pulp/paper, metal cleaning, petrol., cosmetics, latex paints, cutting oils, household laundry detergents, emulsion polymerization, janitorial supply industries; deicing aid; rust inhibitor; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper/paperboard; low to mod. foaming; generally inert

*Properties:* Visc. 340 cps (20 C); HLB 10.9; pour pt. < 0 C; 0.5% water; nonionic

#### Teric™ N8 [Huntsman]

*Chem. Descrip.:* Nonoxynol-8 (8.5 EO)

CAS 9016-45-9

*Uses:* Detergent, wetting agent, emulsifier, dispersant, solubilizer for concrete mfg., agric. sprays, pesticides, solv. cleaners, paints, detergents, emulsion polymerization, leather, textiles, pulp/paper; base surfactant for household and industrial detergents

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, veg. oil, olein; sp.gr. 1.056; visc. 350 cps; m.p.  $0 \pm 2$  C; HLB 12.3; cloud pt. 30-34 C; pH 6-8 (1% aq.); surf. tens. 29.4 dynes/cm (0.1%); wetting 4.1 s (0.1%); Ross-Miles foam 6.7 cm (0.1%, initial); 100% act.; nonionic

#### Teric™ N9 [Huntsman]

*Chem. Descrip.:* Nonoxynol-9

CAS 9016-45-9

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for concrete mfg., agric. sprays, solv. cleaners, detergents, emulsion polymerization, household cleaners, textiles, metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries, food pkg.; pitch dispersant for pulp/paper mills; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/board

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, veg. oil, olein; sp.gr. 1.060; visc. 330 cps; m.p.  $0 \pm 2$  C; HLB 12.8; cloud pt. 50-55 C; pH 6-8 (1% aq.); surf. tens. 30.6 dynes/cm (0.1%); wetting 3.8 s (0.1%); Ross-Miles foam 10.6 cm (0.1%, initial); 100% act.; nonionic

#### Teric™ N10 [Huntsman]

*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric. sprays, concrete mfg., metal cleaning, solv. cleaners, petrol., latex paints, detergents, emulsion polymerization, cosmetics, cutting oils, janitorial supply industries; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, veg. oil, olein; sp.gr. 1.063; visc. 360 cps; m.p.  $5 \pm 2$  C; HLB 13.3; cloud pt.  $67 \pm 2$  C; pH 6-8 (1% aq.); surf. tens. 30.6 dynes/cm (0.1%); wetting 5 s (0.1%); Ross-Miles foam 12.6 cm (0.1%, initial); 100% act.; nonionic

#### Teric™ N11 [Huntsman]

*Chem. Descrip.:* Nonoxynol-11

CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, surf. tens. reducer, penetrant, dispersant, emulsifier, solubilizer for concrete mfg., agric. sprays, metal/min. processing, pulp/paper, household laundry detergents, industrial cleaners, textiles, solv. cleaners, paints, emulsion polymerization

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol, perchlorethylene, ethanol, olein; sp.gr. 1.069; visc. 410 cps; m.p.  $7 \pm 2$  C; HLB 13.7; cloud pt.  $74 \pm 2$  C; pH 6-8 (1% aq.); surf. tens. 34.8 dynes/cm (0.1%); wetting 9 s (0.1%); Ross-Miles foam 12.6 cm (0.1%, initial); 100% act.; nonionic

#### Teric™ N12 [Huntsman]

*Chem. Descrip.:* Nonoxynol-12

CAS 9016-45-9

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for concrete mfg., agric. sprays, solv. cleaners, latex paints, detergents, emulsion polymerization, household cleaners, textiles, metal cleaning, petrol., cosmetics, cutting oils, janitorial supply industries; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl lcinol,

perchloroethylene, ethanol, olein; sp.gr. 1.045 (50 C); visc. 67 cps (50 C); m.p.  $11 \pm 2$  C; HLB 13.9; cloud pt.  $82 \pm 2$  C; pH 6-8 (1% aq.); surf. tens. 35.2 dyens/cm (0.1%); wetting 8.9 s (0.1%); Ross-Miles foam 13 cm (0.1%, initial); 100% act.; nonionic

**Teric™ N13** [Huntsman]

*Chem. Descrip.:* Nonoxynol-13  
CAS 9016-45-9

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for concrete mfg., agric. sprays, solv. cleaners, latex paints, detergents, emulsion polymerization, household cleaners, textiles, metal cleaning, petrol., cosmetics, cutting oils, janitorial supply industries; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, olein; sp.gr. 1.049 (50 C); visc. 75 cps (50 C); m.p.  $14 \pm 2$  C; HLB 14.4; cloud pt.  $89 \pm 2$  C; pH 6-8 (1% aq.); surf. tens. 34.9 dynes/cm (0.1%); wetting 16.4 s (0.1%); Ross-Miles foam 12.3 cm (0.1%, initial); 100% act.; nonionic

**Teric™ N15** [Huntsman]

*Chem. Descrip.:* Nonoxynol-15  
CAS 9016-45-9

*Uses:* O/w emulsifier, wetting agent, detergent, penetrant, solubilizer, dispersant for household cleaners, textiles, agric., metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries, perfumes, detergents, sanitizers, emulsion polymerization, acid cleaners, hard surf. cleaners; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper/paperboard

*Properties:* Hazen 100 paste; sol. in water, benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, olein; sp.gr. 1.051 (50 C); visc. 82 cps (50 C); m.p.  $21 \pm 2$  C; HLB 15.0; cloud pt.  $95 \pm 2$  C; pH 6-8 (1% aq.); surf. tens. 33.4 dynes/cm (0.1%); wetting 13.9 s (0.1%); Ross-Miles foam 14.2 cm (0.1%, initial); 100% act.; nonionic

**Teric™ N20** [Huntsman]

*Chem. Descrip.:* Nonoxynol-20  
CAS 9016-45-9

*Uses:* O/w emulsifier, detergent, penetrant, solubilizer dispersant for household cleaners, textiles, agric., metal cleaning, crude oils, cosmetics, latex paints, cutting oils, janitorial supply industries, emulsion polymerization; wetting agent, coemulsifier in perfumes, detergents, sanitizers, latex stabilization; emulsifier for waxes, oils, fats, solvs.; food pkg. adhesives, coatings, paper, cellophane; defoamer in food-contact coatings, paper/paperboard

*Properties:* Hazen 100 solid; sol. in water, benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, olein; sp.gr. 1.061 (50 C); visc. 100 cps (50 C); m.p.  $30 \pm 2$  C; HLB 16.0; hyd. no. 42-57; cloud pt.  $> 100$  C; pH 6-8 (1% aq.); surf. tens. 41.7 dynes/cm (0.1%); wetting 24.6 s (0.1%); Ross-Miles foam 13.9 cm (0.1%, initial); 100% act.; nonionic

**Teric™ N30** [Huntsman]

*Chem. Descrip.:* Nonoxynol-30  
CAS 9016-45-9

*Uses:* O/w emulsifier, detergent, penetrant, solubilizer dispersant for household cleaners, textiles, agric., metal cleaning, petrol., cosmetics, latex paints, cutting oils, janitorial supply industries, emulsion polymerization; wetting agent, coemulsifier in perfumes, detergents, sanitizers; food pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings

*Properties:* Hazen 150 flakes; sol. in water, benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol; sp.gr. 1.066 (50 C); visc. 150 cps (50 C); m.p.  $40 \pm 2$  C; HLB 17.2; hyd. no. 31-36; cloud pt.  $> 100$  C; pH 6-8 (1% aq.); surf. tens. 42.8 dynes/cm (0.1%); wetting 69 s (0.1%); Ross-Miles foam 14 cm (0.1%, initial); 100% act.; nonionic

**Teric™ N30L** [Huntsman]

*Chem. Descrip.:* Nonoxynol-30  
CAS 9016-45-9

*Uses:* Surfactant, detergent, wetting agent, surf. tens. reducer, penetrant, dispersant for agric., metal/min. processing, pulp/paper, household laundry detergents, industrial cleaners, textiles, emulsion polymerization; low to mod. foaming; generally inert

*Properties:* APHA 100 color; sp.gr. 1.095; visc. 2000 cps; HLB 17.2; pour pt.  $2$  C; pH 6-8; surf. tens. 43 dynes/cm (0.1%); wetting 69 s (0.1%); Ross-Miles foam 14 cm (0.1%, initial); 70% act.; nonionic

**Teric™ OF4** [Huntsman]

*Chem. Descrip.:* PEG-4 oleate  
CAS 9004-96-0; EINECS/ELINCS 233-293-0

*Uses:* Emulsifier used in o/w emulsions of veg. and min. oils, fats, waxes and solvs.; formulation of cutting oils; metal lubricant in metal cleaning formulations and in solv. degreasers; textile and paper finishing applics.; antistat in textile processing and mfg. of syn. fibers

*Properties:* Hazen  $> 250$  liq.; sol. in benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, kerosene, veg. oil, olein; disp. in water; sp.gr. 0.978; visc. 87 cps; m.p.  $< 0$  C; HLB 7.7; pH 8 (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Teric™ OF6** [Huntsman]

*Chem. Descrip.:* PEG-6 oleate  
CAS 9004-96-0

*Uses:* Emulsifier used in o/w emulsions of veg. and min. oils, fats, waxes and solvs.; formulation of cutting oils; metal lubricant in metal cleaning formulations and in solv. degreasers; textile and paper finishing applics.; antistat in textile processing and mfg. of syn. fibers

*Properties:* Hazen  $> 250$  liq.; sol. in benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, kerosene, veg. oil, olein; disp. in water; sp.gr. 0.992; visc. 82 cps; m.p.  $< 0$  C; HLB 9.7; pH 7-9 (1% aq.); surf. tens. 32.1 mN/m (0.1%); Ross-Miles foam 0.3 cm (0.1%, initial); 100% act.; nonionic

*Environmental:* Biodeg.

**Teric™ OF8** [Huntsman]

*Chem. Descrip.:* PEG-8 oleate  
CAS 9004-96-0

*Uses:* Emulsifier; aux. product and antistat in textile and paper finishing applics.

*Properties:* Hazen  $> 250$  liq.; sol. in benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, kerosene, veg. oil, olein; disp. in water; sp.gr. 1.012; visc. 120 cps; m.p.  $< 0$  C; HLB 11.1; pH 8-10 (1% aq.); surf. tens. 33.6 mN/m (0.1%); Ross-Miles foam 1 cm (0.1%, initial); 100% act.; nonionic

*Environmental:* Biodeg.

**Teric™ PE 61** [Huntsman]

*Chem. Descrip.:* POE (6) PPG 1750

*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper

*Properties:* Hazen 100 liq.; sol. in benzene, ethyl acetate, ethyl Icinol, perchloroethylene, veg. oil, olein; sp.gr. 1.017; visc. 388 cps; m.p.  $< 0$  C; HLB 3; cloud pt.  $24 \pm 2$  C; surf. tens. 39.0 dynes/cm; pH 6 (1% aq.); 100% act.; nonionic

**Teric™ PE 62** [Huntsman]

*Chem. Descrip.:* POE (17) PPG 1750

*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, veg. oil, olein; sp.gr. 1.032; visc. 440 cps; m.p.  $< 0$  C; HLB 7; cloud pt.  $32 \pm 2$  C; surf. tens. 42.1 dynes/cm; pH 6 (1% aq.); 100% act.; nonionic

**Teric™ PE 64** [Huntsman]

*Chem. Descrip.:* POE (25) PPG 1750

*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper

*Properties:* Hazen 100 liq.; sol. in water, benzene, ethyl acetate, ethyl Icinol, perchloroethylene, ethanol, olein; sp.gr. 1.051; visc. 1332 cps; m.p.  $8 \pm 2$  C; HLB 15; cloud pt.  $58 \pm 2$  C; surf. tens. 43.2 dynes/cm; pH 6 (1% aq.); 100% act.; nonionic

**Teric™ PE 68** [Huntsman]

*Chem. Descrip.:* POE (150) PPG 1750

*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, I&I cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper

*Properties:* Hazen 100 flakes; sol. in water, benzene, ethyl acetate, ethyl

Icinol, perchlorethylene, ethanol, olein; m.p. 50 ± 2 C; HLB 29; cloud pt. > 100 C; surf. tens. 49.0 dynes/cm; pH 6 (1% aq.); 100% act.; nonionic

**Teric™ PE 75** [Huntsman]

*Chem. Descrip.:* POE (50) PPG 2150

*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, l&l cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper

*Properties:* Visc. 240 cps (20 C); HLB 16.5; pour pt. 32 C; cloud pt. 79-85 C (1%); 0.5% water

**Teric™ PE 87** [Huntsman]

*Chem. Descrip.:* POE (125) PPG 2150

*Uses:* Defoamer for metalworking, textiles, pulp/paper, water treatment, l&l cleaners, industrial and mech. dishwash; rinse aid for automatic dishwashing and windshield washing; lubricant for metalworking; flotation collector for deinking and recycling of waste paper

*Properties:* Visc. 270 cps (20 C); HLB 24; pour pt. 40 C; cloud pt. > 100 C (1%); 0.8% water

**Teric™ PEG 200** [Huntsman]

*Chem. Descrip.:* PEG 200

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Binder for glazing; intermediate for PEG esters, methacrylate resins, PU foams; plasticizer/solvent for cork; toiletries; metalworking lubricants; paints/resins; paper/film; printing inks; textile emulsifier

*Properties:* APHA 25 color; sol. in water and most polar org. solvs.; m.w. 190-210; sp.gr. 1.127; visc. 4.2 cst (99 C); pour pt. -50 C; flash pt. (OC) > 170 C; ref. index 1.459; pH 4.5-7.5; surf. tens. 44.6 dynes/cm; 99% act.; nonionic

*Environmental:* Biodeg.

**Teric™ PEG 300** [Huntsman]

*Chem. Descrip.:* PEG 300 USP

CAS 25322-68-3; EINECS/ELINCS 220-045-1

*Uses:* Pesticide solubilizer/carrier; visc. modifier for brake fluids; intermediate for PEG esters, PU foams; plasticizer/solvent; cosmetics; metalworking lubricants; paints/resins; paper/film; printing inks; rubber release; textile aux.; liq. pharmaceutical preps., ointment bases; binder for capsules/pills

*Properties:* APHA 25 color; sol. in water and most polar org. solvs.; m.w. 285-315; sp.gr. 1.128; visc. 5.8 cst (99 C); pour pt. -12 C; flash pt. (OC) > 190 C; ref. index 1.463; pH 4.5-7.5; surf. tens. 44.6 dynes/cm; 99% act.; nonionic

*Environmental:* Biodeg.

**Teric™ PEG 400** [Huntsman]

*Chem. Descrip.:* PEG 400 USP

CAS 25322-68-3; EINECS/ELINCS 225-856-4

*Uses:* Emulsifier, antistat for textiles; rubber; inks; cosmetics; paper/film; pesticide solubilizer/carrier; intermediate for PEG esters, PU foams; plasticizer/solvent for cork; metalworking lubricants; paints/resins; pharmaceutical liq. preps., ointment bases, suppository bases; binder for capsules/pills; preservation of pathological specimens

*Properties:* APHA 25 color; sol. in water and most polar org. solvs.; m.w. 380-420; sp.gr. 1.130; visc. 7.3 cst (99 C); pour pt. 6 C; flash pt. (OC) > 215 C; ref. index 1.465; pH 4.5-7.5; surf. tens. 44.6 dynes/cm; 99% act.; nonionic

*Environmental:* Biodeg.

**Teric™ PEG 600** [Huntsman]

*Chem. Descrip.:* PEG 600 USP

CAS 25322-68-3; EINECS/ELINCS 229-859-1

*Uses:* Emulsifier for textiles; pesticide solubilizer/carrier; binder for ceramics; intermediate for PEG esters, PU foams; cosmetics; pharmaceuticals; metalworking lubricants; resins; paper/film; inks; rubber release

*Properties:* APHA 10 color (25% aq.); sol. in water and most polar org. solvs.; m.w. 560-630; sp.gr. 1.127; visc. 10.4 cst (99 C); pour pt. 19 C; flash pt. (OC) > 230 C; ref. index 1.454; pH 4.5-7.5; surf. tens. 44.6 dynes/cm; 99% act.; nonionic

*Environmental:* Biodeg.

**Teric™ PEG 1500** [Huntsman]

*Chem. Descrip.:* PEG 1500

*Uses:* Textile finishing and sizing; wood processing; latex lubricant; printing inks; pharmaceuticals; paper/film

*Properties:* APHA 30 color (25% aq.); sol. in water and most polar org. solvs.; m.w. 1430-1570; sp.gr. 1.208; visc. 28.4 cst (99 C); pour pt. 46 C; flash pt. (OC) > 260 C; ref. index 1.456; pH 4.5-7.5; surf. tens. 53.1 dynes/cm (50% aq.); 100% act.

*Environmental:* Biodeg.

**Teric™ PEG 4000** [Huntsman]

*Chem. Descrip.:* PEG 4000

CAS 25322-68-3; EINECS/ELINCS 203-989-9

*Uses:* Binder/plasticizer for ceramics; intermediate for copolymers, PEG esters; cosmetics; pharmaceuticals; metalworking lubricants and electropolishes; resins; paper/film; printing inks; rubber antistat, release, compding. aid; textile aux.

*Properties:* APHA 50 color (25% aq.); sol. in water and most polar org. solvs.; m.w. 3300-4000; sp.gr. 1.217; visc. 130-180 cst (99 C); pour pt. 56 C; flash pt. (OC) > 260 C; ref. index 1.456; pH 4.5-7.5; surf. tens. 54.4 dynes/cm (50% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Teric™ T5** [Huntsman]

*Chem. Descrip.:* PEG-5 tallate

CAS 61791-00-2

*Uses:* Wetting agent and dispersant for oil-based systems; emulsifier, detergent, grinding aid for wet milling of pigments and resins; mfg. of lubricants for metal and textile industries; emulsifier for min. and animal oils, cosmetics, agric.; defoamer for effluent treatment, pulp/paper processes; low-foaming additive in detergents, l&l hard surf. cleaners, pulp/paper chems.

*Properties:* Hazen > 250 liq.; sol. in benzene, ethyl acetate, ethyl Icinol, perchlorethylene, ethanol, min. and veg. oil, olein; disp. in water; sp.gr. 1.018; visc. 196 cps; m.p. < 0 C; HLB 8.2; pH 8-10 (1% aq.); 100% act.; nonionic

*Environmental:* Biodeg.

**Teric™ T10** [Huntsman]

*Chem. Descrip.:* PEG-10 tallate

CAS 61791-00-2

*Uses:* Wetting agent and dispersant for oil-based systems; emulsifier, detergent, grinding aid for wet milling of pigments and resins; mfg. of lubricants for metal and textile industries; emulsifier for min. and animal oils, cosmetics, agric.; defoamer for effluent treatment, pulp/paper processes; low-foaming additive in detergents, l&l hard surf. cleaners, pulp/paper chems.

*Properties:* Hazen > 250 liq.; sol. in benzene, ethyl acetate, ethyl Icinol, perchlorethylene, ethanol, veg. oil, olein; also disp. in water; sp.gr. 1.042; visc. 253 cps; m.p. 5 ± 2 C; HLB 11.7; pH 8-10 (1% aq.); surf. tens. 34.9 mN/m (0.1%); Ross-Miles foam 5.3 cm (0.1%, initial); 100% act.; nonionic

*Environmental:* Biodeg.

**Tetralon®** [Ciba Spec. Chems./Paper]

*Chem. Descrip.:* Polycarboxylic

*Uses:* Sequestrant to complex iron and other polyvalent metallic ions in pulp prior to bleaching processes

**Tetronic® 90R4** [BASF]

*Chem. Descrip.:* EO/PO ethylene diamine block copolymer

CAS 26314-40-5

*Uses:* Surfactant, emulsion stabilizer, solubilizer, dispersant, wetting agent, antistat, penetrant, plasticizer, defoamer, demulsifier in the petrol., paints, paper, cement, inks, cosmetics, pharmaceutical, plastics, detergent, and metalworking industries; rubber activator; R series for low foaming applics.

*Properties:* Liq.; m.w. 7240; visc. 3870 cps; HLB 1-7; pour pt. 12 C; cloud pt. 43 C (1% aq.); surf. tens. 43 dynes/cm (0.1%); 100% act.; nonionic  
*Toxicology:* LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; minimal skin and minimal to mild eye irritation

**Tetronic® 150R1** [BASF]

*Chem. Descrip.:* EO/PO ethylene diamine block copolymer

CAS 26314-40-5

*Uses:* Detergent, oil emulsifier, defoamer for machine dishwashing, metal cleaning, petrol., paints, paper, cement, inks, cosmetics, pharmaceuticals, plastics; rubber activator; low foaming

*Properties:* Liq.; m.w. 8000; visc. 1840 cps; HLB 1; pour pt. -17 C; cloud pt. 20 C (1% aq.); surf. tens. 33 dynes/cm (0.1%); 100% act.; nonionic  
*Toxicology:* LD50 (oral) > 10 g/kg, (dermal) > 5 g/kg; minimal skin and minimal to mild eye irritation

**Texapon® 842** [Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Sodium octyl sulfate

CAS 142-31-4; EINECS/ELINCS 205-535-5

*Uses:* Wetting agent for hydrophobic powds.; surfactant for mfg. of SB disp. and SBR/ABS by emulsion polymerization; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, BGA approved

- Properties:* Liq.; 41-43% act.; anionic
- Texapon® EHS** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium 2-ethylhexyl sulfate  
 CAS 126-92-1; EINECS/ELINCS 204-812-8  
*Uses:* Wetting agent, solubilizer, hydrotrope for cleaning agents, esp. in alkaline media; mfg. of S/B disps. and SBR/ABS by emulsion polymerization process; food-contact paper/paperboard; low foaming  
*Regulatory:* FDA 21CFR §176.170, BGA approved  
*Properties:* Liq.; 40% act.; anionic
- Texapon® K-12 C Powd.** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant, foaming agent for mfg. of all types of polymer dispersions; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard; high foaming power; suitable for mfg. of sm. particle size polymer disp.; high C-chain purity  
*Regulatory:* FDA 21CFR §176.170, 178.3400; BGA approved  
*Properties:* Powd.; >90.5% act.; anionic
- Texapon® K-12 Granules** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Foaming agent for polymer disp.; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Wh. gran.; > 88% act.; anionic
- Texapon® K-12 Needles** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Foaming agent for toothpaste, emulsion and cream shampoos, detergents, wettable powds., cleansing preps., polymer disp.; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Wh. to lt. yel. needles, almost odorless; dens. 400-500 g/l; pH 6.5-9.0 (1%); 88% min. act.; anionic  
*Storage:* 1 yr min. storage life in sealed orig. containers in dry place at temps. below 40 C
- Texapon® K-12 PA 15** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate aq. sol'n.  
 CAS 68585-47-7; EINECS/ELINCS 205-788-1  
*Uses:* Polymerization surfactant, foaming agent used for mfg. of all types of polymer dispersions; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; suitable for sm. particle size disps.  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400; SARA §311/312 reportable; BGA approved  
*Properties:* Colorless liq.; sl. odor; sp.gr. 0.96; dens. 8.0 lb/gal; flash pt. (PMCC) > 93 C; pH 9.0; 85% volatiles; 15% act.; anionic  
*Toxicology:* Causes skin and severe eye irritation; ing. may cause GI irritation, nausea, vomiting, diarrhea; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* Store @ > 25 C
- Texapon® K-1296 C Needles** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant, foaming agent for mfg. of all types of polymer dispersions; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard; high foaming power; suitable for mfg. of sm. particle size polymer disp.; high C-chain purity  
*Regulatory:* FDA 21CFR §176.170, 178.3400; BGA approved  
*Properties:* Needles; >90% act.; anionic
- Texapon® K-1296 Powd.** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate (96.5%), sodium sulfate (2.5%), sodium chloride (1%)  
*Uses:* Dispersant, wetting agent, cleansing agent, disintegrant, foaming agent for cleaning formulations, dentifrices, emulsion and cream shampoos, foaming bubble baths, cosmetic cleansers; additive for mech. latex foaming; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, NF, BGA, DAB, Ph.Eur., JP compliance  
*Properties:* Wh. to sl. ysh. powd., almost odorless; completely sol. in water; sp.gr. 0.23-0.24; dens. 1.02-2.00 lb/gal; pH 6-9 (1%); 96% act.; anionic
- Toxicology:* LD50 (oral, rat) 1288 mg/kg; may cause gastrointestinal irritation, nausea, vomiting, and diarrhea if ingested; causes eye, skin, and respiratory irritation  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* 1 yr min. storage stability in orig. unopened containers at temps. below 40 C, protected from moisture
- Texapon® LS Highly Conc. Needles** [Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate (C12-C14)  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Surfactant for mfg. of polymer disp.; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Wh. to lt. yel. needles, almost odorless; dens. 400-500 g/l; pH 6.5-9.0 (1%); 87% min. act.; anionic
- Texapon® OT Highly Conc. Needles** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate C12-C18  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Detergent, shampoo base for bubble bath, soaps; emulsifier for emulsion polymerization; additive for mech. latex foaming, carpet and upholstery cleaners; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Needles; 91-92% act.; anionic
- Texapon® T 42** [Cognis KGaA/Care Chems.; Cognis KGaA/Plastics Tech.; Henkel/Pulcra]  
*Chem. Descrip.:* TEA-lauryl sulfate  
 CAS 139-96-8; EINECS/ELINCS 205-388-7  
*Uses:* Detergent, emulsifier for hair and rug shampoos, bubble baths, shower gels, fire fighting foams; surfactant for mfg. of polymer disp.; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved  
*Properties:* Liq.; m.w. 420; visc. < 100 mPa·s; pH 7.2-7.5 (10%); 40-43% act.; anionic
- Texapon® VHC Needles** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate (86%), sodium sulfate (6%), sodium chloride (2.5%), water (6%)  
*Uses:* Wetting agent, foaming agent, emulsifier, detergent for personal care prods., scouring agents, pigment dispersions, polymer dispersions, emulsion polymerization, PVC processing; cosmetic base; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA approved; SARA §311/312 reportable  
*Properties:* Wh. fine needles; mild odor; misc. with water; sp.gr. 0.45; dens. 3.75 lb/gal; pH 7-8 (1% aq.); 7.5 % max. volatiles; 86-90% act.; anionic  
*Toxicology:* LD50 (oral, rat) > 5 g/kg; causes skin, eye, respiratory irritation; ing. may cause GI irritation, nausea, vomiting, and diarrhea; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* Store in cool, dry place
- Texapon® ZHC Needles** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]  
*Chem. Descrip.:* Sodium lauryl sulfate  
 CAS 151-21-3; EINECS/ELINCS 205-788-1  
*Uses:* Foaming agent, dispersant, wetting agent for toothpaste, foaming bubble baths, cosmetic cleansing creams and emulsions, shampoos; air entraining agent; surfactant for mfg. of polymer disp.; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170, 178.3400; NF, JP compliance; SARA §311/312 reportable  
*Properties:* Wh. to sl. ysh. needles; fatty odor; completely sol. in water; sp.gr. 0.45; dens. 400-500 g/l; pH 6.5-9.0 (1%); 7.5 % max. volatiles; 88% min. act.; anionic  
*Toxicology:* LD50 (oral, rat) 1288 mg/kg; causes skin, eye, and respiratory irritation; ing. may cause GI irritation, nausea, vomiting, diarrhea; TSCA listed  
*Precaution:* Avoid strong oxidizing agents  
*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, SO<sub>x</sub>  
 NFPA: Health 2; Flammability 1; Reactivity 0  
*Storage:* 1 yr min. storage life in orig. unopened containers at temps. below

40 C, protected from moisture

**Texapon® ZHC Powder** [Cognis/Care Chems.; Cognis KGaA/Plastics Tech.]

*Chem. Descrip.:* Sodium lauryl sulfate

CAS 68955-19-1; EINECS/ELINCS 205-788-1

*Uses:* Foaming agent, dispersant, and wetting agent for bubble baths, cosmetic cleansing creams and emulsions, toothpaste, polymer disp., emulsion polymerization, mech. latex foaming, carpet and upholstery cleaners; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 178.3400, BGA, NF, JP compliance

*Properties:* Wh. to sl. ysh. fine powd., faint odor; dens. 200-300 g/l; pH 8.5-10.5 (1%); 90% min. act.; anionic

*Storage:* 1 yr min. storage life in orig. unopened containers at temps. below 40 C, protected from moisture

**Texicryl® 13-442** [Scott Bader]

*Chem. Descrip.:* Emulsion copolymers of the higher acrylic esters

*Uses:* Adhesive for nonremovable lt. paper labels; emulsions which dry to give films that are permanently tacky at R.T. and require the applic. of only lt. pressure to give good adhesion to most surfaces; good adhesion to difficult substrates such as polyethylene

*Properties:* Emulsion; 0.25 µ particle size; sp.gr. 1.00; visc. 0.6-1.25 poise; pH 8.0-9.5

**TH-44** [Nicca Chem. Co Ltd]

*Chem. Descrip.:* Paraffin wax, special polymer

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Water repellent for improved lubrication on surf. of papers by enhancing sizing effect

*Use Level:* 5-50 times diluted sol'n. for total of 0.5-4% per paper

*Properties:* Wh. emulsion; pH 7.5; cationic

**Thermoguard® S** [Laurel Ind.]

*Chem. Descrip.:* Antimony oxide

CAS 1309-64-4; EINECS/ELINCS 215-175-0

*Uses:* Flame retardant for use in plastics, paper, textiles, and paints; flame retardant pigment for PVC; used with chlorinated organics for producing flame-retardant polyesters, polyethylene compds.; mfg. of flame-retardant films, sheets, textiles, paper, paints; must be used with a halogen-containing compd. for flame retardant effect; high tinctorial str.

*Properties:* Wh. superfine powd., odorless; 1.3 µ avg. particle size; 99.9% thru 325 mesh; insol. in common org. solvs.; very sl. sol. in water; sol. in aq. HCl, potassium hydroxide, and tartaric acid; m.w. 291.52; sp.gr. 5.67; vapor pressure 0 mm (20 C); m.p. 656 C; b.p. 1435 C; ref. index 2.087; 99.5% Sb<sub>2</sub>O<sub>3</sub>; 83.0% antimony

*Toxicology:* May be irritating to respiratory system, eyes, skin; ing. may cause severe GI symptoms; antimony oxide has caused lung tumors in test animals; ACGIH TLV 0.5 mg/m<sup>3</sup> (as Sb); contains < 0.4% arsenic and < 0.4% lead; TSCA listed

*Precaution:* Incompat. with strong oxidizers, acids, halogenated acids

*Hazardous Decomp. Prods.:* Toxic antimony fumes

**Thermoguard® UF** [Laurel Ind.]

*Chem. Descrip.:* Antimony oxide

CAS 1309-64-4; EINECS/ELINCS 215-175-0

*Uses:* Flame retardant for plastic, textiles, paper, and paint applics.; superfine grade; high tinctorial str.; used in conjunction with halogenated flame retarders

*Properties:* Wh. free-flowing powd.; 0.1% on 325 mesh; 50% 0.2-0.5 µ; sp.gr. 5.67; bulk dens. 25 lb/ft<sup>3</sup>; m.p. 656 C; ref. index 2.1; 99.5% Sb<sub>2</sub>O<sub>3</sub>

*Toxicology:* May be irritating to respiratory system and eyes; avoid breathing dust and eye and skin contact

**Thermosil®** [Süd-Chemie AG]

*Chem. Descrip.:* Bentonite

CAS 1302-78-9; EINECS/ELINCS 215-108-5

*Uses:* Used when detrimental liquids impair function of coated papers, e.g., thermoreactive papers, carbonless copying papers

**Thiostop® N** [Uniroyal]

*Chem. Descrip.:* Sodium dimethyldithiocarbamate aq. sol'n.

CAS 128-04-1; EINECS/ELINCS 204-876-7

*Uses:* Polymerization short stop for SBR; reducing agent which reacts with and destroys oxidizing type inhibitors, thereby stopping polymerizations; ultra accelerator for NR and SBR latexes; slimicide in food-contact paper; food pkg. adhesives; food-contact rubber articles; nonstaining, nondiscoloring; suggested in combination with hydrocarbon free radicals to prevent polymer crosslinking and m.w. increases

*Regulatory:* FDA 21CFR §173.320, 175.105, 176.300, 177.2600

*Properties:* Yel. to amber clear liq.; sol. in polar solvs.; misc. with water; sp.gr. 1.18; 40% act.

*Toxicology:* Repeated minimal contact with skin can cause sensitization; exposure can produce an adverse reaction when alcohol is consumed

*Storage:* Good storage stability (> 1 yr when stored in cool, dry place away from direct sources of heat and light)

**T-Hydro® Sol'n.** [Lyondell]

*Chem. Descrip.:* t-Butyl hydroperoxide

CAS 75-91-2; EINECS/ELINCS 200-915-7

*Uses:* Free radical polymerization initiator; initiator in acrylic emulsion polymerization; coinitiator in polyethylene processes; finishing catalyst in emulsion polymerizations and unsat. polyester resin thermosets; intermediate for peroxygen derivs.; epoxidation reagent; oxidizing reagent; source of act. oxygen for pulp/paper bleaching, metal sulfide oxidations; flocculant for borine-contg. sol'ns. in ore, coal, slurry processing; recycling and waste treatment

*Properties:* Clear sol'n., pungent odor; sol. in alcohols, acetone, methyl t-butyl ether, dimethyl formamide, propylene glycol, hydrocarbon solvs.; m.w. 90.12; sp.gr. 0.935; dens. 7.8 lb/gal (20 C); visc. 4.1 cps; vapor pressure 23 mm Hg (20 C); f.p. -2.8 C; b.p. 96 C (760 mm Hg); flash pt. (TCC) 43 C; ref. index 1.3246; pH 4.3; 70% aq. sol'n., 12% act. oxygen

*Toxicology:* TSCA listed

**Ticaxan® Regular** [TIC Gums]

*Chem. Descrip.:* Xanthan gum

CAS 11138-66-2; EINECS/ELINCS 234-394-2

*Uses:* Stabilizer, thickener, emulsifier, suspending agent, binder, moisture control aid in foods (salad dressings, sauces, fruit beverages, dry mixes, refrigerated dough, cake mixes, relish, pie fillings, bakery emulsions), cosmetics/pharmaceuticals (ointments, shampoos, lotions, suspensions), industrial (agric. sprays, explosives, paper sizing, oil recovery, paints, textiles)

**TIC Pretested® Guar Gum TICOLV** [TIC Gums]

*Chem. Descrip.:* Guar gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8

*Uses:* Thickener, film-former, binder for food (ice cream, dairy prods., instant soups, dressings, sauces, gravies, cakes, donuts, frozen foods, cheese, pet food), cosmetics/pharmaceuticals (suspension), industrial (processing aid, oil recovery, textile, printing, mining, paper, explosives); high visc., milk reactivity

*Properties:* Sol. in cold water

**Tinofix® AP** [Ciba Spec. Chems./Paper]

*Uses:* Color fixative for paper coloration incl. food-contact papers; formaldehyde-free

*Regulatory:* FDA and BGVV approved

*Properties:* Cationic

**Tinofix® ECO-N** [Ciba Spec. Chems./Paper]

*Uses:* Color fixative for paper coloration; formaldehyde-free

*Properties:* Cationic

**Tinofix® WSP** [Ciba Spec. Chems./Paper]

*Uses:* Color fixative for paper coloration

*Properties:* Liq.; cationic

**Tinopal®** [Ciba Spec. Chems./Paper]

*Uses:* Fluorescent whitening agent for paper

**Tinopal® SFP** [Ciba Spec. Chems./Addit.]

*Chem. Descrip.:* Stilbene-2,2'-disulfonic acid type

*Uses:* Optical brightening agent for use in water-borne coatings, photographic prints and paper; enhances the apparent whiteness of low dens. areas incl. that of borders; rec. for addition to the stabilizer or rinse baths during the photoprocessing of the photographic paper

*Use Level:* 1-5 g/l of the processing sol'n. (photography); lt. yel. powd.; m.w. 1305; sol. 150 g/l of deionized water @ 20 C; pH 7.0-8.0 (deionized water)

**Tiona® A-2000** [Millennium Inorg. Chems.]

*Chem. Descrip.:* Sulfate process titanium dioxide (anatase) slurry

CAS 13463-67-7; EINECS/ELINCS 236-675-5

*Uses:* Designed for paper wet end and coating applics.; improved optical performance, enhanced calcium stability

*Regulatory:* FDA compliance

*Properties:* 0.005% max. on 325 mesh; sp.gr. 2.130-2.182; visc. 100-1000 cps; f.p. 32 F; pH 9-10.5; 71.5-73% solids

*Storage:* Store @ high solids under mild agitation

**Tiona® A-3000** [Millennium Inorg. Chems.]

*Chem. Descrip.:* Titanium dioxide (anatase) dry

- CAS 13463-67-7; EINECS/ELINCS 236-675-5  
*Uses:* Paper applics.
- Tiona® RCS-P** [Millennium Inorg. Chems.]  
*Chem. Descrip.:* Rutile titanium dioxide aq. disp.  
 CAS 13463-67-7; EINECS/ELINCS 236-675-5  
*Uses:* For fine paper, paperboard, and specialty paper applics.
- Ti-Pure® R-794** [DuPont]  
*Chem. Descrip.:* Rutile titanium dioxide  
 CAS 1317-80-2; EINECS/ELINCS 236-675-5  
*Uses:* Opacifier, pigment in paper coatings, coated and uncoated printing and writing papers, paperboard, saturating papers  
*Regulatory:* DOT nonregulated; SARA §311/312 nonreportable; CERCLA nonreportable  
*Properties:* Wh. fine dry powd.; odorless; insol. in water; sp.gr. 3.8-4.3; flash pt. nonflamm.; pH 7-9; 93% TiO<sub>2</sub>, 4.5% Al<sub>2</sub>O<sub>3</sub>  
*Toxicology:* Skin contact may cause drying/cracking in sensitive individuals; inh. may cause upper respiratory irritation, cough, shortness of breath; overexposure to amorphous silica may cause eye/skin/lung irritation  
*Environmental:* LC50 (fathead minnows, 96 h) > 1000 mg/l  
 NFPA: Health 0; Flammability 0; Reactivity 0  
*Storage:* Protect containers from damage
- Ti-Pure® R-795** [DuPont]  
*Chem. Descrip.:* Rutile titanium dioxide  
 CAS 1317-80-2; EINECS/ELINCS 236-675-5  
*Uses:* Opacifier, pigment in paper coatings, coated and uncoated printing and writing papers, paperboard, saturating papers  
*Regulatory:* DOT nonregulated; SARA §311/312 nonreportable; CERCLA nonreportable  
*Properties:* Wh. fine dry powd.; odorless; insol. in water; sp.gr. 3.8-4.3; flash pt. nonflamm.; pH 6.5-8.5; 89% TiO<sub>2</sub>, 6% Al<sub>2</sub>O<sub>3</sub>, 2% SiO<sub>2</sub>  
*Toxicology:* Skin contact may cause drying/cracking in sensitive individuals; inh. may cause upper respiratory irritation, cough, shortness of breath; overexposure to amorphous silica may cause eye/skin/lung irritation  
*Environmental:* LC50 (fathead minnows, 96 h) > 1000 mg/l  
 NFPA: Health 0; Flammability 0; Reactivity 0  
*Storage:* Protect containers from damage
- Ti-Pure® RPD Vantage®** [DuPont]  
*Chem. Descrip.:* Rutile titanium dioxide  
 CAS 1317-80-2; EINECS/ELINCS 236-675-5  
*Uses:* Opacifier, pigment for coatings and wet end paper applics.; component of paper/paperboard in contact with aq./fatty/dry foods; exc. brightness; superior pigment disp.; highest opacity/hiding power; extremely efficient light scattering  
*Regulatory:* FDA 21CFR §176.170. 176.180; DOT nonregulated; SARA §311/312 nonreportable; CERCLA nonreportable  
*Properties:* Wh. powd.; odorless; insol. in water; sp.gr. 3.8-4.3; brightness (TAPPI) 96.3; flash pt. nonflamm.; ref. index 2.72; pH 4-10 (aq. extract)  
*Toxicology:* Skin contact may cause drying/cracking in sensitive individuals; inh. may cause upper respiratory irritation, cough, shortness of breath; overexposure to amorphous silica may cause eye/skin/lung irritation; TSCA listed  
*Environmental:* LC50 (fathead minnows, 96 h) > 1000 mg/l  
 NFPA: Health 0; Flammability 0; Reactivity 0  
*Storage:* Protect containers from damage
- Ti-Pure® RPS Vantage®** [DuPont]  
*Chem. Descrip.:* Rutile titanium dioxide aq. slurry  
 CAS 1317-80-2; EINECS/ELINCS 236-675-5  
*Uses:* Opacifier, pigment in paper coatings, coated and uncoated printing and writing papers, paperboard, saturating papers; component of paper/paperboard in contact with aq./fatty/dry foods; exc. brightness; superior pigment disp.; stable slurry; very resist. to bacterial growth; does not gel; settles very slowly; good compat.  
*Regulatory:* FDA 21CFR §176.170. 176.180; DOT nonregulated; SARA §311/312 nonreportable; CERCLA nonreportable  
*Properties:* Wh. opaque liq.; sl. amine odor; solids are insol. in water; sp.gr. 1.8-2.4; brightness (TAPPI) 97; f.p. 0 C; b.p. 100 C; flash pt. nonflamm.; pH 7-10.5; 97.5-99.9% TiO<sub>2</sub>, 0.1-5% aluminum hydroxide; anionic  
*Toxicology:* Repeated skin contact may cause drying/cracking in sensitive individuals; eye contact may cause irritation, tearing, pain, blurred vision; inh. may cause nose/throat/lung irritation, cough, difficulty breathing, shortness of breath; TSCA listed  
*Environmental:* LC50 (fathead minnows, 96 h) > 1000 mg/l

- Hazardous Decomp. Prods.:* None  
 NFPA: Health 0; Flammability 0; Reactivity 0  
*Storage:* Keep from freezing
- Tisyn®** [Burgess Pigment]  
*Chem. Descrip.:* Aluminum silicate, thermo-optic  
*Chem. Analysis:* Moisture (0.5% max.)  
 CAS 1327-36-2; EINECS/ELINCS 215-475-1  
*Uses:* High hiding pigment for paint formulations, paper coatings; reinforcing filler for plastics, rubber, water and solv. systems; U.S. patent 3,021,195  
*Properties:* Wh. thin flat plate; 0.15% max. on 325 mesh; sp.gr. 2.2; oil absorp. 73; ref. index 1.62; pH 4.0-4.5  
*Toxicology:* Nontoxic
- Tivar®-1000** [Poly Hi Solidur]  
*Chem. Descrip.:* UHMWPE  
 CAS 9002-88-4; EINECS/ELINCS 200-815-3  
*Uses:* Used in paper industry (pulp and finishing), textile industry (loom components), chemical industry (process equip.), food and beverage industry, mining and metals processing, transportation, consumer goods, industrial parts, porous molds; features high abrasion resist., high energy absorp., low coeff. of friction, high impact str., self-lubricating, zero water absorp.  
*Regulatory:* FDA compliance  
*Properties:* Sp.gr. 0.94 g/cc; tens. str. 6800 psi (break); tens. elong. 450% (break); Rockwell hardness R64; Izod impact no break notched; water absorp. nil.
- TL 4190** [Mace Adhesives & Coatings]  
*Chem. Descrip.:* Water-based polyurethane laminating adhesive  
*Uses:* Laminating adhesive with high adhesion to various metal foils and films incl. polyester, PU, and vinyl for paper, film, fabric, or foil constructions; fast wet tack; low foam coatability
- TLV 68-SB** [ADM Lecithin]  
*Chem. Descrip.:* Std. lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compds.; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; food (baked goods, cheese, confections, dairy, instant foods, margarine)  
*Properties:* Opaque fluid; visc. 120 stokes; acid no. 28 max.; 1% water max.
- TLV 68-UB** [ADM Lecithin]  
*Chem. Descrip.:* Std. lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compds.; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; food (baked goods, cheese, confections, dairy, instant foods, margarine)  
*Properties:* Opaque fluid; visc. 120 stokes; acid no. 28 max.; 1% water max.
- TLV 70-SB** [ADM Lecithin]  
*Chem. Descrip.:* Std. lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compds.; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; food (baked goods, cheese, confections, dairy, instant foods, margarine)  
*Properties:* Opaque fluid; visc. 250 stokes; acid no. 28 max.; 1% water max.
- TLV 70-UB** [ADM Lecithin]  
*Chem. Descrip.:* Std. lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compds.; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; food (baked goods, cheese, confections, dairy, instant foods, margarine)  
*Properties:* Opaque fluid; visc. 250 stokes; acid no. 28 max.; 1% water



max.

**Toatus 604T** [Nicca Chem. Co Ltd]*Chem. Descrip.:* Resin based on polyamide epoxy*Uses:* Wet str. agent for papermaking process for wetproofing corrugated containers, craft papers, or tissue papers when applied in sm. quantity*Use Level:* 0.5-2%, corrugated containers; 0.1-0.5%, to tissue papers*Properties:* Straw colored limpid visc. liq.; pH 4 (5%)**Tolcide® MBT** [Albright & Wilson UK]*Chem. Descrip.:* Methylenebis thiocyanate

CAS 6317-18-6

UN No. 2811

*Uses:* Biocide, slimicide, preservative for use in water treatment, paper, antifoulant paint, surf. coatings, adhesives, drilling muds, leather, timber preservation; food-contact paper; food-contact slimicide; thermally stable to 80 C; nonoxidizing; requires formulation in a solv.*Regulatory:* FDA 21CFR §176.170, 176.180, 176.300; EPA reg. no. 33677-1*Properties:* Pale yel. cryst. powd., irritating odor; sol. 40% in dimethylformamide, 30% in N-methyl pyrrolidone, 13% in diethylene glycol ethyl ether, 0.25% in water; m.p. 106 C; 99% assay**Tolcide® MW10** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Methylenebis(thiocyanate) aq. disp.

CAS 6317-18-6

*Uses:* Microbicide for water treatment and papermaking; controls bacteria, algae, fungi, and yeasts in recirculating cooling towers, paper mills, air washer systems; biocide for in-can preservation of sol'ns., emulsions, adhesives or other aq.-based prods.; broad spectrum; nonoxidizing; best suited for neutral to acidic conditions*Properties:* Beige to cream-colored disp.; sl. pungent odor; 2-5 µ typ. particle size; m.w. 130; sp.gr. 1.030-1.060; visc. 150-350 cps; b.p. 101 C; f.p. 0 C; flash pt. 200 C; pH 3-5; 10-11% act.*Storage:* 6 mos shelf life in cool, dry place away from acids, alkalis, strong oxidizers**Tolcide® PS** [Albright & Wilson Am.]*Chem. Descrip.:* Tetrakis(hydroxymethyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

*Uses:* Biocide for industrial water treatment, oil recovery operations, paper production, and preservation of sol'ns. and emulsions; broad spectrum, fast acting, nonoxidizing*Environmental:* Degrades to virtually nontoxic compd.**Tolcide® PS25** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Tetrakis(hydroxy-methyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

*Uses:* Biocide for paper and related industries*Properties:* 25% act. in water**Tolcide® PS 75** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Tetrakis(hydroxymethyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

UN No. 2810

*Uses:* Biocide for paper and related industries; broad spectrum, rapid acting; extremely effective in the control of legionella and sulfate-reducing bacteria; rapid penetration and disp. of biological slimes; reduced oil field reservoir souring as a result of lower hydrogen sulfide generation*Properties:* Colorless to pale yel. liq.; pungent odor; sp.gr. 1.39 kg/m<sup>3</sup>; misc. in fresh water, sea water, oil field-produced water; visc. 32 cSt; pH 3.2 ± 0.6; 75% w/w*Environmental:* Biodeg.; degrades to virtually nontoxic compd.; low aquatic toxicity**Tolcide® PS 75LT** [Albright & Wilson Am.]*Chem. Descrip.:* Tetrakis(hydroxymethyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

*Uses:* Oil field biocide for applic. in colder climates; extremely effective against sulfate-reducing bacteria; nonfoaming; benign environmental toxicity profile*Regulatory:* EPA registration no. 4564-15*Properties:* Colorless clear to sl. hazy liq.; misc. with water, incl. seawater; m.w. 406; sp.gr. 1.38; visc. 30 cps; flash pt. nonflamm.; pH 3-4; 75% act.*Environmental:* Degrades rapidly; degrades to virtually nontoxic compd.**Tolcide® PS75M** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Tetrakis(hydroxy-methyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

*Uses:* Biocide for paper and related industries*Properties:* 75% act.**Tolcide® PS 200** [Albright & Wilson Am.]*Chem. Descrip.:* Tetrakis(hydroxymethyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

*Uses:* Biocide providing effective control of Legionella and algae in cooling water systems, and for oil field and paper industries; broad spectrum; particularly effective against sulfate-reducing bacteria; aq. formulation; benign environmental toxicity profile*Regulatory:* EPA registration no. 4564-15*Properties:* Clear to sl. hazy liq.; misc. with water; m.w. 406; sp.gr. 1.09; visc. 1.6 cps; flash pt. nonflamm.; pH 3.2; 20% act. in water*Environmental:* Degrades rapidly; degrades to virtually nontoxic compd.**Tolcide® PS 352C** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Tetrakis(hydroxymethyl) phosphonium sulfate (35%) and low-foaming anionic surfactant

UN No. 2810

*Uses:* Biocide for water treatment, sec. oil field recovery, paper; developed to enhance rapid kill chars. and broad spectrum act. in highly contaminated systems ensuring biofilm penetration and slime removal; compat. with most scale and corrosion inhibitors; effective in both acid and alkaline conditions*Properties:* Colorless clear liq.; pungent odor; misc. in fresh water, sea water, oil field-produced water; sp.gr. 1.165 kg/m<sup>3</sup>; visc. 2.12 cSt; pH 3.24 (conc. 4.66% w/v, 20 C); anionic*Environmental:* Biodeg.; degrades to virtually nontoxic compd.; low aq. toxicity**Tolcide® PS352CM** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Tetrakis(hydroxy-methyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0

*Uses:* Biocide for paper and related industries*Properties:* 35% act.**Tolcide® PS 355A** [Albright & Wilson Am.; Albright & Wilson UK]*Chem. Descrip.:* Tetrakis(hydroxymethyl) phosphonium sulfate (35%) with nonfoaming dispersant

UN No. 2810

*Uses:* Biocide for water treatment, paper; ready-to-use formulation; developed to be nonfoaming for applics. such as direct air cooling where absence of foam is important; compat. with most scale and corrosion inhibitors; effective at acid and alkaline pH, elevated temps. and pressures*Properties:* Colorless clear liq.; pungent odor; misc. in fresh water, sea water, oil field-produced water; sp.gr. 1.165 kg/m<sup>3</sup>; visc. 2.12 cSt; pH 3.24 (conc. 4.66% w/v, 20 C); nonflamm.*Environmental:* Biodeg.; degrades to virtually nontoxic compd.; low aq. toxicity**TonerClean 208, 209** [Nippon Nyukazai]*Chem. Descrip.:* Blend*Uses:* Deinking agent for reclaimed paper prod.*Properties:* Liq.; 100% conc.; nonionic**Topcat™ Cationic Additive** [Penford Prods.]*Uses:* Dry str. agent, dewatering agent for wet end furnishes contg. high levels of interfering substances; bonding agent in dirty systems, such as unbleached or groundwood-contg. systems; improves wet end cleanliness and runnability*Properties:* Cationic**Torez Resin P-215-A** [Kukdo]*Chem. Descrip.:* Polyacrylamide resin

CAS 9003-05-8

*Uses:* Dry str. resin for wrapping paper, printing paper, corrugated board*Properties:* Sl. y/sh.; completely sol. in water; visc. 3000-7000 cps; pH 5-7; 15% resin contents; anionic**Torez Resin P-1012** [Kukdo]*Chem. Descrip.:* Polyamide resin, epichlorohydrin-modified

CAS 9012-24-2

*Uses:* Wet str. resin for sanitation paper (towel, napkin, tissue paper, paper handkerchief), heavy-duty pkg. paper (kraft paper for salt, sugar, cement, fertilizer, etc.), card paper (fiber card board liner, core paper, tube paper container board), printing and writing paper*Properties:* Sl. y/sh.; completely sol. in water; sp.gr. 1.036-1.080; visc. 30-80 cps; f.p. -3 C; pH 4.0-5.5; 12.5% resin contents; cationic*Storage:* 3 mos max. stability @ R.T.**Torez Resin P-1020R** [Kukdo]*Uses:* Drainage aid, retention aid in papermaking, board paper, liner paper*Properties:* Sl. y/sh. transparent liq.; visc. 250-330 cps; pH 6.0-7.5; 24%

resin contents; cationic

**Torez Resin P-1025** [Kukdo]

*Chem. Descrip.:* Polyamide resin, epichlorohydrin-modified  
CAS 9012-24-2

*Uses:* Wet str. resin for sanitation paper (towel, napkin, tissue paper, paper handkerchief), heavy-duty pkg. paper (kraft paper for salt, sugar, cement, fertilizer, etc.), card paper (fiber card board liner, core paper, tube paper container board), printing and writing paper

*Properties:* Sl. y/sh.; completely sol. in water; sp.gr. 1.076-1.080; visc. 80-400 cps; f.p. -3 C; pH 3.3-5.5; 25% resin contents; cationic

*Storage:* 3 mos max. stability @ R.T.

**Torez Resin P-2000** [Kukdo]

*Uses:* Paper str. resin for liner paper, corrugating medium kraft paper

*Properties:* Sl. y/sh.; completely sol. in water; visc. 1000-5000 cps; pH 10 ± 0.5; 8.5% min. resin contents; amphoteric

**Torez Resin P-2010** [Kukdo]

*Uses:* Paper str. resin for liner paper, corrugating medium kraft paper

*Properties:* Sl. y/sh.; completely sol. in water; visc. 2000-8000 cps; pH 10 ± 0.5; 10% min. resin contents; amphoteric

**Torez Resin P-4010** [Kukdo]

*Uses:* Dry str. resin for wrapping paper, printing paper, liner paper, board paper

*Properties:* Transparent liq.; completely sol. in water; visc. 2000-8000 cps; pH 4.5 ± 0.5; 10% min. resin contents; cationic

**TP OC 370** [Bayer]

*Chem. Descrip.:* Iminodisuccinate, tetrasodium salt (26% min.)

*Uses:* Chelating agent for metal ions for use in detergents, agric., oil industry, pharmaceuticals, pulp/paper, and textiles; reduces hardness in water; stabilizes oxidation agents in aq. sol'n.

*Properties:* Colorless to lt. yel. sol'n.; sp.gr. 1.3 (20 C); visc. 30-60 mPa·s (20 C); pH 11-13.7

**Tramfloc™ 290** [Tramfloc]

*Chem. Descrip.:* Polyacrylamide  
CAS 9003-05-8

*Uses:* Flocculant for use in variety of industrial, mining, papermaking, and municipal operations; flocculant used for conditioning primary and secondary digested sludges to aid in dewatering; flocculant used alone or with primary coagulants for clarification

*Use Level:* 0.2-0.5% (stock sol'n.), 0.05-0.1% (feed sol'ns.)

*Properties:* Emulsion; completely water sol.; cationic

*Precaution:* Avoid amphoteric metallic components; spillages are extremely slippery

*Storage:* Store in cool, dry place

**Trans-10** [Trans-Chemco]

*Chem. Descrip.:* Silicone emulsion

*Uses:* Defoamer for aq. systems incl. food processing, chem. processing, adhesives, inks, insecticides, latex processing, aq. paints, soaps, starch processing, petrol. (gas scrubbing, propane deasphalting), plastics/rubber, textiles, paper, lagoon aeration, boiler water, leather finishing, metalworking, swimming pools, waste treatment

*Regulatory:* FDA 21CFR §173.340

*Properties:* Wh. milky liq.; mild odor; disp. in water; sp.gr. 0.97-1.00; dens. 8.09-8.34 lb/gal; visc. 4220-4880 cps (73 F); b.p. 212 F; flash pt. none to 212 F; pH 7.9-8.2 (as is); 10% act.; nonionic

*Toxicology:* May cause sl. eye and skin irritation; minimal effect by ingestion  
HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Store in well-ventilated area below 120 F; keep from freezing

**Trans-20** [Trans-Chemco]

*Chem. Descrip.:* Silicone emulsion

*Uses:* Defoamer for aq. systems incl. food processing, chem. processing, adhesives, inks, insecticides, latex processing, aq. paints, soaps, starch processing, petrol. (gas scrubbing, propane deasphalting), plastics/rubber, textiles, paper, lagoon aeration, boiler water, leather finishing, metalworking, waste treatment

*Regulatory:* FDA 21CFR §173.340

*Properties:* Wh. milky liq.; mild odor; water-disp.; sp.gr. 0.98-1.01; dens. 8.17-8.42 lb/gal; b.p. 212 F; flash pt. none to 212 F; pH 7.0-7.3 (5% aq. disp.); 20% act.; nonionic

*Toxicology:* May cause sl. eye and skin irritation; minimal effect by ingestion  
HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Store in well-ventilated area below 120 F; keep from freezing

**Trans-30** [Trans-Chemco]

*Chem. Descrip.:* Silicone emulsion

*Uses:* Defoamer for aq. systems incl. food processing, chem. processing, adhesives, inks, insecticides, latex processing, aq. paints, soaps, starch processing, petrol. (gas scrubbing), plastics/rubber, textiles, paper, lagoon aeration, boiler water, leather finishing, metalworking, waste treatment

*Properties:* Wh. milky liq.; mild odor; water-disp.; sp.gr. 0.98-1.01; dens. 8.17-8.42 lb/gal; b.p. 212 F; flash pt. none to 212 F; pH 7.0-7.3 (5% aq. disp.); 30% act.

*Toxicology:* May cause sl. eye and skin irritation; minimal effects by ingestion  
HMIS: Health 0; Flammability 0; Reactivity 0

*Storage:* Store in well-ventilated area below 120 F; keep from freezing

**Trans-220** [Trans-Chemco]

*Chem. Descrip.:* Nonsilicone aq. emulsion

*Uses:* Antifoam for food processing, industrial use, corrugated paperboard mfg.; long-lasting

*Regulatory:* FDA 21CFR §173.340

*Properties:* Wh. creamy liq.; tasteless, odorless; water-disp. with agitation; sp.gr. 0.93-0.95; dens. 7.95 lb/gal; b.p. 212 F; flash pt. > 280 F; pH 7.0-7.2 (5% aq. disp.)

*Toxicology:* May cause sl. eye and skin irritation; minimal effects by ingestion  
*Storage:* Store in well-ventilated area below 120 F; keep from freezing

**Trans-278** [Trans-Chemco]

*Chem. Descrip.:* Silicone and polypropylene glycol aq. emulsion

*Uses:* Antifoam for industrial applics. such as wastewater and fermentations; food-grade antifoam, direct food additive in beet sugar/yeast processing; antifoam, indirect food additive in mfg. of food-contact paper/paperboard, and articles for processing, pkg. or holding food

*Regulatory:* FDA 21CFR §173.340, 176.170, 176.180, 176.210 compliant

*Properties:* Disp. in water with agitation; dens. 8.34 lb/gal; 19% act.

**Trans-290** [Trans-Chemco]

*Chem. Descrip.:* Modified water-based silicone

*Uses:* Antifoam for industrial use, incl. metalworking fluids and cleaning prods., and for mfg. of food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210 compliant

*Properties:* Disp. in water; dens. 8.42 lb/gal; 15% act.

**Trans-1741** [Trans-Chemco]

*Chem. Descrip.:* Nonsilicone aq. emulsion

*Uses:* Antifoam for aq. systems, food-grade applics., fermentations, distillations, scald baths for poultry defeathering, hog dehairing, food-contact paper/paperboard; defoamer for starch recovery and modification, starch-based operations, animal feed, food pkg. adhesives

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.180, 176.200, 176.210

*Properties:* Disp. in water with agitation

**Translink® 77** [Engelhard]

*Chem. Descrip.:* Calcined aluminum silicate with vinyl functional surface treatment

*Chem. Analysis:* SiO<sub>2</sub> (52.0%), Al<sub>2</sub>O<sub>3</sub> (44.2%)

*Uses:* Reinforcing extender used in dielectric paper and EPDM med. and high-voltage wire and cable insulation, non-aq. coatings, adhesives and inks; exc. wet and dry elec. prods.; good processing; hydrophobic

*Properties:* Wh. highly pulverized powd.; 0.8 µm avg. particle size (pretreatment); 0.02% max. residue +325 mesh; sp.gr. 2.63 g/cc; bulk dens. 11 lb/ft<sup>3</sup> (loose), 21 lb/ft<sup>3</sup> (tamped); bulking value 0.046 gal/lb; oil absorp. 80-90 lb/100 lb; ref. index 1.62; brightness (GE) 90-92

**Trigonal® 12** [Akzo Nobel]

*Chem. Descrip.:* p-Phenylbenzophenone

CAS 2128-93-0; EINECS/ELINCS 218-345-2

*Uses:* UV initiator for printing ink and paper coating applics.

*Properties:* Powd.

**Trilon® A-92** [BASF; BASF AG]

*Chem. Descrip.:* Trisodium NTA monohydrate

CAS 5064-31-3; EINECS/ELINCS 225-768-6

*Uses:* Chelating agent used in soaps, detergents, water treatment, metal finishing and plating, pulp/paper mfg., synthesis of polymers, photographic prods., textiles, chemical cleaning for scale removal

*Properties:* Powd.; m.w. 275; chelating act. 375 mg CaCO<sub>3</sub>/g; 92% conc.

**Trilon® A Liq.** [BASF; BASF AG]

*Chem. Descrip.:* Trisodium NTA

CAS 5064-31-3; EINECS/ELINCS 225-768-6

*Uses:* Chelating agent for complexing iron in acid pH range for use in soaps, detergents, water treatment, metal finishing and plating, pulp/paper mfg., synthesis of polymers, photography, textiles, chemical cleaning for scale removal; detergent builder for nonphosphate liqs.; low m.w.; general pur-

pose

*Properties:* Liq.; m.w. 257; chelating act. 150 mg CaCO<sub>3</sub>/g; 38% conc. in water

**Trilon® B** [BASF; BASF AG]

*Chem. Descrip.:* Tetrasodium EDTA

CAS 64-02-8; EINECS/ELINCS 200-573-9

*Uses:* Chelating agent in soaps, detergents, water treatment, metal finishing, electroplating, pulp/paper bleaching, synthesis of polymers and rubber, photographic prods., textiles, chemical cleaning for scale removal, radioactive decontamination processes, rare earth separations; complexes most common metals over pH range, iron at acidic pH

*Properties:* Wh. powd.; sol. 1000 g/l in water (20 C); m.w. 380; bulk dens. 650 g/l; m.p. 400 C (dec. @ 150-200 C, releases water of cryst.); chelating act. 225 mg CaCO<sub>3</sub>/g; pH 11 (1% aq.); 87% act.

*Environmental:* Biodeg.

*Storage:* Hygroscopic

**Trilon® BS** [BASF; BASF AG]

*Chem. Descrip.:* H<sub>2</sub>EDTA

*Uses:* Chelating agent for soaps, detergents, water treatment, metal finishing, electroplating, pulp/paper mfg., synthesis of polymers, photographic prods., textiles, chemical cleaning for scale removal; used where sodium ion is undesirable

*Properties:* Wh. powd.; water-insol.; m.w. 292; bulk dens. 600 g/l; m.p. 220 C (dec.); chelating act. 340 mg CaCO<sub>3</sub>/g; 100% conc.

*Environmental:* Biodeg.

**Trilon® BVT** [BASF AG]

*Chem. Descrip.:* Tetrasodium EDTA-based with high specificity for Fe<sup>3+</sup>

*Uses:* Chelating agent for water softening, laundry detergents, soap, cleaners and degreasers, electroplating (passivating baths), rubber polymerization, paper, rare earth separations, radioactive decontamination processes, textile processing

*Properties:* Ylsh. brn. liq.; sol. in water in all proportions; dens. 1.22 g/cc; visc. 90 mPa·s; set pt. < 0 C; pH 11 (1% aq.)

*Toxicology:* Conc. sol'ns. are irritant

*Environmental:* Biodeg.

*Storage:* Store above 10 C

**Trilon® C Liq.** [BASF AG]

*Chem. Descrip.:* Pentasodium pentetate

CAS 140-01-2; EINECS/ELINCS 205-391-3

*Uses:* Chelating agent used in peroxide bleach systems, and for detergents, water treatment, metal finishing, pulp/paper, polymer synthesis, photography, textiles, chem. cleaning; used when higher metal chelate stability is required

*Properties:* Ylsh. clear liq.; sol. in water in all proportions; m.w. 503; dens. 1.26 g/cc; visc. 40 mPa·s; pour pt. -40 C; chelating act. 100 mg CaCO<sub>3</sub>/g; pH 11 (1% aq.); 40% act. in water

**Trilon® PC** [BASF; BASF AG]

*Chem. Descrip.:* Pentasodium salt of diethylenetriaminepentaacetic acid

CAS 140-01-2; EINECS/ELINCS 205-391-3

*Uses:* Chelating agent, complexing agent for pulp bleaching in paper industry

*Properties:* Liq.

**Trilon® DF-16** [Union Carbide; Union Carbide Europe]

*Chem. Descrip.:* Ethoxylated linear alcohol

*Uses:* Detergent, wetting agent for paper and textile processing, rinse aids, mech. dishwashing, metal cleaners, hard surf. cleaners; low-foam

*Properties:* APHA < 200 clear liq.; sol. in water < 97 F, many common solvs.; sp.gr. 0.987; dens. 8.2 lb/gal; visc. 35 cps; HLB 11.6; pour pt. 20 F; cloud pt. 36 C (1% aq.); flash pt. (PMCC) > 93 C; pH 6.0 (5% aq.); surf. tens. 28 dynes/cm (0.1%); Ross-Miles foam 2 mm (0.1%, initial, 120 F); 100% act.; nonionic

*Environmental:* Biodeg.

**Trilon® SP-135** [Union Carbide]

*Chem. Descrip.:* Ethoxylate chain hydrophile with hydrophobe (3.5 EO)

*Uses:* Surfactant for metalworking fluids, industrial laundry detergents, textile processing, pulp/paper mfg., metal cleaning formulations, industrial cleaning and processing operations, for waste treatment of effluent streams containing fats, oils, and greases; offers environmental benefits

*Properties:* VCS/Gardner 6 clear liq.; insol. in water; sp.gr. 0.9953 (20 C); visc. 72 cSt; HLB 8; pour pt. -4 C; cloud pt. insol.; pH 9 (5% aq.); 100% act.; nonionic

*Environmental:* Upon acid treatment, rapid biodeg. occurs

**Trilon® SP-140** [Union Carbide]

*Chem. Descrip.:* Ethoxylate chain hydrophile with hydrophobe (4 EO)

*Uses:* Surfactant for metalworking fluids, industrial laundry detergents, textile processing, pulp/paper mfg., metal cleaning formulations, industrial cleaning and processing operations, for waste treatment of effluent streams containing fats, oils, and greases; offers environmental benefits

*Properties:* VCS/Gardner 6 clear liq.; barely sol. in water; sp.gr. 1.0060 (20 C); visc. 72 cSt; HLB 9; pour pt. -3 C; cloud pt. disp.; pH 9 (5% aq.); 100% act.; nonionic

*Environmental:* Upon acid treatment, rapid biodeg. occurs

**Trilon® SP-160** [Union Carbide]

*Chem. Descrip.:* Ethoxylate chain hydrophile with hydrophobe (6 EO)

*Uses:* Surfactant for metalworking fluids, industrial laundry detergents, textile processing, pulp/paper mfg., metal cleaning formulations, industrial cleaning and processing operations, for waste treatment of effluent streams containing fats, oils, and greases; offers environmental benefits

*Properties:* VCS/Gardner 6 clear liq.; sol. in water; sp.gr. 1.0151 (20 C); visc. 84 cSt; HLB 11; pour pt. -3 C; cloud pt. 14 C; pH 9 (5% aq.); 100% act.; nonionic

*Environmental:* Upon acid treatment, rapid biodeg. occurs

**Trilon® SP-175** [Union Carbide]

*Chem. Descrip.:* Ethoxylate chain hydrophile with hydrophobe (7.5 EO)

*Uses:* Surfactant for metalworking fluids, industrial laundry detergents, textile processing, pulp/paper mfg., metal cleaning formulations, industrial cleaning and processing operations, for waste treatment of effluent streams containing fats, oils, and greases; offers environmental benefits

*Properties:* VCS/Gardner 6 sl. hazy liq.; sol. in water; sp.gr. 1.0262 (20 C); visc. 95 cSt; HLB 12; pour pt. 0 C; cloud pt. 38 C; pH 9 (5% aq.); 100% act.; nonionic

*Environmental:* Upon acid treatment, rapid biodeg. occurs

**Trilon® SP-190** [Union Carbide]

*Chem. Descrip.:* Ethoxylate chain hydrophile with hydrophobe (9 EO)

*Uses:* Surfactant for metalworking fluids, industrial laundry detergents, textile processing, pulp/paper mfg., metal cleaning formulations, industrial cleaning and processing operations, for waste treatment of effluent streams containing fats, oils, and greases; offers environmental benefits

*Properties:* VCS/Gardner 6 hazy liq.; sol. in water; sp.gr. 1.0354 (20 C); visc. 112 cSt; HLB 13; pour pt. 3 C; cloud pt. 59 C; pH 9 (5% aq.); 100% act.; nonionic

*Environmental:* Upon acid treatment, rapid biodeg. occurs

**Trilon® X-15** [Union Carbide; Union Carbide Europe]

*Chem. Descrip.:* Octoxynol-1

CAS 9002-93-1; EINECS/ELINCS 264-520-1

*Uses:* Surfactant, coupling agent, emulsifier for industrial/household cleaners, emulsion polymerization, agric., paints and coatings, paper and textile processing; latex stabilizer; defoamer in food-contact paper/paperboard; food pkg. adhesives

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, EPA compliance

*Properties:* APHA 250 liq.; sol. in aliphatic hydrocarbons; misc. with aromatics, alcohols, glycols, ethers, ketones; m.w. 250; sp.gr. 0.985; dens. 8.2 lb/gal; visc. 790 cps; HLB 3.6; flash pt. > 300 F (TOC); pour pt. 15 F; 100% act.; nonionic

**Trilon® X-35** [Union Carbide; Union Carbide Europe]

*Chem. Descrip.:* Octoxynol-3

CAS 9002-93-1

*Uses:* Surfactant, coupling agent, emulsifier for industrial/household cleaners, emulsion polymerization, agric., paints and coatings, paper and textile processing; latex stabilizer

*Regulatory:* FDA, EPA compliance

*Properties:* APHA 125 liq.; sol. in aliphatic hydrocarbons; misc. with aromatic hydrocarbons, alcohols, glycols, ethers, ketones; m.w. 338; sp.gr. 1.023; dens. 8.5 lb/gal; visc. 370 cps; HLB 7.8; flash pt. > 300 F (TOC); pour pt. -10 F; surf. tens. 29 dynes/cm (0.01%); Ross-Miles foam 5 mm (0.1%, initial, 120 F); 100% act.; nonionic

**Trilon® X-45** [Union Carbide; Union Carbide Europe]

*Chem. Descrip.:* Octoxynol-5

CAS 9002-93-1

*Uses:* Emulsifier, detergent, dispersant, wetting agent for solv. cleaners, metal cleaners, dry cleaning, insecticides, paints and coatings, paper and textile processing; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance

- Properties:* Clear liq.; sol. in oil; misc. with alcohol, glycols, ethers, ketones, aromatic hydrocarbons; m.w. 426; sp.gr. 1.040; dens. 8.7 lb/gal; visc. 290 cps; HLB 10.4; cloud pt. < 0 C (1%); flash pt. > 300 F (TOC); pour pt. -26 C; surf. tens. 28 dynes/cm (0.1%); Ross-Miles foam 16 mm (0.1%, initial, 120 F); 100% act.; nonionic
- Triton® X-100** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-9 (9-10 EO)  
 CAS 9002-93-1  
*Uses:* Wetting agent, dispersant, detergent for household and industrial cleaners, metal cleaners, sanitizers, textile processing, wool scouring; emulsifier for insecticides and herbicides; solubilizer of perfumes; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance  
*Properties:* Clear liq.; sol. in water, toluene, xylene, trichlorethylene, ethylene glycol, alcohols; m.w. 628; sp.gr. 1.065; dens. 8.9 lb/gal; visc. 240 cps; HLB 13.5; cloud pt. 65 C (1% aq.); flash pt. > 300 F (TOC); pour pt. 45 F; pH 6 (5% aq.); surf. tens. 30 dynes/cm (1%); Ross-Miles foam 110 mm (0.1%, 120 F); 100% act.; nonionic
- Triton® X-102** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-13 (12-13 EO)  
 CAS 9002-93-1  
*Uses:* Detergent, wetting agent, foam stabilizer for metal cleaning, industrial/household liq. detergents and cleaners, sanitizers, paints and coatings, paper and textile processing; solubilizer of anionic detergents; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives; effective at high temps., in presence of electrolytes  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance  
*Properties:* Lt. color clear liq.; sol. in water, many common org. solvs.; m.w. 756; sp.gr. 1.07; dens. 8.9 lb/gal; visc. 330 cps; HLB 14.6; cloud pt. 88 C (1% aq.); flash pt. > 300 F (TOC); pour pt. 60 F; surf. tens. 32 dynes/cm (1%); Ross-Miles foam 130 mm (0.1%, 120 F); 100% act.; nonionic
- Triton® X-114** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-8 (7-8 EO)  
 CAS 9002-93-1  
*Uses:* Detergent, wetting agent used in household and industrial laundry, metal cleaners, I&I hard surf. cleaners, paints and coatings, paper and textile processing; biodispersant and oil emulsifier in cooling towers; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives; controlled foam  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance  
*Properties:* Clear liq.; sol. in water, many common solvs.; m.w. 536; sp.gr. 1.05-1.06; dens. 8.8 lb/gal; visc. 260 cps; HLB 12.4; cloud pt. 25 C (1% aq.); flash pt. > 300 F (TOC); pour pt. 15 F; pH 6 (5% aq.); surf. tens. 29 dynes/cm (1%); Ross-Miles foam 25 mm (0.1%, 50 C); 100% act.; nonionic
- Triton® X-120** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-9 (9-10 EO)  
 CAS 9002-93-1  
*Uses:* Wetting agent, dispersant for agric. wettable powds.; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400  
*Properties:* Wh. solid; m.w. 628; 40% conc.; nonionic
- Triton® X-165-70%** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-16  
 CAS 9002-93-1  
*Uses:* Detergent, emulsifier, wetting agent for industrial/household cleaners, emulsion polymerization, paints and coatings, paper and textile processing; latex stabilizer  
*Regulatory:* FDA compliance  
*Properties:* APHA 125 aq. sol'n.; sol. in inorg. salt sol'ns., aq. min. acids; misc. with water, alcohols, glycols, ethers, ketones; m.w. 910; sp.gr. 1.080; dens. 9.0 lb/gal; visc. 540 cps; HLB 15.8; cloud pt. > 100 C (1%); flash pt. > 300 F (TOC); pour pt. 55 F; surf. tens. 35 dynes/cm (0.1%); Ross-Miles foam 145 mm (0.1%, initial, 120 F); 70% act.; nonionic
- Triton® X-305-70%** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-30  
 CAS 9002-93-1  
*Uses:* Detergent, emulsifier, wetting agent for household/industrial cleaners, emulsion polymerization, agric.; latex stabilizer; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance  
*Properties:* APHA 150 liq.; sol. in inorg. salt sol'ns., aq. min. acids; misc. with water, alcohols, glycols, ethers, ketones; m.w. 1526; sp.gr. 1.095; dens. 9.1 lb/gal; visc. 470 cps; HLB 17.3; pour pt. 35 F; cloud pt. > 100 C (1%); flash pt. > 300 F (TOC); surf. tens. 37 dynes/cm (0.1%); Ross-Miles foam 150 mm (0.1%, initial, 120 F); 70% act.; nonionic
- Triton® X-405-70%** [Union Carbide; Union Carbide Europe]  
*Chem. Descr.:* Octoxynol-40  
 CAS 9002-93-1  
*Uses:* Detergent, emulsifier, wetting agent for household/industrial cleaners, emulsion polymerization, agric.; latex stabilizer; coupling agent in naphthol dyeing; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food pkg. adhesives  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400, EPA compliance  
*Properties:* APHA 250 liq.; sol. in inorg. salt sol'ns., aq. min. acids; misc. with water, alcohols, glycols, ethers, ketones; m.w. 1966; sp.gr. 1.102; dens. 9.2 lb/gal; visc. 490 cps; HLB 17.9; cloud pt. > 100 C (1%); flash pt. > 212 F (TOC); pour pt. 25 F; surf. tens. 37 dynes/cm (0.1%); Ross-Miles foam 126 mm (0.1%, initial, 120 F); 70% act.; nonionic
- Triton® XL-80N** [Union Carbide]  
*Chem. Descr.:* Alcohol alkoxylate  
*Uses:* Detergent, wetting agent, leveling agent, coupling agent, emulsifier, dispersant, stabilizer for industrial/institutional/household cleaners, metal cleaning, laundry, paper deinking, textile processing, fiber lubricants, paints, oil field chems., water treatment, circuit board cleaners, leather operations  
*Properties:* APHA 25 clear to hazy liq., low odor; m.w. 442; sp.gr. 0.98; dens. 8.13 lb/gal; visc. 25 cps; pour pt. -2 C; cloud pt. 50 C (1% aq.); flash pt. (PMCC) 127 C; pH 6.5 (1% aq.); surf. tens. 28 dynes/cm (0.1% aq.); Draves wetting 4.6 s (0.1% aq.); Ross-Miles foam 95 mm (0.1% initial); 100% act.; nonionic  
*Environmental:* Biodeg.
- Tronox A-X** [Bayer]  
*Chem. Descr.:* Titanium dioxide  
 CAS 1317-80-2; EINECS/ELINCS 236-675-5  
*Uses:* Colorant for fine papers, specialty papers, cigarette papers
- Tronox R-PL-1** [Bayer]  
*Chem. Descr.:* Titanium dioxide  
 CAS 1317-80-2; EINECS/ELINCS 236-675-5  
*Uses:* Colorant for fine papers, specialty papers, cigarette papers
- Troykyd® D55** [Troy]  
*Chem. Descr.:* Hydrophobic inorg. disp.  
*Uses:* Defoamer for aq. resins and latex systems incl. printing inks, latex paints, pigment disps., joint cement compds., water-reducible systems, paper coatings, textiles  
*Use Level:* 0.2-0.6%  
*Regulatory:* FDA 21CFR §176.200, 176.210  
*Properties:* Liq.; sp.gr. 0.93; low-visc.; 100% act.; nonionic
- Troykyd® D666** [Troy]  
*Chem. Descr.:* Hydrocarbon-based surfactant  
*Uses:* Defoamer for metalworking fluids, printing inks, latex paints, adhesives/caulks/sealants, wood stains, paper coatings, water-reducible systems, warp sizes  
*Use Level:* 0.2-0.6%  
*Regulatory:* FDA compliance  
*Properties:* Liq.; sp.gr. 0.84-0.87; 100% act.
- Troykyd® D999** [Troy]  
*Chem. Descr.:* Fatty acid/hydrocarbon blend  
*Uses:* Defoamer for metalworking fluids, printing inks, latex paints, adhesives/caulks/sealants, wood stains, paper coatings, water-reducible systems  
*Use Level:* 0.2-0.6%  
*Properties:* Liq.; sp.gr. 0.86-0.89; 100% act.; nonionic
- Troykyd® USM DP336** [Troy]  
*Uses:* Defoamer for aq. coatings, inks, adhesives, food-contact adhesives/paper; non-silicone releasing  
*Regulatory:* FDA 21CFR §175.105, 176.210 compliant

**Troysan® 142 [Troy]**

*Chem. Descrip.:* 3,5-Dimethyltetrahydro-1,3,5,2H-thiadiazine-2-thione  
CAS 533-74-4; EINECS/ELINCS 208-576-7

*Uses:* Bactericide, antimicrobial, fungicide, preservative for aq. systems, food pkg. adhesives/paper, dispersed colors, resin emulsions, powd. joint cements, protein colloids

*Regulatory:* FDA 21CFR §175.105, 176.170; EPA reg. no. 5383-7

*Properties:* Off-wh. free-flowing cryst. powd.; sl. distinctive odor; sol. 21% in ethylene dichloride, 19.5% in acetone, 0.12% in water; sp.gr. 1.39; dens. 11.6 lb/gal; m.p. 99.5 C; flash pt. (OC) 280 F; 95% min. act.

*Toxicology:* May be harmful if ingested; avoid contact with skin and eyes

*Storage:* Avoid storage at elevated temps. for prolonged periods of time

**Troysan® 586 [Troy]**

*Chem. Descrip.:* 1,2-Benzisothiazolin-3-one and propylene glycol aq. sol'n.

*Uses:* Biocide, broad-spectrum preservative for aq. systems such as paints and coatings, polymer emulsions, pigment dispersions, joint cements, adhesives, sealants, caulks, printing inks, and metalworking fluids; food pkg. adhesives, paper; food-contact slimicide; designed to inhibit growth of microorganisms such as bacteria, yeast, and fungi

*Use Level:* 0.02-0.35%

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300; EPA reg. no. 49403-14-5383

*Properties:* Brn. liq.; sp.gr. 1.18-1.24; dens. 9.84-10.34 lb/gal; visc. 150-250 cps; flash pt. (CC) 93.3 C; pH 13-14

*Toxicology:* May cause chem. burns, skin and eye irritation in conc. form; harmful if swallowed, inhaled, or absorbed thru skin

*Storage:* Store in closed containers in dry place; do not store at elevated temps., keep from freezing

**Troysan® Polyphase® AF1 [Troy]**

*Chem. Descrip.:* 3-Iodo-2-propynyl butyl carbamate

CAS 55406-53-6; EINECS/ELINCS 259-627-5

*Uses:* Fungicide, preservative used in oil-based and latex paints, cutting oils, textiles, paper coatings, inks, plastics, adhesives, canvas, cordage; wood preservative

*Use Level:* 0.3-1.2%

*Regulatory:* EPA reg. no. 5383-63

*Properties:* Amber mobile liq., char. odor; sol. in aromatics and alcohols; disp. in aq. and solv.-based paints; sp.gr. 1.1-1.2; dens. 9.4-9.7 lb/gal; 40% act.

*Toxicology:* LD50 (oral, rat) 1470 mg/kg, (dermal, rat) > 2000 mg/kg; eye irritant; nonirritating to skin

*Storage:* Store above 0 C in tightly sealed drums

**Troysan® Polyphase® AF3 [Troy]**

*Uses:* Fungicide for interior and exterior paints, metalworking fluids, textiles, paper coatings, inks, adhesives, construction prods., resin systems, plastic coatings, etc.; broad spectrum; nonmetallic; stable to 60 C

*Use Level:* 0.3-2%

*Regulatory:* EPA registered

*Properties:* Water-wh. to straw colored liq.

**Troysan® Polyphase® CST [Troy]**

*Chem. Descrip.:* Glycol ether (20-40%), n-methyl pyrrolidinone (10-30%), and 3-Iodo-2-propynyl butyl carbamate (5-20%)

*Uses:* Fungicide for textiles, paper coatings, adhesives, inks, plastics, masonry coatings, syn. acrylic stucco, and canvas and cordage, mold and mildew control on film surfaces

*Use Level:* 0.2-0.5% (interior paints); 0.2-1.0% (masonry coatings and syn. acrylic stucco); 0.3-1.0% (exterior paints, inks)

*Regulatory:* EPA reg. no. 5383-74; SARA §313 reportable

*Properties:* Off-wh. liq.; mild char. odor; disp. in water; sp.gr. 1.11; flash pt. (Seta CC) 71 C; pH 7.3; 55% volatiles

*Toxicology:* May cause mod. skin irritation and blistering; ing. may cause GI irritation, nausea, vomiting, and diarrhea; inh. may cause respiratory irritation; excessive inh. may cause CNS effects; IPBC may cause severe but reversible eye irritation/injury; TSCA listed

*Environmental:* Toxic to fish; do not apply directly to water or wetlands

*Precaution:* Combustible; avoid heat or sources of ignition; incompat. with strong acids, bases, and oxidizers; avoid extended contact with air or oxygen

*Hazardous Decomp. Prods.:* Combustion may produce iodine vapors, CO, CO<sub>2</sub>, and NO<sub>x</sub>

NFPA: Health 2; Flammability 2; Reactivity 0

*Storage:* Keep tightly closed in cool, dry area

**Troysan® Polyphase® EC17 [Troy]**

*Chem. Descrip.:* 3-Iodo-2-propynyl butyl carbamate emulsifiable conc.

CAS 55406-53-6; EINECS/ELINCS 259-627-5

*Uses:* Fungicide, mildewcide for aq. and solv.-based paints, leather protection, inks, metalworking fluids, paper and textile coatings, adhesives, caulks, sealants, plastics, plastic coatings

*Use Level:* 0.06-0.18% (metalworking fluids), 0.1-1.0% (spin finishes), 0.23-2.3% (latex emulsions), 0.1-1.0% (pre-emulsified vehicles)

*Regulatory:* EPA reg. no. 5383-55

*Properties:* Sl. yel. lt. visc. liq.; sp.gr. 1.03-1.05; visc. (Gardner) A max.; flash pt. 68 C; 17% act.

*Toxicology:* LD50 (oral, rat) 1470 mg/kg, (dermal, rat) > 2000 mg/kg; eye irritant; nonirritating to skin

**Troysan® Polyphase® P-20T [Troy]**

*Chem. Descrip.:* 3-Iodo-2-propynyl butyl carbamate

CAS 55406-53-6; EINECS/ELINCS 259-627-5

*Uses:* Fungicide, mildewcide for solv. and water-based systems incl. paints, wood stains, wood preservatives, textile processing sol'ns., paper coatings, adhesives, caulks, inks, metalworking fluids, joint cements, plastic coatings; broad spectrum; nonmetallic, noncorrosive, reduced odor

*Use Level:* 0.5-1.5% (exterior solv. paint), 1.0-2.5% (exterior latex paint), 0.2-0.8% (interior paint), 1.0-1.5% (wood protective stain), 0.5-2.5% (paper coatings), 0.25-2.5% (inks)

*Regulatory:* EPA reg. no. 5383-74

*Properties:* Amber clear liq.; characteristic odor; sol. in aromatics and alcohol; sp.gr. 1.03-1.06; dens. 8.6-8.8 lb/gal; visc. (Gardner) A max.; 20% min. act.

*Toxicology:* LD50 (oral, rat) 1470 mg/kg, (dermal, rat) > 2000 mg/kg; eye irritant; nonirritating to skin

*Storage:* Store in tightly sealed drums above 20 F

**Troysan® Polyphase® P-100 [Troy]**

*Chem. Descrip.:* 3-Iodo-2-propynyl butyl carbamate

CAS 55406-53-6; EINECS/ELINCS 259-627-5

*Uses:* Biocide, fungicide, wood preservative for interior and exterior coatings, cutting oils, textiles, paper coatings, inks, plastics, adhesives, canvas, cordage

*Use Level:* 0.1-1.0%

*Regulatory:* EPA reg. no. 5383-50

*Properties:* Off-wh. cryst. powd.; sol. in most solvs. except water and aliphatics; sp.gr. 1.51-1.57 (70 C); m.p. 65-67 C; 97% min. act.

*Toxicology:* LD50 (oral, rat) 1470 mg/kg, (dermal, rat) > 2000 mg/kg; eye irritant; nonirritating to skin

*Storage:* Store below 40 C to prevent tendency to pack into hard lumps; store drums in upright position

**Troysperse W [Troy]**

*Chem. Descrip.:* Soap

*Uses:* Wetting agent and dispersant for org. pigments, carbon fibers, and iron oxides in aq. systems, textile applics.; food-contact coatings, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.300, 176.180, 178.3400

*Properties:* Liq.; 90% conc.; amphoteric/nonionic

**Trycol® 5941 [Cognis/Chems. Group; Cognis/Textiles]**

*Chem. Descrip.:* Trideceth-9

CAS 78330-21-9

UN No. 3082

*Uses:* Wetting agent, rewetting agent, detergent for lt. and heavy-duty high-foaming cleaners, paper towels, raw wool detergents, agric. formulations; coemulsifier; polymerization surfactant; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180; EPA exempt; DOT regulated; SARA §311/312 reportable

*Properties:* Gardner 1 liq.; mild odor; sol. in water, glycerol trioleate, Stod., xylene; disp. in min. oil; sp.gr. 0.994; dens. 8.3 lb/gal; visc. 43 cSt (100 F); HLB 13.0; cloud pt. 54 C; flash pt. 390 F; pour pt. 20 C; 100% conc.; nonionic

*Toxicology:* Causes severe eye irritation; skin and respiratory irritant; ing. may cause GI irritation, nausea, vomiting, diarrhea; ethylene oxide (carcinogenic/reproductive hazard) may accumulate; acetaldehyde and 1,4-dioxane are suspect carcinogens; TSCA listed

*Environmental:* BOD5 473,647 ppm; COD 2,398,468 ppm; 19.75% biodeg.; environmentally hazardous; marine pollutant

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 2; Flammability 1; Reactivity 0

**Trycol® 6961** [Cognis/Chems. Group; Cognis/Textiles]*Chem. Descrip.:* Nonoxynol-4

CAS 9016-45-9; EINECS/ELINCS 230-770-5

*Uses:* Detergent and emulsifier for agric. and textile applics.; chemical intermediate; corrosion inhibitor in two-cycle engine oils; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400; BGA approved; EPA-exempt; SARA §311/312 reportable*Properties:* Gardner 2 liq.; aromatic odor; sol. in Stod., xylene; disp. in min. oil; sp.gr. 1.021; dens. 8.5 lb/gal; visc. 472 cSt (100 F); HLB 8.9; pour pt. -10 C; cloud pt. < 25 C; flash pt. (PMCC) 260 C; 100% conc.; nonionic*Toxicology:* LD50 (oral, rat) 4.29 ml/kg; may cause skin and severe eye irritation; sl. toxic by ing.; may cause GI irritation, nausea, vomiting, diarrhea; EO (carcinogenic/reproductive hazard) may accumulate; acetaldehyde and 1,4-dioxane are suspect carcinogens; TSCA listed*Environmental:* BOD5 174,174 ppm; COD 185,185 ppm; 94.1% biodeg.*Precaution:* Avoid strong oxidizing agents*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well**Trycol® 6962** [Cognis/Chems. Group; Cognis/Textiles]*Chem. Descrip.:* Nonoxynol-6

CAS 9016-45-9

*Uses:* Dispersant, wetting agent, coemulsifier in acid cleaning sol'ns., solv. emulsions, detergents, textiles, agric. formulations; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; moderate to low foam*Regulatory:* FDA 21 CFR §175.105, 176.180, 178.3400; BGA approved; EPA exempt; SARA §311/312 reportable*Properties:* Gardner 2 liq.; aromatic odor; sol. in Stod., xylene; disp. in water, min. oil; sp.gr. 1.03; dens. 8.5 lb/gal; visc. 100 cSt (100 F); HLB 10.9; cloud pt. < 25 C; flash pt. 515 F; pour pt. -10 C; 100% conc.; nonionic*Toxicology:* LD50 (oral, rat) 1.98 g/kg, (dermal, rabbit) 2.83 g/kg; may cause skin and severe eye irritation; ing. may cause GI irritation, nausea, vomiting, diarrhea; EO (carcinogenic/reproductive hazard); acetaldehyde and 1,4-dioxane (suspect carcinogens); TSCA listed*Precaution:* Avoid strong oxidizing agents*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well**Trycol® 6965** [Cognis/Chems. Group]*Chem. Descrip.:* Nonoxynol-11

CAS 9016-45-9

*Uses:* Surfactant for detergent formulations, emulsions, emulsion polymerization, agric. formulations, food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles; for high temps.; tolerant of builders*Regulatory:* FDA 21 CFR §175.105, 176.180, 178.3400; BGA approved; EPA exempt*Properties:* Gardner 2 liq.; sol. in water, Stod., xylene; dens. 8.7 lb/gal; visc. 116 cSt (100 F); HLB 13.5; cloud pt. 71 C; flash pt. 480 F; pour pt. 5 C; 100% conc.; nonionic**Trycol® 6970** [Cognis/Chems. Group; Cognis/Textiles]*Chem. Descrip.:* Nonoxynol-40

CAS 9016-45-9

*Uses:* Detergent, wetting agent, dispersant, coemulsifier, stabilizer for emulsion polymerization, agric. formulations, textile processing; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles*Regulatory:* FDA 21 CFR §175.105, 176.180, 178.3400; BGA approved; EPA-exempt; SARA nonreportable*Properties:* Gardner 1 liq.; aromatic odor; sol. in water; sp.gr. 1.10; dens. 9.2 lb/gal; visc. 385 cSt (100 F); HLB 17.8; cloud pt. 90 C (5% saline); pour pt. 7 C; flash pt. (COC) 293 C; 70% act. in water; nonionic*Toxicology:* May cause mild transient skin and mild to mod. eye irritation; pract. nontoxic by ing.; TSCA listed*Environmental:* BOD5 107,111 ppm; COD 361,995 ppm*Precaution:* Avoid strong oxidizing agents*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well**Trycol® 6974** [Cognis/Chems. Group; Cognis/Textiles]*Chem. Descrip.:* Nonoxynol-10

CAS 9016-45-9; EINECS/ELINCS 248-294-1

*Uses:* Dispersant, emulsifier, wetting agent for agric. formulations, textile

processing; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21 CFR §175.105, 176.170, 176.180, 178.3400; BGA approved; EPA exempt; SARA §311/312 reportable*Properties:* Gardner 1 liq.; aromatic odor; sol. in water, Stod., xylene; sp.gr. 1.05; dens. 8.7 lb/gal; visc. 111 cSt (100 F); HLB 13.2; cloud pt. 62 C; pour pt. 11 C; flash pt. (COC) 304 C; nonionic*Toxicology:* LD50 (oral, rat) 1.3 g/kg; may cause skin and severe eye irritation; ing. may cause GI irritation, nausea, vomiting, diarrhea; EO (carcinogenic/reproductive hazard); acetaldehyde and 1,4-dioxane (suspect human carcinogens); TSCA listed*Environmental:* BOD5 480,000 ppm; COD 2,076,000 ppm; 23.12% biodeg.*Precaution:* Avoid strong oxidizing agents*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 2; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well**Trycol® 6975** [Cognis/Chems. Group]*Chem. Descrip.:* Octoxynol-30

CAS 9002-93-1

*Uses:* Emulsifier, wetting agent, detergent, dispersant, solubilizer, coupling agent for household/l&l cleaners, metal cleaning, oil drilling, agric. formulations; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles*Regulatory:* FDA 21 CFR §175.105, 176.180, 178.3400; BGA approved; EPA-exempt; SARA nonreportable; DOT nonregulated*Properties:* Gardner 1 liq.; aromatic odor; sol. in water; dens. 9.0 lb/gal; visc. 260 cSt (100 F); HLB 17.1; cloud pt. 92 C (10% saline); pour pt. 5 C; flash pt. (COC) 260 C; 70% act. in water; nonionic*Toxicology:* May cause skin and mild to mod. eye irritation; ing. may cause GI irritation, nausea, vomiting, diarrhea; TSCA listed*Precaution:* Avoid strong oxidizing agents*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well**Trycol® 6984** [Cognis/Chems. Group]*Chem. Descrip.:* Octoxynol-40

CAS 9002-93-1

*Uses:* Dispersant, wetting agent, emulsifier for emulsion polymerization of acrylic and vinyl monomers, textile processing, agric. formulations; food pkg. adhesives, paper; emulsifier in mfg. of food-contact articles*Regulatory:* FDA 21 CFR §175.105, 176.170, 176.180, 178.3400; EPA-exempt; SARA nonreportable; DOT nonregulated*Properties:* Gardner 1 liq.; phenolic odor; sol. in water; sp.gr. 1.08; dens. 9.0 lb/gal; visc. 220 cSt (100 F); HLB 17.9; cloud pt. 74 C (10% saline); pour pt. 13 C; flash pt. (PMCC) > 93 C; 29-31% volatiles; 70% act. in water; nonionic*Toxicology:* May cause mild skin and eye irritation; pract. nontoxic by ing.; TSCA listed*Precaution:* Avoid strong oxidizing agents*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to 50 C, mix well**Trydret 2676** [Cognis/Chems. Group]*Chem. Descrip.:* PEG-10 oleate

CAS 9004-96-0

*Uses:* Emulsifier, lubricant for pesticides, metal cleaners, textile detergents and dyeing assistants, leather; rewetting agent for paper*Regulatory:* EPA exempt*Properties:* Gardner 2 liq.; sol. in xylene; disp. in water; dens. 8.5 lb/gal; visc. 54 cSt (100 F); HLB 12.2; cloud pt. < 25 C; flash pt. 560 F; pour pt. 14 C; nonionic**Tryfac® 5556** [Cognis/Chems. Group; Cognis/Textiles]*Chem. Descrip.:* Phosphated nonyl phenyl ethoxylate, free acid form

CAS 51811-79-1

*Uses:* Wetting agent, dispersant, antistat in textile processing; solv. emulsifier for textile scours, detergents, pesticides; dry cleaning detergent; in emulsion polymerization; food pkg. adhesives, paper*Regulatory:* FDA 21 CFR §175.105; EPA exempt; SARA §311/312 reportable*Properties:* Gardner 2 liq.; mild odor; sol. in water, xylene; sp.gr. 1.12; dens. 9.3 lb/gal; visc. 1700 cSt (100 F); cloud pt. 68 C (5% saline); pour pt. 5 C; flash pt. (COC) 227 C; 100% act.; anionic*Toxicology:* Causes burns to skin, eyes, and respiratory tract; ing. may

cause GI irritation, nausea, vomiting, diarrhea; EO (carcinogenic/reproductive hazard); acetaldehyde and 1,4-dioxane (suspect human carcinogens); TSCA listed

*Environmental:* BOD5 93,925 ppm; COD 239,808 ppm

*Precaution:* Avoid strong oxidizing agents

*Hazardous Decomp. Prods.:* CO<sub>2</sub>, CO, PO<sub>x</sub>

NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* May congeal or stratify if cold; warm to R.T., mix well

**Trylox® 5906** [Cognis/Chems. Group; Cognis/Textiles]

*Chem. Descrip.:* PEG-30 castor oil

CAS 61791-12-6

*Uses:* Emulsifier, pigment dispersant, degreaser, lubricant for paper, textiles, agric. and lubricant applics.; visc. and emulsion stabilizer of PVAc and water-based paints

*Regulatory:* EPA exempt

*Properties:* Gardner 2 liq.; sol. in water, xylene; dens. 8.8 lb/gal; visc. 309 cSt (100 F); HLB 11.8; cloud pt. 55 C (1% saline); flash pt. 555 F; pour pt. 9 C; nonionic

**TurboCLEAR™ PC-1** [Sternson]

*Chem. Descrip.:* Polyaluminum chloride with 1-5% hydrochloric acid, and 1-5% sulfuric acid

UN No. 1760

*Uses:* Coagulant for industrial water and wastewater treatment, and paper processing applics.; coagulant for treatment of scale fines in steel mill wastewaters, chem. preconditioning of raw waters used for feedstocks in industrial processes such as cooling water, boiler waters, and process waters, and mine tailings effluents; effective over wide pH range; most effective in water and wastewaters containing very low to mod. levels of solids and/or very highly charged solids

*Properties:* Colorless to amber clear liq.; no appreciable odor; appreciable sol. in water @ 20 C; sp.gr. 1.205 ± 0.003 (20 C); visc. 7 ± 3 cps; vapor pressure 17 mm Hg; f.p. -12 ± 2 C; pH 2.6 ± 0.3; 70% volatile by vol.; 8.9 ± 0.5% Cl, 5.4 ± 0.2% Al, 2.9 ± 0.4% SO<sub>4</sub>; cationic

*Toxicology:* May cause skin irritation, swelling, dermatitis; will cause painful burning or stinging of eyes, inflamm. of conjunctiva; may cause nausea, vomiting on ing.; mist may irritate respiratory tract; lg. quantities may cause liver or kidney damage

*Precaution:* Corrosive; reacts with zinc and aluminum to form hydrogen gas; incompat. with strong alkalis, oxidizing agents; avoid contact with metals

*Hazardous Decomp. Prods.:* Hydrogen chloride gas; hydrogen gas

NFPA: Health 2; Flammability 0; Reactivity 1

*Storage:* > 1 yr shelf life @ 10-30 C in dry rubber-lined or plastic or FRP vessels

**Tychem® 68710-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Carboxylated styrene-butadiene copolymer latex

*Uses:* Associative thickener for adhesives, suitable for coated and uncoated paper, Mylar, cellulose acetate, metalized polyester, aluminum, nonskid coating, and mastic substrates; very efficient

*Properties:* Wh. liq. emulsion; 0.11 µ particle size; readily disp. in cold water, neutralized with ammonia, amines, or fixed alkali; dens. 8.74 lb/gal; visc. 50 max. cps; acid no. 112; pH 4.5 ± 1.0; 34 ± 0.5% NV; anionic

*Storage:* 3 mos. shelf life @ 72 F; protect from freezing

**Tykote 1004** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Base resin providing high str. to functional paper coatings, food pkg.; high pigment compat.; exc. mech. stability, grease/water resist.; very high tens. str.

*Regulatory:* FDA approved for food contact

**Tykote 2200C** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Protective paper coating primarily for food pkg.; exc. oil/grease resist. even at elevated temps.; very good water resist.; superior antiblocking; contains no fluorocarbons

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tykote 2300C** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Protective paper coating primarily for food pkg., multiwall bags, food wraps, liners; exc. oil/grease resist.; improved holdout for oils; breathes so moisture vapor can escape; contains no fluorocarbons; fluorocarbon replacement

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tykote 2400C** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Paper plate coating; good water/grease resist.; exc. antiblocking; fully repulpable

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tykote Base** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Barrier coating used as basecoat for paper coatings incl. food pkg.; rec. where heavier applics. or coatings with different functional props. need to be applied; provides some water resist.; enhanced grease/vapor resist.

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tykote Base II** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Barrier coating used as basecoat for paper coatings incl. food pkg.; rec. where heavier applics. or coatings with different functional props. need to be applied; provides exc. vapor resist.; enhanced grease/moisture resist.

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tykote WTR-3** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Paper coating providing some grease resist. for detergent boxes, paper/paperboard wraps, concrete and other dry-mix bags, food pkg.; exc. water/water vapor resist., antiblocking; fully repulpable

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tykote WTR-AF** [Reichhold]

*Chem. Descrip.:* Latex-based compd.

*Uses:* Paper coating providing some grease resist. for detergent boxes, paper/paperboard wraps, concrete and other dry-mix bags, food pkg.; exc. water/water vapor resist., antiblocking; contains very low levels of ammonia

*Regulatory:* FDA approved for food contact

*Properties:* Clear

**Tylac® 037** [Reichhold]

*Chem. Descrip.:* Styrene/butadiene latex

CAS 9003-55-8

*Uses:* Binder, str. agent providing exc. glueability to most paperboard coatings incl. solid bleached sulfate, coated natural and recycled grades; exc. hot melt and aq. glueability; exc. print str.

**Tylac® 692** [Reichhold]

*Chem. Descrip.:* Styrene/butadiene latex

CAS 9003-55-8

*Uses:* Binder, str. agent for cast paper coatings; ideal flow props. for forming a coated surf. with extremely high smoothness and gloss; exc. release props.; very high str. for sheet-fed; exc. calcium ion stability

**Tylac® 757** [Reichhold]

*Chem. Descrip.:* Styrene/butadiene latex

CAS 9003-55-8

*Uses:* Binder for multipurpose paper coatings, matte or glossy, free-sheet and LWC applics., roto and offset formulations; exc. balance of key props.

*Properties:* Emulsion; 0.20 µ particle size; dens. 8.3 lb/gal; visc. 350 cps; pH 7.7; 57.5% solids; anionic

**Tylac® 820** [Reichhold]

*Chem. Descrip.:* Styrene/butadiene latex

CAS 9003-55-8

*Uses:* Binder, gloss aid, str. agent for web grades for offset printing, glossy or matte finishes, roto and offset formulations; compat. with most cobinders; exc. mech. stability; exc. high speed rheology

**Tylac® 936** [Reichhold]

*Chem. Descrip.:* Styrene/butadiene latex

CAS 9003-55-8

*Uses:* Binder, gloss aid, str. agent for web grades for offset printing, glossy or matte finishes, roto and offset formulations; compat. with most cobinders; exc. mech. stability; exc. high speed rheology

**Tylac® 979-RG** [Reichhold]

*Chem. Descrip.:* Styrene/butadiene latex

CAS 9003-55-8

*Uses:* Binder for coated papers for rotogravure printing, for LWC and freesheet processes; soft, compressible; exhibits very high smoothness; exc.



runnability; superior roto print gloss

**Tylac® 68217-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Styrene-butadiene emulsion polymer, noncarboxylated, rosin acid emulsifier

CAS 9003-55-8

*Uses:* Suitable for coated paper, mastic substrates

*Properties:* 0.15 µ particle size; dens. 8.3 lb/gal; visc. 750 cps; surf. tens. 44 dynes/cm; pH 10.3; 52% solids; anionic

**Tylac® 68219-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Carboxylated styrene-butadiene emulsion copolymer

*Uses:* Multipurpose base for foil laminating adhesives; food pkg. adhesives, paper; good freeze-thaw stability; exc. compat.; suitable for uncoated paper, metalized polyester, aluminum, and mastic substrates

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180 approved

*Properties:* Wh. liq.; dens. 8.3-8.5 lb/gal; visc. 500 cps; pH 7.5-8.5; surf. tens. 38 dynes; 51-53% NV; 54% bound styrene

*Storage:* 3 mos shelf life @ 72 F; protect from freezing

**Tylac® 68321-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Acrylonitrile copolymer

*Uses:* Paper applics.; high internal bond str., high delamination resist., good wet tens. str., exc. heat age chars., good chem. resist.

*Properties:* PH 9.0; ≈ 41% NV

**Tylac® 68327-00** [Reichhold]

*Uses:* Paper applics.; high internal bond; high delamination resist.; good heat aging chars., chem. resist., wet tens. str.; can be crosslinked with external resins for inc. performance props.

*Properties:* PH 9.0; ≈ 47% NV

**Tylac® 68513-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Acrylonitrile copolymer

*Uses:* Paper/web saturant; features med. nitrile content, low residual monomer, exc. processing and deposition chars. in wet end addition, good toughness, good oil/solv. resist., mod. flexibility

*Properties:* PH 9.5; ≈ 40% NV

**Tylac® 68520-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Acrylonitrile copolymer

*Uses:* Paper/web saturant; features high nitrile content, low residual monomer, exc. processing with optimum curing capabilities, exc. str., and exc. oil/solv. resist.

*Properties:* PH 8.0; ≈ 44% NV

**Tylac® 97936-00** [Reichhold/Emulsion Polymers]

*Chem. Descrip.:* Styrene-butadiene emulsion polymer

CAS 9003-55-8

*Uses:* Binder for sheet and web offset paper coatings; general purpose

*Properties:* Emulsion; 0.14 µ particle size; dens. 8.3 lb/gal; visc. 200 cps; pH 7.7; 50% solids; anionic

**Tylose® C, CB Series** [Clariant]

*Chem. Descrip.:* Sodium CMC

CAS 9004-32-4; EINECS/ELINCS 265-995-8

*Uses:* Binder in pencil leads; thickener in batteries, rubber, cosmetics, food-stuffs, pharmaceuticals, tobacco, and textiles; dispersant, emulsifier for insecticides, fungicides, and herbicides; plasticizer in ceramics; surface sizing in paper industry; press aid and lubricant in welding electrodes

*Properties:* Gran., powd.; 100% act.; anionic

**Tylose® CBR Grades** [Clariant]

*Chem. Descrip.:* Sodium CMC

CAS 9004-32-4; EINECS/ELINCS 265-995-8

*Uses:* Binder for coatings; sedimenting aid in mining; gellant/binder/thickener in chemical tech. and rubber industry; sizing agent for paper and textiles; plasticizer/filler in soaps and hand cleaning pastes; graying inhibitor for detergents

*Properties:* Gran.; anionic

**Tylose® C-G1** [Clariant]

*Chem. Descrip.:* Sodium carboxymethyl cellulose, pure

CAS 9004-32-4; EINECS/ELINCS 265-995-8

*Uses:* Visc. control agent/consistency regulator in ceramic compds., engobes, glazes; plasticizer; binder; controls dewatering and drying; surf. treatment in paper industry; visc. modifier for pigment coating; print thickener, carpet backing finish in textiles; thickener in rubber industry and for graphite lubricants

*Properties:* Granules; visc. (Höppler) 20, 30, 100, 300, 600, 1000, 6000, 10,000 mPa·s (20 C) avail.; 7% moisture; 99% purity (bone-dry); anionic

**Tylose® CR** [Clariant]

*Chem. Descrip.:* Sodium CMC, tech.

CAS 9004-32-4; EINECS/ELINCS 265-995-8

*Uses:* Binder for coatings; sedimenting aid in mining; gellant/binder/thickener in chemical tech. and rubber industry; sizing agent for paper and textiles; plasticizer/filler in soaps and hand cleaning pastes

*Properties:* Gran.

**Tysul® WW 35** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent and reducing agent used for municipal and industrial wastewater treatment, food processing, foundries, ore mining, org. chems., petrol., pharmaceuticals, photography, plastics, pulp/paper, rubber, textiles, etc.; for sulfide odor and corrosion control; for destruction of excess hypochlorite, thiosulfate, phenols, and other select orgs., COD reduction; dec. to yield oxygen and water

*Properties:* Colorless clear liq.; sl. pungent irritating odor; misc. with water; m.w. 34.02; dens. 1.133 g/ml; visc. 1.11 cP; vapor pressure 23 mm Hg (30 C); b.p. 108 C; f.p. -33 C; pH 2.5; 35% conc.; 16.5% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

**Tysul® WW 50** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent and reducing agent used for municipal and industrial wastewater treatment, food processing, foundries, ore mining, org. chems., petrol., pharmaceuticals, photography, plastics, pulp/paper, rubber, textiles, etc.; for sulfide odor and corrosion control; for destruction of excess hypochlorite, thiosulfate, phenols, and other select orgs., COD reduction; dec. to yield oxygen and water

*Properties:* Colorless clear liq.; sl. pungent irritating odor; misc. with water; m.w. 34.02; dens. 1.196 g/ml; visc. 1.17 cP; vapor pressure 18 mm Hg (30 C); b.p. 114 C; f.p. -52 C; pH 1.8; 50% conc.; 23.5% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

**Tysul® WW 70 DG** [Atofina SA]

*Chem. Descrip.:* Hydrogen peroxide

CAS 7722-84-1; EINECS/ELINCS 231-765-0

*Uses:* Oxidizing agent for municipal and industrial wastewater treatment, food processing, foundries, ore mining, org. chems., petrol., pharmaceuticals, photography, plastics, pulp/paper, rubber, textiles, etc.; for sulfide odor and corrosion control; for destruction of excess hypochlorite, thiosulfate, phenols, and other select orgs., COD reduction; highly stabilized dilution grade; diluted to 35-50% storage in user's tank

*Properties:* Colorless clear liq.; sl. pungent irritating odor; m.w. 34.02; dens. 1.288 g/ml; visc. 1.93 cP; vapor pressure 11 mm Hg (30 C); b.p. 126 C; f.p. -40 C; pH 0.5; 70% conc.; 32.9% act. oxygen

*Toxicology:* ACGIH TLV 1 ppm, 1.4 mg/m<sup>3</sup>, 8 h TWA; LD50 (oral, rat) 1232 mg/kg, (skin, rabbit) > 2000 mg/kg; may cause severe irritation or burns of skin, eyes, mucous membranes; ing. may cause upper GI irritation; TSCA listed

*Environmental:* Aquatic LC50 (catfish, 96 h) 37.4 mg/l

*Precaution:* Corrosive, strong oxidizer; mixture with org. materials may be

explosive; incompat. with flammables, cyanides, nitric acid, other oxidizing/reducing agents; liberation of oxygen gas may result in dangerous pressures

*Storage:* Store in orig. vented container in dry location, away from sunlight and heat sources; vent holes in bung cap must be kept open and free of obstruction; do not store on wooden pallets

# U

## Ucar® VAGD [Union Carbide]

*Chem. Descrip.:* Hydroxyl-modified vinyl chloride/VA copolymer  
 CAS 9003-22-9

*Uses:* Sol'n. vinyl resin for coatings; food-contact paper/paperboard; general maintenance and marine coatings; adhesives

*Regulatory:* FDA 21CFR §176.170

*Properties:* Wh. powd.; 98% min. thru 20 mesh; m.w. 22,000; sp.gr. 1.39; bulk dens. 24-34 lb/ft<sup>3</sup>; visc. 400 cP (30% in MEK); hyd. no. 76; soften. pt. 110-180 C; 90% VC, 4% VA, 6% vinyl alcohol; 25% solids in MEK/toluene (50/50)

## Ucar® VAGH [Union Carbide]

*Chem. Descrip.:* Hydroxyl-modified vinyl chloride/VA copolymer  
 CAS 9003-22-9

*Uses:* Sol'n. vinyl resin for coatings; food-contact paper/paperboard; general maintenance and marine coatings; magnetic tape; inks; adhesives; wood finishes

*Regulatory:* FDA 21CFR §176.170

*Properties:* Wh. powd.; 98% min. thru 20 mesh; m.w. 27,000; sp.gr. 1.39; bulk dens. 24-34 lb/ft<sup>3</sup>; visc. 350 cP (30% in MEK); hyd. no. 76; soften. pt. 110-180 C; 90% VC, 4% VA, 6% vinyl alcohol; 20% solids in MEK/toluene (50:50)

## Ucar® VMCA [Union Carbide]

*Chem. Descrip.:* Carboxyl-modified vinyl chloride/VA copolymer  
 CAS 9003-22-9

*Uses:* Sol'n. vinyl resin for coatings; food-contact paper/paperboard; general maintenance and marine coatings; inks; adhesives

*Regulatory:* FDA 21CFR §176.180

*Properties:* Wh. powd.; 98% min. thru 20 mesh; m.w. 15,000; sp.gr. 1.34; visc. 370 cP (30% in MEK); bulk dens. 24-34 lb/ft<sup>3</sup>; acid no. 19; soften. pt. 110-180 C; 81% VC, 17% VA, 2% maleic acid; 30% solids in MEK/toluene (25/75)

## Ucar® VMCC [Union Carbide]

*Chem. Descrip.:* Carboxyl-modified vinyl chloride/VA copolymer  
 CAS 9003-22-9

*Uses:* Sol'n. vinyl resin for coatings; food-contact paper/paperboard; general maintenance and marine coatings; inks; adhesives

*Regulatory:* FDA 21CFR §176.180

*Properties:* Wh. powd.; 98% min. thru 20 mesh; m.w. 19,000; sp.gr. 1.34; visc. 370 cP (30% in MEK); bulk dens. 24-34 lb/ft<sup>3</sup>; acid no. 10; soften. pt. 110-180 C; 83% VC, 16% VA, 1% maleic acid; 25% solids in MEK/toluene (25/75)

## Ucar® VMCH [Union Carbide]

*Chem. Descrip.:* Carboxyl-modified vinyl chloride/VA copolymer  
 CAS 9003-22-9

*Uses:* Sol'n. vinyl resin for coatings; food-contact paper/paperboard; general maintenance and marine coatings; inks; adhesives

*Regulatory:* FDA 21CFR §176.180

*Properties:* Wh. powd.; 98% min. thru 20 mesh; m.w. 27,000; sp.gr. 1.35; visc. 150 cP (30% in MEK); bulk dens. 24-34 lb/ft<sup>3</sup>; acid no. 10; soften. pt. 110-180 C; 86% VC, 13% VA, 1% maleic acid; 20% solids in MEK/toluene (50/50)

## Ucarfloc® Polymer 300 [Union Carbide]

*Chem. Descrip.:* Polyethylene oxide  
 CAS 25322-68-3

*Uses:* Thickener, lubricant, binder, flocculant, wet adhesive for mining; foam

stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food pkg. coatings, paper, closures with sealing gaskets for food containers; thermoplastic resin

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 4,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 1650-5500 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

## Ucarfloc® Polymer 302 [Union Carbide]

*Chem. Descrip.:* Polyethylene oxide  
 CAS 25322-68-3

*Uses:* Thickener, lubricant, binder, flocculant, wet adhesive for mining; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food pkg. coatings, paper, closures with sealing gaskets for food containers; thermoplastic resin

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 5,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 5500-7500 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

## Ucarfloc® Polymer 304 [Union Carbide]

*Chem. Descrip.:* Polyethylene oxide  
 CAS 25322-68-3

*Uses:* Thickener, lubricant, binder, flocculant, wet adhesive for mining; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food pkg. coatings, paper, closures with sealing gaskets for food containers; thermoplastic resin

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170, 176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

*Properties:* Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 7,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 7500-10,000 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

*Precaution:* Slippery when wet

*Storage:* Store in sealed containers below 25 C, away from heat; avoid dust buildup

## Ucarfloc® Polymer 309 [Union Carbide]

*Chem. Descrip.:* Polyethylene oxide  
 CAS 25322-68-3

*Uses:* Thickener, lubricant, binder, flocculant, wet adhesive for mining; foam stabilizer in fermented malt beverages (300 ppm max.); dispersant for vinyl polymerization; food pkg. coatings, paper, closures with sealing gaskets for food containers; thermoplastic resin

*Regulatory:* FDA 21CFR §172.770, 175.300, 175.380, 175.390, 176.170,

176.180, 177.1210, 177.1350; EPA 40CFR §180.1001(d)

**Properties:** Wh. gran. powd., mild ammoniacal odor; 100% thru 10 mesh, 96% thru 20 mesh; sol. in water, some chlorinated solvs., alcohols, aromatic hydrocarbons, ketones; m.w. 8,000,000; sp.gr. 1.15-1.26; bulk dens. 19-37 lb/ft<sup>3</sup>; visc. 10,000-15,000 cps (1% aq.); m.p. 62-67 C; pH 8-10 (sol'n.); nonionic

**Precaution:** Slippery when wet

**Storage:** Store in sealed containers below 25 C, away from heat; avoid dust buildup

**Ucon® 50-HB-55** [Union Carbide]

**Chem. Descrip.:** PPG-2-buteth-3

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators

**Properties:** Sol. in water, alcohol; m.w. 270 (avg.); sp.gr. 0.971 (20/20 C); dens. 8.08 lb/gal (20 C); visc. 55 SUS (38 C); pour pt. -65 C; flash pt. (TOC) 90 C; ref. index 1.4402 (20 C); nonionic

**Toxicology:** LD50 (oral, rat) 8530 mg/kg; mildly toxic by ing.; skin and severe eye irritant; TSCA listed

**Ucon® 50-HB-100** [Union Carbide]

**Chem. Descrip.:** PPG-3-buteth-5

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators

**Properties:** M.w. 520 (avg.); sp.gr. 1.023 (20/20 C); dens. 8.51 lb/gal (20 C); visc. 100 SUS (38 C); pour pt. -51 C; flash pt. (PMCC) 141 C; ref. index 1.4491 (20 C); nonionic

**Toxicology:** LD50 (oral, rat) 9170 mg/kg, (skin, rabbit) 14 g/kg; mildly toxic by ing. and skin contact; skin irritant; TSCA listed

**Ucon® 50-HB-170** [Union Carbide]

**Chem. Descrip.:** PPG-5-buteth-7

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators

**Properties:** M.w. 750 (avg.); sp.gr. 1.031 (20/20 C); dens. 8.58 lb/gal (20 C); visc. 170 SUS (38 C); pour pt. -43 C; flash pt. (PMCC) 185 C; ref. index 1.4531 (20 C); nonionic

**Ucon® 50-HB-260** [Union Carbide]

**Chem. Descrip.:** PPG-7-buteth-10

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; food pkg. adhesives; defoamer in food-contact paper; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators

**Regulatory:** FDA 21CFR §175.105, 176.210(d)(3), 178.3120

**Properties:** M.w. 970 (avg.); sp.gr. 1.035 (20/20 C); dens. 8.62 lb/gal (20 C); visc. 260 SUS (38 C); pour pt. -40 C; flash pt. (PMCC) 194 C; ref. index 1.4542 (20 C); nonionic

**Toxicology:** LD50 (oral, rat) 4000 mg/kg; mod. toxic by ing.; skin irritant; TSCA listed

**Ucon® 50-HB-400** [Union Carbide; Amerchol]

**Chem. Descrip.:** PPG-9-buteth-12

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; food pkg. adhesives; defoamer in food-contact paper; solvent, softener, and plasticizer for textile and paper

coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators

**Regulatory:** FDA 21CFR §175.105, 176.210(d)(3), 178.3120, 178.3910

**Properties:** Clear liq., char. odor; m.w. 1230 (avg.); sp.gr. 1.041 (20/20 C); dens. 8.67 lb/gal (20 C); visc. 400 SUS (38 C); pour pt. -38 C; flash pt. (PMCC) 204 C; ref. index 1.4576 (20 C); pH 5.5-7.5 (10% aq.); nonionic

**Toxicology:** LD50 (oral, rat) 5370 mg/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Ucon® 50-HB-660** [Union Carbide; Amerchol]

**Chem. Descrip.:** PPG-12-buteth-16

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; food processing; food pkg. adhesives; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators, food contact

**Regulatory:** FDA 21CFR §173.310, 175.105, 176.210(d)(3), 178.3120, 178.3570, 178.3910

**Properties:** Clear liq., low char. odor; m.w. 1590 (avg.); sp.gr. 1.051 (20/20 C); dens. 8.75 lb/gal (20 C); visc. 660 SUS (38 C); pour pt. -34 C; flash pt. (PMCC) 202 C; ref. index 1.4576 (20 C); pH 5.5-7.5 (10% aq.); nonionic

**Toxicology:** LD50 (oral, rat) 18 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Ucon® 50-HB-2000** [Union Carbide]

**Chem. Descrip.:** PPG-20-buteth-30

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; food processing; food pkg. adhesives; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators, food contact

**Regulatory:** FDA 21CFR §173.310, 175.105, 176.210(d)(3), 178.3120, 178.3570, 178.3910

**Properties:** M.w. 2660 (avg.); sp.gr. 1.062 (20/20 C); dens. 8.84 lb/gal (20 C); visc. 2000 SUS (38 C); pour pt. -32 C; flash pt. (PMCC) 172 C; ref. index 1.4590 (20 C); nonionic

**Toxicology:** LD50 (oral, rat) 21 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Ucon® 50-HB-3520** [Union Carbide; Amerchol]

**Chem. Descrip.:** PPG-28-buteth-35

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; food processing; food pkg. adhesives; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators, food contact

**Regulatory:** FDA 21CFR §173.310, 175.105, 176.210(d)(3), 178.3120, 178.3570, 178.3910

**Properties:** Clear liq., char. odor; m.w. 3380 (avg.); sp.gr. 1.062 (20/20 C); dens. 8.81 lb/gal (20 C); visc. 3520 SUS (38 C); pour pt. -29 C; flash pt. (PMCC) 172 C; ref. index 1.4598 (20 C); pH 4.5-7.5 (10% aq.); nonionic

**Toxicology:** LD50 (oral, rat) 38 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Ucon® 50-HB-5100** [Union Carbide; Amerchol]

**Chem. Descrip.:** PPG-33-buteth-45

CAS 9038-95-3

**Uses:** Emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; solvent for inks and dyes; demulsifier; food processing; food pkg. adhesives; cellophane; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvs. for vinyl resins; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators, food contact

**Regulatory:** FDA 21CFR §173.310, 173.340, 175.105, 176.200, 176.210(d)(3), 177.1200, 178.3120, 178.3570, 178.3910

*Properties:* Clear visc. liq., low char. odor; m.w. 3930 (avg.); sp.gr. 1.063 (20/20 C); dens. 8.85 lb/gal (20 C); visc. 5100 SUS (38 C); pour pt. -29 C; flash pt. (PMCC) 180 C; ref. index 1.4596 (20 C); pH 5.5-7.5 (10% aq.); nonionic

*Toxicology:* LD50 (oral, rat) 49 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Ucon® 75-H-450** [Union Carbide; Amerchol]

*Chem. Descrip.:* PEG/PPG-17/6 copolymer  
CAS 9003-11-6

*Uses:* Lubricant for antiperspirants; emollient; solvent; bodying agent; lubricant for textile spin finishes; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; demulsifier; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; food pkg. adhesives, animal glues; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210(d)(3), 178.3120

*Properties:* Clear to cloudy liq., mild char. odor; m.w. 980 (avg.); sp.gr. 1.097 (20/20 C); dens. 9.13 lb/gal (20 C); visc. 450 SUS (38 C); pour pt. -15 C; flash pt. (PMCC) 188 C; ref. index 1.4655 (20 C); pH 5.5-7.5 (10% aq.)

**Ucon® 75-H-1400** [Union Carbide]

*Chem. Descrip.:* PEG/PPG-35/9 copolymer  
CAS 9003-11-6

*Uses:* Cosmetic emollient; lubricant for textile spin finishes; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; demulsifier; food pkg. adhesives, paper, cellophane, animal glues; defoamer in food-contact coatings, paper; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200, 176.210(d)(3), 177.1200, 178.3120, 178.3570

*Properties:* Sol. in water, alcohol; m.w. 2470 (avg.); sp.gr. 1.099 (20/20 C); dens. 9.12 lb/gal (20 C); visc. 1400 SUS (38 C); pour pt. 4 C; flash pt. (PMCC) 219 C; ref. index 1.4653 (20 C)

**Ucon® 75-H-9500** [Union Carbide]

*Chem. Descrip.:* Linear polymer of ethylene and propylene oxide  
CAS 9003-11-6

*Uses:* Cosmetic emollient; lubricant for textile spin finishes; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; demulsifier; food pkg. adhesives, paper, cellophane, animal glues; defoamer in food-contact coatings, paper; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200, 176.210(d)(3), 177.1200, 178.3120, 178.3570

*Properties:* M.w. 6950 (avg.); sp.gr. 1.094 (20/20 C); dens. 9.1 lb/gal (20 C); visc. 9500 SUS (38 C); pour pt. 4 C; flash pt. (PMCC) 222 C; ref. index 1.4665 (20 C)

**Ucon® 75-H-90000** [Union Carbide]

*Chem. Descrip.:* PEG/PPG-125/30 copolymer  
CAS 9003-11-6

*Uses:* Cosmetic emollient; lubricant for textile spin finishes; intermediate for prep. of resins, plasticizers, modifiers, and surfactants; demulsifier; food pkg. adhesives, paper, cellophane, animal glues; defoamer in food-contact coatings, paper; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200, 176.210(d)(3), 177.1200, 178.3120, 178.3570

**Ucon® LB-65** [Union Carbide]

*Chem. Descrip.:* PPG-5 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient

*Properties:* M.w. 340 (avg.); sp.gr. 0.960 (20/20 C); dens. 7.99 lb/gal (20 C); visc. 65 SUS (38 C); pour pt. -57 C; flash pt. (PMCC) 119 C; ref. index 1.3281 (20 C); nonionic

**Ucon® LB-135** [Union Carbide]

*Chem. Descrip.:* PPG-9 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and

dye solvents for vinyl resins; demulsifier; cosmetic emollient

*Properties:* M.w. 640 (avg.); sp.gr. 0.981 (20/20 C); dens. 8.16 lb/gal (20 C); visc. 135 SUS (38 C); pour pt. -48 C; flash pt. (PMCC) 177 C; ref. index 1.4436 (20 C); nonionic

**Ucon® LB-165** [Union Carbide]

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient

*Properties:* M.w. 740 (avg.); sp.gr. 0.983 (20/20 C); dens. 8.18 lb/gal (20 C); visc. 165 SUS (38 C); pour pt. -46 C; flash pt. (PMCC) 190 C; ref. index 1.4453 (20 C)

**Ucon® LB-285** [Union Carbide]

*Chem. Descrip.:* PPG-15 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient; food pkg. adhesives; defoamer for food contact

*Regulatory:* FDA 21CFR §175.105, 176.210(d)(2) and (3), 178.3120, 178.3910

*Properties:* M.w. 1020 (avg.); sp.gr. 0.989 (20/20 C); dens. 8.23 lb/gal (20 C); visc. 285 SUS (38 C); pour pt. -40 C; flash pt. (PMCC) 179 C; ref. index 1.4482 (20 C); nonionic

**Ucon® LB-385** [Union Carbide]

*Chem. Descrip.:* PPG-18 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient; food pkg. adhesives; defoamer for food contact

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210(d)(2) and (3), 177.1200, 178.3120, 178.3910

*Properties:* Low color and odor; sol. in alcohol; insol. in water; m.w. 1200 avg.; sp.gr. 0.994 (20/20 C); dens. 8.27 lb/gal (20 C); visc. 385 SUS (100 F); pour pt. -37 C; flash pt. (PMCC) 177 C; ref. index 1.4489 (20 C); nonionic

**Ucon® LB-525** [Union Carbide]

*Chem. Descrip.:* PPG-22 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient; food pkg. adhesives; defoamer for food contact

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210(d)(2) and (3), 177.1200, 178.3120, 178.3910

*Properties:* M.w. 1420 (avg.); sp.gr. 0.997 (20/20 C); dens. 8.30 lb/gal (20 C); visc. 525 SUS (38 C); pour pt. -34 C; flash pt. (PMCC) 185 C; ref. index 1.4487 (20 C); nonionic

**Ucon® LB-625** [Union Carbide]

*Chem. Descrip.:* PPG-24 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient; food pkg. adhesives; defoamer for food contact

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210(d)(2) and (3), 177.1200, 178.3120, 178.3570, 178.3910

*Properties:* Low color and odor; sol. in alcohol; m.w. 1550; sp.gr. 1.00 (20/20

C); dens. 8.32 lb/gal (20 C); visc. 625 SUS (38 C); pour pt. -32 C; flash pt. (PMCC) 168 C; ref. index 1.4491 (20 C); nonionic

**Ucon® LB-1145** [Union Carbide; Amerchol]

*Chem. Descrip.:* PPG-33 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient; food pkg. adhesives; defoamer for food contact

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210(d)(2) and (3), 177.1200, 178.3120, 178.3570, 178.3910

*Properties:* Low color and odor; sol. in alcohol; m.w. 2080 (avg.); sp.gr. 1.002 (20/20 C); dens. 8.34 lb/gal (20 C); visc. 1145 SUS (38 C); pour pt. -29 C; flash pt. (PMCC) 190 C; ref. index 1.4499 (20 C); nonionic

**Ucon® LB-1715** [Union Carbide; Amerchol]

*Chem. Descrip.:* PPG-40 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agents and dye solvents for vinyl resins; demulsifier; cosmetic emollient; food pkg. adhesives; defoamer for food contact

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210(d)(2) and (3), 177.1200, 178.3120, 178.3570, 178.3910

*Properties:* Clear liq., low char. odor; sol. in alcohol; m.w. 2490 (avg.); sp.gr. 1.002 (20/20 C); dens. 8.34 lb/gal (20 C); visc. 1715 SUS (38 C); pour pt. -23 C; flash pt. (PMCC) 188 C; ref. index 1.4503 (20 C); pH 5.0-8.5 (10% w/v); nonionic

**Ucon® LB-3000** [Union Carbide]

*Chem. Descrip.:* PPG-53 butyl ether  
CAS 9003-13-8

*Uses:* Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, modifiers, and surfactant mfg.; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; solvent for inks and dyes; solvent, softener, and plasticizer for textile and paper coatings, NC coatings; mold release agent and dye solv. for vinyl resins; demulsifier; cosmetic emollient; defoamer for food contact; food pkg. cellophane

*Regulatory:* FDA 21CFR §176.200, 177.1200, 178.3570, 178.3910

*Properties:* Low color and odor; sol. in alcohol; visc. 3000 SUS (38 C); nonionic

**Ufaryl DB 80** [Unger Fabrikker AS]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate, branched  
CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent, wetting agent, foaming agent, emulsifier for lt. and heavy-duty detergents, dairy, metal, floor, vehicle and bottle cleaners; wetting agent in insecticides, metal pickling, printing inks, paper processing, textiles

*Properties:* Pale cream free-flowing powder.; m.w. 343-345; sp.gr. 420 g/l; pH 6-9 (1%); 79-83% act.; anionic

*Environmental:* Partially biodeg.

**Ufaryl DL 80 CW** [Unger Fabrikker AS]

*Chem. Descrip.:* Linear sodium dodecylbenzene sulfonate  
CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent, wetting agent, anticaking agent for scouring, toilet blocks, dairy and brewery cleaners, agric., concrete mfg., paper prod., metal processing, textiles; high foaming; stable in hard water, acids, alkalis

*Properties:* Wh. to lt. yel. free-flowing powder.; m.w. 343-345; sp.gr. 430 ± 40 g/l; pH 10-11 (1%); 79-83% act.; anionic

**Ufaryl DL 85** [Unger Fabrikker AS]

*Chem. Descrip.:* Sodium dodecylbenzene sulfonate linear  
CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent, emulsifier, wetting agent, anticaking agent for scouring, dairy and brewery cleaners, agric., concrete, paper prod., metal processing, textiles, toilet blocks; high foaming

*Properties:* Wh. to lt. yel. free-flowing powder.; m.w. 343-345; sp.gr. 420 ± 40 g/l; pH 10-11 (1%); 83-87% act.; anionic

**Ufaryl DL 90 C** [Unger Fabrikker AS]

*Chem. Descrip.:* Linear sodium dodecylbenzene sulfonate

CAS 25155-30-0; EINECS/ELINCS 246-680-4

*Uses:* Detergent, wetting agent, emulsifier, anticaking agent for scouring, dairy and brewery cleaning, agric., concrete mfg., paper prod., metal processing, textiles, toilet blocks; high foaming

*Properties:* Wh. to lt. yel. free-flowing powder.; m.w. 343-345; sp.gr. 400 ± 40 g/l; pH 7-9 (1%); 88-92% act.; anionic

**UFH16** [Alcoa]

*Chem. Descrip.:* Hydrated alumina

*Chem. Analysis:* Al<sub>2</sub>O<sub>3</sub> (65.1%)

CAS 21645-51-2; EINECS/ELINCS 244-492-7

*Uses:* Flame retardant filler in polymer systems, epoxy, EVA, PVA, PVdC, SBR, vinylidene chloride; filler pigment in high whiteness papers; flame retardant filler, TiO<sub>2</sub> extender in textile coatings; nonsmoking; halogen-free; 100% reflectance; improved printability; noncorrosive

*Regulatory:* DOT nonregulated; SARA §302/311/312/313 nonreportable; CERCLA nonreportable

*Properties:* Wh. cryst. powder.; 1.8 µm median particle size; odorless; insol. in water; dens. 2.4 g/cm<sup>3</sup> (20 C); bulk dens. 0.15-1.3 g/cm<sup>3</sup> (20 C); surf. area 5-7 m<sup>2</sup>/g; brightness 97-98; m.p. 2040 C; pH 8.5-10.2 (20 C, 20% aq.); 99% solids

*Toxicology:* Low toxicity; can cause mild irritation to eyes, skin, upper respiratory tract; may aggravate asthma, chronic lung disease, skin rashes; TSCA listed

*Environmental:* Generally not hazardous for water

*Precaution:* Prevent formation of dust

*Hazardous Decomp. Prods.:* Dec. forming aluminum oxide and water vapor beginning at 200 C

*Storage:* Keep material dry

**1900 UHMW Polymers** [Montell N. Am.]

*Chem. Descrip.:* Ultrahigh m.w. PE resins

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* High-performance materials for fabricating equip. and mech. parts subjected to extraordinary wear for use in chemical, food and beverage, mining and metals processing, paper, and textile industries for processing equipment and materials handling systems components (ball valve seats, bearings, gaskets, mixer paddles, etc.); resins with m.w. range between three and six million; offers resistance to impact, abrasion, and chemicals, high-energy absorp., self-lubricating

**Ukanil 2111** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Alcohol alkoxylate

*Uses:* Antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, pulp/paper

*Properties:* Colorless liq.; sp.gr. 0.97; hyd. no. 50; pour pt. -2 C; cloud pt. 26 C (10% in 25% BDG); pH 6.3 (2.5%); surf. tens. 32.4 mN/m (0.5%, 20 C); nonionic

**Ukanil 2265** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* Alcohol alkoxylate

*Uses:* Antifoam for sugar beet processing, fermentation, antibiotics, citric acid, yeast, pulp/paper

*Properties:* Colorless liq.; sp.gr. 0.97; hyd. no. 55; pour pt. -2 C; cloud pt. 21 C (10% in 25% BDG); pH 6.3 (2.5%); nonionic

**Ukanil 3500** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* EO/PO copolymer on a polyfunctional alcohol

CAS 9003-11-6

*Uses:* Surfactant, antifoam for pulp/paper applics.

*Properties:* Pale yel. liq.; sp.gr. 1.01; hyd. no. 37.5; pour pt. -25 c; cloud pt. 9 C (10% aq.); pH 6.3 (2.5%); surf. tens. 32.6 mN/m (0.5%, 20 C); nonionic

**Ukanil 3501** [Uniqema/ICI Surf. Am.; Uniqema/ICI Surf. UK]

*Chem. Descrip.:* EO/PO copolymer on a polyfunctional alcohol

CAS 9003-11-6

*Uses:* Surfactant, antifoam for pulp/paper applics.

*Properties:* Colorless liq.; sp.gr. 1.01; hyd. no. 26.5; pour pt. -26 C; cloud pt. < 10 C (1% aq.); surf. tens. 37.2 mN/m (0.5%, 20 C); nonionic

**Ultimer™ 1460** [Nalco]

*Chem. Descrip.:* Water-based disp. polymer

*Uses:* Flocculant, retention aid, drainage aid for papermaking, food, and beverage industries; retains fillers such as TiO<sub>2</sub>, clays, CaCO<sub>3</sub>; improves machine runnability; better solids recovery; cleaner white water for reuse; improved saveall and DAF efficiency; reduced air emissions, toxicity, flamm., and transportation hazards

**Ultradur® B 2550** [BASF/Plastic Materials; BASF AG]*Chem. Descrip.:* Thermoplastic polyester resin (PBT)

CAS 26062-94-2

*Uses:* Resin used for coating paper and board for pkg. oven-ready deep-freeze and convenience foods; primarily for extrusion; low-visc.*Properties:* Dens. 1.30 g/cm<sup>3</sup>; m.p. 428-437 F; tens. str. 8700 psi (yield); tens. elong. 150% (break); Izod impact 0.8 ft lb/in. notched; distort. temp. 153 F (264 psi); flamm. HB; dielec. str. 410 V/mil; vol. resist. 10<sup>16</sup> ohm-cm.**Ultrapaque® PCC** [Specialty Mins.]*Chem. Descrip.:* Precipitated calcium carbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Uses:* TiO<sub>2</sub> extender/replacement, opacifier, brightener for paper; patented; similar morphology, size, and particle size distribution to TiO<sub>2</sub>*Properties:* Rhombohedral cryst.**Ultra-pHase™** [Hercules]*Uses:* Internal sizing agent for papermaking; for use in acid or neutral pH**Ultrathene® UE 631-04** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Resin for hot-melt and solv.-based adhesives and coatings; enhances gloss, clarity, flexibility, and str. props. of hot-melt coatings; food pkg. adhesives, paper, polymers; can produce adhesives with exc. tackiness, adhesion, flexibility, and stability*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 approved*Properties:* Melt index 2.4 g/10 min; dens. 0.94 g/cc; peak m.p. 86 C; soften. pt. (R&B) 174 C; tens. str. 2150 psi (break); tens. elong. 710% (break); Shore hardness A87; 19% VA**Ultrathene® UE 634-04** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Resin for hot-melt and solv.-based adhesives and coatings; enhances gloss, clarity, flexibility, and str. props. of hot-melt coatings; food pkg. adhesives, paper, polymers; can produce adhesives with exc. tackiness, adhesion, flexibility, and stability*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 approved*Properties:* Melt index 6.0 g/10 min; dens. 0.95 g/cc; peak m.p. 71 C; soften. pt. (R&B) 143 C; tens. str. 2200 psi (break); tens. elong. 800% (break); Shore hardness A78; 28% VA**Ultrathene® UE 634-04** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Flexible base resin for hot-melt adhesives, sealants, and coatings; food pkg. adhesives, paper, polymers; promotes higher temp. performance and adhesion to variety of substrates*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 compliant*Properties:* Sp.gr. 0.95; melt flow 6.0 g/10 min; peak m.p. 71 C; soften. pt. (R&B) 143 C; tens. str. 2200 psi (break); elong. 750% (break); hardness (Shore A) 78; 28% vinyl acetate**Ultrathene® UE 639-67** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Resin for hot-melt and solv.-based adhesives and coatings; enhances gloss, clarity, flexibility, and str. props. of hot-melt coatings; food pkg. adhesives, paper, polymers; can produce adhesives with exc. tackiness, adhesion, flexibility, and stability*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 approved*Properties:* Melt index 150 g/10 min; dens. 0.95 g/cc; peak m.p. 63 C; soften. pt. (R&B) 88 C; tens. str. 400 psi (break); tens. elong. 600% (break); Shore hardness A69; 28% VA**Ultrathene® UE 649-04** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Resin for hot-melt and solv.-based adhesives and coatings; enhances gloss, clarity, flexibility, and str. props. of hot-melt coatings; food pkg. adhesives, paper, polymers; can produce adhesives with exc. tackiness, adhesion, flexibility, and stability*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 approved*Properties:* Melt index 500 g/10 min; dens. 0.93 g/cc; soften. pt. (R&B) 88 C; tens. str. 450 psi (break); tens. elong. 200% (break); Shore hardness A79; 18% VA**Ultrathene® UE 653-67** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Resin for hot-melt and solv.-based adhesives and coatings; enhances gloss, clarity, flexibility, and str. props. of hot-melt coatings; food pkg. adhesives, paper, polymers; can produce adhesives with exc. tackiness, adhesion, flexibility, and stability*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 compliant*Properties:* Melt index 410 g/10 min; dens. 0.94 g/cc; peak m.p. 60 C; soften. pt. (R&B) 82 C; tens. str. 330 psi (break); tens. elong. 320% (break); Shore hardness A68; 28% VA**Ultrathene® UE 654-67** [Equistar]*Chem. Descrip.:* EVA copolymer

CAS 24937-78-8

*Uses:* Resin for hot-melt and solv.-based adhesives and coatings; enhances gloss, clarity, flexibility, and str. props. of hot-melt coatings; food pkg. adhesives, paper, polymers; can produce adhesives with exc. tackiness, adhesion, flexibility, and stability*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1350 approved*Properties:* Melt index 43 g/10 min; dens. 0.95 g/cc; peak m.p. 58 C; soften. pt. (R&B) 107 C; tens. str. 660 psi (break); tens. elong. 900% (break); Shore hardness A73; 33% VA**Ultrazym 100** [Novo Nordisk]*Chem. Descrip.:* Pectin-decomposing enzyme*Uses:* Enzyme for mash and juice treatment; processing aid in wine industry; pulp wash*Properties:* Liq.**Umbrellit® B 30** [Münzing Chemie GmbH]*Chem. Descrip.:* Chromium-III-stearate complex*Uses:* For impregnation and refinement of water repellent chrome leathers; waterproofing agent for paper and board; can be used during leather mfg. and after finishing, e.g., for drum impregnation in aq. sol'n. or diluted with water and alcohol for spraying process*Use Level:* 0.1-0.5 g/m<sup>2</sup> (paper and board)*Regulatory:* FDA, BGA approved*Properties:* Deep grn. sl. cloudy liq.; emulsifiable in water; sp.gr. 1.07 (20 C); visc. low; flash pt. > 100 C; pH 3 (2%); 30% act.; cationic*Storage:* 6 mos shelf life in closed package @ 15-25 C; sensitive to freezing**Umbrellit® B 30 Mod.** [Münzing Chemie GmbH]*Chem. Descrip.:* Chromium-III-fatty acid complex*Uses:* Waterproofing agent for paper and board*Use Level:* 0.1-0.5 g/m<sup>2</sup>*Regulatory:* FDA, BGA approved*Properties:* Grn. liq.; emulsifiable in water; sp.gr. 1.15 (20 C); visc. low; flash pt. > 100 C; pH 3 (2%); 40% act.; cationic*Storage:* 6 mos shelf life in closed package @ 15-25 C; sensitive to freezing**Umbrellit® S 30** [Münzing Chemie GmbH]*Chem. Descrip.:* Chromium-III-stearate complex, alcoholic sol'n.*Uses:* For impregnation and refinement of water repellent chrome leathers; waterproofing agent for paper and board; can be used during leather mfg. and after finishing, e.g., for drum impregnation in aq. sol'n. or diluted with water and alcohol for spraying process*Use Level:* 0.1-0.5 g/m<sup>2</sup> (paper and board)*Regulatory:* BGA approved*Properties:* Deeply grn. liq.; emulsifiable in water; sp.gr. 0.97 (20 C); visc. low; flash pt. 14 C; pH 3 (2%); 30% act.; cationic*Precaution:* Highly combustible; avoid open flames and rapid heating by means of vapor or hot plates*Storage:* 6 mos shelf life in closed package @ 15-25 C; sensitive to freezing**Unicid™ 350** [Baker Petrolite]*Chem. Descrip.:* Carboxylic acid, 80%*Uses:* Adhesion promoter in adhesives; pulp/paper process defoamer; charge control additive in toner applics.; emollient in personal care prods.; plastics processing additive (antiblock, lubricant); gloss aid in polishes; lubricant in textile and latex processing applics.; chem. intermediate; long chain acid; provides controlled compat., inc. high temp. stability, improved attraction/adhesion to polar materials; low odor and volatility*Properties:* M.w. 350; dens. 0.78 g/cc; visc. 5 cP (99 C); m.p. 89 C; acid no. 115**Unicid™ 425** [Baker Petrolite]*Chem. Descrip.:* Carboxylic acid, 80%*Uses:* Adhesion promoter in adhesives; pulp/paper process defoamer; charge control additive in toner applics.; emollient in personal care prods.; plastics processing additive (antiblock, lubricant); gloss aid in polishes; lubricant in



textile and latex processing applics.; chem. intermediate; long chain acid; provides controlled compat., inc. high temp. stability, improved attraction/adhesion to polar materials; low odor and volatility

*Properties:* M.w. 425; dens. 0.78 g/cc; visc. 6.5 cP (99 C); m.p. 93 C; acid no. 94

**Unicid™ 550** [Baker Petrolite]

*Chem. Descrip.:* Carboxylic acid, 80%

*Uses:* Adhesion promoter in adhesives; pulp/paper process defoamer; charge control additive in toner applics.; emollient in personal care prods.; plastics processing additive (antiblock, lubricant); gloss aid in polishes; lubricant in textile and latex processing applics.; chem. intermediate; long chain acid; provides controlled compat., inc. high temp. stability, improved attraction/adhesion to polar materials; low odor and volatility

*Properties:* M.w. 550; dens. 0.78 g/cc; visc. 7.5 cP (99 C); m.p. 101 C; acid no. 72.5

**Unicid™ 700 Acid** [Baker Petrolite]

*Chem. Descrip.:* C40-60 acid and polyethylene

*Uses:* Adhesion promoter in adhesives; pulp/paper process defoamer; charge control additive in toner applics.; emollient in personal care prods.; plastics processing additive (antiblock, lubricant); gloss aid in polishes; lubricant in textile and latex processing applics.; chem. intermediate; long chain acid; provides controlled compat., inc. high temp. stability, improved attraction/adhesion to polar materials; low odor and volatility

*Properties:* M.w. 700; dens. 0.78 g/cc; visc. 17 cP (99 C); m.p. 110 C; acid no. 63

**Unicrepe® 315D54** [Georgia-Pacific Resins]

*Uses:* Creping aid promoting adhesion onto Yankee dryers

*Properties:* 35% solids

**Unicrepe® 457T20** [Georgia-Pacific Resins]

*Uses:* Creping aid promoting adhesion onto Yankee dryers

*Properties:* 15% solids

**Unicrepe® C77** [Georgia-Pacific Resins]

*Chem. Descrip.:* Polyamide

CAS 25038-54-4

*Uses:* Creping aid promoting adhesion onto Yankee dryers; useful at the wet end as well as sprayed on

*Properties:* Amber clear liq.; visc. 38 cps; pH 4; 15% NV; cationic

**Unidri™ 4717** [Huntsman]

*Uses:* Dewatering aid for lime mud; low foaming

*Use Level:* 0.5-2.5 lb/ton

**Unidri™ M-40** [Huntsman]

*Uses:* Mineral processing surfactant; dewatering agent for vacuum filtration of minerals; drainage aid for drainage improvement over lime mud washers in pulp/paper industry

*Properties:* Liq.; 40% act.; anionic

**Unidri™ P-0820** [Huntsman]

*Uses:* Dewatering aid for lime mud; low foaming

*Use Level:* 0.5-2.5 lb/ton

**Unihib® 905** [Lonza]

*Chem. Descrip.:* Diethylene triamine pentamethylene phosphonic acid

CAS 15827-60-8

*Uses:* Dispersant, corrosion and scale inhibitor for cooling tower, boiler treatment, oil field applics., detergents, peroxide bleach stabilization, I&I cleaners, geothermal, pulp/paper bleaching, metal finishing, flash desalination; hydrolytically stable over wide pH range and at elevated temps.

*Use Level:* 1-5 ppm (cooling water treatment, CaSO<sub>4</sub>/CaCO<sub>3</sub> scale inhibition), 10-20 ppm (cooling water treatment, corrosion inhibition), 50-75 ppm (boiler water treatment), 5-15 ppm (oil field treatment)

*Properties:* Pale yel. to amber clear low-visc. liq.; pH < 2 (1%); 60% solids

*Toxicology:* Mildly irritating to skin; mod. eye irritant

**Unilin® 425 Alcohol** [Baker Petrolite]

*Chem. Descrip.:* C20-40 alcohols

*Uses:* Modifier of PP, PVC, PE, PS, and high-performance engineering resins; antioxidant; heat stabilizer; UV stabilizer; visc. depressant; antiblock in rubbers; in adhesives for food pkg.; promotes emollient protective films onto the skin in cosmetic creams and lotions; used in hot-melt and solv.-based coatings; textile/leather lubricants and finishes; chemical intermediate; defoamer for pulp/paper processing

*Regulatory:* FDA 21CFR §175.105

*Properties:* Off-wh. prills; sol. in aliphatic and aromatic solvs.; m.w. 460; sp.gr. 0.78 (99 C); dens. 0.985 g/cc; visc. 7.8 cps (99 C); m.p. 91 C; hyd. no. 105

**Uniplex 84** [Unitex]

*Chem. Descrip.:* Acetyl tributyl citrate

CAS 77-90-7; EINECS/ELINCS 201-067-0

*Uses:* Plasticizer for indirect and direct food contact applics., PVC toys, cellulose nitrate films, aerosol hair sprays, dairy prod. cartons, drink bottle caps, food jar caps, sol'n. coatings for foil and paper; milling lubricant for aluminum foil or sheet steel for use in cans for beverage and food prods.; food pkg. adhesives, coatings, paper, cellophane; produces resins with exc. heat stability and low toxicity

*Regulatory:* FDA 21CFR §172.515, 175.105, 175.300, 175.320, 175.380, 175.390, 176.170, 176.180, 177.1200, 177.1210, 178.3910, 181.27

*Properties:* APHA 30 max. color, essentially odorless; insol. in water; m.w. 402.5; sp.gr. 1.045-1.055; dens. 8.74 lb/gal; visc. 33 cps; b.p. 173 C (1 mm Hg); pour pt. -75 C; flash pt. (COC) 204 C; ref. index 1.441; 99% min. assay

**Uniplex 108** [Unitex]

*Chem. Descrip.:* N-Ethyl o/p-toluene sulfonamide

CAS 80-39-7; EINECS/ELINCS 201-275-1

*Uses:* Plasticizer for nylon, shellac, cellulose acetate, protein materials, PVAc adhesives (metal-to-rubber joins, bookbinding, shoe), nitrocellulose lacquers; food pkg. adhesives, coatings, paper, cellophane; makes compds. resist. to oils, solvs., and greases

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1210

*Properties:* APHA 200 max. clear oily liq., char. odor; m.w. 199; sp.gr. 1.184-1.187; cryst. pt. 40 C; solid. pt. 0 C; b.p. 196 C (10 mm Hg); flash pt. (COC) 345 F; ref. index 1.535-1.545; 0.1% max. moisture

**Uniplex 150** [Unitex]

*Chem. Descrip.:* Dibutyl phthalate

CAS 84-74-2; EINECS/ELINCS 201-557-4

*Uses:* Solvent/plasticizer in fingernail polish, nail polish remover, hair sprays, org. peroxide catalysts, adhesives, coatings; food pkg. adhesives, coatings, paper, cellophane, polymers; compat. with cellulose, methacrylate, PS, PVB, vinyl chloride, urea-formaldehyde, melamine-formaldehyde, phenolics

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 177.1200, 177.2430

*Properties:* APHA 25 max. clear liq., mild odor; pract. insol. in water; m.w. 278; sp.gr. 1.042; dens. 8.72 lb/gal; visc. 59 cps (32 F); f.p. -35 C; b.p. 340 C (760 mm Hg); ref. index 1.4905; 99% min. assay

**Uniplex 155** [Unitex]

*Chem. Descrip.:* Diisobutyl phthalate

CAS 84-69-5; EINECS/ELINCS 201-553-2

*Uses:* Plasticizer for thermoplastic and thermoset resins; solvent/plasticizer in cellophane, resin coated sand for foundry casting, org. peroxides; food pkg. adhesives, coatings, paper, cellophane, rubber articles, textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 177.1200, 177.2510, 177.2550, 177.2600, 177.2800, 177.2910

*Properties:* APHA 25 max. clear liq., mild odor; pract. insol. in water; m.w. 278; sp.gr. 1.038-1.040; dens. 8.65 lb/gal; b.p. 327 C (760 mm Hg); 99% min. assay

**Uniplex 250** [Unitex]

*Chem. Descrip.:* Dicyclohexylphthalate

CAS 84-61-7; EINECS/ELINCS 201-545-9

*Uses:* Plasticizer for heat-seal applics. such as food wrappers/labels, pharmaceutical labels and other applics. where delayed heat-activated adhesive is required, for printing ink formulations for paper, vinyl, textiles, other substrates; food pkg. adhesives, paper, cellophane; heat-activated

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1200

*Properties:* Wh. cryst. solid lumps or gran.; essentially odorless @ 200 C; practically insol. in water; m.w. 330; sp.gr. 1.29; m.p. 63-65 C; b.p. 60 C (10 mm Hg); pour pt. 60 C; flash pt. (COC) 405 F; 99% assay

*Precaution:* Incompat. with strong oxidizing agents

**Uniplex 260** [Unitex]

*Chem. Descrip.:* Glyceryl tribenzoate

CAS 614-33-5; EINECS/ELINCS 210-379-6

*Uses:* Polymer modifier; plasticizer for heat-seal applics., lacquers, films, in PVAc-based adhesives, cellophane coatings, nitrocellulose coatings, nail lacquer formulations, printing inks, polishes; extrusion and inj. molding processing aid; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §174.5, 175.105, 175.365, 175.380, 175.390,

176.170, 176.180, 177.1210

*Properties:* Wh. cryst. lumps or gran.; m.w. 404; sp.gr. 1.2619 (30 C); m.p. 70-73 C; ref. index 1.565-1.570 (molten, 25 C)

*Toxicology:* LD50 (rat) > 11.7 g/kg

**Uniplex 280 CG** [Unitex]

*Chem. Descrip.:* Sucrose benzoate (> 98%), o-xylene (< 2%)

CAS 12738-64-6; EINECS/ELINCS 235-795-5

*Uses:* Plasticizer, gloss aid for clear coatings for wood/paper/metal, metallic/pigmented coatings, heat-seal coatings, and inks; modifier, gloss aid for clear lacquers; exc. UV stability; provides exc. clarity, UV resist., high film hardness, good flexibility

*Regulatory:* DOT nonregulated

*Properties:* Wh. glassy noncryst. solid; clear; odorless; misc. with acetic acid, acetone, benzene, CCl<sub>4</sub>, diethyl ether, MIBK, MEK, PEG's, toluene, xylene, etc.; insol. in water, aliphatic hydrocarbons; m.w. 1110; sp.gr. 1.25; soften. pt. (B&R) 98 C; acid no. < 0.1; iodine no. < 0.01; sapon. no. 153; hyd. no. 0.9; flash pt. (TOC) 260 C; ref. index 1.577

*Toxicology:* LD50 (oral, rat) > 5 g/kg; not a primary skin/eye irritant; may cause skin irritation; inh. of mist may cause respiratory tract irritation; may cause eye irritation, pain, corneal/conjunctival ulceration; ing. may cause burning in mouth/digestive; TSCA listed

*Hazardous Decomp. Prods.:* Combustion: CO<sub>x</sub>

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store at ambient temps. in well-ventilated area in closed pressure-less containers

**Uniplex 600** [Unitex]

*Chem. Descrip.:* o,p-Toluenesulfonamide-formaldehyde resin

CAS 1338-51-8; EINECS/ELINCS 215-667-5

*Uses:* Modifier and adhesion promoter for syn. and natural resins used in adhesives and coatings applics.; extender in polyamide resins; food pkg. adhesives, paper, cellophane

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1200

*Properties:* Pract. colorless hard solid particles, faint formaldehyde odor; sol. in usual lacquer solvs.; insol. in water, aliphatic hydrocarbons, veg. oils; sp.gr. 1.35; soften. pt. 62 C; ref. index 1.4275-1.4325 (25 g/75 g butyl acetate)

**Uniq-Print® 8000** [OMNOVA Sol'ns./Paper]

*Chem. Descrip.:* Styrene acrylate

CAS 9010-92-8

*Uses:* Surf. sizing agent for photocopying and laser printing; provides exc. ink jet performance (monochrome and color) and improves toner adhesion

*Properties:* Dens. 8.6 lb/gal; pH 8.5; 40% total solids

**Unisize® HA-25** [Celanese GmbH]

*Chem. Descrip.:* Polyvinyl alcohol, tackified

CAS 9002-89-5; EINECS/ELINCS 209-183-3

*Uses:* Used for specialty paper applics.

**Unisize® HA-26** [Celanese GmbH]

*Chem. Descrip.:* Polyvinyl alcohol (Airvol 125) and boric acid

*Uses:* Tackified grade for paper/paperboard applics.; derived from super hydrolyzed grades; controlled gelation as the sol'n. begins to inc. in solids after applic. to paper surf.; superior surf. filming

*Properties:* Visc. 35-65 cps (5% aq.); pH 4.0-4.7 (5% aq.)

**Unisize® HA-70** [Celanese GmbH]

*Chem. Descrip.:* Polyvinyl alcohol (Airvol 165) and boric acid

*Uses:* Tackified grade for specialty paper applics.; derived from super hydrolyzed grades; controlled gelation as the sol'n. begins to inc. in solids after applic. to paper surf.; superior surf. filming

*Properties:* Visc. 80-155 cps (5% aq.); pH 3.9-4.6 (5% aq.)

**Unisoft® Yankee Dryer Coating** [Hercules]

*Uses:* Yankee dryer coating for softer and thicker coatings, and controlled and high adhesion in high-speed Yankee dryers

**Unisperse®** [Ciba Spec. Chems./Paper]

*Chem. Descrip.:* Org. pigment

*Uses:* Pigment for paper coloration

**Uni-Tac® 70** [Int'l. Paper]

*Chem. Descrip.:* Noncrystallizing stabilized rosin

CAS 8050-09-7; EINECS/ELINCS 232-475-7

*Uses:* Tackifier for SBR, natural rubber, butyl rubber, ethylene-vinyl acetate and other polymers, water and solv.-based construction adhesives, pressure-sensitive, sealant, hot melt and rubber compding.; food pkg. adhesives, rubber articles; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600

*Properties:* Gardner 9 flakes, solid, or sol'n.; sol. in aromatic, aliphatic, and chlorinated solvs.; sol. ≥ 50% in ethanol, propanol, IPA; insol. in water; dens. 8.8 lb/gal; visc. (Gardner) Z (75% in min. spirits); soften. pt. (R&B) 80 C; acid no. 140; flas

**Unithox® 420** [Baker Petrolite]

*Chem. Descrip.:* C20-40 pareth-3

*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; for coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics

*Properties:* Sol. in min. oil, butyl Cellosolve, xylene, toluene, MEK, perchloroethylene; sol. hazy in Stod., VM&P naphtha, kerosene; disp. in water, ethanol, IPA; m.w. 560; m.p. 91 C; HLB 4; hyd. no. 85; flash pt. 204 C; Ross-Miles foam 20 mm (initial, 50 C, 0.1%); nonionic

**Unithox® 450** [Baker Petrolite]

*Chem. Descrip.:* C20-40 pareth-10

*Uses:* PU mold release agent; metalworking additive; o/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; dispersant, compatibilizer for rubbers; provides silky lubricating feel, superior film-forming chars.; also for coatings, pulp/paper processing, textiles

*Properties:* Solid; sol. in min. oil, cyclohexane, butyl Cellosolve, xylene, toluene, MEK, perchloroethylene; sol. hazy in Stod., VM&P naphtha, kerosene, ethanol, IPA; disp. in water, ethylene glycol; m.w. 900; m.p. 91 C; HLB 10; hyd. no. 55; flash pt. 218 C; surf. tens. 45 dynes/cm (0.01% aq.); Ross-Miles foam 25 mm (initial, 50 C, 0.1%); 50% EO; nonionic

**Unithox® 480** [Baker Petrolite]

*Chem. Descrip.:* C20-40 pareth-40

*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; also for coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics; dispersant, compatibilizer for rubbers

*Properties:* Sol. in min. oil, cyclohexane, ethylene glycol, butyl Cellosolve, xylene, toluene, MEK, perchloroethylene, ethyl acetate; sol. cloudy in Stod., VM&P naphtha, kerosene, ethanol, IPA; m.w. 2250; m.p. 86 C; HLB 16; hyd. no. 22; flash pt. 218 C; surf. tens. 52 dynes/cm (0.01% aq.); Ross-Miles foam 28 mm (initial, 50 C, 0.1%); nonionic

**Unithox® 520** [Baker Petrolite]

*Chem. Descrip.:* C30-50 pareth-3

*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; also for coatings, metalworking fluids, pulp/paper processing, textiles; mold releases for plastics

*Properties:* M.w. 700; m.p. 99 C; HLB 4; hyd. no. 67; flash pt. 232 C; Ross-Miles foam 15 mm (initial, 50 C, 0.1%); nonionic

**Unithox® 550** [Baker Petrolite]

*Chem. Descrip.:* C30-50 pareth-10

*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; also for coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics

*Properties:* M.w. 1100; m.p. 99 C; HLB 10; hyd. no. 41; flash pt. 232 C; surf. tens. 47 dynes/cm (0.01% aq.); Ross-Miles foam 26 mm (initial, 50 C, 0.1%); nonionic

**Unithox® 720** [Baker Petrolite]

*Chem. Descrip.:* C40-60 pareth-3

*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; also for coatings, metalworking fluids, pulp/paper processing, textiles; mold releases for plastics

*Properties:* M.w. 875; m.p. 106 C; HLB 4; hyd. no. 52; flash pt. 232 C; Ross-Miles foam 15 mm (initial, 50 C, 0.1%); nonionic

**Unithox® 750** [Baker Petrolite]

*Chem. Descrip.:* C40-60 pareth-10

*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; also for coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics

*Properties:* M.w. 1400; m.p. 106 C; HLB 10; hyd. no. 33; flash pt. 232 C; surf. tens. 53 dynes/cm (0.01% aq.); Ross-Miles foam 22 mm (initial, 50 C, 0.1%); nonionic

**Upaco® 2956** [Worthen Ind.]

*Chem. Descrip.:* Aliphatic polyester PU/acrylic resin in NMP

*Uses:* Adhesive polymer for wood floor coatings, fabric coatings, ink/paint vehicles, polyolefin adhesives, tiecoats/primers for low energy substrates, vinyl topcoating, and paper coatings; low VOC; water/chem. resist.; non-yellowing; tough, durable

*Properties:* Mild, pleasant odor; sol. in NMP; dens. 8.92 lb/gal; tens. str. 5800 psi; elong. 425%; pH 7.5-8.0; VOC 3%; 50% solids

**Upaco® 5430** [Worthen Ind.]

*Chem. Descrip.:* Aromatic polyether PU resin in water

*Uses:* Film, paper, and foil adhesive

*Properties:* Dens. 8.7 lb/gal; tens. str. 3000 psi (dried 7 days @ 49 C); elong. 500% (dried 7 days @ 49 C); pH 7.0-8.0; VOC zero; 38-42% solids

**USG® Paper Filler #1** [U.S. Gypsum]

*Chem. Descrip.:* Calcium sulfate anhyd.

CAS 7778-18-9; EINECS/ELINCS 231-900-3

*Uses:* Filler for addition to furnish of fine paper as a replacement for TiO<sub>2</sub>, bleached clay, and precipitated and fine ground CaCO<sub>3</sub> for providing good paper brightness; lower abrasiveness causes less wear on paper machine; most effective in paper mills with closed-in water systems that produce neutral to alkaline paper

*Properties:* Extremely wh. powd.; 97.5% th54ru 325 mesh; 7 μ avg. particle size; sp.gr. 2.96; oil absorp. 26 cc/100 g; brightness (GE) 95; ref. index 1.58; pH 10.4 (10% slurry)

**Utec® 3040** [Polialden Petroquimica SA]

*Chem. Descrip.:* UHMW polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* High performance resin for use in engineering applics. such as coal industry and mining (linings, mixers, scrappers, bearing brushes, pipes),

chem. industry (pipes, pumps, valves, etc.); food and beverage industry (packing line guides, filling nozzles, pumps), pulp/paper (covers for suction boxes, rules), textiles (bumpers, guides, roll bearings), battery separators, sports, surgical goods, orthopedics; impact, chem., and abrasion resist.; self-lubricating

*Properties:* Nat. color; 120-220 μm av. particle size; sp.gr. > 0.93; bulk dens. > 0.4 g/cm<sup>3</sup>; water absorp. 0.01%; m.p. 133 C; tens. str. 25 MPa @ yield, 35 MPa @ break; ultimate elong. > 300%; impact str. (Charpy) > 170 kJ/m<sup>2</sup>; hardness (Shore D) 63; soften pt. (Vicat) 128 C; distort. temp. 79 C @ 0.45 MN/m<sup>2</sup>; sp. heat 0.48 cal/g C; dielec. str. 900 kV/cm; dielec. constant 2.3 (10<sup>6</sup> cps); vol. resist. > 10<sup>16</sup> ohm-cm

**Utec® 6540** [Polialden Petroquimica SA]

*Chem. Descrip.:* UHMW polyethylene

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* High performance resin for use in engineering applics. such as coal industry and mining (linings, mixers, scrappers, bearing brushes, pipes), chem. industry (pipes, pumps, valves, etc.); food and beverage industry (packing line guides, filling nozzles, pumps), pulp/paper (covers for suction boxes, rules), textiles (bumpers, guides, roll bearings), battery separators, sports, surgical goods, orthopedics; impact, chem., and abrasion resist.; self-lubricating

*Properties:* Nat. color; 120-220 μm av. particle size; sp.gr. > 0.93; bulk dens. ≥ 0.4 g/cm<sup>3</sup>; visc. m.w. > 6.0 x 10<sup>6</sup> g/mol; water absorp. 0.01%; m.p. 133 C; tens. str. 25 MPa @ yield, 35 MPa @ break; ultimate elong. ≥ 300%; impact str. (Charpy) > 80 kJ/m<sup>2</sup>; hardness (Shore D) 63; soften pt. (Vicat) 128 C; distort. temp. 79 C @ 0.45 MN/m<sup>2</sup>; sp. heat 0.48 cal/g C; dielec. str. 900 kV/cm; dielec. constant 2.3 (10<sup>6</sup> cps); vol. resist. > 10<sup>16</sup> ohm-cm

# V

## Valtac 56 [Air Prods./Polymers]

*Chem. Descrip.:* Water-based acrylic emulsion

*Uses:* Pressure-sensitive adhesive for mastic and tile adhesives, protective films and paper; tolerates high loadings with fillers and tackified resins; may be used to improve shear and thermal resist. of pressure sensitive adhesives

*Properties:* Visc. 100 cps (77 F); pH 4.5; 50 ± 1% solids

## Valtac F-66 [Air Prods./Polymers]

*Chem. Descrip.:* Water-based acrylic emulsion

*Uses:* Pressure-sensitive adhesive for freezer grade paper labels or low temp. tapes; nondiscoloring; esp. useful for clear labels or over-laminating films

*Properties:* Visc. 300 cps (77 F); pH 4.0 ± 1.0; 55 ± 1% solids

## Vancide® 51 [R.T. Vanderbilt]

*Chem. Descrip.:* Sodium dimethyldithiocarbamate (27.6%) and sodium 2-mercaptobenzothiazole (2.4%) in water

*Uses:* Fungicide for use as a preservative in latex and starch paste, adhesives; bactericide for sol. cutting fluids and coolants; paper mill slimicide; fungicide in petrol. storage tanks, recirculating cooling towers, paper and paperboard, cotton fabric; no ozone-depleting substances

*Regulatory:* EPA reg. no. 1965-8

*Properties:* Pale yel.-grn. liq.; sol. in water, acetone, alcohol; sp.gr. 1.15 ± 0.02; dens. 9.6 lb/gal; VOC 0%; nonflamm.; 30% in water

*Toxicology:* LD50 (oral, rat) 3929 mg/kg, (dermal, rabbit) > 2000 mg/kg; LC50 (inh., rat) > 2.05 mg/l; mild eye irritant; sl. skin irritant; not a skin sensitizer; may be harmful if swallowed or inhaled; may irritant nose and throat; TSCA listed

*Environmental:* Toxic to fish; do not discharge effluent into lakes, streams, ponds, sewer systems, etc.

*Storage:* Store in cool, dry place; prevent from freezing

## Vancide® MZ-96 [R.T. Vanderbilt]

*Chem. Descrip.:* Zinc dimethyldithiocarbamate

CAS 137-30-4; EINECS/ELINCS 205-288-3

*Uses:* Antimicrobial, preservative for starch and syn. latex adhesives, food pkg. adhesives; mold inhibitor for unmodified latex paints; fungicide in neoprene compositions; no ozone-depleting substances

*Regulatory:* EPA reg. no. 1965-79; FIFRA registered

*Properties:* Wh. powd.; mod. sol. in dilute caustic, toluene, carbon disulfide, chloroform; water-disp.; m.w. 305.82; dens. 1.71 ± 0.03 mg/m<sup>3</sup>; m.p. 252-260 C; 96% assay

*Toxicology:* LD50 (oral, rat) 320 mg/kg, (dermal, rabbit) > 2000 mg/kg; corrosive; causes eye and skin damage; harmful or fatal if swallowed; may be fatal if inhaled; TSCA listed

*Environmental:* Toxic to fish; do not apply directly to water

*Storage:* May be stored indefinitely at R.T. in closed containers; store in cool, dry place

## Vancide® MZ-96 Disp. [R.T. Vanderbilt]

*Chem. Descrip.:* Zinc dimethyldithiocarbamate (50%), inert ingreds. (50%)

CAS 137-30-4; EINECS/ELINCS 205-288-3

*Uses:* Mold inhibitor in latex paints, paperboard, soap wraps; does not discolor during exposure in sulfide atm.; no ozone-depleting substances

*Use Level:* 2-6% (exterior latex paints)

*Regulatory:* EPA reg. no. 1965-87

*Properties:* Wh. aq. disp.; misc. with water; m.w. 305.8; sp.gr. 1.28; dens. 10.66 lb/gal; m.p. 240-246 C

*Toxicology:* LD50 (oral, rat) > 1500 mg/kg, (skin, rabbit) > 2000 mg/kg; LC50 (inh., rat) 0.030 mg/l; corrosive; fatal if inhaled; causes irreversible eye damage; harmful if swallowed or absorbed thru skin; not a skin sensitizer

*Environmental:* Toxic to fish; do not apply directly to water

*Precaution:* Not for use in formulations contng. metallic drier; water run-off from copper flashing may discolor light-shaded paint; keep away from sparks and fire

*Storage:* Unlimited storage tightly closed @ R.T.; keep from freezing; may thicken and settle on standing, stir until disp. reverts to water-thin liq.

## Vancryl® 600 [Air Prods./Polymers]

*Chem. Descrip.:* Ethylene vinyl chloride emulsion

*Uses:* Water-based graphic arts polymer for high gloss coatings; food-contact paper/paperboard; alkali and corrosion resist.; low MVTR

*Regulatory:* FDA 21CFR § 176.170, 176.180

*Properties:* Emulsion; dens. 9.3 lb/gal; visc. 100 cps; surf. tens. 39 dynes/cm; acid no. < 10; pH 8.0; VOC < 0.5%; 50% NV

## Vancryl® 605 [Air Prods./Polymers]

*Chem. Descrip.:* Ethylene vinyl chloride emulsion

*Uses:* Water-based graphic arts polymer for high gloss coatings; food-contact paper/paperboard; alkali and corrosion resist.; low MVTR

*Regulatory:* FDA 21CFR § 176.170, 176.180

*Properties:* Emulsion; dens. 9.3 lb/gal; visc. 100 cps; surf. tens. 39 dynes/cm; acid no. < 10; pH 8.0; VOC < 0.5%; 50% NV

## Vancryl® 610 [Air Prods./Polymers]

*Chem. Descrip.:* Ethylene vinyl chloride emulsion

*Uses:* Water-based graphic arts polymer for high gloss coatings; food-contact paper/paperboard; alkali and corrosion resist.; low MVTR

*Regulatory:* FDA 21CFR § 176.170, 176.180

*Properties:* Emulsion; dens. 9.4 lb/gal; visc. 100 cps; surf. tens. 39 dynes/cm; acid no. < 10; pH 8.0; VOC < 0.5%; 50% NV

## Vancryl® 650 [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate aq. emulsion

CAS 9003-20-7

*Uses:* Graphic arts polymer for press-applied paper coatings; high gloss; high scrub; good high shear rheology

*Properties:* Emulsion; dens. 8.8 lb/gal; visc. 425 cps; pH 5.5; VOC < 0.5%; 55% NV

## Vandrox® 184 [R.T. Vanderbilt]

*Chem. Descrip.:* Crosslinked carboxymethyl corn starch

*Uses:* Visc. builder, rheology modifier, water retention aid for paper coatings; carboxymethyl cellulose replacement

*Properties:* Flake or powd.

## Vandrox® 185F [R.T. Vanderbilt]

*Chem. Descrip.:* Highly crosslinked sodium carboxymethyl corn starch

*Uses:* Visc. builder, water retention aid for paper coatings; calender coating to control curl in recycled paperboard; CMC replacement

*Properties:* Cream flake; sol. in water; visc. 1900-2900 cps (5% gel); pH 10.9-11.3 (5% gel); 5-10% moisture

## Vandrox® 186 [R.T. Vanderbilt]

*Chem. Descrip.:* Crosslinked carboxymethyl potato starch ether

*Uses:* Visc. builder, water retention aid for paper coatings; pigment grinding aid, dispersant for hard-to-disperse materials such as pearlescent mica

*Properties:* Flake

## Van Gel® B [R.T. Vanderbilt]

*Chem. Descrip.:* Colloidal magnesium aluminum silicate (smectite)

*Chem. Analysis:* Moisture (< 8%)

CAS 12199-37-0; EINECS/ELINCS 235-374-6

*Uses:* Suspending agent, thickener and emulsion/visc. stabilizer for aq. systems, industrial, household/institutional, and agric. uses requiring good color (auto polish, hard surf. cleaners, oven/grill cleaners, aq. paint strippers); thixotrope, flow aid, leveling agent for coatings; with associative thickeners, does not lower gloss of semigloss latex paints; filler in rubber compding.; suspending agent, visc. modifier for paper coatings; promotes uniform consistency, good flow and brushing chars., dripless applic. and leveling without sag; no ODP

*Use Level:* 0.15-.30 phr

*Properties:* Off-wh. small flakes, odorless; dens.  $2.60 \pm 0.03$  mg/m<sup>3</sup>; visc. 300-900 cps (4% aq. disp.); pH 8.5-9.5 (4% aq. disp.)

*Toxicology:* TSCA listed

#### Vantac® 6H [R.T. Vanderbilt]

*Chem. Descrip.:* Talc (hydrous magnesium silicate)

*Chem. Analysis:* SiO<sub>2</sub> (61.8%), MgO (31.3%), Fe<sub>2</sub>O<sub>3</sub> (1.3%)

CAS 14807-96-6; EINECS/ELINCS 238-877-9

*Uses:* Reinforcing filler/extender/pigment for rubber applics.; pigment, gloss control agent for coatings; TiO<sub>2</sub> extender, opacity and brightness aid at wet end in papermaking, coated paper base sheets, uncoated bond papers; food-contact coatings, closures with sealing gaskets for food containers; high purity, hydrophobicity, brightness and oil absorp.; mixes quickly into elastomers, gives low moisture pickup in vulcanizates; useful in industrial coatings where film smoothness and pigment suspension are important; no ozone-depleting substances

*Regulatory:* FDA 21CFR §175.300, 177.1210, 182.90

*Properties:* Wh. powd.; 2.0 µm median particle size; 99.9% < 325 mesh; dens. 2.7 mg/m<sup>3</sup>; bulk dens. 14 lb/ft<sup>3</sup> (compacted); oil absorp. 52; brightness 87; pH 9.6 (10% aq. slurry)

*Toxicology:* TSCA listed

#### Vanzak® 112 [R.T. Vanderbilt]

*Chem. Descrip.:* Surfactant blend

*Uses:* Pitch control agent to keep pitch from agglomerating and depositing on surfs. in the pulp mill

*Use Level:* 0.1-1.0 lb/ton pulp

*Properties:* APHA 75 max. clear liq.; dens. 0.993 mg/m<sup>3</sup>; cloud pt. 35-40 C (1% aq.); pH 5.5-7.5 (1%); 0.5% max. water; nonionic

*Environmental:* Fully biodeg.

#### Vanzak® 165 [R.T. Vanderbilt]

*Chem. Descrip.:* Surfactant blend

*Uses:* Pitch control agent to keep pitch from agglomerating and depositing on surfs. in the pulp mill

*Use Level:* 0.1-1.0 lb/ton pulp

*Properties:* Nonionic

#### Vanzyme® 191 [R.T. Vanderbilt]

*Chem. Descrip.:* Alpha amylase

CAS 9000-90-2; EINECS/ELINCS 232-565-6

*Uses:* Starch-converting enzyme for papermaking, wastewater treatment; 70,000 Liquifons/g activity; effective in continuous conversion systems; can improve turbidity by speeding up pigment settling

*Properties:* Liq.

*Storage:* Good shelf stability

#### Vanzyme® Powd. [R.T. Vanderbilt]

*Chem. Descrip.:* Alpha amylase

CAS 9000-90-2; EINECS/ELINCS 232-565-6

*Uses:* Starch-converting enzyme for papermaking; useful in batch conversion of size press or coating starch; liquefies starch by hydrolyzing random α-D (1-4) glucosidic bonds

*Properties:* Lt. tan powd.; pH 5.5 (1%)

*Storage:* 6-12 mos storage life @ 5 C, 3 mos @ 25 C

#### Varicid BCD [Schilling-Chemie]

*Chem. Descrip.:* Contains organically bound bromine

*Uses:* Disinfectant used to prevent the development of algae, fungi, slime, and legionella in industrial water systems and decorative fountains for paper, sugar, and food industries; highly effective; requires very low dosing; removes microbiological deposits quickly and safely; effective in pH range of 6.0-9.5; nonfoaming

*Use Level:* 1-5 mg/l of system water (shot dosage), 1-4 mg/l (permanent dosage)

*Regulatory:* US Dept. of Health approved; complies with German water laws

*Properties:* Wh. solid tablet; sol. 0.17% in water (20 C); sp.gr.  $0.96 \pm 0.01$

g/cm<sup>3</sup> (20 C); pH  $6.5 \pm 0.5$  (0.1%)

*Toxicology:* LD50 5000 mg/kg; suitable for use in paper, sugar, and food industry

#### Varonic® K-210 [Goldschmidt]

*Chem. Descrip.:* PEG-10 cocamine

CAS 61791-14-8

*Uses:* Dye leveling agent, dispersant in hair dyes, paper industry; coemulsifier and stabilizer for cosmetic emulsions; neutralizer; plasticizer; antistat for acidic systems; wetting agent, spreading agent, and emulsifier in insecticides and herbicides; tanning of leather and furs; wetting agent, redeposition aid in fur treating

*Properties:* Gardner 7 liq.; sol. in water, IPA, benzene, CCl<sub>4</sub>; sp.gr. 0.995; HLB 13.8; 99% solids; nonionic

#### Vazo® 56 WSP [DuPont]

*Chem. Descrip.:* Azo

*Uses:* Initiator for superabsorbent polymers (diapers, incontinence pads, feminine hygiene pads), pulp/paper (filler retention aids, flocculants, coagulants, dry str. additives, drainage aids, paper coatings, binders), water treatment (flocculants, coagulants), textiles (warp sizes), adhesives, pharmaceuticals (binders, thickeners, controlled-release tablets), personal care (hair fixatives), aq. printing inks, detergents (cobuilders with zeolites)

*Properties:* Wh. dry powd.; sol. in water

#### Vazo® 56 WSW [DuPont]

*Chem. Descrip.:* Azo initiator contg. polyethylene glycol to minimize dusting

*Uses:* Initiator for superabsorbent polymers (diapers, incontinence pads, feminine hygiene pads), pulp/paper (filler retention aids, flocculants, coagulants, dry str. additives, drainage aids, paper coatings, binders), water treatment (flocculants, coagulants), textiles (warp sizes), adhesives, pharmaceuticals (binders, thickeners, controlled-release tablets), personal care (hair fixatives), aq. printing inks, detergents (cobuilders with zeolites)

*Properties:* Wh. wet powd.; sol. in water

#### Vazo® 68 WSP [DuPont]

*Chem. Descrip.:* Azo

*Uses:* Initiator for superabsorbent polymers (diapers, incontinence pads, feminine hygiene pads), pulp/paper (filler retention aids, flocculants, coagulants, dry str. additives, drainage aids, paper coatings, binders), water treatment (flocculants, coagulants), textiles (warp sizes), adhesives, pharmaceuticals (binders, thickeners, controlled-release tablets), personal care (hair fixatives), aq. printing inks, detergents (cobuilders with zeolites)

*Properties:* Wh. dry powd.; sol. in water

#### V-Cap™/RC [ISP]

*Chem. Descrip.:* N-Vinyl-2-caprolactam

CAS 2235-00-9; EINECS/ELINCS 218-787-6

*Uses:* Reactive diluent for free radical radiation-curable coatings, inks, and adhesives for flooring, paper, wood, particle board, plastics, textiles, and vinyl

*Properties:* Cryst. solid; m.w. 139; sp.gr. 1.01 (40 C); visc. 3.51 (40 C); vapor pressure < 0.1 mm (20 C); f.p. 34 C; m.p. 35 C; b.p. 116 C (@ 10 mm); readily supercools: 98% assay

*Toxicology:* LD50 (oral, rat) 830-1114 mg/kg, (skin, rabbit) 1.7 g/kg; mod. eye irritant; min. skin irritant

*Storage:* Store @ R.T.; yellowing will result with prolonged storage @ elevated temps.

#### Veegum® T [R.T. Vanderbilt]

*Chem. Descrip.:* Magnesium aluminum silicate, tech. grade

CAS 12199-37-0; EINECS/ELINCS 235-374-6

*Uses:* Thickener, visc. modifier, emulsion stabilizer for industrial use; pigment dispersant; antisetling agent; bodying agent; thixotrope which produces latex paints with dripless applic. and leveling, sag resist.; suspending agent and visc. modifier for paper coatings; inorg.; not subject to attack by microorganisms; no ozone-depleting substances

*Properties:* Near wh. flakes, odorless, tasteless; insol. in water or alcohol; swells to many times original vol. in water to form colloidal disp.; dens. 2.8 mg/m<sup>3</sup>; visc. 250-800 cps (4% disp.); pH 9.5 (5% aq.); < 8% moisture

#### Vernoa™ Basic Black S Liq. [Bayer/Industrial Chems.]

*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers

*Properties:* Liq.

#### Verona™ Basic Blue GE Liq. [Bayer/Industrial Chems.]

*Uses:* Very brilliant blue basic dyestuff for papers (sized, acid, publication/directory/newsprint), and for tinting wh. papers; poor lightfastness; partially bleachable in hypochlorite; good affinity for clay fillers

- Properties:* Liq.; misc. in acidified water; dens. 8.9 lb/gal; visc. < 200 cps; pH 1.5
- Vernoa™ Basic Blue GS Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Verona™ Basic Blue R Liq.** [Bayer/Industrial Chems.]  
*Uses:* Very brilliant blue basic dyestuff for papers (sized, acid, publication/directory/newsprint) and for tinting wh. papers; poor lightfastness; partially bleachable in hypochlorite; very good affinity for clay fillers  
*Properties:* Liq.; misc. in acidified water; dens. 9.4 lb/gal; visc. < 400 cps; pH 2.0
- Vernoa™ Basic Blue RFK Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Vernoa™ Basic Brown Y Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Verona™ Basic Green M Liq.** [Bayer/Industrial Chems.]  
*Uses:* Very brilliant green basic dyestuff for papers (sized, acid, publication/directory/newsprint/decorative), suitable for coloration of all lignin pulps; poor lightfastness; partially bleachable in hypochlorite; very good affinity for clay fillers  
*Properties:* Liq.; misc. in acidified water; dens. 9.7 lb/gal; visc. < 300 cps; pH 1.0
- Verona™ Basic Green M Powd.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Powd.
- Verona™ Basic Orange G Liq.** [Bayer/Industrial Chems.]  
*Uses:* Extremely brilliant orange basic dyestuff for papers (sized, acid); poor lightfastness; pract. bleachable in hypochlorite; good affinity for clay fillers  
*Properties:* Liq.; misc. in acidified water; dens. 9.4 lb/gal; visc. < 100 cps; pH 3.0
- Vernoa™ Basic Red 4B Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Vernoa™ Basic Red 4G Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Verona™ Basic Red P Liq.** [Bayer/Industrial Chems.]  
*Uses:* Very brilliant blue-shade red basic dyestuff for papers (sized, acid, publication/directory/newsprint) and for tinting wh. papers; fair lightfastness; bleachable in hypochlorite; good affinity for clay fillers  
*Properties:* Liq.; misc. in acidified water; dens. 9.1 lb/gal; visc. < 150 cps; pH 3.0
- Vernoa™ Basic Violet 2B Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Verona™ Basic Violet M Liq.** [Bayer/Industrial Chems.]  
*Uses:* Very brilliant blue basic dyestuff for papers (sized, acid, publication/directory/newsprint) and for tinting wh. papers; poor lightfastness; partially bleachable in hypochlorite; very good affinity for clay fillers  
*Properties:* Liq.; misc. in acidified water; dens. 9.3 lb/gal; visc. < 200 cps; pH 1.5
- Verona™ Basic Yellow 4GN Liq. 125** [Bayer/Industrial Chems.]  
*Uses:* Brilliant grnsh.-shade yel. basic dyestuff for papers (lignin pulp grades: newsprint, directory, publication); economical; poor lightfastness; partially bleachable in sodium hydrosulfite; good/exc. affinity for kaolin clay and CaCO<sub>3</sub> fillers  
*Properties:* Liq.; misc. in water (may require acidification); sp.gr. 1.1; visc. < 100 cps; pH 2.0-2.5
- Vernoa™ Basic Yellow 7GLL Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Vernoa™ Basic Yellow 10G Liq.** [Bayer/Industrial Chems.]  
*Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Uses:* Colorant for dyeing ligneous pulps, wood-contg. printing papers and newsprint papers  
*Properties:* Liq.
- Versene 100** [Dow; Dow Europe]  
*Chem. Descrip.:* Tetrasodium EDTA  
CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; for control of common heavy metal ions to pH 12, iron to pH 8, water hardness ions above pH 6  
*Properties:* Lt. straw-colored liq.; m.w. 1.290-1.325; dens. 10.9 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 102; 39% act.
- Versene 100 EP** [Dow Europe]  
*Chem. Descrip.:* Tetrasodium EDTA  
CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, foods, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; high purity version of Versene 100  
*Properties:* Liq.
- Versene 100 LS** [Dow]  
*Chem. Descrip.:* Tetrasodium EDTA  
CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, foods, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; low solids grade used in aerosols  
*Properties:* Liq.
- Versene 100 SRG** [Dow]  
*Chem. Descrip.:* Tetrasodium EDTA  
CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, foods; polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; syn. tire rubber grade; pH adjusted  
*Properties:* Liq.
- Versene 100 XL** [Dow]  
*Chem. Descrip.:* Tetrasodium EDTA  
CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, foods, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; low NTA version of Versene 100  
*Properties:* Clear liq.; m.w. 380; sp.gr. 1.255-1.290; bulk dens. 10.5 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 100; 38% min. act.
- Versene 220** [Dow]  
*Chem. Descrip.:* Tetrasodium EDTA tetrahydrate  
CAS 64-02-8; EINECS/ELINCS 200-573-9  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; high purity, crystal form of Versene 100  
*Properties:* Wh. cryst.; m.w. 452; dens. 45 lb/ft<sup>3</sup>; pH 10.5-11.5 (1% aq.); chel. value 219; 99% act.
- Versene Acid** [Dow]  
*Chem. Descrip.:* EDTA  
CAS 60-00-4; EINECS/ELINCS 200-449-4  
*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; intermediate for prep. of other salt forms of EDTA  
*Properties:* Wh. powd.; m.w. 292; dens. 54 lb/ft<sup>3</sup>; pH 2.5-3.0 (sat. aq. sol'n.); chel. value 339; 99% act.
- Versene CA** [Dow]

*Chem. Descrip.:* Calcium-disodium EDTA  
CAS 62-33-9; EINECS/ELINCS 200-529-9

*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, foods, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; high purity direct food additive preventing metal catalyzed oxidative breakdown; also for medical and pharmaceutical preps.

*Regulatory:* FCC, USP, and kosher compliance

*Properties:* Wh. powd.; m.w. 410; dens. 40 lb/ft<sup>3</sup>; pH 6.5-7.5 (1%); 97-102% act.

#### Versene Diammonium EDTA [Dow]

*Chem. Descrip.:* Diammonium EDTA  
CAS 20824-56-0; EINECS/ELINCS 244-063-4

*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; used when very sol. chelates are required or where sodium ions are undesirable

*Properties:* Lt. straw-colored liq.; m.w. 326; sp.gr. 1.19-1.22; dens. 10.0 lb/gal; pH 4.6-5.2; chel. value 137; 44.6% act.

#### Versene NA [Dow]

*Chem. Descrip.:* Disodium EDTA dihydrate USP, FCC  
CAS 6381-92-6; EINECS/ELINCS 205-358-3

*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, foods, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; high purity direct food additive preventing metal catalyzed oxidative breakdown; also for medical and pharmaceutical preps.

*Regulatory:* FCC, USP, and Kosher compliance

*Properties:* Wh. cryst.; m.w. 372; dens. 67 lb/ft<sup>3</sup>; pH 4.3-4.7 (1%); chel. value 267; 99% act.

#### Versene Tetraammonium EDTA [Dow]

*Chem. Descrip.:* Tetraammonium EDTA

*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; used when very sol. chelates are required or where sodium ions are undesirable; for chelation of iron to pH 9.5

*Properties:* Lt. straw-colored liq.; m.w. 360; sp.gr. 1.16-1.19; dens. 9.7 lb/gal; pH 9.0-9.5; chel. value 130; 46.8% act.

#### Versenex 80 [Dow]

*Chem. Descrip.:* Pentasodium DTPA  
CAS 140-01-2; EINECS/ELINCS 205-391-3

*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; used when oxidative conditions exist or when chelates of greater stability are required

*Properties:* Lt. straw-colored liq.; m.w. 503; sp.gr. 1.28-1.32; dens. 10.8 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 80; 40.2% act.

#### Versenol 120 [Dow]

*Chem. Descrip.:* Trisodium HEDTA  
CAS 139-89-9; EINECS/ELINCS 205-381-9

*Uses:* Chelating agent controlling trace metal ions to improve lathering and stability of personal care prods., pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copperplating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning and protection; for iron control to pH 10.5

*Properties:* Lt. straw-colored liq.; m.w. 344; sp.gr. 1.26-1.31; dens. 10.7 lb/gal; pH 11.0-11.8 (1% aq.); chel. value 120; 41.3% act.

#### Vestolen® A5016 [DSM Polyethylenes]

*Chem. Descrip.:* HDPE  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Used for coating photographic paper (offers good rheological properties, adheres well to substrate, and meets requirements of max. purity); narrow m.w. distribution; used for the prod. of lay-flat film about 15 µm thick for print-carrying substrates

*Properties:* Melt. flow 7 g/10 min; m.w. 52,000; dens. 0.950 g/cc; visc. (No. J) 145; m.p. 128-132 C; Vicat/A soften. pt. 124 C; tens. str. 25 MPa (yield); tens. elong. 600% (break); Izod impact 60 J/m notch; Ball indent. hardness 44 MPa; distort. temp. 44 C; dielec. str. 80 kV/mm; vol. resist. > 10<sup>10</sup> ohm-cm.

#### Vestowax® AO 1535 [Creanova]

*Chem. Descrip.:* Oxidized polyethylene wax  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Lubricant for PVC, PS; melting agent, water repellent, thixotrope, and antisetling agent for paints; textile and paper auxiliary; citrus fruit coating; corrosion inhibitor; dry-bright emulsion polish/preservative agent

*Properties:* Wh. pellets/powd.; sp.gr. 0.96 (23 C); visc. < 130 mPa·s (120 C); acid no. 16-19; sapon. no. 30-40; penetration no. 1-3; Mettler drop pt. 106-114 C max.

#### Vestowax® AO 1539 [Creanova]

*Chem. Descrip.:* Oxidized polyethylene wax  
CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Uses:* Lubricant for PVC, PS; melting agent, water repellent for paints; processing aid for polyester; textile and paper auxiliary; abrasion-resist. printing ink emulsions; dry-bright/mixed saponified emulsion polish/preservative agent

*Properties:* Wh. pellets/powd.; sp.gr. 0.96 (23 C); visc. < 130 mPa·s (120 C); acid no. 20-25; sapon. no. 38-45; penetration no. 2-3; Mettler drop pt. 106-110 C max.

#### Vestowax® AO 2733 [Creanova]

*Chem. Descrip.:* Polyethylene wax  
CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Uses:* Lubricant for PVC, PS; melting agent, water repellent, thixotrope, and antisetling agent for paints; textile and paper auxiliary; citrus fruit coating; corrosion inhibitor

*Properties:* Nearly wh. pellets/powd.; sp.gr. 0.94 (23 C); visc. 280-4800 mPa·s; acid no. 16-19; sapon. no. 28-38; penetration no. 2-4; Mettler drop pt. 98-104 C max.

#### Vestowax® C 60 [Creanova]

*Chem. Descrip.:* Fischer-Tropsch wax, oxidate  
CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Lubricant for PVC, PS; mold release agent for plastics; dispersant for colorants in hot melts and wax compds.; textile and paper auxiliary; polish and preservative agent

*Properties:* Wh. pellets/powd.; sp.gr. 0.96 (23 C); visc. < 20 mPa·s (120 C); acid no. 29-34; sapon. no. 50-62; penetration no. 4-6; Mettler drop pt. 98-102 C

#### Vinac® 285 [Air Prods./Polymers]

*Chem. Descrip.:* Polyvinyl acetate homopolymer emulsion  
CAS 9003-20-7

*Uses:* Adhesive base for bag seam, paper, cup, spiral tube winding, and food pkg. adhesives; low-foaming, borax-stable; surfactant protection; for fast-setting, heat-resist. adhesives with superior water resist.

*Properties:* Visc. 50-300 cps; pH 5.0-6.5; 50% min. solids

#### Vinac® 828 [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate latex  
CAS 9003-20-7

*Uses:* Used for paper, paperboard, size press, and wallpaper; combination of wet and dry pick resist. for offset printed grades; good high shear rheology; low grit

*Properties:* 0.15 nm particle size; dens. 9.0 lb/gal; visc. 175 cps (LVF, 60 rpm, #2 spindle); pH 5.8; 50% solids; anionic

#### Vinac® 828M [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate  
CAS 9003-20-7

*Uses:* Coating binder for paper, paperboard, and size press, esp. high-solids blade coating applics., double blade coated SBS paperboard, and coated linerboard; exc. rheological chrs. and balance of wet and dry pick str.; outstanding water/ink receptivity; extremely low grit

*Properties:* 0.22 nm particle size; dens. 9.0 lb/gal; visc. 33 cps (LVF, 60 rpm, #2 spindle); pH 6.3; 47% solids; sl. anionic

#### Vinac® 884 [Air Prods./Polymers]

*Chem. Descrip.:* Vinyl acetate latex  
CAS 9003-20-7

*Uses:* Coating binder for paper/paperboard, size press, wallpaper applics., esp. mod. gloss level publication grades and matte and dull grades; outstanding wet and dry pick resist.; exc. blister resist. for web offset grades



- Properties:* 0.19 µm particle size; visc. 175 cps (60 rpm, #2 spindle); pH 5.8; 50% solids; sl. anionic
- Vinac® 1000** [Air Prods./Polymers]  
*Chem. Descrip.:* Polyvinyl acetate homopolymer emulsion  
 CAS 9003-20-7  
*Uses:* Adhesive base for wood and kraft paper; crosslinking; PVAL protection; once catalyzed, the emulsion meets ASTM D3110 Type II requirements and compoundable to comply with Type I specs  
*Properties:* Visc. 5500-6500 cps; pH 4.5-5.5; 52% min. solids
- Vinac® A50** [Air Prods. Polymers Europe]  
*Chem. Descrip.:* VA homopolymer disp.  
 CAS 9003-20-7  
*Uses:* Binder for fabrics, glass fibers; textile auxiliary and coating; paper coatings  
*Properties:* Disp.; 0.15 µm particle size; visc. 85 ± 30 mPa·s; pH 5; tens. str. 12 N/mm<sup>2</sup>; tens. elong. 100% (break); 50 ± 1% solids
- Vinac® H 60** [Air Prods. Polymers Europe]  
*Chem. Descrip.:* VA homopolymer disp.  
 CAS 9003-20-7  
*Uses:* Binder for fabrics, glass fibers; adhesive for wood, plastic, paper, pkg.; textile auxiliary and coating  
*Properties:* Disp.; 1-3 µm particle size; visc. 40,000 ± 10,000 mPa·s; pH 4; tens. str. 15 N/mm<sup>2</sup>; 60 ± 1% solids
- Vinac® M 503** [Air Prods. Polymers Europe]  
*Chem. Descrip.:* VA homopolymer disp.  
 CAS 9003-20-7  
*Uses:* Binder for fabrics, glass fibers; adhesive for paper, pkg.; textile auxiliary and coating  
*Properties:* Disp.; 0.5-2 µm particle size; visc. 1000 ± 300 mPa·s; pH 4; tens. str. 24 N/mm<sup>2</sup>; 50 ± 1% solids
- Vinac® XX-211** [Air Prods./Polymers]  
*Chem. Descrip.:* Polyvinyl acetate homopolymer  
 CAS 9003-20-7  
*Uses:* Water-based emulsion for adhesives; for use in sensitive applics. such as microwavable food pkg. and medical and personal health care; food pkg. adhesives, coatings, paper; mechanically and chemically stable; outstanding freeze-thaw stability; fast setting speeds; will accept sol'n. of partially hydrolyzed PVAL, but will separate at low-finished adhesive visc. upon addition of sol'n. of fully hydrolyzed PVAL  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 181.30  
*Properties:* Wh. emulsion; sl. odor; 0.2-2 µ particle size; dens. 8.9 lb/gal; visc. 1000-1400 cps; pH 4.5-6; 55% solids
- Vinac® XX-241** [Air Prods./Polymers]  
*Chem. Descrip.:* Polyvinyl acetate homopolymer  
 CAS 9003-20-7  
*Uses:* Water-based emulsion for adhesives; for use in sensitive applics. such as microwavable food pkg. and medical and personal health care; food pkg. adhesives, coatings, paper; mechanically and chemically stable; outstanding freeze-thaw stability; fast setting speeds; will accept sol'n. of partially hydrolyzed PVAL, but will separate at low-finished adhesive visc. upon addition of sol'n. of fully-hydrolyzed PVAL  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 181.30  
*Properties:* Wh. emulsion; sl. odor; 0.2-2 µ particle size; dens. 8.9 lb/gal; visc. 2900-3700 cps; pH 4.5-6; 55% solids
- Vinac® Z 50** [Air Prods. Polymers Europe]  
*Chem. Descrip.:* VA homopolymer disp.  
 CAS 9003-20-7  
*Uses:* Binder for fabrics, glass fibers; textile auxiliary and coating; paper coatings; sizing agent for glass fibers  
*Properties:* Disp.; 0.5-2 µm particle size; visc. 5500 ± 2000 mPa·s; pH 4; tens. str. 15 N/mm<sup>2</sup>; 50 ± 1% solids
- Vinfelt®** [Vinings Ind.]  
*Uses:* Felt/fabric cleaner/conditioner for pulp/paper industry for continuous and batch treatments
- Vinsol® Resin** [Hercules/Resins]  
*Chem. Descrip.:* Resin derived from southern pinewood  
*Uses:* In adhesives, asphalt emulsions, cement (air-entraining agents), elec. insulation, floor coverings, foundry molds, core washes, inks, paperboard and composition board, phenolic resin modification, plastics, primer and surface coatings, rubber, and shoes; for use in food-pkg. and -processing operations; used as resin, or in soap or sol'n. form; high-melting, thermoplastic resin with aliphatic hydrocarbon insol.
- Properties:* Dk. brn. solid, flake, pulverized, soap; 40% solids emulsion; 30% and 50% soap sol'ns.; 60% alcohol sol'n.; sol. in most oxygen containing solvs. such as alcohols, esters, ethers, ketones, and phenols; also sol. in most chlorinated and aromatic hydrocarbons; dens. 1.220 g/cc; soften. pt. (Hercules Drop) 124 C; flash pt. (P-M) 280 C; acid no. 96; sapon. no. 166
- Vinspel®** [Vinings Ind.]  
*Uses:* Boilout additive for removal of wide variety of org. and inorg. deposits on paper machines and in pulp mills
- Viscalex®** [Ciba Spec. Chems./Paper]  
*Uses:* Rheology modifier for paper coatings
- Vista LPA** [Condea Vista]  
*Chem. Descrip.:* Hydrotreated mixts. of mainly isoparaffins and naphthenes with very low levels of aromatics  
*Uses:* Chemical process solvent; carrier in pesticide formulations, waterless hand cleaners; solvent for dry-cleaning, household/industrial cleaners, metal rolling oils, paints, coatings, thinners, paper and mining chems., water treatment chems., food; as charcoal lighter fluids, degreasers, freeze pt. depressants, lamp oils, lubricating oils, printing ink oils; food pkg. adhesives, paper, cellophane, films, rubber, textiles; defoamer in food-contact coatings, paper/paperboard; high purity, med. flash pt.; broad boiling range  
*Regulatory:* FDA 21CFR §172.884, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1400, 177.2260, 177.2600, 177.2800, 178.3120, 178.3570, 178.3620(b), 178.3650, 178.3910(b)(2)  
*Properties:* Clear liq., mild odor; m.w. 167; sp.gr. 0.809 (60/60 F); dens. 6.75 lb/gal (60 F); visc. 2.2 cSt (70 F); vapor pressure 1 mm Hg (100 F); f.p. -90 F; pour pt. -95 F; i.b.p. 362 F; flash pt. (TCC) 148 F; KB value 32  
*Precaution:* DOT: combustible liq.
- Vista LPA-142** [Condea Vista]  
*Chem. Descrip.:* Hydrotreated mixts. of mainly isoparaffins and naphthenes with very low levels of aromatics  
*Uses:* Solvent for industrial cleaning prods., pesticides, coatings, household prods., chemical process solvs., ink oils, water treatment, paper, and mining chems., and food applics.; diluent in polymer processing; in charcoal lighter fluid; food pkg. adhesives, paper, cellophane, films, rubber, textiles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §172.884, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1400, 177.2260, 177.2600, 177.2800, 178.3120, 178.3570, 178.3620(b), 178.3650, 178.3910(b)(2)  
*Properties:* Clear liq., mild odor; m.w. 152; sp.gr. 0.809 (60/60 F); dens. 6.75 lb/gal (60 F); visc. 1.8 cSt (70 F); vapor pressure 1.1 mm Hg (100 F); f.p. < -103 F; i.b.p. 368 F; pour pt. < -30 F; flash pt. (TCC) 146 F; KB value 35  
*Precaution:* DOT: combustible liq.
- Vista LPA-170** [Condea Vista]  
*Chem. Descrip.:* Hydrotreated mixts. of mainly isoparaffins and naphthenes with very low levels of aromatics  
*Uses:* Solvent for prod. of polymer emulsions, in mining solvent extraction processes, metal lubricants, specialty coatings, pesticides, household prods., chemical process solvs., ink oils, water treatment, paper, and mining chems.; food pkg. adhesives, paper, cellophane, films, rubber, textiles; defoamer in food-contact coatings, paper/paperboard  
*Regulatory:* FDA 21CFR §172.884, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1400, 177.2260, 177.2600, 177.2800, 178.3120, 178.3570, 178.3620(b), 178.3650, 178.3910(b)(2)  
*Properties:* Clear liq., mild odor; m.w. 171; sp.gr. 0.811 (60/60 F); dens. 6.77 lb/gal (60 F); visc. 2.4 cSt (70 F); vapor pressure 0.37 mm Hg (100 F); f.p. -81 F; i.b.p. 413 F; pour pt. < -30 F; flash pt. (TCC) 178 F; KB value 32  
*Precaution:* DOT: combustible liq.
- Vista LPA-210** [Condea Vista]  
*Chem. Descrip.:* Hydrotreated mixts. of mainly isoparaffins and naphthenes with very low levels of aromatics  
*Uses:* Solvent for chem. processing, printing ink oils, metal lubricants, coatings, household prods., water treatment, paper, and mining chems.; pesticide carrier; food pkg. applics.; rec. for applics. where odor is critical  
*Regulatory:* FDA 21CFR §178.3620(c), 178.3910(a)(3)  
*Properties:* Clear liq., mild odor; m.w. 194; sp.gr. 0.823 (60/60 F); dens. 6.87 lb/gal (60 F); visc. 3.8 cSt (70 F); vapor pressure 0.10 mm Hg (100 F); f.p. -43 F; i.b.p. 465 F; pour pt. < -30 F; flash pt. (PM) 226 F; KB value 29
- Volan®** [DuPont; DuPont Canada]  
*Chem. Descrip.:* Methacrylate chromic chloride  
*Uses:* Bonding agent, coupling agent for glass fiber-reinforced laminates; improves adhesive bond on paper, wood, polymeric coatings, impregnants,

thermoset vinyl resins; antistat; in appliances, automotive, composites, computers, construction, consumer goods, marine, military, sporting goods, and textile industries

*Properties:* Dk. grnsh.; alcoholic odor; b.p. 79 C; water-misc.; sp.gr. 1.02; pH 3.1 (1% aq.); flash pt. 6 (TOC); tens. str. 46,400 psi; flex. str. 81,200 psi; 19-21% act.

#### Volan® L [DuPont; DuPont Canada]

*Chem. Descrip.:* Methacrylate chromic chloride

*Uses:* Bonding agent, coupling agent for glass fiber-reinforced laminates; improves adhesive bond on paper, wood, polymeric coatings, impregnants, thermoset vinyl resins; antistat; in appliances, automotive, composites, computers, construction, consumer goods, marine, military, sporting goods, and textile industries

*Properties:* Dk. grn.; alcoholic odor; b.p. 77 C; water-misc.; sp.gr. 0.95; pH 3.1 (1% aq.); flash pt. 7 C (TOC); tens. str. 48,400 psi; flex. str. 79,800 psi; 17-18% act.

#### Volpo C2 [Croda Oleochems.]

*Chem. Descrip.:* Ceteth-2

CAS 9004-95-9

*Uses:* Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., cosmetics, and pharmaceuticals

*Properties:* Wh. waxy solid; sol. in ethanol, trichloroethylene, butyl stearate, methyl oleate, xylene; partially sol. in min. oil and rapeseed oil; insol. in water, kerosene; HLB 5.3; acid no. 1.0 max.; hyd. no. 160-180; nonionic

*Toxicology:* Eye irritant

*Storage:* Hygroscopic

#### Volpo C20 [Croda Oleochems.]

*Chem. Descrip.:* Ceteth-20

CAS 9004-95-9

*Uses:* Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., cosmetics, and pharmaceuticals

*Properties:* Wh. waxy solid; sol. in water, ethanol, trichloroethylene, xylene; partially sol. in butyl stearate; insol. in min. oil, methyl oleate, rapeseed oil, kerosene; HLB 15.4; acid no. 1.0 max.; hyd. no. 45-60; nonionic

*Toxicology:* Eye irritant

*Storage:* Hygroscopic

#### Volpo CS2 [Croda Oleochems.]

*Chem. Descrip.:* Cetareth-2

CAS 68439-49-6

*Uses:* Emulsifier, wetting agent, solubilizer for skin care prods., detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., cosmetics, and pharmaceuticals; solubilizer for perfumes and essential oils

*Properties:* Wh. waxy solid; sol. in ethanol, kerosene, trichloroethylene, methyl oleate, xylene; partially sol. in min. oil, rapeseed oil, butyl stearate; insol. in water; HLB 5.0; acid no. 1.0 max.; hyd. no. 155-175; nonionic

*Toxicology:* Eye irritant

*Precaution:* Avoid use in prods. used near eyes or in high conc. in skin cosmetics

*Storage:* Hygroscopic

#### Volpo CS5 [Croda Oleochems.]

*Chem. Descrip.:* Cetareth-5

CAS 68439-49-6

*Uses:* Emulsifier, dispersant, wetting agent, gellant for industrial and cosmetic skin care applics., detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., and pharmaceuticals; solubilizer for perfumes and essential oils

*Properties:* Off wh. soft waxy solid; sol. in ethanol, trichloroethylene, oleic acid; partly sol. in min. oil, kerosene, butyl stearate, methyl oleate, rapeseed oil; HLB 9.2; acid no. 1 max.; hyd. no. 115-125; surf. tens. 33.0 dynes/cm (0.1% aq.); pH 6.0-7.5 (3%); 97% conc.; nonionic

#### Volpo CS10 [Croda Oleochems.]

*Chem. Descrip.:* Cetareth-10

CAS 68439-49-6

*Uses:* Emulsifier, dispersant, wetting agent, gellant for industrial and cosmetic skin care applics., detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., and pharmaceuticals; solubilizer for perfumes and essential oils

*Properties:* Off wh. soft waxy solid; sol. in ethanol, trichloroethylene, oleic acid, xylene; partly sol. in water, min. oil, kerosene, butyl stearate; HLB 12.9; acid no. 1 max.; hyd. no. 75-85; cloud pt. 68 C (1% aq.); surf. tens. 34.5 dynes/cm (0.1% aq.); pH 6.0-7.5 (3%); 97% conc.; nonionic

#### Volpo CS15 [Croda Oleochems.]

*Chem. Descrip.:* Cetareth-15

CAS 68439-49-6

*Uses:* Emulsifier, dispersant, wetting agent, gellant for industrial and cosmetic skin care applics., detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, agric., and pharmaceuticals; solubilizer for perfumes and essential oils; emulsifier in polishes

*Properties:* Off wh. waxy solid; sol. in ethanol, trichloroethylene, oleic acid, xylene; partly sol. in water; HLB 14.6; acid no. 1 max.; iodine no. 2 max.; hyd. no. 60-70; cloud pt. 94 C (1% aq.); surf. tens. 35.5 dynes/cm (0.1% aq.); pH 6.0-7.5 (3%); 97% conc.; nonionic

#### Volpo CS20 [Croda Oleochems.]

*Chem. Descrip.:* Cetareth-20

CAS 68439-49-6

*Uses:* Emulsifier, dispersant, wetting agent, gellant for industrial, cosmetic skin care, and pharmaceutical applics., detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, agric., and pharmaceuticals; solubilizer for perfumes and essential oils; emulsifier in polishes

*Properties:* Off-wh. hard waxy solid; sol. in water, ethanol, trichloroethylene, oleic acid, xylene; HLB 15.7; acid no. 1 max.; iodine no. 2 max.; hyd. no. 45-55; cloud pt. 78 C (1% aq.); surf. tens. 41.5 dynes/cm (0.1% aq.); pH 6.0-7.5 (3%); 97% conc.; nonionic

*Toxicology:* LD50 (oral, rat) 2.1 g/kg; mild skin irritant, moderate eye irritant

#### Volpo CS50 [Croda Oleochems.]

*Chem. Descrip.:* Cetareth-50

CAS 68439-49-6

*Uses:* Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., cosmetics, and pharmaceuticals

*Properties:* Wh. waxy solid; sol. in water, trichloroethylene, xylene; partially sol. in rapeseed oil; insol. in min oil, butyl stearate, kerosene, methyl oleate; HLB 17.8; acid no. 1.0 max.; hyd. no. 20-28; nonionic

*Toxicology:* Eye irritant

*Storage:* Hygroscopic

#### Volpo L3 [Croda Oleochems.]

*Chem. Descrip.:* PEG-3 lauryl alcohol

CAS 9002-92-0; EINECS/ELINCS 221-280-2

*Uses:* Surfactant, antistat, detergent, dispersant, emulsifier, leveling agent, plasticizer, scouring agent, solubilizer, and wetting agent in detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., cosmetics, and pharmaceuticals

*Properties:* Essentially colorless clear liq.; sol. in trichloroethylene, xylene, rapeseed oil, min oil, butyl stearate, kerosene, methyl oleate; insol. in water; HLB 7-8; acid no. 1.0 max.; hyd. no. 165-180; nonionic

*Toxicology:* Eye irritant

*Storage:* Hygroscopic

#### Volpo N3 [Croda Oleochems.]

*Chem. Descrip.:* Oleth-3, distilled

CAS 9004-98-2

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent for industrial and cosmetic skin care applics., detergents, textile and paper processing, dust control, adhesives, polymers, polishes, agric., and pharmaceuticals; solubilizer for perfumes and essential oils; emulsifier for metalworking fluids

*Properties:* Colorless to pale yel. clear to sl. hazy liq.; sol. in ethanol, min. oil, kerosene, trichloroethylene, rapeseed oil, methyl oleate, xylene; partly sol. in butyl stearate; insol. in water; HLB 6.6; acid no. 0.5 max.; iodine no. 58-66; hyd. no. 130-150; 97% conc.; nonionic

*Toxicology:* May cause skin/eye irritation

#### Volpo N5 [Croda Oleochems.]

*Chem. Descrip.:* Oleth-5, distilled

CAS 9004-98-2

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent for industrial and cosmetic skin care applics., detergents, textile and paper processing, dust control, adhesives, polymers, polishes, agric., and pharmaceuticals; solubilizer for perfumes and essential oils; emulsifier for metalworking

fluids

*Properties:* Wh. to off-wh. opaque liq.; sol. in ethanol, min. oil, trichloroethylene, rapeseed oil, methyl oleate, xylene; partly sol. in water, kerosene, butyl stearate; HLB 9.0; acid no. 0.5 max.; iodine no. 48-56; hyd. no. 106-122; 97% conc.; nonionic

*Toxicology:* May cause skin/eye irritation

**Volpo N10** [Croda Oleochems.]

*Chem. Descrip.:* Oleth-10, distilled

CAS 9004-98-2

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent for industrial and cosmetic skin care applics., detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric., and pharmaceuticals; solubilizer for perfumes and essential oils

*Properties:* Wh. turbid liq. to soft paste; sol. in water, ethanol, min. oil, trichloroethylene, xylene; partly sol. in kerosene, butyl stearate, rapeseed oil, methyl oleate; HLB 12.4; acid no. 0.5 max.; iodine no. 33-38; hyd. no. 75-90; 97% conc.; nonionic

*Toxicology:* May cause skin/eye irritation

**Volpo N20** [Croda Oleochems.]

*Chem. Descrip.:* Oleth-20, distilled

CAS 9004-98-2

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for industrial applics., cosmetics, detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, agric., and pharmaceuticals; emulsifier in polishes

*Properties:* Wh. soft solid; sol. in water, ethanol, min. oil, trichloroethylene, xylene; partly sol. in butyl stearate, rapeseed oil; HLB 15.5; acid no. 0.5 max.; iodine no. 19-24; hyd. no. 45-55; 97% conc.; nonionic

*Toxicology:* May cause skin/eye irritation

**Volpo S2** [Croda Inc; Croda Oleochems.]

*Chem. Descrip.:* Steareth-2

CAS 9005-00-9

*Uses:* Emulsifier for o/w systems, cosmetics, pharmaceuticals, detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric.; stable over wide pH range; synergistic with Volpo 3, 5 and Polychols

*Use Level:* 0.5-5%

*Properties:* Wh. translucent plastic wax; sol. in alcohol, glycols, methyl oleate, xylene, ketones, most chlorinated and aromatic solvs., kerosene, min. oil; HLB 4.9; acid no. 1.0 max.; hyd. no. 150-170; cloud pt. < 55 C (1% aq.); pH 6.0-7.0 (3%); 100% conc.; nonionic

*Toxicology:* LD50 (oral, rat) 21 g/kg; mild skin irritation, nonirritating to eyes

**Volpo S10** [Croda Inc; Croda Chem. Ltd]

*Chem. Descrip.:* Steareth-10

CAS 9005-00-9

*Uses:* O/w emulsifier for cosmetics, topical pharmaceuticals, hair straighteners and relaxers, detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric.; stable over wide pH range; synergistic with Polychol 15, Volpo 10 and 20; provides superior stability to systems contg. cetyl or stearyl alcohols

*Use Level:* 0.5-5%

*Properties:* Wh. waxy solid, low odor; sol. in water, alcohol, glycol, ketone, most chlorinated and aromatic solvs.; insol. in oil; HLB 12.4; acid no. 1.0 max.; hyd. no. 75-90; cloud pt. 65-75 C (1% aq.); pH 6.0-7.0 (3%); 100% conc.; nonionic

*Toxicology:* LD50 (oral, rat) 2.1 g/kg; moderate skin irritant, severe eye irritant

**Volpo S20** [Croda Inc; Croda Oleochems.]

*Chem. Descrip.:* Steareth-20

CAS 9005-00-9

*Uses:* O/w emulsifier for cosmetics, topical pharmaceuticals, ethic hair straighteners and relaxers, detergents, metalworking, textile and paper processing, dust control, adhesives, polymers, polishes, agric.; stable over wide pH

range

*Use Level:* 0.5-5%

*Properties:* Wh. solid; sol. in water, alcohols, glycols, ketones, most chlorinated and aromatic solvs.; insol. in oil; HLB 15.3; acid no. 1.0 max.; hyd. no. 45-60; cloud pt. > 100 C (1% aq.); 100% conc.; nonionic

*Toxicology:* LD50 (oral, rat) 2.07 g/kg; nonirritating to skin; moderate eye irritant

**Volpo T5** [Croda Oleochems.]

*Chem. Descrip.:* Trideceth-5

CAS 24938-91-8

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for industrial applics., cosmetics, detergents, textile and paper processing, dust control, adhesives, polymers, polishes, agric., and pharmaceuticals; wetting agent in metalworking fluids

*Properties:* Colorless liq.; sol. in kerosene, trichloroethylene, rapeseed oil, methyl oleate, xylene, ethanol; partly sol. in water, min. oil, butyl stearate; HLB 10.5; acid no. 1 max.; hyd. no. 130-145; 97% conc.; nonionic

**Volpo T10** [Croda Oleochems.]

*Chem. Descrip.:* Trideceth-10

CAS 78330-21-9

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for industrial applics., cosmetics, detergents, textile and paper processing, dust control, polymers, polishes, agric., and pharmaceuticals; wetting agent in metal pickling baths, animal glues

*Properties:* Wh. soft paste; sol. in water, rapeseed oil, methyl oleate, xylene; partly sol. in kerosene, butyl stearate; insol. in min. oil; HLB 13.7; acid no. 1 max.; hyd. no. 8-95; 97% conc.; nonionic

**Volpo T15** [Croda Oleochems.]

*Chem. Descrip.:* Trideceth-15

CAS 78330-21-9

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for industrial applics., cosmetics, detergents, textile and paper processing, dust control, polymers, polishes, agric., and pharmaceuticals; wetting agent in metal pickling baths

*Properties:* Wh. soft paste; sol. in water, ethanol, trichloroethylene, methyl oleate, xylene; partly sol. in butyl stearate, rapeseed oil; HLB 15.4; acid no. 1 max.; hyd. no. 65-75; 97% conc.; nonionic

**Vybar® 103** [Baker Petrolite]

*Chem. Descrip.:* Syn. wax; ethylene-derived hydrocarbon polymer

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Lubricant; anticaking agent; modifier for paraffin (inc. hardness, opacity); in candles to replace stearic acid; opacifies the candle and imparts resistance to thermal shock; pigment dispersant to wet inorg. pigments and fillers at high loading level; suitable for hot-melt inks, mold release compds., plastic lubricants, protective coatings, polishes, slip and antimar additives; emollient, gloss aid, lubricant for cosmetics; food pkg. adhesives, paper

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3850

*Properties:* Solid; limited sol. in org. solvs.; m.w. 2800; dens. 0.92 g/cc; visc. 345 cps (99 C); soften. pt. 74 C; iodine no. 14

**Vybar® 260** [Baker Petrolite]

*Chem. Descrip.:* Syn. wax; olefin-derived hydrocarbon polymer

CAS 8002-74-2; EINECS/ELINCS 232-315-6

*Uses:* Paraffin wax modifier in polishes, industrial coatings, hot-melt inks, mold-release compds., plastic lubricants, and slip/antimar additives; emollient, gloss aid, lubricant for cosmetics; food pkg. adhesives, paper; hard, low-melting polymer with low melt visc.; additive producing blends with paraffin which are harder and more opaque; upgrades props. of lower-grade waxes

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3850

*Properties:* Solid; sol. in min. spirits, xylene, and trichloroethylene; m.w. 2600; dens. 0.90 g/cc; visc. 358 cps (99 C); soften. pt. 54 C; iodine no. 15

# W

## Wacker HDK® N20 [Wacker-Chemie GmbH; Wacker Silicones]

*Chem. Descrip.:* Fumed silica

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Uses:* Thickener, thixotrope, antissetting agent for paints/coatings, pharmaceuticals/cosmetics (toothpaste, tablets, powds., aerosols, suspensions, ointments, creams), diazo paper, printing inks, PVC plastisols, rubbers, adhesives; reinforcing filler in silicone rubber; free-flow agent for powds., pigments, and salts; hydrophilic

*Use Level:* 5-35% (rubber), 15-35% (high temp. curing silicone rubber), 0.8-1.2% (adhesives)

*Properties:* Wh. powd.; bulk dens. 40 g/l (tamped); surf. area 200 ± 30 m<sup>2</sup>/g; ref. index 1.45; pH 3.6-4.3 (4% aq.)

*Storage:* 1 yr storage stability in unopened containers

## WAC® Paper [Atofina]

*Chem. Descrip.:* Basic polyaluminum chlorosulfate

*Uses:* Coagulant, anionic trash collector in papermaking, upstream retention prods. and processes, food-contact paper; coagulant for industrial and waste water; dec. pollution of process water loops; very stable

*Regulatory:* BgVV compliance

## Wax Emulsifier 4106 [Clariant]

*Chem. Descrip.:* Ceteoleth

CAS 68920-66-1

*Uses:* Emulsifier, wetting agent, leveling agent for waxes (polishes, leather, textile, paper coatings); free of alkylphenol ethoxylates

*Properties:* Wh. waxy solid; iodine no. < 2; cloud pt. 58-59 C; drop pt. 50-60 C; pH 6-7.5 (1%); nonionic

*Toxicology:* LD50 (oral, rat) > 2000 mg/kg; skin irritant

*Storage:* Keep in dry storage @ R.T.

## Wayfos® D-10N [Arch Chems.]

*Chem. Descrip.:* Poly(oxy-1,2-ethanediy), -nonylphenyl-hydroxy phosphate

*Uses:* Antistat, dispersant, corrosion inhibitor, emulsifier, stabilizer, solubilizer for textile processing, alkaline and acid soak cleaners, hard surf. cleaners, dishwashes, wax removers, emulsion polymerization, agric., paper processing

*Properties:* Gardner 1-2 visc. liq.; sol. in water, alcohols, glycol ethers, aromatic and aliphatic hydrocarbons, chlorinated solvs.; sp.gr. 1.10; dens. 9.15 lb/gal; pH 1.7-2.0 (5% aq.); Draves wetting 44 s (0.25%); Ross-Miles foam 133 mm (0.1%, initial); 100% act.; anionic

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; skin irritant; corrosive to eyes

## Wayfos® M-100 [Arch Chems.]

*Chem. Descrip.:* Aromatic phosphoate ester, free acid

*Uses:* Antistat, detergent for all-purpose heavy-duty formulations; corrosion inhibitor for nonferrous metals; pesticide emulsifier; pitch dispersant for paper pulp processing

*Properties:* Lt. amber visc. liq.; sol. in water, alcohols, glycol ethers, aliphatic hydrocarbons, chlorinated solvs.; disp. in aromatic hydrocarbons; sp.gr. 1.13; dens. 9.40 lb/gal; pH 2.0-2.5 (1% aq.); Draves wetting 10 s (0.25%); 100% act.; anionic

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (dermal, rabbit) > 2 g/kg; skin irritant; corrosive to eyes

## Webnix 69C [Crusader]

*Chem. Descrip.:* Silicone-based, protein-supported emulsion

*Uses:* Dewebber, defoamer, and antifoam for natural and syn. latexes in latex dipping industry (mfg. of toys, medical, household, and industrial gloves,

anesthesia bags); defoamer for pulp/paper mfg., influent and effluent wastewater treatment, boiler water treatment, paints, adhesives, and sealants; food-contact rubber articles

*Use Level:* 0.2-0.5 phr

*Regulatory:* FDA 21CFR §177.2600

*Properties:* Wh. creamy emulsion; completely disp. in water; sp.gr. 0.95 ± 0.1; visc. 50-600 cps; pH 9.0 ± 0.5

*Storage:* 6 mos shelf life stored @ ambient temps.; stir briefly before use; excessive heat over 105 F for prolonged periods or freezing temps. may destabilize prod.

## Webnix 1065-3 [Crusader]

*Chem. Descrip.:* Silicone-based, protein-supported emulsion

*Uses:* Dewebber and defoamer for latex dipping industry (mfg. of medical, surgical, household, and industrial gloves, anesthesia bags, catheters, balloons, condoms); defoamer for pulp/paper mfg., influent and effluent wastewater treatment, boiler water treatment, paints, adhesives, sealants, and inks; food-contact rubber articles

*Use Level:* 0.2-0.5 phr

*Regulatory:* FDA 21CFR §177.2600

*Properties:* Wh. milky emulsion; completely disp. in water; sp.gr. 0.95 ± 0.1; visc. 50-650 cps; pH 9.0 ± 0.5

*Storage:* 6 mos shelf life stored @ ambient temps.; stir briefly before use; excessive heat over 105 F for prolonged periods or freezing temps. may destabilize prod.

## Webnix 5113 [Crusader]

*Chem. Descrip.:* Silicone-based, gum-supported emulsion

*Uses:* Dewebber and antifoam for natural latex and syn. blends, esp. nitrile formulations and high visc. latexes in latex dipping industry (mfg. of medical, household, and industrial gloves, toys, balloons); defoamer for pulp/paper mfg., influent and effluent wastewater treatment, boiler water treatment, paints, adhesives, and sealants; food-contact rubber articles

*Use Level:* 0.2-0.5 phr

*Regulatory:* FDA 21CFR §177.2600

*Properties:* Wh. milky emulsion; completely disp. in water; sp.gr. 0.95 ± 0.1; visc. 200-950 cps; pH 9.0 ± 0.5

*Storage:* 6 mos shelf life stored @ ambient temps.; stir briefly before use; excessive heat over 105 F for prolonged periods or freezing temps. may destabilize prod.

## Webnix 5116 [Crusader]

*Chem. Descrip.:* Silicone-based, clay-supported emulsion

*Uses:* Dewebber and antifoam for natural latex and syn. blends, esp. nitrile formulations and high visc. latexes in latex dipping industry (mfg. of medical, household, and industrial gloves, toys, balloons); defoamer for pulp/paper mfg., influent and effluent wastewater treatment, boiler water treatment, paints, adhesives, and sealants; food-contact rubber articles

*Regulatory:* FDA 21CFR §177.2600

*Properties:* Wh. milky emulsion; completely disp. in water; sp.gr. 0.95 ± 0.1; visc. 200-950 cps; pH 9.0 ± 0.5

*Storage:* 6 mos shelf life stored @ ambient temps.; stir briefly before use; excessive heat over 105 F for prolonged periods or freezing temps. may destabilize prod.

## Webnix CAL-183 [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free emulsion

*Uses:* Dewebber and antifoam for natural latex and syn. blends, latex dipping industry (mfg. of medical and surgical gloves, balloons); antifoam for pulp/

paper mfg., wastewater treatment, boiler water treatment, inks; food-contact coatings, rubber articles

*Use Level:* 0.2-0.5 phr

*Regulatory:* FDA 21CFR §175.300, 177.2600

*Properties:* Off-wh. emulsion; completely disp. in water; sp.gr. 1.00 ± 0.1; visc. 200-750 cps; pH 8.5-9.5

*Storage:* 6 mos shelf life stored @ ambient temps.; stir briefly before use; excessive heat over 105 F for prolonged periods or freezing temps. may destabilize prod.

**Webnix FreeSil 581** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives

**Webnix FreeSil 622** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives

**Webnix FreeSil 642** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives

**Webnix FreeSil A** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives; food-contact rubber articles

*Regulatory:* FDA 21CFR §177.2600

*Properties:* Amber liq.; completely disp. in water; sp.gr. 0.95 ± 0.5; visc. 500 cps max.; pH 7.5-9.5

*Storage:* 1 yr shelf life when stored @ ambient temps.; not subject to destabilization or deterioration; settling may occur, mix before use

**Webnix FreeSil B** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives

*Regulatory:* FDA approval pending

*Properties:* Amber liq.; completely disp. in water; sp.gr. 0.90 ± 0.5; visc. 100 cps max.; pH 5.5-7.5

*Storage:* 1 yr shelf life when stored @ ambient temps.; not subject to destabilization or deterioration; settling may occur, mix before use

**Webnix FreeSil C** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives; food-contact rubber articles

*Regulatory:* FDA 21CFR §177.2600

*Properties:* Amber liq.; completely disp. in water; sp.gr. 0.95 ± 0.5; visc. 300 cps max.; pH 7.5-9.5

*Storage:* 1 yr shelf life when stored @ ambient temps.; not subject to destabilization or deterioration; settling may occur, mix before use

**Webnix FreeSil G** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives

*Regulatory:* FDA approval pending

*Properties:* Amber liq.; completely disp. in water; sp.gr. 0.92 ± 0.5; visc. 350 cps max.; pH 7.5-9.5

*Storage:* 1 yr shelf life when stored @ ambient temps.; not subject to destabilization or deterioration; settling may occur, mix before use

**Webnix FreeSil H** [Crusader]

*Chem. Descrip.:* Silicone-free, protein-free conc. sol'n.

*Uses:* Dewebber and antifoam for latex formulations esp. latex dipped goods @ low dosage levels, pulp/paper mfg., wastewater treatment, boiler water treatment, inks, paints, and adhesives

*Regulatory:* FDA approval pending

*Properties:* Amber liq.; completely disp. in water; sp.gr. 0.88 ± 0.5; visc. 100 cps max.; pH 7.5-9.5

*Storage:* 1 yr shelf life when stored @ ambient temps.; not subject to destabilization or deterioration; settling may occur, mix before use

**Weston® 618** [GE Spec.]

*Chem. Descrip.:* Distearyl pentaerythritol diphosphate

CAS 3806-34-6; EINECS/ELINCS 223-276-6

*Uses:* Antioxidant for polyester, PE, PP, PS, ABS, PVC, polybutadiene, EPDM; exc. UV synergist; food-contact paper/paperboard, polymers; non-discoloring, synergistic

*Regulatory:* FDA 21CFR §176.170, 177.1520

*Properties:* Wh. powd. or flakes

*Toxicology:* Nontoxic

**Westvaco® Rosin T** [Westvaco]

*Chem. Descrip.:* Tall oil rosin

CAS 8052-10-6; EINECS/ELINCS 232-475-7

*Uses:* Raw material for rubber processing oils, ink resins, dk. unfortified paper size, other applics. not sensitive to color

*Properties:* Dens. 8.2 lb/gal; soften. pt. (R&B) 130 F; acid no. 100; sapon. no. 135

**Wetsan™ DI284-1** [BASF]

*Uses:* Deinking agent, surfactant, dispersant for inks and other contaminants for newsprint and wood-free paper

**W.G.S. Hydrogenated Fish Glyceride 117** [Werner G. Smith]

*Chem. Descrip.:* Triester of long chain fatty acids (mostly arachidic and behenic) and glycerin

CAS 68424-59-9

*Uses:* Softener, plasticizer used in wax compds., textile softeners and sizes, yarn lubricants, grease sticks, polishes, crayons, candles, leather stuffing, wire drawing compds., paper coatings, and plastics; environmentally friendly

*Properties:* Off-wh. flakes, faint waxy odor; negligible sol. in water; sp.gr. 0.891 (60 F); m.p. 47-51 C; acid no. 6 max.; iodine no. 35 max.; sapon. no. 186-201; flash pt. 500 F

*Toxicology:* Nontoxic; irritating to eyes, skin, respiratory system, GI tract

*Environmental:* Readily biodeg.

*Precaution:* Incompat. with oxidizing agents; keep away from heat, sources of ignition

*Hazardous Decomp. Prods.:* Oxides of carbon, smoke

*Storage:* Keep container closed when not in use

**W.G.S. Hydrogenated Fish Glyceride 128** [Werner G. Smith]

*Chem. Descrip.:* Triester of long chain fatty acids (mostly arachidic and behenic) and glycerin

*Uses:* Used for wax compds., textile sizing, grease sticks for polishing, lubricating greases, adhesives, Japan wax replacements, crayons, leather stuffings, stearates, wire drawing compds. of calcium soap type, paper coatings, and plastics; environmentally friendly

*Properties:* Color (Lovibond 5¼) 20Y-2.0R max.; sp.gr. 0.856; m.p. 53-57 C; acid no. 5.0 max.; iodine no. 5.0; sapon. no. 188-195

*Toxicology:* Nontoxic

*Environmental:* Readily biodeg.

**Wickit™** [Hercules]

*Uses:* Absorbency aid for tissue and towel grades

**Witcamide® MAS** [Goldschmidt]

*Chem. Descrip.:* Stearamide MEA-stearate

CAS 14351-40-7; EINECS/ELINCS 238-310-5

*Uses:* Opacifier, conditioner, lubricant, gellant for personal care, household, and institutional liq. soaps; as partial or total replacement for veg. waxes in polishes; coating agent for paper and textiles; mold release agent for industrial processing; additive for raising melting pts. of petrol. waxes or glyceride waxes and fats; ingred. of insulating coatings or barriers, and of water-repellent compds.

*Properties:* Lt. cream waxy flakes; mild char. odor; sol. in aliphatic, aromatic, and chlorinated hydrocarbons, alcohol, ketones, esters; sp.gr. 0.844; m.p. 81 C; acid no. 5.0; 100% conc.; nonionic

**Witcobond® W-213** [Crompton/Witco]

*Chem. Descrip.:* PU aq. disp.

*Uses:* Binder; protective coating or surf. treatment primarily for textiles, nonwovens, fiberglass, paper, wood, urethane foam, or other porous substrates; forms strong, cohesive films by evaporation of water content; rec. where the props. of a light-stable, water-based urethane are suitable; low VOC

*Properties:* Semitranslucent liq.; char. odor; colloidal particle size; sp.gr. 1.04; dens. 8.7 lb/gal; visc. < 100 cps; flash pt. (PMCC) > 100 C; pH 4-6; surf. tens. 39 dynes/cm; VOC 206 g/l; Film props.: tens. str. 5000 psi; tens.

**WorléeSin MS 235**

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elong. 365% (ultimate); 30% solids; cationic

**WorléeSin MS 235** [Worlée-Chemie]

*Uses:* For spirit lacquers and paper varnishes

*Properties:* Gardner 8 max. color; m.p. 130-145 C; acid no. 180-200

**WW Filler™** [IMERYS]

*Chem. Descrip.:* Specially fractionated water-washed kaolin

CAS 1332-58-7; EINECS/ELINCS 296-473-8

*Uses:* Filler, opacifier for paper industry; improves brightness, printability

*Properties:* Spray-dried, slurry; 0.03% 325-mesh residue, 60% finer than 2  $\mu$  particle size; sp.gr. 2.62; visc. 300 cps (70% solids); brightness (GE) 84-85; ref. index 1.56; pH 6.2-7.5 (20% aq.); hardness (Mohs) 2; 0.3-1.0% moisture (spray-dried), 29-31% moisture (slurry)

# XY

## Xanthan Gum [ADM Food Addit.]

*Chem. Descrip.:* Xanthan gum  
 CAS 11138-66-2; EINECS/ELINCS 234-394-2  
*Uses:* Thickener, bodying agent, stabilizer for food, cosmetics, pharmaceuticals, and industrial applics.; food-contact paper/paperboard, polymers  
*Regulatory:* FDA 21CFR §172.645, 172.695, 176.170, 176.180, 177.1350, 182.99, 573.1010; NF, FCC, JECFA  
*Toxicology:* LD50 (rat) > 5000 mg/kg  
*Environmental:* Biodeg.  
*Storage:* Store in tightly closed container

## XC-33 [Releasomers]

*Chem. Descrip.:* Water-based fluorochemical copolymer  
*Uses:* Release agent for rubber, plastic, and metal industries; food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.170(a)  
*Properties:* Milky wh. emulsion; sp.gr. < 1; pH > 5  
*Storage:* Store below 32 C; protect from freezing

## X-Link 2833 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking vinyl acrylic copolymer emulsion  
*Uses:* Imparts fold endurance, tear str., delamination resist., lightfastness, durability, and toughness to paper saturation (tag and label stock); soft and durable; exc. adhesion to rayon and polyester fibers; crosslinking imparts str. and durability; exc. compd., size press, saturation, and spray stability; acceptable for skin contact applics.  
*Properties:* 0.2 µ particle size; dens. 8.8 lb/gal; visc. 200 cps; pH 4.5; 45% solids; anionic

## X-Link 2893 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking vinyl acrylic copolymer emulsion  
*Uses:* Dry and wet str. agent for paper saturation (wallcovering); imparts water repellency into sat. paper; features softness and durability; exc. saturation and size press stability; exc. adhesion to nat. and syn. substrates; crosslinking provides str. and solv. resist.  
*Properties:* 0.2 µ particle size; dens. 8.8 lb/gal; visc. 200 cps; pH 4.5; 45% solids; anionic

## X-Link 5627 [Nat'l. Starch & Chem.]

*Chem. Descrip.:* Self-crosslinking vinyl acrylic copolymer emulsion  
*Uses:* Dry and wet str. agent for paper saturation (air and vacuum filtration); features firmness, durability, exc. mech. and saturation stability; fast penetration into paper; exc. adhesion to nat. and syn. substrates; crosslinking imparts str. and toughness  
*Properties:* 0.20 µ particle size; dens. 8.8 lb/gal; visc. 100 cps; pH 6.5; 45% solids; anionic

## XZ 26001.00 [Dow]

*Chem. Descrip.:* Styrene acrylic copolymer aq. sol'n.  
 CAS 9010-92-8  
*Uses:* Surf. sizing agent for acid, alkaline, neutral, or unsized paper; improves ink-jet printability, toner adhesion, and optical brightness; exc. flexibility; very high mech. stability  
*Properties:* Ylsh.-wh. sl. turbid sol'n.; visc. 2000 mPa·s; pH 9; 20% solids; anionic

## XZ 26005.00 [Dow]

*Chem. Descrip.:* Styrene acrylic copolymer aq. sol'n.

## CAS 9010-92-8

*Uses:* Surf. sizing agent for acid, alkaline, neutral, or unsized paper; improves ink-jet printability, toner adhesion, and optical brightness; exc. flexibility; very high mech. stability  
*Properties:* Ylsh.-wh. sl. turbid sol'n.; visc. 200 mPa·s; pH 9; 15% solids; anionic

## Yelkin® DS [ADM Lecithin]

*Chem. Descrip.:* Standardized soya lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Drink mixes; candies; adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; drilling muds; dust control; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints; paper coatings; pesticides/herbicides; pet foods; petrol. additives; putty/caulks; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; acid no. 30 max.; 1% max. water

## Yelkin® SS [ADM Lecithin]

*Chem. Descrip.:* Standardized soya lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compounds; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; dough conditioner, pan lubricant for foods; emulsifier for w/o emulsions  
*Properties:* Translucent fluid; visc. 65-85 stokes; HLB 4.0; acid no. 30 max.; 1% max. water

## Yelkin® T [ADM Lecithin]

*Chem. Descrip.:* Standardized soya lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compounds; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; food (candies, margarine, baked goods, icings, frostings); emulsifier for w/o emulsions  
*Properties:* Opaque plastic; HLB 4.0; acid no. 25 max.; 1% max. water

## Yelkin® TS [ADM Lecithin]

*Chem. Descrip.:* Standardized soya lecithin  
 CAS 8002-43-5; EINECS/ELINCS 232-307-2  
*Uses:* Adhesives; animal feeds; asphalt; concrete; cosmetics; detergents; explosives; fertilizers; inks; leather tanning; lubricants; magnetic tapes; paints and coatings; pesticides/herbicides; petroleum additives; putty/caulking compounds; release agents; rust/corrosion inhibitors; textiles; waxes; polishes; wood preservatives; paper coatings; dust control; drilling muds; food (chocolate, frosting, baked goods, icings, margarine); emulsifier for w/o emulsions  
*Properties:* Translucent fluid; visc. 65-85 stokes; HLB 4.0; acid no. 30 max.; 1% max. water



# Z

## ZAA [Magnesium Elektron]

*Chem. Descrip.:* Zirconium acetate

CAS 7585-20-8

*Uses:* Ingred. of zirconium/wax water repellents for semi-durable textile fabrics and paper; catalyst for curing silicone resins in water repellent treatments for textiles and leather; re-tan or filling for high quality leather goods; component of corrosion-inhibiting pretreatment process for metal; refractory binder for mfg. of high temp. stabilized zirconia shapes; coatings requiring UV lt. reflectance; starting material for other zirconium compds., esp. soaps

*Properties:* Clear mildly acidic sol'n.; sp.gr. 1.3; pH 3.3; ZrO<sub>2</sub> (22%); CH<sub>3</sub>COOH (17%); Na (250 ppm); SO<sub>4</sub> (350 ppm)

*Storage:* Indefinite shelf life @ ambient temps.; can withstand med./long-term exposure to nat. temp. extremes; precipitates due to extreme cold will usually dissolve; hydrolysis causes irreversible damage

## Zelec® ECP-1410-M [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (mica)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. gray powd.; 8 μ particle size; sp.gr. 3.5 g/cc; dens. 0.6 g/cc (tapped); surf. area 30-40 m<sup>2</sup>/g; resist. 50-150 ohm-cm; 4% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-1410-T [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (TiO<sub>2</sub>)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. gray powd.; 5 μ particle size; sp.gr. 5 g/cc; dens. 1.1 g/cc (tapped); surf. area 15-25 m<sup>2</sup>/g; resist. 2-5 ohm-cm; 4% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-1610-S [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (silica shell)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. gray powd.; 9 μ particle size; sp.gr. 4 g/cc; dens. 0.4 g/cc (tapped); surf. area 30-60 m<sup>2</sup>/g; resist. 4-15 ohm-cm; 6.5% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-1703-S [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (silica shell)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. green powd.; 9 μ particle size; sp.gr. 4 g/cc; dens. 0.35 g/cc

(tapped); surf. area 40-50 m<sup>2</sup>/g; resist. 20-80 ohm-cm; 2.5% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-2610-S [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (silica shell)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. gray powd.; 4 μ particle size; sp.gr. 4 g/cc; dens. 0.4 g/cc (tapped); surf. area 30-60 m<sup>2</sup>/g; resist. 4-15 ohm-cm; 6.5% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-2703-S [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (silica shell)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. green powd.; 4 μ particle size; sp.gr. 4 g/cc; dens. 0.35 g/cc (tapped); surf. area 40-50 m<sup>2</sup>/g; resist. 20-80 ohm-cm; 2.5% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-3005-XC [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide without core particles

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Green powd.; 0.7 μ particle size; sp.gr. 6.5-7.5 g/cc; dens. 0.8 g/cc (tapped); surf. area 15-30 m<sup>2</sup>/g; resist. 0.5-3 ohm-cm; 6.5% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-3010-XC [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide without core particles

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Blue powd.; 2 μ particle size; sp.gr. 6.5-7.5 g/cc; dens. 0.5 g/cc (tapped); surf. area 60-80 m<sup>2</sup>/g; resist. 0.5-3 ohm-cm; 10% antimony

*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin

*Storage:* Store in cool, dry area in closed containers

## Zelec® ECP-3410-T [Milliken]

*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (TiO<sub>2</sub>)

*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity

*Properties:* Lt. gray powd.; 1 μ particle size; sp.gr. 5 g/cc; dens. 1.1 g/cc

- (tapped); surf. area 15-25 m<sup>2</sup>/g; resist. 2-5 ohm-cm; 4% antimony  
*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin  
*Storage:* Store in cool, dry area in closed containers
- Zelac® ECP-3610-S** [Milliken]  
*Chem. Descrip.:* Antimony-doped tin oxide coated onto inert core (silica shell)  
*Uses:* Electroconductive additive in coatings and plastics; for ESD protection in electronic component pkg., floor/wall coatings, plastics, laminates; electrostatic painting (automotive primers); dielec. film and paper; toners; non-corrosive, non-sloughing, not affected by high temps. or chemicals, humidity independent conductivity  
*Properties:* Lt. gray powd.; 2 µ particle size; sp.gr. 4 g/cc; dens. 0.4 g/cc (tapped); surf. area 30-60 m<sup>2</sup>/g; resist. 4-15 ohm-cm; 6.5% antimony  
*Toxicology:* Low oral toxicity; moderate eye irritant; nonirritating to skin  
*Storage:* Store in cool, dry area in closed containers
- Zenix™** [Hercules]  
*Uses:* Deposit control agent, scale control agent for pulp, paper, and paper-board mfg.
- Zeolex® 23P** [J.M. Huber/Chems.]  
*Chem. Descrip.:* Sodium silicoaluminate  
 CAS 1344-00-9; EINECS/ELINCS 215-684-8  
*Uses:* Paper filler  
*Properties:* 5 µ avg. particle size; surf. area 73 m<sup>2</sup>/g; oil absorp. 115 cc/100 g; pH 10.2
- Zetafil 1** [Microfill K. Zafranias]  
*Chem. Descrip.:* Calcium carbonate (99.7%)  
 CAS 471-34-1; EINECS/ELINCS 207-439-9  
*Uses:* Pigment for industrial paints, emulsion paints, powd. coatings, paper/board coatings; high brightness  
*Properties:* Very wh. rhombohedral crystals; 80% < 2 µ; sp.gr. 2.7; bulk dens. 0.70 g/ml (packed); surf. area 10.1 m<sup>2</sup>/g; oil absorp. 21/100 g; dry brightness 95.5%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture
- Zetafil 2** [Microfill K. Zafranias]  
*Chem. Descrip.:* Calcium carbonate (99.7%)  
 CAS 471-34-1; EINECS/ELINCS 207-439-9  
*Uses:* Pigment for plastics (PVC, PU, polyester, polyolefins), emulsion paints, primers, powd. coatings, adhesives, paper/board; high brightness; enables reduction of TiO<sub>2</sub> levels in coatings  
*Properties:* Very wh. rhombohedral crystals; 60% < 2 µ; sp.gr. 2.7; bulk dens. 0.9 g/ml (packed); oil absorp. 21/100 g; dry brightness 95.5%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture
- Zetafil 3** [Microfill K. Zafranias]  
*Chem. Descrip.:* Calcium carbonate (99.7%)  
 CAS 471-34-1; EINECS/ELINCS 207-439-9  
*Uses:* Pigment for plastics (PVC, PU, polyester, polyolefins), emulsion paints, primers, powd. coatings, adhesives, paper/board; high brightness; enables reduction of TiO<sub>2</sub> levels in coatings  
*Properties:* Very wh. rhombohedral crystals; 49% < 2 µ; sp.gr. 2.7; bulk dens. 0.9 g/ml (packed); oil absorp. 20/100 g; dry brightness 95%; pH 9; ref. index 1.59; hardness (Mohs) 3; < 0.2% moisture
- Zetag®** [Ciba Spec. Chems./Paper]  
*Uses:* Flocculant for sludge dewatering in effluent treatment for paper industry
- Zohar ZDB** [Zohar Detergent Factory]  
*Chem. Descrip.:* Microbially produced surf. act. polymer  
*Uses:* Dispersant for paper, cosmetics, detergents, water treatment, ceramics, textile, dyes, etc.; wet grinding aid; polymer that adheres to particles of org. and inorg. compds. such as limestone or pigments, changing their surf. props.
- Zonarez® 1040** [Arizona]  
*Chem. Descrip.:* Polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 4 color; soften. pt. (R&B) 40 C
- Zonarez® 1085** [Arizona]  
*Chem. Descrip.:* Polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210
- Zonarez® 1115T** [Arizona]  
*Chem. Descrip.:* Polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 2 color; soften. pt. (R&B) 85 C
- Zonarez® 1115T** [Arizona]  
*Chem. Descrip.:* Polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 2 color; soften. pt. (R&B) 115 C
- Zonarez® 1125** [Arizona]  
*Chem. Descrip.:* Polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 1+ color; soften. pt. (R&B) 125 C
- Zonarez® 1135** [Arizona]  
*Chem. Descrip.:* Polyterpene resin  
 CAS 9003-74-1  
*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 1+ color; soften. pt. (R&B) 135 C
- Zonarez® 7115** [Arizona]  
*Chem. Descrip.:* Polyterpene resin produced from dipinene  
 CAS 9003-74-1  
*Uses:* Polymer imparting high levels of tack and adhesion to elastomeric and polymeric materials in mfg. of pressure-sensitive adhesives, rubber cements, hot-melt adhesives/coatings, can sealants, caulking, inks, paints, concrete waterproofing agents; varnishes, chewing and bubble gum bases, moisture-resist. soft gelatin capsules and powds. of ascorbic acid and its salts; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; bright, clear, pale-colored, low m.w.; LITE resins feature water-wh. color  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 4 color; sp.gr. 0.99; soften. pt. (R&B) 115 C; flash pt. (CC) > 400 F
- Zonarez® 7115 LT** [Arizona]  
*Chem. Descrip.:* Polyterpene resin produced from dipinene  
 CAS 9003-74-1  
*Uses:* Polymer imparting high levels of tack and adhesion to elastomeric and polymeric materials in mfg. of pressure-sensitive adhesives, rubber cements, hot-melt adhesives/coatings, can sealants, caulking, inks, paints, concrete waterproofing agents; varnishes, chewing and bubble gum bases, moisture-resist. soft gelatin capsules and powds. of ascorbic acid and its salts; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; bright, clear, pale-colored, low m.w.; LITE resins feature water-wh. color  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 2+ color; sp.gr. 0.99; soften. pt. (R&B) 115 C; flash pt. (CC) > 400 F
- Zonarez® 7125** [Arizona]  
*Chem. Descrip.:* Polyterpene resin produced from dipinene  
 CAS 9003-74-1  
*Uses:* Polymer imparting high levels of tack and adhesion to elastomeric and polymeric materials in mfg. of pressure-sensitive adhesives, rubber cements, hot-melt adhesives/coatings, can sealants, caulking, inks, paints, concrete waterproofing agents; varnishes, chewing and bubble gum bases, moisture-resist. soft gelatin capsules and powds. of ascorbic acid and its salts; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; bright, clear, pale-colored, low m.w.; LITE resins feature water-wh. color  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210  
*Properties:* Gardner 4 color; sp.gr. 0.99; soften. pt. (R&B) 125 C; flash pt. (CC) > 400 F
- Zonarez® 7125 LT** [Arizona]

*Chem. Descrip.:* Polyterpene resin produced from dipinene  
CAS 9003-74-1

*Uses:* Polymer imparting high levels of tack and adhesion to elastomeric and polymeric materials in mfg. of pressure-sensitive adhesives, rubber cements, hot-melt adhesives/coatings, can sealants, caulking, inks, paints, concrete waterproofing agents; varnishes, chewing and bubble gum bases, moisture-resist. soft gelatin capsules and powds. of ascorbic acid and its salts; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; bright, clear, pale-colored, low m.w.; LITE resins feature water-wh. color

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 3- color; sp.gr. 0.99; soften. pt. (R&B) 125 C; flash pt. (CC) > 400 F

#### Zonarez® A-25 [Arizona]

*Chem. Descrip.:* Polyterpene resin based on  $\alpha$ -pinene  
CAS 9003-74-1

*Uses:* Tackifier and str. enhancer for adhesives; cotackifier for the mfg. of pressure-sensitive adhesives, solv.-based adhesives, emulsion adhesives, and hot-melt adhesives/coatings; plasticizing and softening props.; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact paper/paper-board; clear, light-colored thermoplastic; increases hard resin loading; esp. designed as cotackifier for mfg. of adhesive systems based on thermoplastic block copolymer such as Kraton®

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.1210

*Properties:* Gardner 4 color; sol. in aliphatic, aromatic, and chlorinated HC, esters, terpenes, ethyl ether, some alcohols; sp.gr. 0.90; soften. pt. (R&B) 25 C; flash pt. (CC) > 400 F

#### Zonarez® B-115 [Arizona]

*Chem. Descrip.:* Polyterpene resin  
CAS 9003-74-1

*Uses:* Polymer imparting high levels of tack and adhesion to many elastomeric and polymeric materials in the mfg. of pressure-sensitive adhesives, rubber cements, emulsion adhesives, hot-melt adhesives/coatings, can sealants, caulking and general sealants; inks, paints, concrete waterproofing agents, varnishes, chewing and bubble gum bases; stabilizer; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; low m.w., thermoplastic; imparts stability in adhesive systems, resistance to attack by acids, alkalis, salts, and water, aging properties

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 3+ clear, bright color; sol. in 2-ethyl hexyl alcohol, aliphatic hydrocarbons, aromatic hydrocarbons, chlorinated hydrocarbons, ester, terpenes, ethyl ether, and petrol. ether; sp.gr. 0.98; soften. pt. (R&B) 115 C; acid no. < 1; sapon. no. < 1

#### Zonarez® B-125 [Arizona]

*Chem. Descrip.:* Polyterpene resin  
CAS 9003-74-1

*Uses:* Polymer imparting high levels of tack and adhesion to many elastomeric and polymeric materials in the mfg. of pressure-sensitive adhesives, rubber cements, emulsion adhesives, hot melt adhesives/coatings, can sealants, caulking and general sealants; inks, paints, concrete waterproofing agents, varnishes, chewing and bubble gum bases; stabilizer; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; low m.w., thermoplastic; imparts stability in adhesive systems, resistance to attack by acids, alkalis, salts, and water, aging properties

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 3+ clear, bright color; sol. in 2-ethyl hexyl alcohol, aliphatic hydrocarbons, aromatic hydrocarbons, chlorinated hydrocarbons, ester, terpenes, ethyl ether, and petrol. ether; sp.gr. 0.97; soften. pt. (R&B) 125 C; acid no. < 1; sapon. no. < 1

#### Zonarez® M-1115 [Arizona]

*Chem. Descrip.:* Polyterpene resin produced from  $\beta$ -pinene  
CAS 9003-74-1

*Uses:* Tackifier resin for mfg. of pressure-sensitive adhesives used in tapes and labels, solv.-based adhesives, emulsion adhesives, hot-melt adhesives and coatings; food pkg. adhesives, pressure-sensitive adhesives,

coatings, paper, closures with sealing gaskets for food containers; oxidation-resist., low m.w. thermoplastic; rec. for adhesive systems based on the thermoplastic block copolymer Kraton® 1107, and also natural rubber-based adhesives

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210

*Properties:* Water-wh. bright clear color; sp.gr. 0.98; sol. in aliphatic, aromatic, and chlorinated HC, esters, terpenes, drying oils, rosin, and rosin derivs.; soften. pt. (R&B) 115 C; flash pt. (CC) > 400 F

#### Zonarez® T-4115 [Arizona]

*Chem. Descrip.:* Polyterpene resin  
CAS 9003-74-1

*Uses:* Tackifier for adhesives, food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 2 color; soften. pt. (R&B) 115 C

#### Zonatac® 105 [Arizona]

*Chem. Descrip.:* Styrenated terpene hydrocarbon resin  
CAS 9003-74-1

*Uses:* Tackifier in hot-melt adhesives and coatings, hot-melt pressure-sensitive adhesives, and solv.-based thermoplastic elastomer pressure-sensitive adhesive systems; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; light-colored, low odor thermoplastic

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 3+ color; sp.gr. 1.02; soften. pt. (R&B) 105 C; flash pt. (CC) 480 F

#### Zonatac® 105L [Arizona]

*Chem. Descrip.:* Styrenated terpene hydrocarbon resin  
CAS 9003-74-1

*Uses:* Tackifier in hot-melt adhesives and coatings, hot-melt pressure-sensitive adhesives, and solv.-based thermoplastic elastomer pressure-sensitive adhesive systems; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; light-colored, low odor thermoplastic

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Water-wh.; sp.gr. 1.02; soften. pt. (R&B) 105 C; flash pt. (CC) 480 F

#### Zonatac® 115L [Arizona]

*Chem. Descrip.:* Styrenated terpene hydrocarbon resin  
CAS 9003-74-1

*Uses:* Tackifier in hot-melt adhesives and coatings, hot-melt pressure-sensitive adhesives, and solv.-based thermoplastic elastomer pressure-sensitive adhesive systems; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; light-colored, low odor thermoplastic

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Water-wh.; sp.gr. 1.02; soften. pt. (R&B) 115 C; flash pt. (CC) 480 F

#### Zonatac® 501 [Arizona]

*Chem. Descrip.:* Styrenated terpene resin  
CAS 9003-74-1

*Uses:* Tackifier for food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 3+ color; soften. pt. (R&B) 105 C

#### Zonatac® 501L [Arizona]

*Chem. Descrip.:* Styrenated terpene resin  
CAS 9003-74-1

*Uses:* Tackifier for food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 3- color; soften. pt. (R&B) 105 C

#### Zonatac® M-105 [Arizona]

*Chem. Descrip.:* Styrenated terpene resin  
CAS 9003-74-1

*Uses:* Tackifier for adhesives, food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 177.1210

*Properties:* Gardner 1+ color; soften. pt. (R&B) 105 C

#### Zonester® 25 [Arizona]

*Chem. Descrip.:* Rosin ester

*Uses:* Tackifier for adhesives, food pkg. adhesives, coatings, paper, closures with sealing gaskets in food containers; defoamer in food-contact paper/

paperboard  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.1210  
*Properties:* Gardner 7 max. color; soften. pt. (R&B) 26 C; acid no. 20-24

**Zonester® 85** [Arizona]  
*Chem. Descrip.:* Tall oil glycerides  
 CAS 97722-02-6; EINECS/ELINCS 307-751-6  
*Uses:* Tackifier for NR, SBR, IR, SBS, SIS, in chewing gums, hot-melt adhesives, hot-melt coatings, mastic adhesives, contact cements, and pressure-sensitive adhesives; food pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard; thermoplastic resin ester  
*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1210, 178.3870  
*Properties:* Gardner 8 max. solid or flakes; sp.gr. 1.06; soften. pt. (R&B) 82 C; acid no. 10 max.; flash pt. (CC) > 400 F

**Zonester® 100** [Arizona]  
*Chem. Descrip.:* Pentaerythritol ester of tall oil rosin  
 CAS 8050-26-8; EINECS/ELINCS 232-479-9  
*Uses:* Tackifier for NR, SBR, IR, SBS, hot-melt adhesives, mastic adhesives, contact cements, and pressure-sensitive adhesives; in emulsion form used in SBR, natural rubber, and neoprene latex adhesives; food pkg. adhesives, coatings, paper, closures with sealing gaskets for food containers; defoamer in food-contact paper/paperboard; high-melting  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.1210  
*Properties:* Amber; sp.gr. 1.06; soften. pt. (R&B) 94 C; flash pt. (CC) > 400 F; acid no. 14 max.

**Zonyl® A** [DuPont]  
*Chem. Descrip.:* EO-ester condensate  
*Uses:* Emulsifier; lubricant; textile wetting agent for fibers and fabrics during dyeing; leveling agent and antifoam in pigment coatings in paper industry; used in metal processing  
*Properties:* Clear-pale yel. liq.; mild odor; sol. in water, polar and nonpolar solvs.; sp.gr. 1.07; HLB 6.7; surf. tens. 26 dynes/cm (0.1% aq.); 100% act.; nonionic

**Zonyl® FSA** [DuPont; DuPont Canada]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Wetting agent, emulsifier, dispersant, corrosion inhibitor, leveling agent for adhesives, agric., polishes, polymerization, pigment grinding, cleaners, fire fighting, paper, ink, oil, plastics, and textile industries; mold release and calcium sulfate scale removal in polymer processing; leveling agent and gloss aid in paints and coatings  
*Properties:* Liq.; sol > 2% in water, methanol; sp.gr. 1.03 mg/m<sup>3</sup>; dens. 8.6 lb/gal; flash pt. (PMCC) 21 C; surf. tens. 18 dynes/cm (0.1%); Ross-Miles foam 100 mm (0.1%, initial, 41 C); 25% solids in water/IPA (1:1); anionic  
*Precaution:* Flamm.

**Zonyl® FSB** [DuPont]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Wetting agent, emulsifier, dispersant, corrosion inhibitor, leveling agent for adhesives, agric., polishes, polymerization, pigment grinding, cleaners, coatings and paints, fire fighting, paper, ink, oil, plastics, and textile industries; foamer, froth flotation agent for solv. cleaners, elastomers  
*Properties:* Liq.; sol. > 2% in water, IPA, methanol; dens. 8.8 lb/gal; flash pt. 67 F (PMCC); surf. tens. 17 dynes/cm (0.1%); 40% solids in IPA/water; amphoteric

**Zonyl® FSC** [DuPont; DuPont Canada]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Wetting agent, emulsifier, dispersant, corrosion inhibitor, leveling agent for adhesives, agric., polishes, polymerization, pigment grinding, cleaners, coatings and paints, fire fighting, paper, ink, oil, plastics, and textile industries; foamer, froth flotation agent for solv. cleaners, elastomers  
*Properties:* Liq.; sol. > 2% in water, IPA, methanol, acetone; sp.gr. 1.16 mg/

m<sup>3</sup>; dens. 9.7 lb/gal; flash pt. (PMCC) 21 C; surf. tens. 19 dynes/cm (0.1% aq.); 50% solids in water/IPA (25:25); cationic  
*Precaution:* Flamm.

**Zonyl® FSN** [DuPont]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Wetting agent, emulsifier, dispersant, corrosion inhibitor, leveling agent for adhesives, agric., polishes, polymerization, pigment grinding, cleaners, fire fighting, paper, ink, oil, plastics, and textile industries; antifogging agent in polymer processing; leveling agent, gloss aid, antisoiling aid, flow rheology modifier for paints and coatings  
*Properties:* Liq.; sol. > 2% in water, IPA, methanol, acetone, ethyl acetate, THF; sp.gr. 1.06 mg/m<sup>3</sup>; dens. 8.8 lb/gal; flash pt. (PMCC) 22 C; surf. tens. 23 dynes/cm (0.1%); Ross-Miles foam 145 mm (0.1%, initial, 41 C); 40% solids in water/IPA (30:30); nonionic  
*Precaution:* Flamm.

**Zonyl® FSP** [DuPont]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Wetting agent, emulsifier, dispersant, corrosion inhibitor, leveling agent, antifoam for adhesives, agric., polishes, polymerization, pigment grinding, cleaners, fire fighting, paper, ink, oil, plastics, and textile industries; lubricant, mold release, and calcium sulfate scale removal in polymer processing; leveling agent and gloss aid in paints and coatings; flow rheology modified  
*Properties:* Liq.; sol. > 2% in water, methanol; sp.gr. 1.15 mg/m<sup>3</sup>; dens. 9.6 lb/gal; flash pt. (PMCC) 24 C; surf. tens. 21 dynes/cm (0.1%); Ross-Miles foam 35 mm (0.1%, initial, 41 C); 35% solids in water/IPA (45:20); anionic  
*Precaution:* Flamm.

**Zonyl® NF** [DuPont; DuPont Canada]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Fluoridizer, wetting agent, oil and grease repellent for paper and paperboard, food and beverage pkg.  
*Properties:* Liq.; 95% conc.; anionic

**Zonyl® RP** [DuPont; DuPont Canada]  
*Chem. Descrip.:* Fluorochemical surfactant  
*Uses:* Fluoridizer, wetting agent, oil and grease repellent for paper and paperboard, food and beverage pkg.  
*Properties:* Amber liq.; sol. in water; dens. 9.5 lb/gal; visc. 10 cps; flash pt. > 28 C; pH 7-8; 34% conc.; anionic

**Zusolat 1004** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol polyglycol ether (4 EO)  
*Uses:* Basic material for mfg. of washing and cleaning agents, dishwasher, metal cleaners, household and industrial cleaners; aux. prods. for leather, textile, and paper industries  
*Properties:* Colorless liq.; water-disp.; cloud pt. 57-61 C (5 g/20 ml 25% BDG); pH 6 (10%); 100% act.; nonionic

**Zusolat 1005/85** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol polyglycol ether (5 EO)  
*Uses:* Dispersant, emulsifier, wetting agent for mfg. of washing and cleaning agents, dishwasher, household/industrial and metal cleaners, textile, leather, and paper aux.  
*Properties:* Colorless liq.; water-sol.; cloud pt. 65-68 C (5 g/20 ml butyl diglycol 25%); pH 5-7 (10%); 85% act. in water; nonionic

**Zusolat 1008/85** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol polyglycol ether (8 EO)  
*Uses:* Washing and cleansing agent for dishwasher, industrial/household and metal cleaners, textile, leather and paper aux.  
*Properties:* Colorless liq.; water-sol.; cloud pt. 66-70 C (1% aq.); pH 5-7 (10%); 85% act. in water; nonionic

**Zusolat 1010/85** [Zschimmer & Schwarz]  
*Chem. Descrip.:* Fatty alcohol polyglycol ether (10 EO)  
*Uses:* Washing and cleansing agent for dishwasher, industrial/household and metal cleaners, textiles, leather and paper aux.  
*Properties:* Colorless liq.; water-sol.; cloud pt. 87-91 C (1% aq.); pH 5-7 (10%); 85% act. in water; nonionic

# Part II

## Chemical Component Cross-Reference

# Chemical Component Cross-Reference

**AA.** See Acrylic acid; Adipic acid  
**AA/AM.** See Acrylates/acrylamide copolymer  
**Abietic acid sodium salt.** See Sodium rosinate  
**ABS.** See Acrylonitrile/butadiene/styrene copolymer; Dodecylbenzenesulfonic acid  
**Absolute alcohol.** See Alcohol  
**Absolute ethanol.** See Alcohol  
**Aceite de Algodon.** See Cottonseed (Gossypium) oil  
**Aceite de ricino.** See Castor (Ricinus communis) oil  
**Acenaphthene, 5-nitro-.** See 5-Nitroacenaphthene  
**Acenaphthylene, 1,2-dihydro-5-nitro-.** See 5-Nitroacenaphthene  
**Acetamide, 2-chloro-.** See Chloroacetamide  
**Acetamine diazo black RD.** See Dianisidine  
**Acetate cotton.** See Cellulose acetate  
**Acetate ester of cellulose.** See Cellulose acetate  
**(Acetato) phenylmercury.** See Phenylmercuric acetate

## Acetic acid

CAS 64-19-7; EINECS/ELINCS 200-580-7; UN No. 2789 (DOT), 2790 (DOT); FEMA 2006

**Synonyms:** Ethanoic acid; Ethyllic acid; Methanecarboxylic acid; Pyroigneous acid; Vinegar acid

**Classification:** Aliphatic organic acid

**Empirical:** C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>COOH

**Properties:** Clear colorless liq., pungent odor, sharply acid taste; misc. with water, alcohol, glycerol, ether; insol. in carbon disulfide; m.w. 60.03; dens. 1.0492 (20/4 C); m.p. 16.63 C; b.p. 118 C (765 mm); visc. 1.22 cps (20 C); vapor pressure 11.4 mm Hg (20 C); flash pt. (OC) 43 C; ref. index 1.3715 (20 C)

**Toxicology:** ACGIH TLV/TWA 10 ppm; STEL 15 ppm; LD50 (oral, rat) 3310 mg/kg, (skin, rabbit) 1060 mg/kg; mod. toxic by ingestion, inhalation; corrosive; strong irritant to eyes, skin, and tissue; caustic; can cause burns, lachrymation; human systemic effects by ing.; experimental reproductive effects; mutation data reported; TSCA listed

**Precaution:** Flamm.; moderate fire and explosion hazard exposed to heat or flame; can react vigorously with oxidizers; explosive or violent reactions possible; incompat. with many chems.; a common air contaminant

**Hazardous Decom. Prods.:** Heated to decomp., emits irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

**Uses:** Mfg. of acetic anhydride, cellulose acetate, vinyl acetate monomer; acetic esters; prod. of plastics, pharmaceuticals, cosmetics, aroma chems., dyes, insecticides, photographic chemicals, food additives; solvent reagent; acidifier; flavoring agent; etchant (semiconductor mfg.); aluminum brightener; laundry sour; boiler water additive; coagulant for latex; buffer in cosmetics; solvent/vehicle in foods, pharmaceuticals; color diluent; sanitizing solutions for food contact

**Use Level:** 39 ppm (nonalcoholic beverages), 32 ppm (ice cream), 52 ppm (candy), 38 ppm (baked goods), 15 ppm (pudding), 60 ppm (chewing gum), 5900 ppm (condiments); ADI no limit (EU)

**Regulatory:** FDA 21CFR §73.85, 133, 172.814, 178.1010, 184.1005, GRAS; USDA 9CFR §318.7; BP; Europe listed; UK approved; USP/NF, BP compliance

**Manuf./Distrib.:** Air Prods.; Aldrich; Alfa Aesar; Alfrebro; Allchem Ind.; Amyl;

Arch Chems.; Ashland; BASF; BP Amoco; BP Chems. Ltd; Brown; Callaway; Captree; Celanese; Chemconnect; Chemical; Coyne; Crompton/Witco; DuPont; Eastman; Equistar; Fisher Scientific; Florida Distillers; Fluka; General Chem.; Harcros; Lonza Ltd; Millennium; PMC Spec.; Quaker City; Rhodia; Romil Ltd; Ruger; SOCO-Lynch; Seeler Ind.; Showa Denko; Sigma; Spectrum Quality Prods.; Sterling Chems.; Vam Org. Chems. Ltd; Varsal Instruments; Veckridge; Wacker-Chemie GmbH

**Trade Names Containing:** Pericide® EF

**Acetic acid, aluminum salt.** See Aluminum acetate

**Acetic acid ammonium salt.** See Ammonium acetate

**Acetic acid, bromo-, 2-butene-1,4-diyl ester.** See 1,4-Bis (bromoacetoxy)-2-butene

**Acetic acid, bromo-, 2-butenylene ester.** See 1,4-Bis (bromoacetoxy)-2-butene

**Acetic acid, bromo-, diester with ethylene glycol.** See 1,2-Bis (bromoacetoxy) ethane

**Acetic acid, bromo-, 1,2-ethanediyl ester.** See 1,2-Bis (bromoacetoxy) ethane

**Acetic acid, bromo-, ethylene ester.** See 1,2-Bis (bromoacetoxy) ethane

**Acetic acid 2-butoxy ester.** See s-Butyl acetate

**Acetic acid 2-butyl ester.** See s-Butyl acetate

**Acetic acid, s-butyl ester.** See s-Butyl acetate

**Acetic acid, cellulose ester.** See Cellulose acetate

**Acetic acid, cobalt (2+) salt, tetrahydrate.** See Cobalt acetate (ous)

**Acetic acid, ethenyl ester.** See Vinyl acetate

**Acetic acid, ethenyl ester, homopolymer.** See Polyvinyl acetate

**Acetic acid ethenyl ester polymer with chloroethene.** See Vinyl chloride/vinyl acetate copolymer

**Acetic acid ethenyl ester, polymer with chloroethene.** See Vinyl chloride/vinyl acetate copolymer

**Acetic acid, ethenyl ester, polymer with ethene.** See Ethylene/VA copolymer

**Acetic acid, (ethylene dinitrilo) tetra-, calcium disodium salt.** See Calcium disodium EDTA

**Acetic acid, (ethylenedinitrilo) tetra-, tetrasodium salt.** See Tetrasodium EDTA

**Acetic acid, (ethylenedinitrilo) tetra-, trisodium salt.** See Trisodium EDTA

**Acetic acid, ethylene ether.** See Vinyl acetate

**Acetic acid, ethyl ester.** See Ethyl acetate

**Acetic acid, hydroxy-, compd. with N-[3-(dimethylamine) propyl] soyamide.** See Soyamidopropyl dimethylamino glycolate

**Acetic acid isopropyl ester.** See Isopropyl acetate

**Acetic acid, 2-methoxy-1-methylethyl ester.** See Propylene glycol methyl ether acetate

**Acetic acid 1-methylethyl ester.** See Isopropyl acetate

**Acetic acid 1-methylpropyl ester.** See s-Butyl acetate

**Acetic acid potassium salt.** See Potassium acetate

**Acetic acid propyl ester.** See Propyl acetate

**Acetic acid n-propyl ester.** See Propyl acetate

**Acetic acid, vinyl ester.** See Vinyl acetate

**Acetic acid, vinyl ester compd. with chloroethene.** See Vinyl chloride/vinyl acetate copolymer

**Acetic acid, vinyl ester, polymer.** See Polyvinyl acetate

**Acetic acid, vinyl ester, polymer with chloroethylene.** See Vinyl chloride/vinyl acetate copolymer

**Acetic acid vinyl ester polymers.** See Polyvinyl acetate

**Acetic acid, zirconium salt.** See Zirconium acetate

**Acetic ester.** See Ethyl acetate

**Acetic ether.** See Ethyl acetate

**Acetic, 1,2,3-propanetriyl ester.** See Triacetin

**Acetin.** See Triacetin

**Acetodiphosphonic acid.** See Etidronic acid

#### Acetone

CAS 67-64-1; EINECS/ELINCS 200-662-2; UN No. 1090 (DOT), 1091 (DOT); FEMA 3326

**Synonyms:** DMK; Acetone oils; Dimethylketone; Dimethylketal; Dimethyl formaldehyde; Ketone, dimethyl; Ketone propane;  $\beta$ -Ketopropane; Methyl ketone; Propanone; 2-Propanone; Pyroacetic acid; Pyroacetic ether

**Classification:** Aliphatic ketone

**Empirical:** C<sub>3</sub>H<sub>6</sub>O

**Formula:** CH<sub>3</sub>COCH<sub>3</sub>

**Properties:** Colorless volatile transparent liq., sweetish odor, pungent sweetish taste; sol. in water, alcohol, chloroform, dimethylformamide, ether, most volatile oils; m.w. 58.09; sp.gr. 0.792 (20/20 C); vapor pressure 400 mm Hg (39.5 C); m.p. -94.3 C; b.p. 56.2 C; flash pt. (CC) -18 C

**Toxicology:** ACGIH TLV/TWA 750 ppm; STEL 1000 ppm; LD50 (oral, mouse) 3000 mg/kg; narcotic in high conc.; moderately toxic by ingestion and inhalation; lg. doses may cause narcosis; extreme concs. may cause collapse, coma, death; inh. irritates lungs; ing. may cause throat, esophagus, and stomach irritation; peeling and splitting of nails, skin rashes; eye irritant; common air contaminant; TSCA listed

**Environmental:** BOD 0.31-1.63; COD 1.12-2.07

**Precaution:** DOT: flamm. liq.; dangerous fire risk; explosive limit in air 2.6-12.8%; reacts violently with oxidizing agents, chlorinated solv./alkali mixts.; reacts vigorously with sulfur dichloride, potassium t-butoxide, hexachloromelamine

**Hazardous Decomp. Prods.:** Complete combustion yields CO<sub>2</sub>, water vapor; incomplete combustion can produce CO

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight

**Uses:** Solvent for paints, varnishes, lacquers, resins, fats, waxes, adhesives, printing inks, cellulose resins, plastics, pharmaceuticals; degreasing agent; for cleaning and drying precision equip.; delustrant for cellulose acetate fibers; extraction solvent for foods, essential oils; mfg. of acetate rayon, photographic film, paint removers, glues, cements, plastics, rubber, dyes, explosives; denaturant, solvent in cosmetics; color diluent for foods; flavoring agent; in food-pkg. adhesives; adjuvant in resinous/polymeric food-contact coatings; adjuvant in slimicides in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §73.1, 73.30, 73.345, 73.615, 173.210, 175.105, 175.320, 176.300, 182.99; 40CFR §180.1001; 30 ppm tolerance in spice oleoresins; FEMA GRAS; Japan approved with restrictions; USP/NF, BP compliance; VOC-exempt

**Manuf./Distrib.:** Aldrich; Alfrebro; Allchem Ind.; Amyl; Arch Chems.; Aristech; Ashland; Atofina; BASF; BP Amoco; BP Chems. Ltd; Baychem; C.P. Hall; Captree; Chemcentral; Chemconnect; Chemical; Columbus Chem. Ind.; Dow; E-Chemicals; Eastman; Exxon; Fisher Scientific; Fluka; GE Plastics; General Chem.; Georgia Gulf; Haltermann Prods. UK; Harcros; Herdillia Chems. Ltd; Honeywell Perf. Polymers; Houghton Chem.; Hukill; J.T. Baker; JLM Marketing; Kyowa Hakko Kogyo; Mitsubishi Chem.; Nippon Petrochems.; Phenolchemie; Primachem; Quaker City; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Samson; Seeler Ind.; Shell; Sigma; Spectrum Quality Prods.; Sumitomo Chem.; Sunnyside; Sunoco; Texaco; Total Spec. Chems.; Union Carbide; Van Waters & Rogers; Veckridge

**Trade Names Containing:** Cerol® M Liq.

**Acetone oils.** See Acetone

**Acetose.** See Cellulose acetate

**Acetoxyethane.** See Ethyl acetate

**1-Acetoxyethylene.** See Vinyl acetate

**Acetoxyyl.** See Benzoyl peroxide

**(Acetoxymercuri) benzene.** See Phenylmercuric acetate

**2-Acetoxy-1-methoxypropane.** See Propylene glycol methyl ether acetate

**2-Acetoxypropane.** See Isopropyl acetate

**Acetoxyphenylmercury.** See Phenylmercuric acetate

**1-Acetoxypropane.** See Propyl acetate

**2-Acetoxypropane.** See Isopropyl acetate

**4-[[4-Acetyl( amino) phenyl] amino]-1-amino-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid, monosodium salt.** See Acid blue 40

**5-(4-Acetyl( amino)-2-sulfophenylazo)-6-amino-4-hydroxy naphthalene-2-sulfonic acid, disodium salt.** See Acid red 37

**Acetyl butyl citrate.** See Acetyl tributyl citrate

**Acetylcellulose.** See Cellulose acetate

**Acetylcitric acid, tributyl ester.** See Acetyl tributyl citrate

**Acetylene black.** See Carbon black

**Acetylenic glycol.** See Tetramethyl decynediol

**Acetyl hydroperoxide.** See Peracetic acid

**2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, tributyl ester.** See Acetyl tributyl citrate

**2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, triethyl ester.** See Acetyl triethyl citrate

#### Acetyl peroxide

CAS 110-22-5; EINECS/ELINCS 203-748-8; UN No. 2084

**Synonyms:** Diacetone peroxides; Diacetyl peroxide

**Classification:** Organic peroxide

**Empirical:** C<sub>4</sub>H<sub>6</sub>O<sub>4</sub>

**Formula:** (CH<sub>3</sub>CO)<sub>2</sub>O<sub>2</sub>

**Properties:** Colorless crystals; very pungent odor; sl. sol. in cold water, sol. in alcohol and ether; m.w. 118.10; dens. 1.18 (20 C); f.p. ≈ -8 C; m.p. 30 C; b.p. 63 C (21 mm); flash pt. (OC) 45 C

**Toxicology:** TDLo (unreported, mouse) 283 mg/kg; strong irritant to skin, eyes, mucous membranes; questionable carcinogen; experimental tumorigen; TSCA listed

**Precaution:** Flamm.; mod. fire risk; strong oxidizer; can cause ignition of organics on contact; severe explosion hazard when shocked or exposed to heat; reacts with water or steam to produce heat; can react vigorously with reducing materials

**Hazardous Decomp. Prods.:** Emits toxic fumes on contact with acid or acid fumes

**NFPA:** Health 1; Flammability 2; Reactivity 4

**Storage:** Should not be stored after preparation, nor heated above 30 C; store in original container with vented cap

**Uses:** Initiator and catalyst for resins; polymerization catalyst for paper/paperboard in contact with aq./fatty foods; food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 176.170

#### Acetyl tributyl citrate

CAS 77-90-7; EINECS/ELINCS 201-067-0; FEMA 3080

**Synonyms:** ATBC; Acetyl butyl citrate; Acetylcitric acid, tributyl ester; 2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, tributyl ester; Acetyl tri-n-butyl citrate; Citric acid, tributyl ester, acetate; 1,2,3-Propanetricarboxylic acid, 2-(acetyloxy)-, tributyl ester; Tributyl acetyl citrate; Tributyl O-acetylcitrate; Tri-n-butyl O-acetylcitrate; Tributyl 2-(acetyloxy)-1,2,3-propanetricarboxylate; Tributyl citrate acetate; Tri-n-butyl citrate acetate

**Classification:** Aliphatic ester

**Definition:** Ester of citric acid

**Empirical:** C<sub>20</sub>H<sub>34</sub>O<sub>8</sub>

**Formula:** CH<sub>3</sub>COOC<sub>3</sub>H<sub>7</sub>(COOC<sub>3</sub>H<sub>7</sub>)<sub>3</sub>

**Properties:** Colorless sl. visc. liq., sweet herbaceous odor; sol. in alcohol; insol. in water; m.w. 402.49; dens. 1.14; b.p. > 300 C; flash pt. 204 C; ref. index 1.4408

**Toxicology:** LD50 (IP, mouse) > 4 g/kg; low toxicity by ing., skin contact, and IP routes; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Plasticizer for vinyl resins, cellulosic resins, rubber, food pkg.; synthetic flavoring for foods and pharmaceuticals; solvent in household, I&I cleaners; solvent, film-former, and plasticizer for inks, adhesives, coatings; film-former in cosmetics; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §172.515, 175.105, 175.300, 175.320, 178.3910, 181.22, 181.27; FEMA GRAS

**Manuf./Distrib.:** AC Ind.; Aldrich; Allan; Allchem Ind.; Jungbunzlauer; Kyowa Hakko Kogyo; Morflex; Pechiney World Trade USA; Pfizer Int'l.; Reilly Chems. SA; Sanken Chem.; Unitex



*Trade Names:* ATBC; Citroflex® A-4; Citroflex® A-4 Special; Uniplex 84

**Acetyl tri-n-butyl citrate.** See Acetyl tributyl citrate

**Acetyl triethyl citrate**

CAS 77-89-4; EINECS/ELINCS 201-066-5

*Synonyms:* ATEC; 2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, triethyl ester; Tricarballic acid-β-acetoxytributyl ester; Triethyl acetylcitrate; Triethyl o-acetylcitrate

*Classification:* Aliphatic ester

*Empirical:* C<sub>14</sub>H<sub>22</sub>O<sub>8</sub>

*Formula:* CH<sub>3</sub>COOC<sub>2</sub>H<sub>5</sub>(COOC<sub>2</sub>H<sub>5</sub>)<sub>3</sub>

*Properties:* Colorless liq.; odorless; sl. sol. in water; m.w. 318.36; dens. 1.135 (25 C); m.p. -50 C; flash pt. 187 C

*Toxicology:* Moderate toxicity by intraperitoneal route; mild toxicity by ingestion; TSCA listed

*Precaution:* Combustible

*Uses:* Plasticizer for cellulose, primarily ethyl cellulose, food pkg.; solvent for household, I&I cleaners, pharmaceuticals; plasticizer for pharmaceutical coatings; film-former in cosmetics; solvent, film-former, plasticizer for inks, adhesives, coatings; in food-pkg. adhesives; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 178.3910, 181.22, 181.27

*Manuf./Distrib.:* Aldrich; Morflex; Pfizer Ltd; Unitec

*Trade Names:* ATEC; Citroflex® A-2

**Acid blue 1**

CAS 129-17-9; EINECS/ELINCS 204-934-1

*Synonyms:* Ammonium, (4-(α-(p-(diethylamino) phenyl)-2,4-disulfobenzylidene)-2,5-cyclohexadien-1-ylidene) diethyl-, hydroxide, monosodium salt; Anhydro-4,4'-bis (diethylamino) triphenylmethanol-2',4''-disulfonic acid, monosodium salt; CI 42045; 4,4'-Di (diethylamino)-4',6''-disulfotriphenylmethanol anhydride, sodium salt; N-[4-[[4-(Diethylamino) phenyl] (2,4-disulfophenyl) methylene]-2,5-cyclohexadien-1-ylidene]-N-ethylethaniminium, hydroxide, inner salt, sodium salt; Ethanaminium, N-4-[[4-(diethylamino) phenyl] (2,4-disulfophenyl) methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-, hydroxide, inner salt, sodium salt; Food blue 3; Leather blue G; Patent blue; Patent blue VF; Sulfan blue

*Classification:* Triphenylmethane color

*Empirical:* C<sub>27</sub>H<sub>31</sub>N<sub>2</sub>NaO<sub>6</sub>S<sub>2</sub>

*Properties:* Purple or dk. greenish-blk. powd.; sol. ≥ 1 g/100 ml in water (21 C); m.w. 566.67; m.p. 0 C

*Toxicology:* LD50 (IV, rat) 5 g/kg, (IP, mouse) 3 g/kg; LD (oral, rat) > 3 g/kg; harmful by ing., inh., skin contact; possible risk of irreversible effects; may cause anaphylaxis, reproductive system tumors; possible carcinogen, neoplastigen; tumorigen; mutagen; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* N, NO<sub>x</sub>, CO, CO<sub>2</sub>, SO<sub>x</sub>, irritating and toxic fumes and gases

*Storage:* Store in cool, dry place; keep container closed when not in use

*Uses:* Dye for wool, silk, inks, and paper; colorant in hair dyes

*Manuf./Distrib.:* Acros Org.; Aldrich; Dudley; Sigma

**Acid blue 20**

CAS 8004-99-7

*Synonyms:* CI 50405; Indulin B

*Uses:* Acid dye for paper, leather, wax

*Manuf./Distrib.:* Sigma

**Acid blue 29**

CAS 5850-35-1; EINECS/ELINCS 227-449-7

*Synonyms:* 4-Amino-5-hydroxy-3-[(m-nitrophenyl) azo]-6-(phenylazo)-2,7-naphthalenedisulfonic acid, 2,7-disodium salt; CI 20460; 2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-3-[(3-nitrophenyl) azo]-6-(phenylazo)-, disodium salt

*Classification:* Azobenzene

*Empirical:* C<sub>22</sub>H<sub>14</sub>N<sub>6</sub>Na<sub>2</sub>O<sub>9</sub>S<sub>2</sub>

*Properties:* M.w. 616.49

*Uses:* Dye for wool, silk, polyamide, and paper

*Manuf./Distrib.:* Aldrich; Sigma

**Acid blue 40**

CAS 642-85-7; EINECS/ELINCS 229-190-5

*Synonyms:* 4-[[4-Acetylamino) phenyl] amino]-1-amino-9,10-dihydro-9,10-dioxo-2-anthracenesulfonic acid, monosodium salt; CI 62125

*Classification:* Azobenzene

*Empirical:* C<sub>22</sub>H<sub>16</sub>N<sub>2</sub>NaO<sub>6</sub>S

*Properties:* M.w. 473.44

*Uses:* Dye for wool, silk, polyamide, and paper

*Manuf./Distrib.:* Aldrich

**Acid blue 9 aluminum lake.** See FD&C Blue No. 1 aluminum lake

**Acid brilliant green SF.** See Acid green 5

**Acid butyl phosphate.** See Butyl acid phosphate

**Acid green 1**

CAS 19381-50-1; EINECS/ELINCS 243-010-2

*Synonyms:* CI 10020; D&C Green No. 1; Ext. D&C Green No. 1; Ferrate(3-), tris [5,6-dihydro-5-(hydroxyimino)-6-oxo-2-naphthalenesulfonato(2-)-N<sup>5</sup>,O<sup>6</sup>]-, trisodium; Iron, tris (5,6-dihydro-5,6-dioxo-2-naphthalenesulfonic acid-5-oximate)-, trisodium salt; Naphthol green; Naphthol green B; Pigment green 12; Sodium tris (1,2-naphthalenedione 1-oximate-O,O') ferrate (II); Tris [5,6-dihydro-5-(hydroxyimino)-6-oxo-2-naphthalenesulfonato(2-)-N<sup>5</sup>,O<sup>6</sup>] ferrate (3), trisodium

*Classification:* Azobenzene; nitroso color

*Empirical:* C<sub>30</sub>H<sub>15</sub>FeN<sub>3</sub>O<sub>15</sub>S<sub>3</sub> • 3Na

*Properties:* M.w. 878.47

*Toxicology:* LD50 (IV, mouse) 460 mg/kg; mutagen; TSCA listed

*Uses:* Dye for wool, paper, polyamides, and cosmetics; colorant in hair dyes

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Dudley; Fluka; Sigma

**Acid green 5**

CAS 5141-20-8; EINECS/ELINCS 225-906-5

*Synonyms:* Acid brilliant green SF; Ammonium, ethyl (4-(p-(ethyl-(m-sulfobenzyl) amino)-α-(p-sulfophenyl) benzylidene)-2,5-cyclohexadien-1-ylidene)-(m-sulfobenzyl)-, hydroxide, inner salt, disodium salt; CI 42095; D&C Green No. 4; N-Ethyl-N-[4-[[4-[(ethyl[(3-sulfophenyl) methyl] amino) phenyl] (4-sulfophenyl) methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfobenzenemethaniminium inner salt, disodium salt; FD&C Green No. 2; FD&C Green No. 2 aluminum lake; Food green 2; Leather green SF; Light green CF; Light green SF yellowish; Light green yellowish

*Classification:* Azobenzene

*Empirical:* C<sub>37</sub>H<sub>36</sub>N<sub>2</sub>Na<sub>2</sub>O<sub>9</sub>S<sub>3</sub>

*Properties:* Reddish-brn. powd.; sol. in water; m.w. 794.91; m.p. 288 C

*Toxicology:* LD50 (oral, rat) > 2 g/kg, (subcut., mouse) 525 mg/kg, (IV, mouse) 700 mg/kg; harmful by inh., ing., skin contact; eye irritant; digestive tract irritant; possible risk of irreversible effects; may cause methemoglobinemia, wt. loss; cancer suspect agent; tumorigen; neoplastigen; reproductive effector; mutagen; target organ: male reproductive system, blood; TSCA listed

*Storage:* Store in cool, dry, well-ventilated area away from incompat. substances

*Uses:* Dye for wool, silk, polyamide, and paper; biological stain

*Regulatory:* Delisted by FDA in 1966 for use in foods, drugs, and cosmetics

*Manuf./Distrib.:* Acros Org.; Aldrich; Dudley; Fisher Scientific; Fluka; ProSciTech; Sigma

**Acid green 9**

*Synonyms:* CI 42100

*Empirical:* C<sub>37</sub>H<sub>34</sub>ClN<sub>2</sub>NaO<sub>6</sub>S<sub>2</sub>

*Properties:* M.w. 725.26

*Uses:* Dye for wool, silk, polyamide, and paper

*Manuf./Distrib.:* Aakash Chems. & Dyestuffs; Leadertech Colors; Org. Dyestuffs

**Acid green 16**

CAS 12768-78-4

*Synonyms:* Acid pure green V; CI 44025; Naphthalene green V

*Empirical:* C<sub>27</sub>H<sub>25</sub>N<sub>2</sub>NaO<sub>6</sub>S<sub>2</sub>

*Properties:* M.w. 560.62

*Toxicology:* Mutagen; TSCA listed

*Uses:* Dye for wool, silk, polyamide, paper, and plastics

*Manuf./Distrib.:* Aakash Chems. & Dyestuffs; Aashiana Dyestuffs; Albanil Dyestuff Int'l.; Classic Dyestuffs; Indo Colchem; Org. Dyestuffs

**Acid green 20**

*Synonyms:* CI 20495

*Empirical:* C<sub>22</sub>H<sub>14</sub>N<sub>4</sub>Na<sub>2</sub>O<sub>7</sub>S<sub>2</sub>

*Properties:* M.w. 586.51

*Uses:* Dye for wool, silk, polyamide, leather, and paper

*Manuf./Distrib.:* Aakash Chems. & Dyestuffs; Fabricolor; Leadertech Colors; Org. Dyestuffs; Rite Ind.

#### Acid green 25

CAS 4403-90-1; EINECS/ELINCS 224-546-6

*Synonyms:* Alizarin cyanine green F; 2,2'-(1,4-Anthraquinonylenediimino) bis (5-methylbenzenesulfonic acid) disodium salt; 6,6'-(1,4-Anthraquinonylenediimino) di-m-toluenesulfonic acid disodium salt; Benzenesulfonic acid, 2,2'-(1,4-anthraquinonylenediimino) bis (5-methyl)-, disodium salt; Benzenesulfonic acid, 2,2'-[(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl) diimino] bis (5-methyl)-, disodium salt; CI 61570; D&C Green No. 5; 2,2'-[(9,10-Dihydro-9,10-dioxo-1,4-anthracenediyl) diimino] bis (5-methylbenzenesulfonic acid) disodium salt

*Classification:* Anthraquinone color

*Empirical:* C<sub>28</sub>H<sub>20</sub>N<sub>2</sub>Na<sub>2</sub>O<sub>8</sub>S<sub>2</sub>

*Properties:* Grn. powd.; sol. 0.5-1.0 g/100 ml water (21 C); sl. sol. in acetone, alcohol, pyridine; insol. in chloroform, toluene; dull blue sol'n. in conc. H<sub>2</sub>SO<sub>4</sub>, turning turquoise on dil.; m.w. 622.58; m.p. 340 C

*Toxicology:* LD50 (oral, rat) > 10 g/kg; primary irritant; irritating to eyes, skin, respiratory system; TSCA listed

*Storage:* Store in cool, dry place; keep container closed when not in use

*Uses:* Dye for wool, silk, polyamide, paper, stains, and soap; colorant in hair dyes, nylon sutures

*Regulatory:* Permitted in drugs and cosmetics, excluding use in eye area

*Manuf./Distrib.:* Acros Org.; Aldrich

**Acidic metanil yellow.** See Acid yellow 36

**Acid leather orange extra.** See Acid orange 7

**Acid metanil yellow.** See Acid yellow 36

#### Acid orange 7

CAS 633-96-5; EINECS/ELINCS 211-199-0

*Synonyms:* Acid leather orange extra; Acid orange 7 monosodium salt; Benzenesulfonic acid, 4-((2-hydroxy-1-naphthalenyl) azo)-, monosodium salt; Betanaphthol orange; CI 15510; D&C Orange No. 4; 4-[(2-Hydroxy-1-naphthalenyl) azo] benzenesulfonic acid monosodium salt; 4-(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt; p-((2-Hydroxy-1-naphthyl) azo) benzenesulfonic acid sodium salt; Naphthalene Orange G; Naphthol orange; β-Naphthol orange; β-Naphthyl orange; Orange II; Persian orange; Sodium 4-[(2-hydroxy-1-naphthyl) azo] benzenesulfonate

*Classification:* Monoazo color

*Empirical:* C<sub>16</sub>H<sub>12</sub>N<sub>2</sub>NaO<sub>4</sub>S

*Formula:* C<sub>16</sub>H<sub>12</sub>N<sub>2</sub>O<sub>4</sub>S · Na

*Properties:* M.w. 351.35

*Toxicology:* TDLo (oral, male rat, 43 wks) 150 g/kg; irritating to eyes, skin, respiratory system; may cause liver and blood changes; experimental reproductive effects; mutagenic data; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub> and SO<sub>x</sub>

*Uses:* Orange dye for wool, silk, polyamide, and paper; colorant for cosmetics (hair dyes) and external pharmaceuticals; biological stain; pH indicator

*Regulatory:* D&C Orange No. 4; FDA 21CFR §74.1254, 74.2254, 82.1254; permanently listed

*Manuf./Distrib.:* Acros Org.; Aldrich; BFGoodrich Hilton Davis; Costec; Crompton & Knowles; Dudley; Fluka; ProSciTech; Ruger; Sigma; Warner-Jenkinson

#### Acid orange 8

CAS 5850-86-2; EINECS/ELINCS 227-458-6

*Synonyms:* CI 15575; 4-(2-Hydroxynaphthalen-1-ylazo)-3-methylbenzenesulfonic acid, sodium salt; 4-[(2-Hydroxy-1-naphthyl) azo]-3-methylbenzenesulfonic acid, monosodium salt

*Classification:* Azobenzene

*Empirical:* C<sub>17</sub>H<sub>13</sub>N<sub>2</sub>NaO<sub>4</sub>S

*Properties:* M.w. 364.35

*Toxicology:* TSCA listed

*Uses:* Dye for wool, silk, polyamide, jute, and paper

*Manuf./Distrib.:* Aldrich; Sigma

#### Acid orange 10

CAS 1936-15-8; EINECS/ELINCS 217-705-6

*Synonyms:* Acid orange 10, disodium salt; CI 16230; D&C Orange No. 3; Food orange 4; 7-Hydroxy-8-(phenylazo)-1,3-naphthalenedisulfonic acid, disodium salt; 1,3-Naphthalenedisulfonic acid, 7-hydroxy-8-(phenylazo)-, disodium salt; Orange G; 1-Phenylazo-2-naphthol-6,8-disulfonic acid, disodium salt; Wool orange G

*Classification:* Azobenzene

*Empirical:* C<sub>16</sub>H<sub>10</sub>N<sub>2</sub>Na<sub>2</sub>O<sub>7</sub>S<sub>2</sub>

*Properties:* Orange microcryst. solid; sl. odor; sol. 5-10 g/100 ml water (23.5 C); sol. < 1 mg/ml in DMSO, 95% ethanol, acetone; sl. sol. in Cello-solve; insol. in org. solvs.; m.w. 452.37; vapor pressure negligible; m.p. 300-375 C (dec.)

*Toxicology:* ACGIH 10 mg/m<sup>3</sup> total dust (nuisance particulates); TDLo (oral, rat, 15 wks continuous) 26,250 mg/kg; irritating to eyes, skin, respiratory system; may cause changes in liver/spleen wt., normocytic anemia; tumorigen; reproductive effector; mutagenic data but inconclusive; TSCA listed

*Precaution:* Probably combustible; incompat. with oxidizing agents; becomes redder and more dull when mixed with copper; almost destroyed when mixed with iron

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of CO<sub>x</sub>, NO<sub>x</sub>, SO<sub>x</sub>, disodium oxide; burning will produce oxides of carbon, nitrogen and sulfur

*Storage:* Store in cool, dry place; keep containers tightly closed

*Uses:* Dye for wool, silk, leather, paper, wood, stains, and inks; biological stain; in foods, drugs, cosmetics

*Manuf./Distrib.:* Acros Org.; Aldrich; Dudley; Fisher Scientific; Fluka; ProSciTech; Sigma

#### Acid orange 11

CAS 596-03-2; EINECS/ELINCS 209-876-0

*Synonyms:* CI 45370; CI 45370:1; D&C Orange No. 5; 4',5'-Dibromo-3',6'-dihydroxyspiro [isobenzofuran-1(3H),9'-(9H)] xanthen-3-one; 4,5-Dibromo-3,6-fluorandiol; Dibromofluorescein; 4',5'-Dibromofluorescein; 2-(4,5-Dibromo-6-hydroxy-3-oxo-3H-xanthen-9-yl) benzoic acid; Eosinic acid; Fluorescein, 4',5'-dibromo-; Japan orange 201; Solvent red 72; Spiro (isobenzofuran-1(3H),9'-(9H) xanthen)-3-one, 4',5'-dibromo-3',6'-dihydroxy-

*Classification:* Azobenzene

*Empirical:* C<sub>20</sub>H<sub>10</sub>Br<sub>2</sub>O<sub>5</sub>

*Properties:* Red plates; sol. in ethanol, acetone; sl. sol. in water; m.w. 490.12; m.p. 285 C

*Toxicology:* TDLo (oral, rat, 21 days continuous) 15,556 mg/kg; may cause changes in urine and serum composition, changes in ovarian wt.; mutagen; TSCA listed

*Uses:* Dye for wool, silk, and paper; D&C Orange No. 5 as colorant in lipsticks, mouthwashes, and dentifrices

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Dudley; Fluka; Sigma

#### Acid orange 51

CAS 8003-88-1; EINECS/ELINCS 232-328-7

*Synonyms:* CI 26550

*Classification:* Azobenzene

*Empirical:* C<sub>38</sub>H<sub>28</sub>N<sub>4</sub>Na<sub>2</sub>O<sub>11</sub>S<sub>3</sub>

*Properties:* M.w. 919.81

*Toxicology:* TSCA listed

*Uses:* Dye for wool, silk, polyamide, paper, and resins

*Manuf./Distrib.:* Aldrich; Sigma

**Acid orange 10, disodium salt.** See Acid orange 10

**Acid orange 7 monosodium salt.** See Acid orange 7

**Acid pure green V.** See Acid green 16

#### Acid red 4

CAS 5858-39-9; EINECS/ELINCS 227-490-0

*Synonyms:* Acid red 4, monosodium salt; CI 14710; 4-Hydroxy-3-(2-methoxyphenylazo) naphthalene-1-sulfonic acid, sodium salt; 1-Naphthalenesulfonic acid, 4-hydroxy-3-((2-methoxyphenyl) azo)-, monosodium salt

*Classification:* Azobenzene

*Empirical:* C<sub>17</sub>H<sub>14</sub>N<sub>2</sub>NaO<sub>5</sub>S

*Properties:* M.w. 381.35

*Toxicology:* TSCA listed  
*Uses:* Dye for wool, paper  
*Manuf./Distrib.:* Aldrich; Sigma

**Acid red 26**

CAS 3761-53-3; EINECS/ELINCS 223-178-3  
*Synonyms:* Acid red 26, disodium salt; CI 16150; D&C Red No. 5; 4-((2,4-Dimethylphenyl)azo)-3-hydroxy-2,7-naphthalenedisulfonic acid, disodium salt; Disodium (2,4-dimethylphenylazo)-2-hydroxynaphthalene-3,6-disulfonate; Food red 5; 3-Hydroxy-4-(2,4-xylylazo)-3,7-naphthalenedisulfonic acid, disodium salt; 2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-(2,4-xylylazo)-, disodium salt; Ponceau MX; Ponceau red; Xylidine ponceau; Xylidine red; 1-Xylylazo-2-naphthol-3,6-disulfonic acid, disodium salt; 1-(2,4-Xylylazo)-2-naphthol-3,6-disulfonic acid, disodium salt

*Classification:* Azobenzene

*Empirical:* C<sub>18</sub>H<sub>14</sub>N<sub>2</sub>Na<sub>2</sub>O<sub>5</sub>S<sub>2</sub>

*Properties:* Dk. red cryst.; sol. (mg/ml): 1-10 mg water (20 C), < 1 mg in DMSO, 95% ethanol, methanol, acetone, toluene (20 C); very sl. sol. in ether; insol. in oil, org. solvs.; m.w. 480.44; m.p. > 300 C

*Toxicology:* LD50 (oral, rat) 23,160 mg/kg, (IP, rat) > 1 g/kg, (IV, mouse) 1530 mg/kg; harmful by inh., skin contact; danger of cumulative effects; may cause somnolence, muscle weakness, ataxia, convulsions, antipsychotic behavior, changes in liver/kidney/spleen wt.; suspected carcinogen; tumorigen; mutagen; TSCA listed

*Precaution:* Probably combustible; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>

*Storage:* Store @ ambient temps.

*Uses:* Dye for wool, polyamide, silk, paper, inks, wood stains, drugs, cosmetics, leather, fruit, confectionery and meat prods., soaps, face lotions

*Manuf./Distrib.:* John Campbell

**Acid red 37**

CAS 6360-07-2; EINECS/ELINCS 228-823-2  
*Synonyms:* 5-(4-Acetylamino-2-sulfophenylazo)-6-amino-4-hydroxy naphthalene-2-sulfonic acid, disodium salt; CI 17045

*Classification:* Azobenzene

*Empirical:* C<sub>18</sub>H<sub>14</sub>N<sub>4</sub>Na<sub>2</sub>O<sub>8</sub>S<sub>2</sub>

*Properties:* M.w. 524.44

*Toxicology:* Irritating to eyes, skin, respiratory system; TSCA listed

*Uses:* Dye for wool, silk, polyamide, paper, soap, and lacquers

*Manuf./Distrib.:* Aldrich

**Acid red 52**

CAS 3520-42-1; EINECS/ELINCS 222-529-8  
*Synonyms:* Acid rhodamine B; CI 45100; N-[6-(Diethylamino)-9-(2,4-disulfophenyl)-3H-xanthen-3-ylidene]-N-ethyl ethanaminium, hydroxide, inner salt, sodium salt; Ethanaminium, N-[6-(diethylamino)-9-(2,4-disulfophenyl)-3H-xanthen-3-ylidene]-N-ethyl-, hydroxide, inner salt, sodium salt; Food red 106; Red 106; Xanthylum, 3,6-bis(diethylamino)-9-(2,4-disulfophenyl)-, hydroxide, inner salt, sodium salt; Xylene red B

*Classification:* Xanthene color; azobenzene

*Empirical:* C<sub>27</sub>H<sub>29</sub>N<sub>2</sub>NaO<sub>7</sub>S<sub>2</sub>

*Properties:* M.w. 580.69

*Toxicology:* LD50 (oral, mouse) 10,300 mg/kg; mutagen; TSCA listed

*Storage:* Photosensitive

*Uses:* Dye for wool, silk, polyamide, and paper; colorant in hair dyes

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Acid red 87**

CAS 548-26-5; 17372-87-1; EINECS/ELINCS 208-953-6; 241-409-6  
*Synonyms:* Bromofluoresceic acid; CI 45380; D&C Red No. 22; Disodium 2-(2,4,5,7-tetrabromo-6-oxido-3-oxoxanthen-9-yl) benzoate; Eosin disodium; Eosine; Eosine G; Eosin Y; Eosin YS; Spiro [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, disodium salt; 2',4',5',7'-Tetrabromo-3',6'-dihydroxyspiro [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one disodium salt; Tetrabromofluorescein

*Classification:* Indelible xanthene color

*Definition:* Disodium salt of eosin

*Empirical:* C<sub>20</sub>H<sub>8</sub>Br<sub>4</sub>Na<sub>2</sub>O<sub>5</sub>

*Formula:* C<sub>20</sub>H<sub>8</sub>O<sub>5</sub>Br<sub>4</sub>Na<sub>2</sub>

*Properties:* Red cryst. with bluish tinge or brnsh. red powd.; freely sol. in

water; m.w. 693.90; dens. 1.015

*Toxicology:* LD50 (IV, mouse) 550 mg/kg; tumorigen; mutagen; TSCA listed  
*Uses:* Dye for red inks, wool, silk, paper, stains; colorant in cosmetics, hair dyes, pharmaceuticals; in microbiological differential media; as biological stain

*Regulatory:* D&C Red No. 22; FDA 21CFR §74.1322, 74.2122, 82.1322; FDA approved for orals; permanently listed

*Manuf./Distrib.:* AMRESCO; Aldrich; BFGoodrich Hilton Davis; Costec; Fluka; Ruger; Sigma; Warner-Jenkinson

**Acid red 88**

CAS 1658-56-6; EINECS/ELINCS 216-760-3  
*Synonyms:* CI 15620; Ext. D&C Red. No. 8; Fast red A; 4-(2-Hydroxynaphthalen-1-ylazo) naphthalene-1-sulfonic acid, sodium salt; 4-((2-Hydroxy-1-naphthalenyl)azo)-1-naphthalene sulfonic acid sodium salt; 1-Naphthalenesulfonic acid, 4-((2-hydroxy-1-naphthalenyl)azo)-, monosodium salt; Red No. 506; Roccelline; Roccelline; Solid red A

*Classification:* Azobenzene

*Empirical:* C<sub>20</sub>H<sub>14</sub>N<sub>2</sub>NaO<sub>5</sub>S

*Properties:* M.w. 401.41; m.p. 280 C

*Toxicology:* Mutagen; TSCA listed

*Storage:* Store in cool, dry place; keep container closed when not in use

*Uses:* Dye for wool, silk, polyamide, paper, jute, stains, and soap

*Manuf./Distrib.:* Acros Org.; Aldrich; Sigma

**Acid red 97**

CAS 10169-02-5; EINECS/ELINCS 233-439-3  
*Synonyms:* Acid red 97, disodium salt; (1,1'-Biphenyl)-2,2'-disulfonic acid, 4,4'-bis((2-hydroxy-1-naphthalenyl)azo)-, disodium salt; 4,4'-Bis((2-hydroxy-1-naphthalenyl)azo)-(1,1'-biphenyl)-2,2'-disulfonic acid, disodium salt; CI 22890

*Classification:* Azobenzene

*Empirical:* C<sub>32</sub>H<sub>20</sub>N<sub>2</sub>Na<sub>2</sub>O<sub>8</sub>S<sub>2</sub>

*Properties:* Red powd.; sol. (mg/ml): 1-10 mg water (20 C), < 1 mg in DMSO, 95% ethanol, acetone (20 C); m.w. 698.64; m.p. > 300 C

*Toxicology:* Mutagenic data; TSCA listed

*Precaution:* Probably combustible; incompat. with oxidizing and reducing agents; copper dulls color; iron makes it much duller

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub> and SO<sub>x</sub>

*Storage:* Store @ ambient temps.

*Uses:* Dye for wool, silk, polyamide, paper, jute

*Manuf./Distrib.:* Aldrich

**Acid red 137**

*Synonyms:* CI 17755  
*Empirical:* C<sub>20</sub>H<sub>17</sub>N<sub>3</sub>NaO<sub>6</sub>S  
*Properties:* M.w. 464.43  
*Uses:* Dye for paper  
*Manuf./Distrib.:* Aakash Chems. & Dyestuffs

**Acid red 26, disodium salt.** See Acid red 26

**Acid red 97, disodium salt.** See Acid red 97

**Acid red 4, monosodium salt.** See Acid red 4

**Acid rhodamine B.** See Acid red 52

**Acids, coconut, hydrogenated.** See Hydrogenated coconut acid

**Acids, corn.** See Corn acid

**Acids, cottonseed.** See Cottonseed acid

**Acids, linseed.** See Linseed acid

**Acids, menhaden, hydrogenated.** See Hydrogenated menhaden acid

**Acid sodium sulfite.** See Sodium bisulfite

**Acids, tall oil.** See Tall oil acid

**Acids, tallow.** See Tallow acid

**Acids, tallow, hydrogenated.** See Hydrogenated tallow acid

**Acid violet 12**

*Synonyms:* CI 18075  
*Empirical:* C<sub>18</sub>H<sub>15</sub>N<sub>3</sub>Na<sub>2</sub>O<sub>5</sub>S<sub>2</sub>  
*Properties:* M.w. 539.45  
*Uses:* Dye for wool, silk, polyamide, leather, and paper  
*Manuf./Distrib.:* Aakash Chems. & Dyestuffs; Albanil Dyestuff Int'l.; Fabricolor; Org. Dyestuffs; Rite Ind.

**Acid violet 17**

CAS 4129-84-4; EINECS/ELINCS 223-942-

*Synonyms:* Acid violet 17, sodium salt; Benzenemethanaminium, N-(4-((4-(diethylamino) phenyl) (4-(ethyl ((3-sulfophenyl) methyl) amino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene)-N-ethyl-3-sulfo-, hydroxide, inner salt, sodium salt; CI 42650; Food violet 1; Violet BNP*Classification:* Azobenzene*Empirical:* C<sub>41</sub>H<sub>45</sub>N<sub>3</sub>NaO<sub>6</sub>S<sub>2</sub>*Properties:* M.w. 762.93*Toxicology:* TSCA listed*Uses:* Dye for wool, silk, paper, soap, and inks*Manuf./Distrib.:* Aldrich; Fluka; Sigma**Acid violet 49**

CAS 1694-09-3

*Synonyms:* Acid violet 49, sodium salt; Ammonium, (4-(p-(dimethylamino)- $\alpha$ -(p-ethyl (m-sulfobenzyl) amino) phenyl) benzylidene)-2,5-cyclohexadien-1-ylidene) ethyl (m-sulfobenzyl)-, hydroxide, inner salt, sodium salt; Benzenemethanaminium, N-[4-[[4-(dimethylamino) phenyl] [4-ethyl ((3-sulfophenyl) methyl) amino] phenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-3-sulfo-, inner salt, sodium salt; Benzyl violet; Benzyl violet 4B; CI 42640; Coomassie violet; D&C Violet No. 1; FD&C Violet No. 1; Food violet 2; Violet 2; Wool violet*Empirical:* C<sub>39</sub>H<sub>41</sub>N<sub>3</sub>NaO<sub>6</sub>S<sub>2</sub>*Properties:* Blk. fine powd.; sol. (mg/ml): < 1 mg in water, DMSO, 95% ethanol, methanol, acetone, toluene (20 C); insol. in veg. oils; m.w. 734.94; m.p. 245-250 C (dec.)*Toxicology:* TDLo (oral, rat, 28 wks continuous) 498 g/kg; experimental carcinogen, tumorigen; mutagenic data; TSCA listed*Precaution:* Probably combustible*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, ammonia, sodium oxide, SO<sub>x</sub>*Storage:* Store @ ambient temps.*Uses:* Dye for wool, polyamide, silk, leather, paper, inks, anodized aluminum; as biological stain; as wood stain; for coloring paper; color additive for foods, drugs, and cosmetics (FDA prohibited)*Regulatory:* FDA/USDA prohibited*Manuf./Distrib.:* Aakash Chems. & Dyestuffs; Albanil Dyestuff Int'l.; Indo Colchem; Leadertech Colors; Rite Ind.; Spectra Colors**Acid violet 17, sodium salt.** See Acid violet 17**Acid violet 49, sodium salt.** See Acid violet 49**Acid yellow 3**

CAS 8004-92-0; EINECS/ELINCS 305-897-5

*Synonyms:* CI 47005; D&C Yellow No. 10; Dye quinoline yellow; FD&C Yellow No. 10; Food yellow 3; Food yellow 13; 1H-Indene-1,3(2H)-dione, 2-(2-quinolinyl)-, sulfonated, sodium salts; Quinoline yellow; 2-(2-Quinoly)-1,3-indandione disulfonic acid disodium salt*Classification:* Quinoline color*Definition:* Mixt. of the disodium salts of the mono- and disulfonic acids of 2-(2-quinoly)-1H-indene-1,3(2H)-dione*Empirical:* C<sub>18</sub>H<sub>9</sub>NNa<sub>2</sub>O<sub>6</sub>S<sub>2</sub>*Properties:* Bright greenish yel.; sol. in water; sl. sol. in ethanol; pract. insol. in veg. oils; m.w. 477.37*Toxicology:* LD50 (oral, rat) > 2 g/kg; low toxicity by ing.; irritant; potential allergen; mutagen; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub> and SO<sub>x</sub>*Uses:* Colorant for food, cosmetics, hair dyes, pharmaceuticals; dye for paper, wool, silk, nylon; pigment for printing inks*Regulatory:* D&C Yellow No. 10; FDA 21CFR §74.2710, 74.3710, 82.1710; FDA approved for dentals, implants, orals, rectals, sublinguals, topicals*Manuf./Distrib.:* Aldrich; BFGoodrich Hilton Davis; Crompton & Knowles; Fluka; Ruger; Sigma; Spectrum Quality Prods.**Acid yellow 23.** See Tartrazine**Acid yellow 36**

CAS 587-98-4; EINECS/ELINCS 209-608-2

*Synonyms:* Acidic metanil yellow; Acid metanil yellow; Acid yellow 36 monosodium salt; m-[[p-(Anilino)phenyl] azo] benzenesulfonic acid sodium salt; Benzenesulfonic acid, 3-((4-(phenylamino) phenyl) azo)-, monosodium salt; CI 13065; D&C Yellow No. 1; Ext. D&C Yellow No. 1; Metanil

yellow; 3-[[4-(Phenylamino) phenyl] azo] benzenesulfonic acid monosodium salt; 3-(4-Phenylaminophenylazo) benzenesulfonic acid, sodium salt; Sodium 3-[[4-N-phenylamino) phenylazo] benzenesulfonate; Sodium 3-[[4-anilino) phenylazo] benzenesulfonate

*Classification:* Azobenzene*Empirical:* C<sub>18</sub>H<sub>14</sub>N<sub>2</sub>NaO<sub>3</sub>S*Properties:* Yel.-brnsh. cryst. powd.; sol. in water; mod. sol. in benzene, ether; sl. sol. in acetone; m.w. 375.38; m.p. 0 C*Toxicology:* LD50 (oral, rat) 5 g/kg, (IP, mouse) 1 g/kg, (IV, mouse) 200 mg/kg; prevent inh. and direct contact with skin and eyes; may cause blood changes, degenerative changes to brain; sympathomimetic; reproductive effector; mutagen; TSCA listed*Storage:* Store in cool, dry place; keep container closed when not in use*Uses:* Dye for wool, silk, jute, paper, stain, polish; pH indicator*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Dudley; Fluka; Sigma**Acid yellow 36 monosodium salt.** See Acid yellow 36**Acid yellow 23 trisodium salt.** See Tartrazine**ACN.** See Acrylonitrile**Acraldehyde.** See Acrolein**Acroleic acid.** See Acrylic acid**Acrolein**

CAS 107-02-8; EINECS/ELINCS 203-453-4; UN No. 1092 (DOT), 2607

*Synonyms:* Acraldehyde; Acrylaldehyde; Acrylic aldehyde; Allyl aldehyde; Ethylene aldehyde; Prop-2-enal; 2-Propenal; Propylene aldehyde*Classification:* Acrylic aldehyde*Empirical:* C<sub>3</sub>H<sub>4</sub>O*Formula:* CH<sub>2</sub>:CHCHO*Properties:* Colorless to yel. liq.; pungent, burnt sweet odor; sol. in water, ethanol, diethyl ether, petrol. ether, acetone, oil; m.w. 56.06; dens. 0.8389 (20 C); m.p. -88 C; b.p. 52.5 C (760 mm); flash pt. (OC) -18 C*Toxicology:* LD50 (oral, rat) 46 mg/kg; ACGIH TLV/TWA 0.1 ppm; human poison by inh. and intradermal route; poison experimentally by most routes; vapors cause lacrimation; primary irritant; irritates skin and mucosa; TSCA listed*Environmental:* Biodeg.*Precaution:* Extremely flamm.; unstable; polymerizes in light or presence of alkali or strong acid; can react vigorously with oxidizing materials*Hazardous Decomp. Prods.:* Heated to decomp., emits highly toxic fumes, CO, CO<sub>2</sub>

NFPA: Health 4; Flammability 3; Reactivity 3

*Uses:* Bactericide/algicide for control of bacteria in oil fields, weeds in agric. irrigation systems and canals; laboratory reagent; mfg. of perfumes and pharmaceuticals; hydrogen sulfide scavenger for oil and gas prod. systems; intermediate for syn. glycerol, polyurethane and polyester resins, methionine; warning agent in gases; crosslinking agent for cellulose fibers; slimicide in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.300; SARA reportable*Manuf./Distrib.:* ABCR UK; Aldrich; Alfa Aesar; Atofina UK; Baker Petrolite; Daicel Chem. Ind.; Fisher Scientific UK; Fluka; MDA Chems.; Sigma; Spectrum Quality Prods.; Union Carbide**Acrolein dibromide.** See 2,3-Dibromopropionaldehyde**Acrylaldehyde.** See Acrolein**Acrylamide**

CAS 79-06-1; EINECS/ELINCS 201-173-7; UN No. 2074 (DOT)

*Synonyms:* Acrylamide monomer; Acrylic amide; Ethylenecarboxamide; Propenamamide; 2-Propenamamide; Propenoic acid amide; Vinyl amide*Classification:* Unsat. aliphatic amide*Empirical:* C<sub>3</sub>H<sub>5</sub>NO*Formula:* CH<sub>2</sub>CHCONH<sub>2</sub>*Properties:* Wh. cryst. solid; odorless; very sol. in alcohol, water, ether, dimethyl sulfoxide; sol. in acetone, ethyl acetate; mod. sol. in chloroform; sl. sol. in benzene; m.w. 71.08; sp. gr. 1.12 (30 C); vapor pressure 0.007 mm Hg; m.p. 83-86 C; b.p. 87 C*Toxicology:* TLV-TWA 0.03 mg/m<sup>3</sup> (skin); LD50 (oral, rat) 124 mg/kg; poisonous material; harmful if inhaled, absorbed thru skin, or ingested; suspected human carcinogen; possible reproductive hazard; mutagen; TSCA listed*Precaution:* Polymerizes violently at its m.p. or exposed to UV light; may polymerize violently in contact with oxidizing materials; incompat. with acids or bases (may vigorously dec. producing ammonia salts and acrylic

acid)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid fumes and  $\text{NO}_x$ ; releases highly flamm. hydrogen and toxic ammonia gases  
**NFPA:** Health 2; Flammability 2; Reactivity 2

**Storage:** Store refrigerated in cool, dry, well-ventilated area out of direct sunlight, away from heat/ignition sources; limit quantity in storage

**Uses:** Monomer for prod. of paints; prod. of water-sol. polyacrylamides used in water and sewage treatment, paper/pulp mfg., enhanced oil recovery as mobility control agents in water flooding, mining, min. processing, soil stabilization, food processing; additive for oil well drilling fluids, flocculants, thickeners, photographic emulsions, adhesives, surf. coatings, dye acceptors, textiles, paints, cements; chem. intermediate; in crosslinking agents in vinyl polymers

**Manuf./Distrib.:** ABCR UK; AMRESCO; Aldrich; Alfa Aesar; Allchem Ind.; Am. Int'l.; Avocado Research Chems.; Bio-Rad Labs; CBC Europe; Complex Quimica SA; Cytec Ind.; Dow; Fisher Scientific UK; Fluka; GIBCO; Jarchem Ind.; Lancaster Synthesis UK; Merck Ltd; Mitsubishi Chem.; Mitsui & Co. UK; Monomer-Polymer & Dajac Labs; Nalco; Nat'l. Diagnostics; Nitto Chem. Ind.; Research Organics; Sigma; Spectrum Quality Prods.; Transol Chems. UK Ltd; Vantico AG; Whyte Chems. Ltd

**Acrylamide/acrylate copolymer.** See Acrylic acid/acrylamide copolymer

**Acrylamide/acrylate polymer.** See Acrylic acid/acrylamide copolymer

**Acrylamide/acrylic acid copolymer.** See Acrylates/acrylamide copolymer; Acrylic acid/acrylamide copolymer

**Acrylamide/acrylic acid resin.** See Acrylic acid/acrylamide copolymer

**Acrylamide/acrylic resin.** See Acrylic acid/acrylamide copolymer

**Acrylamide/ $\beta$ -methacryloyloxyethyl trimonium methosulfate.** See Polyquaternium-5

**Acrylamide-diallyldimethyl ammonium chloride.** See Polyquaternium-7

**Acrylamide/dimethyldiallyl ammonium chloride copolymer.** See Polyquaternium-7

**Acrylamide/ethylene/vinyl chloride copolymer**

**Uses:** Food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.170

**Acrylamide homopolymer.** See Polyacrylamide

**Acrylamide/methacrylic acid/maleic anhydride copolymer**

**Uses:** Retention aid for mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Acrylamide- $\beta$ -methacryloyloxyethyltrimethyl ammonium methyl sulfate copolymer.** See Polyquaternium-5

**Acrylamide monomer.** See Acrylamide

**Acrylamide, polymers.** See Polyacrylamide

**Acrylamides copolymer**

**Synonyms:** 2-Propenamide, polymer with 2-butenamide and/or alkylpropenamide

**Definition:** Polymer of two or more monomers of acrylamide and/or its simple alkyl derivs.

**Uses:** Thickener, flocculant, friction reducer, leveling agent, film-former, solids suspending agent for adhesives, carpet backings, bonding agents, flooring compds., printing applics.; cationic polyelectrolyte (effluent treatment); retention aid, drainage aid in paper prod.; antistat, film-former in cosmetics; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180

**Trade Names:** Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 720 (LT20); Percol® 721; Percol® 722; Percol® 725 (LT25); Percol® 726 (LT26); Percol® 727 (LT27); Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24; Percol® LT22; Percol® LT22S; Percol® LT24

**2-Acrylamido-2-methylpropane sulfonate.** See 2-Acrylamido-2-methylpropanesulfonic acid

**2-Acrylamido-2-methylpropanesulfonic acid**

CAS 15214-89-8; EINECS/ELINCS 239-268-0

**Synonyms:** AMPS; 2-AMPS; 2-Acrylamido-2-methylpropane sulfonate; 2-Acryloylamido-2-methylpropanesulfonic acid monomer

**Empirical:**  $\text{C}_7\text{H}_{13}\text{NO}_4\text{S}$

**Formula:**  $\text{H}_2\text{C}=\text{CHCONHC}(\text{CH}_3)_2\text{CH}_2\text{SO}_3\text{H}$

**Properties:** M.w. 207.25; m.p. 195 C

**Toxicology:** Cancer suspect agent

**Precaution:** Corrosive

**Uses:** Comonomer (anionic flocculants/dispersants); protective colloid and/or copolymerizable surfactant in acrylic/modified acrylic latexes for use in paints, inks, adhesives, and sealants; in food-contact paper/paperboard

**Manuf./Distrib.:** ABCR UK; Aldrich; CBC Europe; Fisher Scientific UK; Fluka; Lancaster Synthesis UK; Lubrizol; Sigma; Toagosei; Transol Chems. UK Ltd

**Trade Names:** AMPS® 2401 Monomer; AMPS® 2404 Monomer

**Acrylates/acrylamide copolymer**

**Synonyms:** AA/AM; Acrylamide/acrylic acid copolymer; Acrylic acid/acrylamide copolymer; Propenamide, polymer with propenoic acid, butenoic acid, and/or alkyl propenoates

**Definition:** Polymer of acrylamide and one or more monomers of acrylic acid, methacrylic acid or one of their simple ester

**Properties:** Nonionic

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Dispersant in boiler water treatment; mineral scale control aid; flocculant and coagulant aid in water and wastewater treatment, sugar processing; film-former in cosmetics; hair spray resin; in food-pkg. adhesives; in food-contact paper/paperboard

**Use Level:** Limitation 10 ppm (cane or beet liquor for clarification), 2.5 ppm (cane or beet juice/liquor for min. scale control)

**Regulatory:** FDA 21CFR §173.5, 175.105, 176.110

**Trade Names:** Accostrength® 1000 Dry Strength Resin; Amerfloc® 275; Sterocoll® BL

**Acrylates/C10-30 alkyl acrylate crosspolymer**

**Definition:** C10-30 alkyl acrylates and monomer(s) of acrylic or methacrylic acid or esters crosslinked with an allyl ether of sucrose or pentaerythritol

**Properties:** Anionic

**Uses:** Film-former, rheology agent, emulsifier, stabilizer, moisturizer, thickener, gellant for cosmetic emulsions, skin care prods., topical pharmaceuticals; emulsion stabilizer; food-pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

**Trade Names:** Carbopol® 1342; Carbopol® 1382

**Acrylates copolymer**

CAS 25133-97-5

**Synonyms:** Acrylic/acrylate copolymer; Acrylic copolymer; 2-Propenoic acid, 2-methyl-, polymer with ethyl 2-propenoate and methyl 2-methyl-2-propenoate

**Definition:** Polymers of two or more monomers consisting of acrylic acid, methacrylic acid, or their simple esters

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Detergent polymer; for surface coatings; emulsions; paints; paper and leather finishes; water treatment; dispersant and scale inhibitor for oil field water treatment; antistat, binder, film-former in cosmetics; thickener, stabilizer for cosmetics, paints, inks, waxes, polishes, detergents, etc.; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Use Level:** 1-6%

**Regulatory:** FDA 21CFR §175.105, 175.210, 175.300, 175.320, 176.170, 176.180, 177.1010, 178.3790

**Manuf./Distrib.:** Abco Ind.; Air Prods.; Ashland; BFGoodrich; Chemcentral; Cognis; Complex Quimica SA; D.N. Lukens; Essential Ind.; GCA; Hampshire; Hickson Danchem; Interpolymer; Lenape Ind.; Monomer-Polymer & Dajac Labs; Nat'l. Starch & Chem.; NeoResins; Reichhold; Rhodia; Rohm & Haas; S.C. Johnson Polymer; Samson; Scott Bader; StanChem; Synthron; Tamms Ind.; Thibaut & Walker; Tri-Iso; Union Carbide

**Trade Names:** Acronal®; Acrosol®; Acusol® 810; Acusol® 820; Acusol® 830; Acusol® 842; Basoplast® 250 D; Basoplast® 265 D; Basoplast® 335 D; Carboset® 515; Carboset® GA1086; Carboset® GA1604;

Elvacite® 2013, 2014, 2016, 2028, 2614, 2550, 2552, 6016; Nacrylic X 4280; NeoCryl® A-630; NeoCryl® BT-175; Perglulin® K 175 EP; Prox® ASN 165 R

**Acrylates/PVP copolymer**

CAS 26589-26-4

**Synonyms:** 2-Propenoic acid, 2-methyl-, polymer with 1-ethenyl-2-pyrrolidinone and ethyl 2-methyl-2-propenoate

**Definition:** Copolymer of PVP and one or more monomers of acrylic acid, methacrylic acid, or their simple esters

**Formula:**  $(C_8H_{10}O_2 \cdot C_6H_9NO \cdot C_4H_6O)$

**Toxicology:** TSCA listed

**Uses:** Antistat, binder, film-former in cosmetics; hair care fixative; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Acrylates/VA copolymer**

CAS 25067-02-1

**Synonyms:** Acrylates/vinyl acetate copolymer; Vinyl acetate-acrylic copolymer

**Definition:** Copolymer of vinyl acetate and one or more monomers of acrylic acid, methacrylic acid, or their simple esters

**Uses:** Film-former, visc. control agent in cosmetics; binder for nonwoven fabrics; paper impregnant; in adhesives; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.180

**Trade Names:** Polyco® 6108NP

**Acrylates/vinyl acetate copolymer.** See Acrylates/VA copolymer

**Acrylic acid**

CAS 79-10-7; EINECS/ELINCS 201-177-9

**Synonyms:** AA; Acroleic acid; Acrylic acid, glacial; Ethylene carboxylic acid; Propenoic acid; 2-Propenoic acid; Propene acid; Vinylformic acid

**Empirical:**  $C_3H_4O_2$

**Formula:**  $H_2C:CHCOOH$

**Properties:** Colorless liq., acrid odor; misc. with water, alcohol, ether, acetone, benzene; m.w. 72.07; dens. 1.052 (20/20 C); b.p. 140.9 C; m.p. 12.1 C; flash pt. (OC) 54.5 C; ref. index 1.4224 (20 C); polymerizes readily

**Toxicology:** TLV 10 ppm in air; LD50 (oral, rat) 250 mg/kg; severe skin and eye irritant; toxic by inhalation; experimental teratogen; TSCA listed

**Precaution:** May polymerize explosively; flamm. liq.; corrosive material; fire hazard exposed to heat or flame

**Uses:** Carboxylated comonomer for polyacrylic and polymethacrylic acids, other acrylic acids, acrylic polymers, styrene-butadiene, vinyl acetate, nitrile latex; comonomer for radiation-cured polyester/polyurethane resin; paints; antimigrant for pigment pad dyeing

**Manuf./Distrib.:** Aldrich; Alfa Aesar; Allchem Ind.; Ashland; Atofina; BASF; BCH Brühl; Brøste; Celanese; Chemconnect; Degussa-Hüls AG; Fluka; G.J. Chem.; Idemitsu Petrochem.; Mitsubishi Chem.; Nichimen Am.; Nippon Shokubai; Osaka Org. Chem. Ind.; Penta Mfg.; Rohm & Haas; Spectrum Quality Prods.; Sumitomo Chem.; Total Spec. Chems.; Union Carbide; Whyte Chems. Ltd

**Trade Names Containing:** Rohamere® 8596

**Acrylic acid/acrylamide copolymer**

CAS 9003-06-9

**Synonyms:** Acrylamide/acrylate copolymer; Acrylamide/acrylate polymer; Acrylamide/acrylic acid copolymer; Acrylamide/acrylic acid resin; Acrylamide/acrylic resin; Acrylic acid/acrylamide polymer; Acrylic acid, polymer with acrylamide; Hydrolyzed polyacrylamide; Poly (acrylamide-co-acrylic acid); Polyacrylamide, hydrolyzed; Poly (acrylic acid-acrylamide); 2-Propenamide, polymer with 2-propenoic acid; 2-Propenamide-2-propenoic acid polymer; 2-Propenoic acid, polymer with 2-propenamide

**Classification:** Acrylic

**Empirical:**  $(C_3H_5NO \cdot C_3H_4O_2)_x$

**Formula:**  $[CH_2CH(CONH_2)]_x[CH_2CH(CO_2H)]_y$

**Properties:** Solid; sol. in water and some protonic solvs.; m.w. (143.14); sp.gr. 0.750

**Toxicology:** LD50 (oral, rat) 2500 mg/kg, (skin, rabbit) 10,000 mg/kg; LC50 (inh., rat, 4 h) 720 mg/l; irritating to eyes, skin, mucous membranes, upper respiratory tract; severe eye irritant; may be harmful by inh., ing., or skin

absorb.

**Precaution:** Incompat. with strong oxidizing agents, copper, copper alloys, aluminum; insolubilized by chromic salts; capable of creating dust explosion in powd. form

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>, ammonia; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Thickener; binder; sizing agent; flocculant; crosslinking agent; filter aid; lubricant; drag reduction aid; polymer recovery agent

**Trade Names Containing:** Hartfloc® A-414

See also Acrylates/acrylamide copolymer

**Acrylic acid/acrylamide polymer.** See Acrylic acid/acrylamide copolymer

**Acrylic acid, butyl ester.** See Butyl acrylate

**Acrylic acid, n-butyl ester.** See Butyl acrylate

**Acrylic acid, diester with tetraethylene glycol.** See PEG-4 diacrylate

**Acrylic acid, 2-(diethylamino) ethyl ester.** See Diethylaminoethyl acrylate

**Acrylic acid-N,N-diethylaminoethyl ester.** See Diethylaminoethyl acrylate

**Acrylic acid, 2-(dimethylamino) ethyl ester.** See Dimethylaminoethyl acrylate

**Acrylic acid, ethyl ester.** See Ethyl acrylate

**Acrylic acid, 2-ethylhexyl ester.** See Octyl acrylate

**Acrylic acid, glacial.** See Acrylic acid

**Acrylic acid, hexamethylene ester.** See 1,6-Hexanediol diacrylate

**Acrylic acid homopolymer.** See Polyacrylic acid

**Acrylic acid 2-hydroxyethyl ester.** See 2-Hydroxyethyl acrylate

**Acrylic acid, hydroxypropyl ester.** See Hydroxypropyl acrylate

**Acrylic acid isodecyl ester.** See Isodecyl acrylate

**Acrylic acid, 2-methyl-.** See Methacrylic acid

**Acrylic acid methyl ester.** See Methyl acrylate

**Acrylic acid, 2-methyl-, methyl ester.** See Methyl methacrylate

**Acrylic acid, monoester with 1,2-propanediol.** See Hydroxypropyl acrylate

**Acrylic acid, oxybis (ethyleneoxyethylene) ester.** See PEG-4 diacrylate

**Acrylic acid, pentaerythritol triester.** See Pentaerythrityl triacrylate

**Acrylic acid polymer.** See Polyacrylic acid

**Acrylic acid, polymer with acrylamide.** See Acrylic acid/acrylamide copolymer

**Acrylic acid, polymers.** See Polyacrylic acid

**Acrylic acid, polymer with sucrose-polyallyl ether.** See Carbomer

**Acrylic acid, propylenebis (oxypropylene) ester.** See PPG-3 diacrylate

**Acrylic acid resin.** See Polyacrylic acid

**Acrylic acid/sulfonic acid copolymer**

CAS 97953-25-8

**Uses:** Dispersant and scale inhibitor for use in water treatment, food-contact paper/paperboard mfg.

**Trade Names:** Good-Rite® K-776 Polymer

**Acrylic acid-(3-sulfopropyl) ester, potassium salt.** See Potassium (3-sulfopropyl) acrylate

**Acrylic acid vinyl ester.** See Vinyl acrylate

**Acrylic/acrylate copolymer.** See Acrylates copolymer

**Acrylic aldehyde.** See Acrolein

**Acrylic amide.** See Acrylamide

**Acrylic copolymer.** See Acrylates copolymer

**Acrylic fiber.** See Acrylic resin; Polyacrylonitrile

**Acrylic polymer.** See Polyacrylic acid

**Acrylic polymer resins.** See Polyacrylic acid

**Acrylic resin**

**Synonyms:** Acrylic fiber; Acrylic sheet

**Definition:** Thermoplastic polymer or copolymer of acrylic acid, methacrylic acid, esters of these acids, or acrylonitrile

**Properties:** Varies from hard to brittle solids to fibrous elastomeric structures, to viscous liqs.; able to transmit light for sheet and rod forms

**Toxicology:** Dust may cause skin, eye, and respiratory tract irritation; TSCA listed

**Precaution:** Combustible

**Uses:** Hard, shatterproof transparent or colored material, glass substitute in medical, dental, and industrial applics.; impact modifier, processing aid for PVC; dispersant, antiscalant, corrosion inhibitor for water systems; food pkg.

**Regulatory:** FDA 21CFR §177.1010

**Manuf./Distrib.:** Air Prods./Polymers; Akzo Nobel; Anderson Development; Ashland; BFGoodrich; Bayer/Fiber, Addits., Rubber; Cognis/Coatings & Inks; Conap; Cook Composites & Polymers; Cyro Ind.; Cytec Ind.; Deeks; Dianal Am.; Dock Resins; DuPont; Eastern Color & Chem.; Elementis Spec. Colorants/Addit.; FRP Services; H.B. Fuller; Kaneka; King Ind.; McWhorter Tech.; Miller-Stephenson; Morton Int'l.; Nat'l. Starch & Chem.; NeoResins; Nylon Engineering; Plaskolite; Reichhold; Rohm & Haas; Rohm Tech; S.C. Johnson Polymer; Seegott; Showa Highpolymer; Thibaut & Walker; Toyota Tsusho Am.; Union Carbide; Westvaco

**Trade Names:** CarboSet® 525; Cogum®; Elvacite® 2008, 2009, 2010, 2021, 2041, 6010; Elvacite® 2042, 2043; Esi-Rez™ 50; Esi-Rez™ 53; Esi-Rez™ 60; Esi-Rez™ 65; Flexcryl® 1625; Flexcryl® 1685; Hycar® 2671; Hycar® 2679; Hycar® 26084; Hycar® 26092; Hycar® 26106; Hycar® 26138; Hycar® 26322; Korad Klear; Niccasolt PTOL; Rhoplex® ASE-75; Rhoplex® ASE-95NP; Rhoplex® ASE-108NP; Rhoplex® B-15J; Rhoplex® B-60A; Rhoplex® B-85; Rhoplex® B-88; Rhoplex® B-959; Rhoplex® E-1691; Rhoplex® GL-618; Rhoplex® GL-623; Rhoplex® HA-12; Rhoplex® TR-520; Rohagit® SL 252; Rohatol® BV 411; Rohatol® BV 596; Rohatol® D 362; Rohatol® D 471; Rohatol® D 541; Rohatol® DV 242; Rohatol® DV 440; Rohatol® DV 477; Rohatol® DV 544; Rohatol® DV 571; Rohatol® M 600; Rohatol® M 630; Rohatol® M 712; Rohatol® MV 604; Synthemul® 97982-00; Valtac 56; Valtac F-66

**Trade Names Containing:** CarboSet® 514A; CarboSet® 514H; CarboSet® 531

See also Polyacrylic acid

**Acrylic sheet.** See Acrylic resin

#### Acrylic/styrene

**Uses:** High gloss polymer for flexo/gravure ink and coating applics., paper/paperboard applics.; binder

#### Acrylonitrile

CAS 107-13-1; EINECS/ELINCS 203-466-5; UN No. 1093 (DOT)

**Synonyms:** ACN; AN; Acrylonitrile monomer; Cyanoethylene; Propenenitrile; 2-Propenenitrile; Vinyl cyanide

**Classification:** Nitrile

**Empirical:** C<sub>3</sub>H<sub>3.5</sub>N

**Formula:** H<sub>2</sub>C:CHCN

**Properties:** Colorless, mobile liq.; pungent odor similar to garlic or onion; sol. in acetone, alcohol, benzene, ether, org. solvs., partially misc. in water; m.w. 53.06; dens. 0.8004 (25 C); f.p. -83 C; b.p. 77.3-77.4 C; flash pt. (TOC) 32 F

**Toxicology:** ACGIH TLV/TWA 2 ppm; LD50 (oral, rat) 78 mg/kg; toxic by inh. and skin absorp.; lachrymator; can cause irritation of respiratory tract, lack of oxygen, headache, dizziness, nausea, vomiting, tremors, diarrhea, signs of liver dysfunction; skin contact can cause blisters, toxic and allergic dermatitis; readily absorbed thru skin; vapor or liq. can cause severe eye irritation, corneal damage; ing. may cause sore throat, abdominal pain, possibly death; a carcinogen; TSCA listed

**Precaution:** Flamm.; dangerous fire risk; potentially explosive; explosive limits in air 3-17%; unstable and polymerizes violently when heated, in absence of oxygen, or on exposure to visible light; normally stable when inhibited

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>, hydrogen cyanide

**NFPA:** Health 4; Flammability 3; Reactivity 2

**Uses:** Monomer for acrylic and modacrylic fibers, paints; in prod. of ABS and SAN copolymers, nitrile rubber, surfactants, adhesives, polyols, barrier resins, carbon fibers; organic synthesis; formerly as pesticide fumigant

**Regulatory:** SARA reportable

**Manuf./Distrib.:** Aldrich; Alfa Aesar; Allchem Ind.; Asahi Chem. Ind.; BP Chems. Ltd; Chemconnect; Cytec Ind.; DSM NV; DuPont; Fluka; Mitsubishi Chem.; Mitsui Toatsu; Monomer-Polymer & Dajac Labs; Monsanto; Nitto Chem. Ind.; Showa Denko; Solutia; Sterling Chems.; Sumitomo Chem.; Whyte Chems. Ltd

**Trade Names Containing:** Rohamere® 132; Rohamere® 587; Rohamere® 8464; Rohamere® 87219

**Acrylonitrile/butadiene copolymer.** See Butadiene/acrylonitrile copolymer

**Acrylonitrile/butadiene rubber.** See Butadiene/acrylonitrile copolymer

#### Acrylonitrile/butadiene/styrene copolymer

CAS 9003-56-9

**Synonyms:** ABS; Acrylonitrile/butadiene/styrene polymer; Acrylonitrile/butadiene/styrene resin; Butadiene/acrylonitrile/styrene copolymer; Poly (acrylonitrile-butadiene-styrene); Poly (acrylonitrile-co-butadiene-co-styrene)

**Classification:** Polymer

**Definition:** Engineering thermoplastic resin grafted from the 3 monomers from which its name is derived

**Formula:** [CH<sub>2</sub>CH(CN)]<sub>x</sub>(CH<sub>2</sub>CH=CHCH<sub>2</sub>)<sub>y</sub>[CH<sub>2</sub>CH(C<sub>6</sub>H<sub>5</sub>)<sub>z</sub>

**Properties:** Powd.; sol. in acetone, MEK, CH<sub>2</sub>Cl<sub>2</sub>; insol. in alcohols, aliphatic hydrocarbons, min. and veg. oils; dens. ≈ 1.04; tens. str. ≈ 6500 psi; flex. str. ≈ 10,000 psi

**Toxicology:** Cancer suspect agent; TSCA listed

**Precaution:** Combustible, but slow burning; attacked by nitric and sulfuric acids, and by aldehydes, ketones, esters, and chlorinated hydrocarbons

**Uses:** Engineering plastic for automotive body parts, telephones, pkg., shower stalls, boats, building panels, pipe, machinery housings; processing aid, impact modifier for PVC; ABS/PVC blends; ABS/PC blends; ABS/polysulfone blends; latex used for waterproof and greaseproof coatings, leather finishes, paints, paper coatings, and nonwoven binders and saturation; foods (films, coatings, rigid and semirigid pkg., pressure-sensitive adhesives)

**Regulatory:** FDA 21CFR §175.125, 175.300, 175.320, 177.1020, 177.1200, 181.32

**Manuf./Distrib.:** Acros Org.; Aiscondel SA; Aldrich; Allchem Ind.; Bayer; GE Spec.; Japan Syn. Rubber; LG Petrochem. Co. Ltd; Magna-Kron; Marco Polo Int'l.; Mitsubishi Int'l./Plastics; Nylon Engineering; Toyota Tsusho Am.; Westchem; Whyte Chems. Ltd

**Trade Names:** Hycar® 1577; Hycar® 1578X1; SNAP 2042; SNAP 2048; SNAP 2054; Styronal™ NX 4489 X; Styronal™ NX 4680

**Acrylonitrile/butadiene/styrene polymer.** See Acrylonitrile/butadiene/styrene copolymer

**Acrylonitrile/butadiene/styrene resin.** See Acrylonitrile/butadiene/styrene copolymer

#### Acrylonitrile copolymer

**Synonyms:** Propenenitrile copolymer; Vinyl cyanide copolymer

**Uses:** Specialty elastomer for automotive and industrial applics., e.g., seals, gaskets, membranes, cable jackets, extruded profiles, rubber linings, hoses, bellows, sleeves, oil field parts; textile coatings; binder, saturant for textile coatings, adhesives; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105

**Trade Names:** Tylac® 68321-00; Tylac® 68513-00; Tylac® 68520-00

**Trade Names Containing:** Dualite® M6050AE; Dualite® MS7000; Dualite® MS7020

**Acrylonitrile homopolymer.** See Polyacrylonitrile

**Acrylonitrile monomer.** See Acrylonitrile

**Acrylonitrile polymer.** See Polyacrylonitrile

**Acrylonitrile, polymeric.** See Polyacrylonitrile

**Acrylonitrile, polymers.** See Polyacrylonitrile

**Acrylonitrile rubber.** See Butadiene/acrylonitrile copolymer

**2-Acryloylamido-2-methylpropanesulfonic acid monomer.** See 2-Acrylamido-2-methylpropanesulfonic acid

**3-Acryloyloxy-propene-1-sulfonic acid, potassium salt.** See Potassium (3-sulfopropyl) acrylate

**Activated alumina.** See Alumina

**Activated aluminum oxide.** See Alumina

**Activated carbon.** See Carbon, activated

**Activated charcoal.** See Carbon, activated

**Active carbon.** See Carbon, activated

**β-ADA.** See β-Alanine diacetic acid

**Adeps bovis.** See Tallow

**Adeps lanae.** See Lanolin

**1,4A-Dimethyl-7-isopropyl-1,2,3,4,4A,9,10,10A-octahydro-1-phenanthrene methylamine.** See Dehydroabietylamine

#### Adipic acid

CAS 124-04-9; EINECS/ELINCS 204-673-3; UN No. NA 9077 (DOT); FEMA 2011

**Synonyms:** AA; 1,4-Butanedicarboxylic acid; Butane-1,4-dicarboxylic acid; Dicarboxylic acid C<sub>6</sub>; Hexanedioic acid; 1,6-Hexanedioic acid

**Classification:** Organic dicarboxylic acid

**Empirical:** C<sub>6</sub>H<sub>10</sub>O<sub>4</sub>



*Formula:* HOOC(CH<sub>2</sub>)<sub>4</sub>COOH

*Properties:* Wh. monoclinic prisms, pract. odorless; very sol. in alcohol; sol. in acetone, oxygenated solvs.; sl. sol. in water; m.w. 146.16; dens. 1.360 (25/4 C); vapor pressure 1 mm Hg (159.5 C); m.p. 152 C; b.p. 337.5 C; flash pt. (CC) 385 F

*Toxicology:* LD50 (oral, mouse) 1900 mg/kg; ACGIH TLV/TWA 5 mg/m<sup>3</sup>; poison by IP route; mod. toxic by other routes; severe eye irritant; may cause occupational asthma; TSCA listed

*Precaution:* Combustible; can react with oxidizing material

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

NFPA: Flammability 1; Reactivity 0

*Uses:* Mfg. of nylon and polyurethane foams; intermediate for paints; preparation of esters for use as plasticizers and lubricants; alkyd resin comonomer; starch crosslinking agent; buffer in cosmetics; foods (flavoring, leavening, acidulant, buffering agent, neutralizer); baking powders; buffer, neutralizing agent in pharmaceuticals; adhesives

*Use Level:* Limitation 0.05% (baked goods), 0.005% (nonalcoholic beverages), 5% (condiments), 0.45% (dairy prods.), 0.3% (fats/oil), 0.0004% (frozen dairy desserts), 0.55% (gelatin, puddings), 0.1% (gravies), 0.3% (meat prods.), 1.3% (snack foods), 0.02% (other)

*Regulatory:* FDA 21CFR §131.44, 172.515, 184.1009, GRAS; FEMA GRAS; USDA 9CFR §318.7; Japan approved; Europe listed (ADI 0-5 mg/kg, free acid basis); UK approved

*Manuf./Distrib.:* ADA Int'l.; Aldrich; Alfa Aesar; Allchem Ind.; Asahi Chem. Ind.; Ashland; BASF AG; BCH Brühl; Brown; C.P. Hall; Chemical; Coyne; Degussa-Hüls AG; DuPont; E-Chemicals; Fluka; Grau Aromatics; Honeywell Perf. Polymers; Houghton Chem.; Inolex; KIC Chems.; Kanto Denka Kogyo; Miljic; Monsanto; Penta Mfg.; Rhodia; Samson; Sigma; Solutia; Spectrum Quality Prods.; Sumitomo Chem.; Total Spec. Chems.; U.S. Chems.; UCB; United Min. & Chem.; Universal Preserv. A-Chem; Van Waters & Rogers; Whyte Chems. Ltd

*Trade Names:* Adi-pure®

*Trade Names Containing:* Hartfloc® C-470

**Adipic acid, diethylenetriamine, epichlorohydrin polymer.** See Adipic acid/epoxypropyl diethylenetriamine copolymer

**Adipic acid, diethylenetriamine, epichlorohydrin resin.** See Adipic acid/epoxypropyl diethylenetriamine copolymer

**Adipic acid/dimethylaminohydroxypropyl diethylenetriamine copolymer**  
CAS 61840-27-5

*Synonyms:* Polyamide-polyamine-epichlorohydrin resin

*Classification:* Condensation polymer

*Uses:* Antistat, film-former in cosmetics; polymer substantive to hair; lubricant/conditioner for shampoos, hair conditioners; binder component in aq. inks; wet str. additive in paper; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Adipic acid dimethyl ester.** See Dimethyl adipate

**Adipic acid/epoxypropyl diethylenetriamine copolymer**

CAS 52932-31-7; 25212-19-5

*Synonyms:* Adipic acid, diethylenetriamine, epichlorohydrin polymer; Adipic acid, diethylenetriamine, epichlorohydrin resin; Diethylenetriamine, epichlorohydrin, adipic acid polymer; Epichlorohydrin, adipic acid, diethylenetriamine polymer; Hexanedioic acid, polymer with N-(2-aminoethyl)-1,2-ethanediamine and (chloromethyl) oxirane

*Classification:* Condensation polymer

*Uses:* Antistat, film-former in cosmetics; hair care resin used in permanent solns. and hair sprays; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**ADPA.** See Etidronic acid

**Agricultural lime.** See Calcium hydroxide

**Agricultural limestone.** See Calcium carbonate

**AIBN.** See 2,2'-Azobisisobutyronitrile

**Alabaster.** See Calcium sulfate dihydrate

**β-Alanine diacetic acid**

CAS 6245-75-6; EINECS/ELINCS 228-360-6

*Synonyms:* β-ADA; Beta-alanine diacetic acid

*Classification:* Aminocarboxylic acid

*Empirical:* C<sub>7</sub>H<sub>11</sub>NO<sub>6</sub>

*Formula:* (HOOCCH<sub>2</sub>)<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>COOH

*Environmental:* Readily biodeg.

*Uses:* Chelating agent in cosmetics, detergents, cleaners, pulp/paper, electroplating, water softening, textiles

**Albacol.** See Propyl alcohol

**Albumen**

CAS 9006-50-2; EINECS/ELINCS 232-936-2

*Synonyms:* Albumin; Dried egg white; Egg albumin

*Definition:* Dried whites of chicken eggs

*Properties:* Yel. amorphous lumps, scales, or powd.; swells in water, then dissolves gradually; decomp. in moist air; dens. 1.035; m.p. -0.42 C; coagulating temp. 61 C; ref. index 1.356; pH 7.6

*Toxicology:* May cause allergic reactions in people allergic to milk or eggs; TSCA listed

*Uses:* Protective colloid and emulsifier in baking; clarifying and refining wines and vinegar; textile dye mordant; adhesives and veneers; emulsifier, film-former in pharmaceuticals; film-former in cosmetics; antidote to mercury poisoning; microencapsulation; binder; coagulant; skin conditioner

*Regulatory:* FDA 21CFR §160.145

*Manuf./Distrib.:* Alfa Aesar; Alfa Chem; Am. Labs; Am. Tartaric Prods.; Fluka; Penta Mfg.; Schweizerhall; Sigma; Spectrum Quality Prods.; Spice King; U.S. Biochemical

*Trade Names:* Sol-U-Tein EA

**Albumin.** See Albumen

**Alcalase.** See Protease

**Alcohol**

CAS 64-17-5; EINECS/ELINCS 200-578-6; UN No. 1170 (DOT), 1986 (DOT), 1987 (DOT); FEMA 2419

*Synonyms:* EtOH; IMS; Absolute alcohol; Absolute ethanol; Distilled spirits; Ethanol; Ethanol, undenatured; Ethyl alcohol; Ethyl alcohol, undenatured; Ethyl hydrate; Ethyl hydroxide; Grain alcohol; Industrial methylated spirit; Methylcarbinol; Spirits of wine

*Definition:* Undenatured ethyl alcohol

*Empirical:* C<sub>2</sub>H<sub>6</sub>O

*Formula:* CH<sub>3</sub>CH<sub>2</sub>OH

*Properties:* Colorless limpid, volatile liq., vinous odor, pungent taste; misc. with water, methanol, ether, chloroform, 95% acetone, oxygenated/chlorinated solvs.; m.w. 46.08; dens. 0.816 (15.5 C); b.p. 78.3 C; f.p. -117.3 C; flash pt. (CC) 12.7 C; ref. index 1.365 (15 C)

*Toxicology:* ACGIH TLV/TWA 1000 ppm; LD50 (oral, rat) 7060 mg/kg, (IP, rat) 3750 mg/kg; mod. toxic to humans by ing.; mod. toxic by IV and IP routes; mildly toxic by inh., skin contact; eye, skin, and mucous membrane irritant; severe skin irritant; human systemic effects; CNS depressant; ing. of lg. doses can cause alcohol poisoning; human carcinogen; experimental tumorigen, teratogen; human reproductive effects by ing., IV; human mutagenic data; TSCA listed

*Precaution:* DOT: Flamm. liq.; dangerous fire and explosion hazard; can react vigorously with oxidizers; reacts violently with many chemicals  
NFPA: Health 0; Flammability 3; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Solvent/cosolvent in paints, inks, dyes, lacquer thinners; extraction medium; mfg. of acetaldehyde, denatured alcohol, paints, waterborne coatings, pharmaceuticals (tonics, colognes), perfumery, organic synthesis; octane booster in gasoline; solvent/coupling agent/wetting agent in cleaners, polishes, coatings; solvent in cosmetics; disinfectant; in food-pkg. adhesives; antimicrobial, extraction solvent, vehicle for foods; alcoholic beverages; active ingred. in OTC drug prods.; topical antiseptic; defoamer in food-contact coatings and paper/paperboard

*Use Level:* Limitation 2% (pizza crusts); ADI not specified (FAO/WHO)

*Regulatory:* FDA 21CFR §169.3, 169.175, 169.176, 169.177, 169.178, 169.180, 169.181, 172.340, 172.560, 175.105, 176.200, 176.210, 177.1440, 184.1293, GRAS; 27CFR §2.5, 2.12; FEMA GRAS; USP/NF, BP, Ph.Eur. compliance; Japan restricted

*Manuf./Distrib.:* A.E. Staley Mfg.; ADM; AMRESCO; Aldrich; Alfa Aesar; Amyl; Ashland; BP Amoco; Baychem; C.P. Hall; Chematch; Chemcentral; Condea Vista; Coyne; Eastman; Equistar; Fluka; Georgia-Pacific Resins; Gist-brocades SpA; Grain Processing; Great Western; Harcros; Houghton Chem.; Hukill; J.T. Baker; JLM Marketing; Midwest Grain

Prods.: Quaker City; Romil Ltd; Ruger; Samson; Sigma; Spectrum Quality Prods.; Sunnyside; Union Carbide; Van Waters & Rogers

*Trade Names Containing:* Ancowet A-70; Ancowet S-60; Arquad® 210-50; DeWET SDO-75E; Disponil® SUS IC 865; Disponil® SUS IC 875; Geropon® WT-27; GPRI™ 4000; GPRI™ BKS-2600; GPRI™ BKS-2900; GPRI™ BKS-2901; Modacure® Resin; Monawet MO-70E; Monawet MO-75E; Resimene® 797; Resimene® 7111; Resimene® 7112

**Alcohol C-3.** See Propyl alcohol

**Alcohol C-5.** See n-Amyl alcohol

**Alcohol C<sub>8</sub>.** See 2-Ethylhexanol

**Alcohol C-10.** See Decyl alcohol

**Alcohol C16.** See Cetyl alcohol

**Alcohol C20.** See Arachidyl alcohol

**Alcohol C<sub>22</sub>.** See Behenyl alcohol

**Alcohols, C8-10.** See C8-10 alcohols

**Alcohols, C10.** See C10 alcohols

**Alcohols, C10-14.** See C10-14 alcohols

**Alcohols, C12-18.** See C12-18 alcohols

**Alcohols, C16-18.** See Cetearyl alcohol

**Alcohols, C20-24.** See C20-24 alcohols

**Alcohols, C20-40.** See C20-40 alcohols

**Alcohols, C16-18, ethoxylated.** See Ceteareth

**Alcohols, coco.** See Coconut alcohol

**Alcohols, tallow.** See Tallow alcohol

**Alcohols, tallow, hydrogenated.** See Hydrogenated tallow alcohol

**Aldehyde C-1.** See Formaldehyde

**Algaroba.** See Locust bean (*Ceratonia siliqua*) gum

## Algin

CAS 9005-38-3; FEMA 2015

*Synonyms:* Alginate, sodium salt; Alginic acid, sodium salt; Algin (polysaccharide); Sodium alginate; Sodium polymannuronate

*Classification:* Hydrophilic polysaccharide

*Definition:* Purified carbohydrate prod. extracted from brown seaweed; sodium salt of alginic acid

*Empirical:* (C<sub>6</sub>H<sub>7</sub>NaO<sub>6</sub>)<sub>n</sub>

*Properties:* Cream-colored powd., pract. odorless and tasteless; sol. in water forming a gel; insol. in alcohol, ether, chloroform; m.w. 198.11; dens. 1.59 kg/l; dec. on heating above 150 C

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (IV, rat) 1000 mg/kg, (IP, cat) 250 mg/kg; poison by IV and IP routes; causes blood hemorrhage in mice; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O  
HMIS: Health 1; Flammability 0; Reactivity 0

*Uses:* Stabilizer in mfg. of ice cream; stabilizer/gelling agent for prepared food prods.; emulsifier; firming agent; flavor enhancer; formulation aid; processing aid; surfactant; texturizer; thickener for textile printing pastes; binder, visc. control agent in cosmetics; plasticizer/binding agent for welding rod coatings; suspending agent, gellant, emulsifier, excipient, tablet binder, film-former, stabilizer for pharmaceuticals; boiler water additive for food processing

*Use Level:* 0.1-2%; limitation 1% (condiments), 6% (pimento for stuffed olives), 0.3% (confections), 4% (gelatins, puddings), 10% (hard candy), 2% (processed fruits), 1% (other foods); ADI 0-50 mg/kg (EU)

*Regulatory:* FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 173.310, 184.1724, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* ADA Int'l.; Aldrich; Alfa Chem; Allchem Ind.; CarboMer; Colony Ind.; Fallek; Fluka; Frutarom Meer; Indofine; Int'l. Chem. Inc; Monsanto; Penta Mfg.; Ruger; San Yuan; Sigma; Spectrum Quality Prods.; V.L. Clark

*Trade Names:* Colloid 488T; KELCOSOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Scogin™ F; Scogin™ HV; Scogin™ HVF; Scogin™ LV; Scogin™ MV; Scogin™ QH; Scogin™ QL; Scogin™ QM; Sodium Alginate HV NF/FCC; Sodium Alginate LV; Sodium Alginate LVC; Sodium Alginate MV NF/FCC

**Alginate, sodium salt.** See Algin

**Algin gum.** See Calcium carrageenan

## Alginic acid

CAS 9005-32-7; EINECS/ELINCS 232-680-1

*Synonyms:* Norgine; Polymannuronic acid

*Definition:* Hydrophilic colloidal carbohydrate derived from brown seaweed, *Phaeophyceae*; polysaccharide composed of β-d-mannuronic acid residues

*Empirical:* (C<sub>6</sub>H<sub>8</sub>O<sub>6</sub>)<sub>n</sub>

*Properties:* Wh. to yel. fibrous powd., odorless, tasteless; sol. in alkaline sol'ns.; very sl. sol. in water; insol. in org. solvs.; capable of absorbing 200-300 times its wt. of water; m.w. ≈ 240,000; acid no. ≥ 230; pH 1.5-3.5 (3% disp.)

*Toxicology:* LD50 (IP, rat) 1600 mg/kg; moderately toxic by IP route; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Suspending, thickening, gelling/binding agent, emulsifying, and stabilizing agent in foods and pharmaceuticals; binder, visc. control agent in cosmetics; protective colloid in ice cream, toothpaste, cosmetics, pharmaceuticals; tablet binder/disintegrant; textile sizing; binder in paper coatings/sizing; plasticizer/binder in welding rod coatings; thickener/binder in animal feeds; waterproofing concrete; boiler water treatment; oil well drilling muds; storage of gasoline as a solid

*Use Level:* ADI 0-50 mg/kg (EU)

*Regulatory:* FDA 21CFR §184.1011, GRAS; Japan approved; Europe listed; UK approved; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Alfa Aesar; CarboMer; Danisco Ingreds. USA; FMC Biopolymer; Fluka; ISP Alginates; Penta Mfg.; Penwest Pharmaceuticals; Sigma; Spectrum Quality Prods.; Stauber Perf. Ingreds.

*Trade Names:* KELACID®

**Alginic acid, ester with 1,2-propanediol.** See Propylene glycol alginate

**Alginic acid, sodium salt.** See Algin

**Algin (polysaccharide).** See Algin

**Aliphatic (C16-C18) alcohol, ethoxylated.** See Ceteareth

**Alizarin cyanine green F.** See Acid green 25

**Alizarin oil.** See Sulfated castor oil

**Alkane C-6.** See Hexane

**Alkane C<sub>7</sub>.** See Heptane

**Alkanes, C10-11-iso.** See C10-11 isoparaffin

**Alkanes, C11-12-iso.** See C11-12 isoparaffin

**Alkanes, C11-13-iso.** See C11-13 isoparaffin

**Alkanes, C13-14-iso.** See C13-14 isoparaffin

**Alkanes, iso-, C10-11.** See C10-11 isoparaffin

**Alkanes, iso-, C11-12.** See C11-12 isoparaffin

**Alkanes, iso-, C11-13.** See C11-13 isoparaffin

**Alkanes, iso-, C13-14.** See C13-14 isoparaffin

**n-Alkanol (C16-C18).** See Cetearyl alcohol

**Alkenyl (C<sub>10</sub>, C<sub>12</sub>) succinic anhydride.** See Dodeceny succinic anhydride

## Alkenyl succinic anhydride

CAS 70983-55-0

*Synonyms:* (2-Alkenyl) succinic anhydride

*Definition:* (2-Alkenyl) succinic anhydrides in which the alkenyl groups are derived from olefins which contain not less than 78% C<sub>30</sub> and higher groups

*Uses:* Intermediate for defoamers, demulsifiers, emulsifiers, foam boosters, wetting agents, detergents; corrosion inhibitor; hardener for cosmetics and pharmaceuticals; engine oil lubricant additive; paper sizing agent for paper/paperboard in contact with aq./fatty foods; in food-pkg. adhesives; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Manuf./Distrib.:* Aceto; Alfa Aesar; Dixie; Eka Chems.; Humphrey; Lubrizol; Milliken

*Trade Names:* Alkenyl Succinic Anhydride C1618 (ASA); ASA 100; Bersize® 6900; Bersize® 6918; LASAR™; NovaSize® ASA; Pentasize 68

**(2-Alkenyl) succinic anhydride.** See Alkenyl succinic anhydride

**Alkyd.** See Alkyd resin

## Alkyd resin

CAS 63148-69-6; 68459-31-4

*Synonyms:* Alkyd

*Classification:* Thermosetting polymer

## Alkylbenzenesulfonic acid

*Uses:* Thermosetting coating polymer; vehicle in exterior house paints, marine paints, and baking enamels; molded resins in elec. components, encapsulation; latex modifier

*Manuf./Distrib.:* Akzo Nobel; Arakawa USA; Bayer AG; Celanese; Chemical; Croda Resins Ltd; D.B. Becker; DSM UK; Dar-Tech; Degen; EMCO Chem. Distributors; Eastech; GFI; Lomas Int'l.; McWhorter Tech.; PPG Ind.; Prism Int'l.; Ranbar Tech.; Scott Bader; Seegott; Thibaut & Walker; U.S. Polymers; Whyte Chems. Ltd

*Trade Names:* Chempol 13-1905

**Alkylbenzenesulfonic acid.** See Dodecylbenzenesulfonic acid

**Alkylbenzyltrimethylammonium chloride.** See Benzalkonium chloride

**Alkyl (C16-C18) methacrylate.** See Stearyl methacrylate

**Alkyl (C-13) polyethoxylates (ethoxy 5).** See Trideceth-6

**Alkyl dimethyl benzyl ammonium chloride.** See Benzalkonium chloride

**Alkyldimethyl (phenylmethyl) quaternary ammonium chlorides.** See Benzalkonium chloride

**Alkyl ((ethylphenyl) methyl) dimethyl quaternary ammonium chlorides.** See Benzalkonium chloride

### Alkyl ketene dimer

*Uses:* Adjuvant in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.120, 177.1200

*Manuf./Distrib.:* Eka Chems.; Haltermann GmbH; NOF Am.

*Trade Names:* Keydime® A Series; Keydime® C Series; Keydime® D Series; Keydime® E Series; NovaSize® AKD; Opticoll 23

**Alkyl-phenol formaldehyde resin.** See Phenolic resin

**Allied whiting.** See Calcium monocarbonate

**Allomaleic acid.** See Fumaric acid

**Allyl aldehyde.** See Acrolein

**3-Allyloxy-2-hydroxy-1-propanesulfonic acid, sodium salt.** See Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate

**Alpha hydroxy ketone.** See  $\alpha$ -Hydroxy ketone

**Alum.** See Aluminum sulfate; Potassium alum anhydrous; Potassium alum dodecahydrate; Sodium alum

**Alum, ammonium.** See Ammonium alum

**Alum flour.** See Potassium alum dodecahydrate

## Alumina

CAS 1344-28-1; 1333-84-2 (hydrate); EINECS/ELINCS 215-691-6

*Synonyms:* Activated alumina; Activated aluminum oxide; Alumina, activated; Alumina, calcined; Alumina, tabular; Aluminum oxide; Aluminum oxide (2:3); Aluminium oxide alumite; Aluminium oxydes C; Alumite; Alundum; Calcined alumina; Tabular alumina

*Classification:* Inorganic compd.

*Definition:* Occurs in nature as the minerals bauxite, bayerite, boehmite, corundum, diasporite, gibbsite

*Empirical:* Al<sub>2</sub>O<sub>3</sub>

*Properties:* Wh. cryst. powd., balls, or lumps, odorless, tasteless; pract. insol. in water; very sl. sol. in min. acids; m.w. 101.96; dens. 3.5-4; vapor pressure 1 mm Hg (2158 C); bulking value 0.032 gal/lb; m.p. 2050 C; b.p. 2977 C; oil absorp. 13; hardness (Mohs) 8.8

*Toxicology:* TLV/TWA 10 mg/m<sup>3</sup> (dust); toxic by inhalation of dust; inh. may cause Shaver's disease; may be irritating to respiratory tract; eye irritant by mech. abrasion; skin drying, peeling; experimental tumorigen and neoplastigen by implant; TSCA listed

*Precaution:* Noncombustible; incompat. with hot chlorinated rubber

*Hazardous Decomp. Prods.:* Exothermic reaction above 200 C with halocarbon vapors produces toxic HCl and phosgene

*Storage:* Very hygroscopic

*Uses:* Prod. of aluminum, polyethylene, abrasives, refractories, ceramics, alloys, elec. insulators, catalysts and catalyst supports, paper, spark plugs, crucibles and lab ware; adsorbent for gases/water vapors, chromatographic analysis, heat-resist. fibers; drying agent; desiccant; filter medium; filler for paints, varnishes, thermoset plastics; dental cements; glass; steel; artificial gems; flame retardant; adsorbent; food additives; dispersant in foods and pharmaceuticals; pharmaceutical colorant; abrasive, opacifier, visc. control agent in cosmetics; in melamine-formaldehyde resins for food-contact molded articles

*Regulatory:* FDA 21CFR §73.1010, 177.1460; exempt from certification; BP compliance (anhyd., basic)

*Manuf./Distrib.:* Air Prods.; Alcan; Alcoa; Aldrich; Alfa Aesar; AluChem;

Atlantic Equip. Engrs.; Atomergic Chemetals; Baikowski Int'l.; Chemconnect; Composition Materials; Condea Vista; Degussa-Hüls; Electro Abrasives; Ferro/Transelco; Fluka; H.M. Royal; Honeywell Spec. Chems.; Kahn & Co; LaRoche Ind.; Lonza Sarl; Nissam Chem. Ind.; Noah; Norton Chem. Process Prods.; PO; Reade Advanced Materials; Rhodia; San Yuan; Spectrum Quality Prods.; Sumitomo Chem.; Van Waters & Rogers; Whittaker, Clark & Daniels; Wilshire; Zircar Prods.

*Trade Names:* Aluminasol 100; Aluminasol 200; SAFFIL High Alpha Grade; SAFFIL Low Alpha Grade

**Alumina, activated.** See Alumina

**Alumina, calcined.** See Alumina

**Alumina hydrate.** See Aluminum hydroxide

**Alumina hydrated.** See Aluminum hydroxide

**Alumina, tabular.** See Alumina

**Aluminate, sodium.** See Sodium aluminate

**Alumina trihydrate.** See Aluminum hydroxide

**Aluminic acid.** See Aluminum hydroxide

**Aluminium.** See Aluminum

**Aluminium oxide alumite.** See Alumina

**Aluminium oxydes C.** See Alumina

**Aluminophosphoric acid.** See Aluminum orthophosphate

**Aluminosilicates, zeolites.** See Zeolite

**Aluminosilicic acid, magnesium salt.** See Magnesium aluminum silicate

**Aluminosilicic acid, sodium salt.** See Sodium silicoaluminate

## Aluminum

CAS 7429-90-5; EINECS/ELINCS 231-072-3; UN No. 1309 (DOT), 1396 (DOT), NA 9260

*Synonyms:* Aluminium; Aluminum bronze; Aluminum flake; Aluminum dehydrated; Aluminum metal; Aluminum powder; CI 77000; Pigment metal 1

*Classification:* Metallic element

*Empirical:* Al

*Properties:* Silvery wh. cryst. solid; sol. in HCl, sulfuric acid; insol. in water, alcohol; a.w. 26.98; dens. 2.708; m.p. 660 C; b.p. 2450 C

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (dust), 2 mg/m<sup>3</sup> (sol. salt), 5 mg/m<sup>3</sup> (welding fumes); inh. of fine powds. can cause pulmonary fibrosis; over-exposure may cause skin, eye, and respiratory tract irritation; TSCA listed

*Precaution:* Flamm. in air; dust is explosive by heat, flame, or reaction with oxidizers; reactive; no stable isotopes; dangerous when wet

HMIS: Health 1; Flammability 0; Reactivity 3

*Storage:* Moisture-sensitive

*Uses:* Building and construction; corrosion-resistant chemical equip. (desalination plants); die-cast auto parts; elec. industry (power transmission lines); photoengraving plates; permanent magnets; cryogenic technology; machinery; tubes for ointments; in cooking utensils; fencing; dental alloys; powder as filler, in aluminothermics, as flashlight in photography, in explosives, fireworks, paints; colorant for coatings, foods, and external pharmaceuticals; in food-pkg. adhesives; colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §73.1645, 73.2645, 175.105, 175.300, 176.170, 177.1460, 178.3297; BP compliance; Japan approved

*Manuf./Distrib.:* Aarbor Int'l.; Aldrich; Alfa Aesar; Atlantic Equip. Engrs.; Belmont Metals; Canbro; D.N. Lukens; Fluka; Harcros; J.H. Calo; Kaiser Aluminum; Noah; Punda Mercantile; Reade Advanced Materials; Royale Pigments & Chems.; Ruger; Seegott; U.S. Aluminum; Vanguard Chem. Int'l.; Whittaker, Clark & Daniels

*Trade Names Containing:* Kronos® 2020; Kronos® 2073; Kronos® 2081; Kronos® 2101; Kronos® 2160; Kronos® 2200; Kronos® 2210; Kronos® 2220; Kronos® 2230; Kronos® 2310; Metalure® L-53520; Metalure® L-54893; Metalure® L-54894; Metalure® L-54949; Metalure® L-55350; Metalure® L-55700; Metalure® L-56161; Metalure® L-56716

## Aluminum acetate

CAS 139-12-8; EINECS/ELINCS 205-354-1

*Synonyms:* Acetic acid, aluminum salt; Aluminum acetate, basic; Aluminum hydroxide acetate; Aluminum subacetate; Hydroxyaluminum di (acetate)

*Definition:* Aluminum salt of acetic acid

*Empirical:* C<sub>2</sub>H<sub>3</sub>O<sub>2</sub> · 1/3Al

*Formula:* (CH<sub>3</sub>COO)<sub>3</sub>Al

*Properties:* Wh. powd.; water-sol.; m.w. 69.02; m.p. 54 C

*Toxicology:* Harmful if swallowed, inhaled, or absorbed thru skin; irritant; inh.

of dust may cause irritation to upper respiratory tract; dust may irritate eyes  
**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>  
**Storage:** Keep in tightly closed containers  
**Uses:** Antimicrobial in cosmetics; antiseptic; astringent; antiperspirant; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods  
**Regulatory:** FDA 21CFR §175.105, 176.170  
**Manuf./Distrib.:** Alemark; Alfa Aesar; Chattem; Jarchem Ind.; OM Group; Spectrum Quality Prods.

**Aluminum acetate, basic.** See Aluminum acetate

**Aluminum ammonium bis (sulfate).** See Ammonium alum

**Aluminum ammonium sulfate.** See Ammonium alum

**Aluminum bronze.** See Aluminum

#### Aluminum caprylate

CAS 6028-57-5; EINECS/ELINCS 227-902-9

**Synonyms:** Aluminum octanoate; Aluminum trioctanoate; Octanoic acid, aluminum salt

**Definition:** Aluminum salt of caprylic acid

**Empirical:** C<sub>8</sub>H<sub>16</sub>O<sub>2</sub> · 1/3Al

**Uses:** Emulsion stabilizer, opacifier, visc. control agent in cosmetics; binder, emulsifier, anticaking agent in foods; food-pkg. adhesives; drier in food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §172.863, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910

**Aluminum chlorhydroxide.** See Polyaluminum chloride

**Aluminum chloride basic.** See Polyaluminum chloride

**Aluminum chloride hydroxide.** See Polyaluminum chloride

**Aluminum chlorohydrate.** See Polyaluminum chloride

**Aluminum chlorhydroxide.** See Polyaluminum chloride

**Aluminum dehydrated.** See Aluminum

**Aluminum, dihydroxy (octadecanoato-o-).** See Aluminum stearate

#### Aluminum distearate

CAS 300-92-5; EINECS/ELINCS 206-101-8

**Synonyms:** Aluminum hydroxide distearate; Aluminum, hydroxybis (octadecanoato-o-); Aluminum, hydroxybis (stearato-); Aluminum hydroxydistearate; Hydroxyaluminum distearate; Monohydroxyaluminum distearate

**Definition:** Aluminum salt of stearic acid

**Empirical:** C<sub>36</sub>H<sub>77</sub>AlO<sub>5</sub>

**Formula:** [CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COO]<sub>2</sub>Al(OH)

**Properties:** Wh. powd.; insol. in water, alcohol, ether; forms gel w/ aliphatic and aromatic hydrocarbons; m.w. 611.05; dens. 1.009; m.p. 145 C

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup>; nuisance dust; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**HMS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Thickener, gellant in cosmetics, paints, inks, greases; emulsion stabilizer, opacifier, visc. control agent in cosmetics; water repellent; lubricant in plastics and cordage, in cement prod.; processing lubricant for amino resins; additive in polymers and coatings; food binder, emulsifier, anticaking agent; food-pkg. adhesives; stabilizer migrating from food pkg.; metal soap stabilizer; colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §172.863, 173.340, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1460, 177.2260, 178.3297, 178.3910, 179.45, 181.22, 181.29

**Manuf./Distrib.:** Am. Int'l.; Jarchem Ind.; Ruger

**Aluminum distearate and aluminum tristearate.** See Aluminum stearates

**Aluminum di/tristearate.** See Aluminum stearates

**Aluminum flake.** See Aluminum

#### Aluminum formate

CAS 7360-53-4; EINECS/ELINCS 230-898-1

**Synonyms:** Aluminum formate, trihydrate; Aluminum triformate; Formic acid, aluminum salt

**Definition:** Aluminum salt of formic acid

**Empirical:** C<sub>3</sub>H<sub>3</sub>AlO<sub>6</sub>

**Properties:** Wh. cryst.; m.w. 152.03

**Precaution:** Aq. sol'n. explodes when heated in air

**Uses:** Antimicrobial in cosmetics; antisloughing agent for syndet bars; water repellent additive; mordant in dyeing; in tanning; paper wet str. improver; precipitant, fixing agent for mfg. of acid-free papers; in antiperspirants

**Manuf./Distrib.:** ABCR; Aceto

**Trade Names:** Altriform®; Ecco Aluminum Formate

**Aluminum formate, trihydrate.** See Aluminum formate

**Aluminum hydrate.** See Aluminum hydroxide

#### Aluminum hydroxide

CAS 21645-51-2; EINECS/ELINCS 244-492-7

**Synonyms:** ATH; Alumina hydrate; Alumina hydrated; Alumina trihydrate; Aluminic acid; Aluminum oxide hydrate; Aluminum hydrate; Aluminum trihydroxide; Aluminum trihydrate; Hydrated alumina; Hydrated aluminum oxide; Trihydrated alumina

**Classification:** Inorganic compd.

**Empirical:** AlH<sub>3</sub>O<sub>3</sub>

**Formula:** Al(OH)<sub>3</sub>

**Properties:** Wh. cryst. powd. or gran.; odorless; insol. in water, alcohol; sol. in min. acids, caustic soda; m.w. 78.01; dens. 2.42; bulking value 0.050 gal/lb; m.p. loses water @ 300 C; oil absorp. 32-38; GE brightness 93-99; ref. index 1.57; hardness (Mohs) 2.5-3.5

**Toxicology:** TLV/TWA 2 mg (Al)/m<sup>3</sup>; LDLo (IP, rat) 150 mg/kg; poison by IP route; human systemic effects by ing. (fever, GI effects); irritant; no known skin toxicity; mutagenic data; TSCA listed

**Precaution:** Incompat. with chlorinated rubber; when coprecipitated with bismuth hydroxide, and reduced by H<sub>2</sub>, it is violently flamm. in air; incompat. with strong acids, strong bases

**HMS:** Health 1; Flammability 0; Reactivity 1

**Storage:** Store in closed containers; avoid generating dust

**Uses:** Adsorbent; emulsifier; filtering medium; prod. of aluminum, salts; mfg. of glass, fire clay, paper, pottery, dyes, lubricants, paints, printing inks; filler/extender in paints, plastics; improves brightness; waterproofing fabrics; textile finishing; flame retardant for plastics, rubber, carpet backing, paper, adhesives, coatings; mordant in dyeing; rubber reinforcing agent; food and pharmaceutical use; filler; abrasive; emollient, humectant, visc. control agent in cosmetics; mild astringent; gastric antacid; in antiperspirants; dentifrices; colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods; filler in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §175.300, 176.170, 177.1200, 177.2600, 178.3297, 182.90; BP compliance (dried, gel, mixt., oral susp.)

**Manuf./Distrib.:** Actrachem; Akrochem; Alcan; Alcoa; Aldrich; Alfa Aesar; AluChem; Ashland; Atomegic Chemetals; Condea Vista; Costec; D.N. Lukens; Fluka; Frank E. Dempsey; Franklin Ind. Mins.; Georgia Marble; J.M. Huber/Chems.; Kaiser Alumina Chems.; Lohmann; Noah; Nyco Mins.; Omya Croxton+Garry; PQ; Polyad; R.E. Carroll; Reheis; Rhodia; Ruger; Seimi Chem.; Sigma; Smith Chem.; Spectrum Quality Prods.; Total Spec. Chems.; Warner-Jenkinson; Whittaker, Clark & Daniels

**Trade Names:** Alcan Superfine SF 2; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 9; Alcan Superfine SF 11; Alcan Ultrafine UF15; Alcan Ultrafine UF25; Alcan Ultrafine UF35; Alcoa® Grade C-231; Alcoa® Grade C-333; Alcoa® KB30; Hydrad™ 10; Hydrad™ 10W; Hydrad™ 15; Hydrad™ 15W; Hydrad™ 20; Hydrad™ C; Hydrad™ F; Hydrad™ HBC; Hydrad™ HBF; Hydral® 710; Hydral® 716; Hydral® PGA; Hydral® Brite 100 Slurry; Hydral® Coat 2; Hydral® Coat 5; Hydral® Coat 7; Hydrax™ H-312; Hydrax™ H-470; Hydrax™ H-490; Hydrax™ H-550; Hydrax™ H-636; Hydrax™ H-910; KC-350; KC-500; KC-750; KC-900; Martinal® OL-104; Micral® 532; Micral® 916; Micral® 932; Path® 9; SB-332; SB-805; UHF16

**Aluminum hydroxide acetate.** See Aluminum acetate

**Aluminum hydroxide distearate.** See Aluminum distearate

**Aluminum hydroxide silicate sulfate.** See Aluminum hydroxide sulfate

#### Aluminum hydroxide sulfate

CAS 53810-32-5

**Synonyms:** Aluminum hydroxide silicate sulfate; Basic aluminum sulfate; Polyaluminum silicate sulfate

**Properties:** Colorless clear liq.; odorless; f.p. < 0 C; b.p. dec. @ 90 C; noncombustible

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg; mist causes respiratory tract irritation; may cause irritation to skin, eyes, mouth, and digestive tracts

## Aluminum, hydroxybis (octadecanoato-o)-

*Precaution:* Avoid contact with strong alkalis, oxidizers, hydro-reactive materials; hydrolyzes in water

*Hazardous Decomp. Prods.:* May liberate SO<sub>2</sub> and aluminum oxides when boiled to dryness or heated above 200 C

*Uses:* Coagulant in potable water and industrial wastewater treatment, pulp and papermaking

*Trade Names:* Pass®-55; Pass®-70; Pass®-80; PASS®-100

**Aluminum, hydroxybis (octadecanoato-o)-.** See Aluminum distearate

**Aluminum, hydroxybis (stearato)-.** See Aluminum distearate

**Aluminum hydroxychloride.** See Polyaluminum chloride

**Aluminum hydroxydistearate.** See Aluminum distearate

**Aluminum magnesium silicate.** See Magnesium aluminum silicate

**Aluminum metal.** See Aluminum

**Aluminum monobasic stearate.** See Aluminum stearate

**Aluminum monopalmitate.** See Aluminum palmitate

**Aluminum monostearate.** See Aluminum stearate

### Aluminum myristates/palmitates

*Synonyms:* Aluminum trimyristate/tripalmitate; Myristic acid, palmitic acid, mixture, aluminum salt

*Uses:* Emulsion stabilizer, opacifier, visc. control agent in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.863, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910

**Aluminum octanoate.** See Aluminum caprylate

### Aluminum oleate

CAS 688-37-9; EINECS/ELINCS 211-702-3

*Synonyms:* 9-Octadecenoic acid, aluminum salt; 9-Octadecenoic acid, (2)-, aluminum salt (3:1); Oleic acid aluminum salt

*Empirical:* C<sub>24</sub>H<sub>46</sub>O<sub>6</sub>

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>COO]<sub>3</sub>Al

*Properties:* Ylsh. visc. mass; sol. in alcohol, benzene, ether, oil turpentine; pract. insol. in water; m.w. 871.36

*Precaution:* Combustible

*Uses:* Waterproofing agent; drier for paints; thickener for lubricating oils; medicine; as lacquer for metals; lubricant for plastics; food additive; migrating to foods from paper/paperboard; drier in food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 182.90, GRAS

### Aluminum orthophosphate

CAS 7784-30-7; EINECS/ELINCS 232-056-9; UN No. 1760 (DOT)

*Synonyms:* Aluminum phosphate; Aluminophosphoric acid; Phosphoric acid, aluminum salt (1:1)

*Empirical:* AlO<sub>4</sub>P

*Formula:* AlPO<sub>4</sub>

*Properties:* Wh. cryst.; insol. in water and alcohol; sl. sol. in HCl, nitric acid; m.w. 121.95; dens. 2.566; m.p. 1500 C; isomorphous with quartz

*Toxicology:* Sol'ns. are corrosive to tissue; avoid contact and inhalation; TSCA listed

*Uses:* Lubricant; refractory bonding agent; flux for ceramics; dental cements; cosmetics; paints and varnishes; pharmaceuticals; pulp and paper; ant-acid

*Manuf./Distrib.:* Aldrich; Alfa Aesar; Fluka; Honeywell Spec. Chems.; Noah; Sigma

**Aluminum oxide.** See Alumina

**Aluminum oxide (2:3).** See Alumina

**Aluminum oxide hydrate.** See Aluminum hydroxide

**Aluminum oxide silicate.** See Aluminum silicate

### Aluminum palmitate

*Synonyms:* Hexadecanoic acid aluminum salt; Palmitic acid aluminum salt; Aluminum monopalmitate

*Empirical:* C<sub>48</sub>H<sub>92</sub>O<sub>6</sub>

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>COO]<sub>3</sub>Al

*Properties:* Wh. to yel. mass or powd.; pract. insol. in water or alcohol; dissolves in petrol. ether or oil turpentine when fresh; m.w. 793.25; dens. 1.072

*Precaution:* Combustible

*Uses:* Waterproofing leather, paper, textiles; thickener for lubricating oils; thickener, suspending agent for paints and inks; prod. of high gloss on leather and paper; in varnishes; lubricant for plastics; food additive; migrating to foods from paper; drier in food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 182.90, GRAS

**Aluminum phosphate.** See Aluminum orthophosphate

**Aluminum potassium alum.** See Potassium alum anhydrous

**Aluminum potassium disulfate.** See Potassium alum anhydrous

**Aluminum potassium sulfate.** See Potassium alum anhydrous; Potassium alum dodecahydrate

**Aluminum potassium sulfate alum.** See Potassium alum anhydrous

**Aluminum potassium sulfate, anhydrous.** See Potassium alum anhydrous

**Aluminum powder.** See Aluminum

### Aluminum silicate

CAS 1327-36-2; EINECS/ELINCS 215-475-1

*Synonyms:* Aluminum oxide silicate; Cl 77004; Pyrophyllite; Willinite

*Definition:* Complex inorganic salt with 1 mole alumina, 1-3 moles silica; naturally occurring forms: andalusite, cyanite, sillimanite; other aluminum silicate mins. incl. kaolinite, kochite, mullite, newtonite, pyrophyllite, etc.

*Properties:* Varying proportions of Al<sub>2</sub>O<sub>3</sub> and SiO<sub>2</sub>; wh. mass, crystals, or whiskers; high str.; insol. in water; dens. 2.63; oil absorp. 35-45; GE brightness 82-92; ref. index 1.56; hardness (Mohs) 2

*Toxicology:* Essentially harmless when given orally or applied to skin; questionable carcinogen with experimental tumorigenic data by implantation

*Uses:* Clay, reinforcing extender, pigment used in reinforced plastics, dental cements, glass industry, rubber, wire and cable insulation; paint filler/extender; mfg. of semiprecious stones, enamels, colored lakes; catalyst in refining petroleum; filler in rubber, shoe soles, paper, printing inks; water softener; in detergents; abrasive, absorbent, opacifier in cosmetics; thickener for foods, beverages, pharmaceuticals; pigment; TiO<sub>2</sub> extender; in washing compds.; in cellophane for food pkg.; filler in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.300, 177.1200, 177.1460, 177.2600, 184.1155

*Manuf./Distrib.:* Akrochem; Alfa Aesar; Baikowski Int'l.; Boehle; Burgess Pigment; C.P. Hall; CE Mins.; Cimbar Perf. Mins.; D.N. Lukens; Degussa-Hüls; ECC Int'l.; Engelhard; IMERYS; J.M. Huber/Chems.; Jesse S. Young; Kaopolite; Kyowa Chem. Ind.; Lenape Ind.; R.E. Carroll; R.T. Vanderbilt; Solvay SA; Southern Clay Prods.; Takeda USA; Tamms Ind.; Thiele Kaolin; Tomita Pharmaceutical; U.S. Silica; Whittaker, Clark & Daniels

*Trade Names:* Hydragloss; Iceberg®; Icecap® K; Optiwhite®; Tisyn®

*Trade Names Containing:* Translink® 77

### Aluminum silicate dihydrate

*Synonyms:* Clay

*Empirical:* Al<sub>2</sub>O<sub>3</sub>SiO<sub>2</sub> · 2H<sub>2</sub>O

*Properties:* Reddish-brn. to pale buff fine irreg. crystals; odorless; insol. in water and org. clays; m.w. 222.13

*Uses:* In ceramic prods.; in oil-well drilling fluids; filler for rubber and plastic prods., films, paper coatings; decolorizing oils; carrier in insecticide sprays

*Manuf./Distrib.:* ABCR

See also Kaolin

**Aluminum silicate hydrated.** See Kaolin

**Aluminum silicate hydrous.** See Kaolin

**Aluminum silicate hydroxide.** See Kaolin

**Aluminum sodium oxide.** See Sodium aluminate

**Aluminum sodium silicate.** See Sodium silicoaluminates

**Aluminum sodium sulfate.** See Sodium alum

### Aluminum stearate

CAS 7047-84-9; EINECS/ELINCS 230-325-5

*Synonyms:* Aluminum, dihydroxy (octadecanoato-o-); Aluminum monobasic stearate; Aluminum monostearate; Aluminum stearate, monobasic; Dihydroxyaluminum monostearate; Dihydroxyaluminum stearate; Octadecanoic acid, aluminum salt; Stearic acid, aluminum salt; Stearic acid, aluminum dihydroxide salt

*Classification:* Aliphatic organic; sat. aliphatic carboxylic acid salt

*Definition:* Aluminum salt of stearic acid

*Empirical:* C<sub>18</sub>H<sub>37</sub>AlO<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOAl(OH)<sub>2</sub>

*Properties:* Wh. to yls. fine powd., faint char. odor; sol. in alkali, petrol, turpentine oil; insol. in water, alcohol, ether; m.w. 344.48; dens. 1.070; m.p. 115 C

*Toxicology:* ACGIH TWA 10 mg/m<sup>3</sup>; TLV/TWA 2 mg(Al)/m<sup>3</sup>; LD50 (oral, rat) > 5 g/kg; essentially nontoxic; nuisance dust; inh. of high concs. of dust may cause coughing and mild temporary irritation; sl. eye irritant; TSCA listed

*Precaution:* Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, aluminum oxide; heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Store in cool area away from ignition sources

*Uses:* Paint, varnish drier; greases; waterproofing agent for fabric, rope, cement; cement additive; lubricant for unsat. polyester resins, textile fibers; thickener in lubricating oils, cutting compds.; flattening agent; colorant in cosmetics; gelling agent in pharmaceuticals; wetting agent; defoamer in beet sugar and yeast processing; drier in food-contact coatings; food-pkg. adhesives; colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods; adjuvant in food-contact textiles

*Regulatory:* FDA §121.1099, 172.863, 173.340, 175.105, 175.210, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1460, 177.2260, 177.2800, 178.3297, 178.3910, 179.45, 181.22, 181.29; USP/NF compliance

*Manuf./Distrib.:* AC Ind.; Acme-Hardesty; Aerchem; Alfa Aesar; Am. Int'l.; Ashland; Atofina; Ayers Int'l.; Crompton/Witco; Eastech; Fallek; Ferro/Grant; Ferro; Fluka; Geo Spec. Chems.; Halstab; Harcros; Honeywell Spec. Chems.; Lohmann; Los Angeles Chem.; Magnesia GmbH; NOF; Norac; Norman, Fox; Pechiney World Trade USA; Pfaltz & Bauer; Ruger; Sea-Land; Spectrum Quality Prods.; Universal Preserv-A-Chem; Van Waters & Rogers

See also Aluminum tristearate

**Aluminum stearate, monobasic.** See Aluminum stearate

#### Aluminum stearates

*Synonyms:* Aluminum distearate and aluminum tristearate; Aluminum di/tristearate

*Definition:* Mixt. of aluminum distearate and aluminum tristearate (1:1)

*Uses:* Emollient, emulsion stabilizer, opacifier, visc. control agent in cosmetics; food pkg. adhesives; food-contact resinous/polymeric coatings; in food-contact paper/paperboard; defoamer in food-contact coatings, paper/paperboard; food-contact cellophane; resin-bonded filters for food contact; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910, 179.45

**Aluminum subacetate.** See Aluminum acetate

#### Aluminum sulfate

CAS 10043-01-3 (anhyd.); 17927-65-0 (hydrate); EINECS/ELINCS 233-135-0; UN No. 1760 (sol'n.) (DOT)

*Synonyms:* Alum; Aluminum trisulfate; Cake alum; Dialuminum sulfate; Dialuminum trisulfate; Papermakers' alum; Patent alum; Pearl alum; Sulfuric acid aluminum salt; Sulfuric acid, aluminum salt (3:2)

*Classification:* Inorganic salt

*Empirical:* Al<sub>2</sub>O<sub>12</sub>S<sub>3</sub>

*Formula:* Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> · 14H<sub>2</sub>O

*Properties:* Wh. cryst. powd., odorless, sweet taste; sol. 36.4% in water (20 C); insol. in alcohol; m.w. 342.14 (anhyd.); dens. 2.71; b.p. dec. @ 770 C; stable in air

*Toxicology:* ACGIH TLV-TWA 2 mg/m<sup>3</sup>; LD50 (oral, mouse) 6207 mg/kg; mod. toxic by ing. and IP routes; irritating to skin, eyes, respiratory tract; ing. causes nausea, vomiting, abdominal pain; hydrolyzes to form sulfuric acid which irritates tissue, esp. lungs; TSCA listed

*Precaution:* Forms sulfuric acid with water; dec. to sulfur oxides at high temps.

*Hazardous Decomp. Prods.:* SO<sub>2</sub>

HMS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Coagulant in pulp and paper mills, water purification plants, drinking water treatment; leather tanning; textiles; gypsum treatment; in fire retardants; deodorizer; decolorizer; food additive; firming agent in foods and pharmaceuticals; in pkg.; flocculant; iron and manganese removal; activa-

tion of silica for water treatment; sizing paper; lakes; dyeing mordant; foaming agent in firefighting foams; fireproofing cloth; catalyst for methane mfg.; pH control for paper; waterproofing concrete; antiperspirant agent, deodorant agent in cosmetics

*Regulatory:* FDA 21CFR §172.892, 173.3120, 182.1125, GRAS; USP/NF, BP, Ph. Eur. compliance

*Manuf./Distrib.:* Albemarle; Alcan; Alchem; Aldrich; Alfa Aesar; Allan; Allchem Ind.; Altivia; Asada Chem. Ind.; Ashland; BK Giulini Chemie; Barker Ind.; Bay Chem. & Supply; Calabrian; Chemconnect; Columbus Chem. Ind.; Delta; General Alum & Chem.; General Chem.; Geo Spec. Chems.; Harcros; Holland; Honeywell Spec. Chems.; Int'l. Chem. Inc.; Kemira Water Treatment; Lohmann; Los Angeles Chem.; Melchemie bv; Mutchler; P.B. & S.; Polymer Systems Inc; Rasa Ind.; Rhodia; Ruger; Sal Chem.; San Yuan; Seeler Ind.; Southern Ionics; Spectrum Quality Prods.; Van Waters & Rogers; Veckridge

*Trade Names:* Alcan Aluminum Sulphate Sol'n.; Alcan Aluminum Sulphate Solid; Clar+Ion™ A410P; Papermaker's Alum

*Trade Names Containing:* Clar+Ion™ 603; Clar+Ion™ 605; Clar+Ion™ 610; Clar+Ion™ 610M; Clar+Ion™ A405P; Clar+Ion™ A415P; Clar+Ion™ A420P

**Aluminum triformate.** See Aluminum formate

**Aluminum trihydrate.** See Aluminum hydroxide

**Aluminum trihydroxide.** See Aluminum hydroxide

**Aluminum trimyristate/tripalmitate.** See Aluminum myristates/palmitates

**Aluminum trioctanoate.** See Aluminum caprylate

#### Aluminum tristearate

CAS 637-12-7; EINECS/ELINCS 211-279-5

*Synonyms:* Aluminum stearate; Octadecanoic acid, aluminum salt; Stearic acid, aluminum salt; Tribasic aluminum stearate

*Definition:* Aluminum salt of stearic acid

*Empirical:* C<sub>54</sub>H<sub>105</sub>O<sub>6</sub> · Al

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>COO]<sub>3</sub>Al

*Properties:* Wh. powd.; sol. in alcohol, benzene, oil turpentine, min. oils; pract. insol. in water; m.w. 877.35; dens. 1.070; m.p. 117-120 C

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup>; nuisance dust; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Paint and varnish drier; greases; waterproofing agent for paper, textile coatings; cement additive; thickening lubricants; gelling agent in deodorants, cleansing lotions; cutting compds.; flattening agent; pharmaceuticals; lt.-sensitive photographic compositions; emollient, emulsion stabilizer, opacifier, visc. control agent in cosmetics; defoamer in beet sugar and yeast processing; stabilizer migrating from food pkg.; food-pkg. adhesives; colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §172.863, 173.340, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.1460, 177.2260, 178.3297, 178.3910, 179.45, 181.22, 181.29

*Manuf./Distrib.:* Katsuta Kako; Kawamura Kasei ind.

See also Aluminum stearate

**Aluminum trisulfate.** See Aluminum sulfate

**Alumite.** See Alumina

**Alum meal.** See Potassium alum dodecahydrate

**Alum, potassium.** See Potassium alum anhydrous; Potassium alum dodecahydrate

**Alundum.** See Alumina

**Amanthrene golden yellow.** See Vat yellow 4

**Amide C-18.** See Stearamide

**Amides, coco.** See Cocamide

**Amides, coco, N,N-bis (2-hydroxyethyl)-.** See Cocamide DEA

**Amides, coco, N-[3-(dimethylamino) propyl], N-oxides.** See Cocamidopropylamine oxide

**Amides, coconut oil.** See Cocamide

**Amides, palm oil, N,N-bis (2-hydroxyethyl)-.** See Palmamide DEA

**Amides, tallow.** See Tallow amide

**Amidosulfonic acid.** See Sulfamic acid

**Amidosulfuric acid.** See Sulfamic acid

**Amine 220.** See Oleyl hydroxyethyl imidazoline

**Amines, bis (hydrogenated tallow alkyl)-.** See Hydrogenated ditallowamine

**Amines, dicoco alkyl.** See Dicoamine

## Aminic acid

**Aminic acid.** See Formic acid

**4-Amino-3-((4'-((2,4-diaminophenyl) azo) (1,1'-biphenyl)-4-yl) azo)-5-hydroxy-6-(phenylazo)-2,7-naphthalenedisulfonic acid, disodium salt.** See Direct black 38

**2-Amino-2,2-dimethylethanol.** See Aminomethyl propanol

**2-Aminoethanol.** See Ethanolamine

**2-Aminoethyl acrylate nitrate/2-hydroxypropyl acrylate copolymer.** See Poly (2-aminoethyl acrylate nitrate-co-2-hydroxypropyl acrylate)

**2-Aminoethyl alcohol.** See Ethanolamine

**$\beta$ -Aminoethyl alcohol.** See Ethanolamine

**Aminoethylethandiamine.** See Diethylenetriamine

**N-(2-Aminoethyl)-1,2-ethanediamine.** See Diethylenetriamine

**N-(2-Aminoethyl) ethylenediamine.** See Diethylenetriamine

**Aminoform.** See Hexamethylenetetramine

**4-Amino-5-hydroxy-3-(m-nitrophenyl) azo-6-(phenylazo)-2,7-naphthalenedisulfonic acid, 2,7-disodium salt.** See Acid blue 29

**6-((7-Amino-1-hydroxy-3-sulfo-2-naphthalenyl) azo)-3-((4-((4-amino-6 (or) 7)-sulfo-1-naphthalenyl) azo) phenyl) azo)-4-hydroxy-2-naphthalenesulfonic acid, trisodium salt.** See Direct black 80

**5-[[4'-(7-Amino-1-hydroxy-3-sulfo-2-naphthyl) azo] [1,1'-biphenyl]-4-yl] azo]-2-hydroxybenzoic acid, disodium salt.** See Direct brown 2

**Aminoiminomethane sulfonic acid.** See Thiourea dioxide

**$\alpha$ -Aminoisopropyl alcohol.** See Isopropanolamine

### Aminomethyl propanol

CAS 124-68-5; EINECS/ELINCS 204-709-8

**Synonyms:** AMP; 2-Amino-2,2-dimethylethanol; 2-Amino-2-methyl-1-propanol; 1,1-Dimethyl-2-hydroxyethylamine; Isobutanolamine; Isobutanol-2 amine; 2-Methyl-2-amino-1-propanol

**Classification:** Substituted aliphatic alcohol

**Empirical:** C<sub>4</sub>H<sub>11</sub>NO

**Formula:** CH<sub>3</sub>(CH<sub>3</sub>)(NH<sub>2</sub>)CH<sub>2</sub>OH

**Properties:** Solid or visc. liq.; nearly odorless; very sol. in alcohol; misc. with water; sl. sol. in aromatic hydrocarbons; m.w. 89.14; dens. 0.93 (20/4 C); m.p. 30 C; b.p. 165 C (760 mm); flash pt. (TOC) 67 C; pH 11.3 (0.1M aq.)

**Toxicology:** Moderately toxic by ingestion; irritating to eyes and skin; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; can form explosive mixts. with air  $\geq$  67 C; corrosive to copper, brass, and aluminum

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>

**NFPA:** Health 2; Flammability 2; Reactivity 0

**Uses:** Additive for latex paint; pigment dispersant; solubilizer for resins; emulsifier for oils, waxes, creams/lotions; neutralizer for boiler water treatment; corrosion inhibitor; absorbent for acidic gases; amine soaps (metalworking fluids); food-pkg. adhesives; organic synthesis; corrosion inhibitor for boiler water systems; carbon dioxide absorber; synthesis of surfactants; buffer in cosmetics, pharmaceutical, diagnostic, and biochem. applics.; catalyst (as acid salt); dispersant, pigment suspending agent in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 176.170

**Manuf./Distrib.:** ANGUS; Aldrich; Alfa Aesar; Allchem Ind.; Ashland; Exaxol; Fluka; Quaker City; Sigma; Spectrum Quality Prods.

**2-Amino-2-methyl-1-propanol.** See Aminomethyl propanol

**1-Aminooctadecane.** See Stearamine

**1-Amino-2-propanol.** See Isopropanolamine

**1-Aminopropan-2-ol.** See Isopropanolamine

### N-(3-Aminopropyl) diethanolamine

CAS 4985-85-7; UN No. 1760 (DOT)

**Synonyms:** APDEA; Ethanol, 2,2'-((3-aminopropyl)imino)bis-

**Classification:** Alkanolamine

**Properties:** Colorless clear liq.; ammonia-like odor; sol. > 10% in water; sp.gr. 1.07; vapor pressure < 1 mm Hg (68 F); b.p. 167 C (760 mm); flash pt. (COC) 340 F; ref. index 1.4965

**Toxicology:** LD50 (oral, rat) 3.50 ml/kg (sl. toxic), (dermal, rabbit) > 2.50 ml/kg (sl. toxic); causes eye and skin burns; harmful or fatal if swallowed; harmful if absorbed thru skin; causes respiratory tract irritation and can cause damage; TSCA listed

**Environmental:** LC50 (96 h) > 100-1000 ppm; pract. nontoxic

**Precaution:** Corrosive; reacts violently with acids

**Hazardous Decomp. Prods.:** Burning in limited air supply may produce

combustion prods. of nitrogen, CO, CO<sub>2</sub>, irritating aldehydes and ketones, and toxic levels of ammonia

**HMIS:** Health 3; Flammability 1; Reactivity 0

**Storage:** Minimize exposure to high temps.; avoid water contamination

**Uses:** Intermediate in prep. of surfactants, pharmaceuticals, fabric softeners, skin care prods., tube/fuel additives such as dispersants and detergents, corrosion inhibitors for metalworking, drugs, dyes, flocculants for paper mfg. and wastewater treatment; integral skin PU, EPDM rubbers to improve blending and tear resist., buffers, chelating agents

**Regulatory:** SARA §311 acute hazard

**Manuf./Distrib.:** Huntsman

**Aminosulfonic acid.** See Sulfamic acid

**Aminotriacetic acid.** See Nitrilotriacetic acid

**Aminotriethanoic acid.** See Nitrilotriacetic acid

### Aminotrimethylene phosphonic acid

CAS 6419-19-8; EINECS/ELINCS 229-146-5

**Synonyms:** AMP; ATMP; NTF; NTMP; NTPA; Aminotri (methylenephosphonic acid); Aminotri (methylphosphonic acid); Aminotris (methanephosphonic acid); Aminotris (methylphosphonic acid); Aminotris (methylene phosphonic acid); Nitrilotrimethanephosphonic acid; Nitrilotrimethylphosphonic acid; Nitrilotrimethylenephosphonic acid; Nitrilotris (methylenephosphonic acid); Nitrilotris (methylene) triphosphonic acid; Nitrilotris (methylphosphonic acid); Phosphonic acid, (nitrilotris (methylene) tri-; Tris (phosphonomethyl) amine

**Classification:** Organic compd.

**Empirical:** C<sub>3</sub>H<sub>12</sub>NO<sub>9</sub>P<sub>3</sub>

**Formula:** (HOPOOH)<sub>3</sub>N(CH<sub>2</sub>)<sub>2</sub>

**Properties:** M.w. 299.07; dens. 1.33; m.p. -14 C; b.p. 105 C

**Toxicology:** LD50 (oral, rat) 2100 mg/kg, (skin, rabbit) > 6310 mg/kg; mod. toxic by ing.; irritating to eyes and skin; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub> and PO<sub>x</sub>

**Uses:** Scale and corrosion inhibitor, chelant for cooling water treatment, boiler and oil field treatment; aq. process additive for paper, textiles, and metals; sequestrant in industrial and commercial cleaning formulations; sludge conditioner for boiler water treatment; oil drilling muds; powd. detergents; photographic applics.; pigment/filler/clay dispersant for ceramics, paper, paints; chelating agent in cosmetics

**Manuf./Distrib.:** Acros Org.; Aldrich; Allchem Ind.; Excel Ind.; Fluka; Pfaltz & Bauer; TCI Am.

**Trade Names:** Aquacid-108 EX; Dequest® 2000; Dequest® 2000LC

**Aminotri (methylenephosphonic acid).** See Aminotrimethylene phosphonic acid

**Aminotri (methylenephosphonic acid) pentasodium salt.** See Pentasodium aminotrimethylene phosphonate

**Aminotri (methylphosphonic acid).** See Aminotrimethylene phosphonic acid

**Aminotris (methanephosphonic acid).** See Aminotrimethylene phosphonic acid

**Aminotris (methylene phosphonic acid).** See Aminotrimethylene phosphonic acid

**Aminotris (methylphosphonic acid).** See Aminotrimethylene phosphonic acid

### Ammonia

CAS 7664-41-7; EINECS/ELINCS 231-635-3; UN No. 1005 (anhyd.), 2672, 2073 (sol'ns.)

**Synonyms:** Ammonia anhydrous; Ammonia gas; Anhydrous ammonia

**Classification:** Inorganic nitrogen compd.

**Empirical:** H<sub>3</sub>N

**Formula:** NH<sub>3</sub>

**Properties:** Colorless gas or liq., sharp, intensely irritating odor; easily liquefied by pressure; sol. in water, alcohol, ether; m.w. 17.03; sp.gr. 0.682 (-33.4 C); f.p. -77 C; b.p. -33.5 C; pH 11.6 (1N aq.)

**Toxicology:** ACGIH TLV/TWA 25 ppm; STEL 35 ppm; LD50 (inh., mouse, 1 h) 4837 ppm, (oral, rat) 350 mg/kg (ammonium hydroxide); corrosive; inh. of conc. fumes may be fatal; irritating to eyes and mucous membranes; shown to produce cancer of the skin in human doses of 1000 mg/kg of body wt.; TSCA listed

**Precaution:** Moderate fire risk; caustic

**Hazardous Decomp. Prods.:** Exposed to heat, emits toxic fumes of NH<sub>3</sub> and NO<sub>x</sub>



NFPA: Health 3; Flammability 1; Reactivity 0

*Uses:* Fertilizer; refrigerant; nitriding of steel; condensation catalyst; neutralizer; extraction solvent; petroleum industry; latex preservative; explosives; taste and odor control agent in water treatment; condensate corrosion inhibitor; buffer in cosmetics; foods (processing aid); pharmaceuticals (alkalizing agent, buffer); microbial fermentation nutrient

*Regulatory:* FDA 27CFR §21.95; SARA reportable (anhyd.); Japan approved; BP compliance

*Manuf./Distrib.:* Agrium; Air Prods.; Aldrich; Arch Chems.; Ashland; BASF AG; Brown; Chemconnect; Chemical; Columbus Chem. Ind.; Coyne; Cytec Ind.; DSM Chemie Linz GmbH; Dakota Gasification; DuPont; Fluka; General Chem.; Harcros; Hill Bros. Chem.; Holland; Honeywell Perf. Polymers; Jilin Chem. Ind.; Koch Nitrogen; LaRoche Ind.; MG Ind.; Miljac; Monsanto; Nissan Chem. Ind.; Nitron; Noah; Norsk Hydro AS; Occidental; P.B. & S.; PPG Ind.; Sal Chem.; Seeler Ind.; Solutia; U.S. Chems.; Universal Preserv-A-Chem; Van Waters & Rogers; Veckridge

*Trade Names Containing:* Snowtex N

**Ammonia anhydrous.** See Ammonia

**Ammonia aqua.** See Ammonium hydroxide

**Ammonia aqueous.** See Ammonium hydroxide

**Ammonia gas.** See Ammonia

**Ammonia solution.** See Ammonium hydroxide

**Ammonia solution, strong.** See Ammonium hydroxide

**Ammonia water.** See Ammonium hydroxide

**Ammonioformaldehyde.** See Hexamethylenetetramine

**Ammonium acetate**

CAS 631-61-8; EINECS/ELINCS 211-162-9

*Synonyms:* Acetic acid ammonium salt

*Classification:* Aliphatic organic compd.

*Empirical:* C<sub>2</sub>H<sub>7</sub>NO<sub>2</sub>

*Formula:* CH<sub>3</sub>COONH<sub>4</sub>

*Properties:* Colorless or wh. crystals, sl. acetous odor; sol. in alcohol, oxygenated solvs.; sl. sol. in acetone; very sl. sol. in water; m.w. 77.08; dens. 1.07; m.p. 114 C; pH 6.7-7.3 (5%)

*Toxicology:* LD50 (IP, rat) 632 mg/kg, (IV, mouse) 386 mg/kg; poison by IV route; mod. toxic by IP route; gastric irritant; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub> and NH<sub>3</sub>

HMS: Health 2; Flammability 0; Reactivity 0

*Storage:* Hygroscopic, deliq.; store @ 2-8 C

*Uses:* Reagent in analytical chemistry; textile dyeing; preserving meats; foam rubbers; vinyl plastics; explosives; microbial fermentation nutrient; buffer in cosmetics, pharmaceuticals; diuretic/diaphoretic drug

*Regulatory:* BP compliance

*Manuf./Distrib.:* AMRESCO; Aldrich; Alemark; Alfa Aesar; Allan; Allchem Ind.; Am. Biorganics; Am. Int'l.; Cater Chems.; Daito Chem. Ind.; Daiwa; Fluka; General Chem.; Great Western; Heico; Honeywell Spec. Chems.; Honig; Jarchem Ind.; Johnson Matthey; Kishida Chem.; Lohmann; Magnablend; Min. R&D; Noah; Ruger; Sigma; Spectrum Quality Prods.; Tomiyama Pure Chem. Ind.; Verdugt BV; Yoneyama Chem. Ind.

*Trade Names Containing:* Protec ZA7

**Ammonium acid phosphate.** See Ammonium phosphate

**Ammonium, alkylidimethyl (phenylmethyl)-, chloride.** See Benzalkonium chloride

**Ammonium alum**

CAS 7784-25-0; 7784-26-1; EINECS/ELINCS 232-055-3

*Synonyms:* Alum, ammonium; Aluminum ammonium bis (sulfate); Aluminum ammonium sulfate; Ammonium aluminum sulfate; Ammonium aluminum alum; Burnt ammonium alum; Exsiccated ammonium alum; Sulfuric acid, aluminum ammonium salt (2:1:1), dodecahydrate

*Classification:* Inorganic aluminum compd.

*Empirical:* Al • H<sub>3</sub>N • 2H<sub>2</sub>O<sub>4</sub>S • 12H<sub>2</sub>O

*Formula:* AlNH<sub>4</sub>(SO<sub>4</sub>)<sub>2</sub> • 12H<sub>2</sub>O

*Properties:* Wh. cryst. powd., odorless, strong sweet astringent taste; freely sol. in glycerol; pract. insol. in alcohol; sol. 1 g/7 ml in water; m.w. 453.33; dens. 1.645; m.p. 94.5 C; b.p. dec. > 280 C; noncombustible

*Toxicology:* TLV/TWA 2 mg/m<sup>3</sup> (sol. salts, as Al); irritating if inhaled or in-

gested; causes redness and irritation to skin and eyes when sulfuric acid forms in presence of moisture

*Precaution:* Incompat. with strong bases (can react vigorously)

*Hazardous Decomp. Prods.:* On decomp., emits toxic fumes of NO<sub>x</sub> and SO<sub>x</sub>

HMS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store in cool, dry area in labeled dust-tight containers; keep closed when not in use

*Uses:* Mordant in dyeing; sizing paper; retanning leather; clarifying agent; food additive: mild astringent, antiseptic; mfg. of lakes and pigments; fur treatment; coagulant, taste and odor control agent for water and sewage treatment/purification; buffer, neutralizer in baking powd.; waterproofing and fireproofing agent (textiles); electroplating bath ingred.; hardener for gelatin; antiperspirant agent in cosmetics; in food-contact animal glues

*Regulatory:* FDA 21CFR §178.3120, 182.90, 182.1127, GRAS; Japan approved except for miso

*Manuf./Distrib.:* Aerchem; Alfa Aesar; Allchem Ind.; Am. Int'l.; Cooper Chem.; Dudley; Fluka; Holland; Independent Chem.; Noah; Ruger; Sal Chem.; Spectrum Quality Prods.; Universal Preserv-A-Chem; Van Waters & Rogers; Wego Chem. & Min.

**Ammonium aluminum alum.** See Ammonium alum

**Ammonium aluminum sulfate.** See Ammonium alum

**Ammonium amidosulfate.** See Ammonium sulfamate

**Ammonium, benzylidimethyloctadecyl-, chloride.** See Stearalkonium chloride

**Ammonium, benzyltriethyl-, chloride.** See Benzyltriethyl ammonium chloride

**Ammonium biphosphate.** See Ammonium phosphate

**Ammonium, (4-(bis (p-(dimethylamino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene) dimethyl-, chloride.** See Basic violet 3

**Ammonium bromide**

CAS 12124-97-9; EINECS/ELINCS 235-183-8

*Synonyms:* Hydrobromic acid monoammoniate

*Empirical:* H<sub>4</sub>BrN

*Formula:* NH<sub>4</sub>Br

*Properties:* Colorless cryst. or yls. wh. powd.; sol. in water and alcohol; m.w. 97.96; dens. 2.33 kg/l (15 C); vapor pressure 1 mm Hg (198.3 C); m.p. 452 C (subl.); b.p. 235 C (in vacuum); noncombustible

*Toxicology:* LD50 (oral, rat) 2700 mg/kg, (IP, mouse) 559 mg/kg; mod. toxic by ing., IP routes; mutation data reported; TSCA listed

*Precaution:* Incompat. with BrF<sub>3</sub>, IF<sub>7</sub>, K

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>, Br<sup>-</sup>, and NH<sub>3</sub>

HMS: Health 2; Flammability 0; Reactivity 0

*Storage:* Sl. hygroscopic

*Uses:* Flame retardant for plastics, textiles, wood, paper, chipboard, plywood; anticorrosive agents; precipitating silver salts for photographic plates; medicine (for its bromide ion); analytical chemistry; process engraving; textile finishing; biocide in industrial water systems, paper mills

*Manuf./Distrib.:* Advance Research Chems.; Albemarle; Aldrich; Alfa Aesar; AmeriBrom; Atomergic Chemetals; BCH Brühl; Barker Ind.; Cerac; Charkit; D&O; Dead Sea Bromine; Fluka; Great Lakes; Hawks Chem. Co Ltd; Honeywell Spec. Chems.; Johnson Matthey plc; Mallinckrodt Baker; Morre-Tec Ind.; Noah; Ocean Chems.; Rhodia; Richman; Ruger; Sigma; Sinochem Liaoning; Spectrum Quality Prods.

*Trade Names:* FR-11

*Trade Names Containing:* FRCROS 349

**Ammonium, (9-(o-carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethyl-, chloride.** See Basic violet 10

**Ammonium caseinate**

CAS 9005-42-9

*Synonyms:* Casein, ammonium salt

*Definition:* Ammonium salt of casein

*Properties:* Anionic

*Uses:* Dispersant; leveling agent; antistat in cosmetics; food additive; in adhesives for beer bottle labeling, foil-paper lamination, wood door adhesives; binder in paper coatings; protective colloid in emulsion polymerization

*Regulatory:* Granted prior sanction via clearance for optional use in food standards for frozen desserts

## Ammonium castor oil sulfate

### Ammonium castor oil sulfate

*Synonyms:* Castor oil, sulfated, ammonium salt

*Uses:* Defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

**Ammonium, diallyl dimethyl-, chloride, polymers.** See Polyquaternium-6

**Ammonium, didecyl dimethyl-, chloride.** See Didecyl dimonium chloride

**Ammonium, (4-( $\alpha$ -(p-(diethylamino) phenyl)-2,4-disulfobenzylidene)-2,5-cyclohexadien-1-ylidene) diethyl-, hydroxide, monosodium salt.** See Acid blue 1

**Ammonium di (2-ethylhexyl) sulfosuccinate.** See Dioctyl ammonium sulfosuccinate

**Ammonium dihydrogen orthophosphate.** See Ammonium phosphate

**Ammonium dihydrogen phosphate.** See Ammonium phosphate

**Ammonium, (4-(p-(dimethylamino)- $\alpha$ -(p-ethyl (m-sulfobenzyl) amino) phenyl) benzylidene)-2,5-cyclohexadien-1-ylidene) ethyl (m-sulfobenzyl)-, hydroxide, inner salt, sodium salt.** See Acid violet 49

**Ammonium, dimethyldioctadecyl-, chloride.** See Distearyl dimonium chloride

### Ammonium dinonyl sulfosuccinate

CAS 27501-55-9; EINECS/ELINCS 248-501-5

*Trade Names Containing:* Ancowet A-70

**Ammonium dodecyl sulfate.** See Ammonium lauryl sulfate

**Ammonium-N-dodecyl sulfate.** See Ammonium lauryl sulfate

**Ammonium, ethyl (4-(p-(ethyl (m-sulfobenzyl) amino)- $\alpha$ -(p-sulfophenyl) benzylidene)-2,5-cyclohexadien-1-ylidene)-(m-sulfobenzyl)-, hydroxide, inner salt, disodium salt.** See Acid green 5

### Ammonium fructoheptonate

*Uses:* Chelating agent in mfg. of food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.150

### Ammonium glucoheptonate

*Uses:* Chelating agent in food-contact paper/paperboard mfg.

*Regulatory:* FDA 21CFR §176.150

### Ammonium hydroxide

CAS 1336-21-6; EINECS/ELINCS 215-647-6; UN No. NA 2672 (DOT)

*Synonyms:* Ammonia aqua; Ammonia aqueous; Ammonia solution; Ammonia solution, strong; Ammonia water; Aqua ammonia; Aqua ammonium; Aqueous ammonia; Spirit of Hartshorn; Strong ammonia solution

*Classification:* Inorganic base

*Empirical:* H<sub>3</sub>NO

*Formula:* NH<sub>4</sub>OH

*Properties:* Clear colorless liq., very pungent odor, acrid taste; sol. in water; m.w. 35.06; dens. 0.90; m.p. -77 C; flash pt. none; pH 13.6

*Toxicology:* LD50 (oral, rat) 350 mg/kg; LDLo (IV, rabbit) 10 mg/kg; human poison by ingestion; experimental poison by inh. and ing.; inhalation irritant; severe eye irritant; liq. can inflict burns; mutation data; TSCA listed

*Precaution:* DOT: Corrosive material; vapor will ignite, but not readily; incompat. with acrolein, nitromethane, acrylic acid, chlorosulfonic acid, dimethyl sulfate, halogens, HCl, HF, HNO<sub>3</sub>, propylene oxide, etc.

*Hazardous Decomp. Prods.:* Heated to decomp., emits NH<sub>3</sub> and NO<sub>x</sub>

NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* Keep cool in strong glass, plastic, or rubber-stoppered bottles not completely filled; store below 26 C

*Uses:* Food additive, alkali, leavening agent, pH control agent, processing aid; boiler water additive; corrosion inhibitor for steam generating systems; taste and odor control in water treatment; textiles; mfg. of rayon, rubber, fertilizers; org. synthesis; refrigeration; condensation polymerization; photography; soaps; lubricants; fireproofing wood; ink mfg.; explosives; ceramics; saponifying fats and oils; buffer, denaturant in cosmetics; food coloring diluent/solvent; alkalinizing agent for pharmaceuticals

*Use Level:* ADI no limit (EU)

*Regulatory:* FDA 21CFR §163.110, 182.90, 184.1139, GRAS; Europe listed; UK approved; USP/NF compliance

*Manuf./Distrib.:* Agrium; Aldrich; Alexander; Ashland; Brown; Charkit; Chemical; Coyne; Cytec Ind.; Fisher Scientific; Honeywell Perf. Polymers; Koch Microelectronic; LaRoche Ind.; Miljac; Romil Ltd; Ruger; Sal Chem.; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Van Waters & Rogers

*Trade Names Containing:* Carboset® 514H; Carboset® 531; Protec ZA7; Protec ZZA

**Ammonium hyposulfite.** See Ammonium thiosulfate

### Ammonium isobutyl oleate sulfate

*Synonyms:* Isobutyl oleate, sulfated, ammonium salt

*Uses:* In paper/paperboard in contact with aq./fatty food

*Regulatory:* FDA 21CFR §176.170

### Ammonium laureth sulfate

CAS 32612-48-9 (generic); 67762-19-0

*Synonyms:* Ammonium lauryl ether sulfate; PEG (1-4) lauryl ether sulfate, ammonium salt; POE (1-4) lauryl ether sulfate, ammonium salt

*Definition:* Ammonium salt of ethoxylated lauryl sulfate

*Formula:* (C<sub>2</sub>H<sub>4</sub>O)<sub>n</sub> • C<sub>12</sub>H<sub>26</sub>O<sub>4</sub>S • H<sub>3</sub>N, avg. n = 1-4

*Properties:* Anionic

*Toxicology:* LD50 (oral, rat) 630 mg/kg; moderate toxicity by ingestion; skin and eye irritant; TSCA listed

*Uses:* Surfactant, emulsifier for emulsion polymerization (acrylics, styrene-acrylic, vinyl acrylics, S/B, paints, coatings), lt.-duty detergents, cosmetics, hair and skin detergents, pharmaceutical creams and lotions; breaks up and holds oils and soil; visc. builder; foaming agent for plasterboard, lightweight concrete prod.; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Albright & Wilson Am.; Allchem Ind.; Ashland; Chemron; Clariant; Cognis/Care Chems.; Crompton/Witco; Cytec Ind.; DeForest Enterprises; E-Chemicals; Great Western; Independent Chem.; Int'l. Chem. Inc.; Kraft Chem.; Lonza; Norman, Fox; Patco Chem. Ind.; Pilot; Rhodia HPCII; Sea-Land; Stepan; Surfactants Inc; Universal Preserv-A-Chem; Van Waters & Rogers

*Trade Names:* Paxnol ALES; POLYSTEP® B-11; Stanfax 238; Stanfax 968; Stanfax 1012

### Ammonium laureth-12 sulfate

CAS 32612-48-9 (generic)

*Synonyms:* Ammonium POE (12) lauryl ether sulfate; PEG-12 lauryl ether sulfate, ammonium salt; PEG (12) lauryl ether sulfate, ammonium salt; POE (12) lauryl ether sulfate, ammonium salt

*Definition:* Ammonium salt of ethoxylated lauryl sulfate

*Empirical:* (C<sub>2</sub>H<sub>4</sub>O)<sub>x</sub> • C<sub>12</sub>H<sub>26</sub>O<sub>4</sub>S • H<sub>3</sub>N

*Formula:* (C<sub>2</sub>H<sub>4</sub>O)<sub>n</sub> • C<sub>12</sub>H<sub>26</sub>O<sub>4</sub>S • H<sub>3</sub>N, avg. n = 12

*Properties:* Anionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier for acrylic copolymers, emulsion polymerization, paints and coatings, cosmetics; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Trade Names:* POLYSTEP® B-22

### Ammonium laureth-30 sulfate

CAS 32612-48-9 (generic)

*Formula:* (C<sub>2</sub>H<sub>4</sub>O)<sub>n</sub> • C<sub>12</sub>H<sub>26</sub>O<sub>4</sub>S • H<sub>3</sub>N, n = 30

*Properties:* Anionic

*Uses:* Emulsifier for emulsion polymerization (acrylics, styrene-acrylics, vinyl acrylics), floor finish latexes, paints and coatings; food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Trade Names:* POLYSTEP® B-20

**Ammonium lauryl ether sulfate.** See Ammonium laureth sulfate

### Ammonium lauryl sulfate

CAS 2235-54-3; 68081-96-9; 90583-12-3; EINECS/ELINCS 218-793-9

*Synonyms:* Ammonium dodecyl sulfate; Ammonium-N-dodecyl sulfate; Dodecyl ammonium sulfate; Lauryl ammonium sulfate; Lauryl sulfate ammonium salt; Sulfuric acid, lauryl ester, ammonium salt; Sulfuric acid, monododecyl ester, ammonium salt

*Definition:* Ammonium salt of lauryl sulfate

*Empirical:* C<sub>12</sub>H<sub>26</sub>O<sub>4</sub>S • H<sub>3</sub>N

*Properties:* M.w. 283.48; HLB 31.0; anionic

*Toxicology:* Skin and eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NH<sub>3</sub>, NO<sub>x</sub>, SO<sub>x</sub>

*Uses:* Detergent, emulsifier, foaming agent, dispersant, wetting agent for personal care prods., pharmaceuticals, coatings, carpet shampoos, firefighting foams, lt. duty cleaners, dry wall mfg., dyes, chemical specialties, emulsion polymerization; visc. builder; in food-pkg. adhesives; in

paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.210, 176.170, 177.1200

**Manuf./Distrib.:** Allchem Ind.; Ashland; Chemron; Clariant; Cognis/Care Chems.; Crompton/Witco; DeForest Enterprises; E-Chemicals; Independent Chem.; Int'l. Chem. Inc.; Kraft Chem.; Lonza; Patco Chem. Ind.; Pilot; Rhodia HPCII; Sea-Land; Stepan; Universal Preserv-A-Chem; Van Waters & Rogers

**Trade Names:** Paxnol ALS; POLYSTEP® B-7; Rhodapon® L-22

#### Ammonium maleic anhydride/diisobutylene copolymer

**Synonyms:** Maleic anhydride/diisobutylene copolymer, ammonium salt

**Uses:** In food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180

#### Ammonium naphthalene sulfonate

**Properties:** Anionic

**Uses:** Dispersant for pigments, carbon black, dyestuffs, in ceramics, paints; visc. depressant; emulsion polymerization; food-pkg. adhesives/paper; emulsifier in mfg. of food-contact articles

**Trade Names:** Lomar® PWA

**Trade Names Containing:** Lomar® PWA Liq.

#### Ammonium nitrate

CAS 6484-52-2; EINECS/ELINCS 229-347-8; UN No. 1942 (DOT), 2426 (DOT)

**Synonyms:** Ammonium (I) nitrate (1:1); Ammonium saltpeter; Nitrate of ammonia; Nitric acid ammonium salt; Norway saltpeter

**Empirical:** H<sub>5</sub>N<sub>3</sub>O<sub>3</sub>

**Formula:** NH<sub>4</sub>NO<sub>3</sub>

**Properties:** Colorless cryst.; sol. in water, alcohol, alkalis; m.w. 80.06; dens. 1.725; m.p. 169.6 C; b.p. dec. @ 210 C with evolution of nitrous oxide

**Toxicology:** LD50 (oral, rat) 2217 mg/kg; allergen; TSCA listed

**Precaution:** Strong oxidizing agent; may explode under confinement and high temps., but not readily detonated; violent or explosive spontaneous reactions possible; ignites on contact with certain chems.; can react vigorously with reducing agents

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of NO<sub>x</sub>

**NFPA:** Health 0; Flammability 0; Reactivity 3

**Storage:** Hygroscopic; ventilate well; keep as cool as possible

**Uses:** Fertilizer; explosives; pyrotechnics; herbicides/insecticides; mfg. of nitrous oxide; absorbent for nitrogen oxides; ingred. of freezing mixtures; oxidizing agent in solid rocket propellants; nutrient for antibiotics and yeast; catalyst; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21 CFR §176.180; SARA reportable (sol'n.)

**Manuf./Distrib.:** Agrium; Air Prods.; Aldrich; Alfa Aesar; Allan; Charkit; Chemical; Continental Ind. Group; Fluka; GFS; Honeywell Perf. Polymers; Hummel Croton; LaRoche Ind.; Lutianhua; Miljac; Nitron; Noah; Norsk Hydro AS; Prodigia; Ruger; Sigma; Spectrum Quality Prods.; Total Spec. Chems.; U.S. Chems.

**Ammonium (I) nitrate (1:1).** See Ammonium nitrate

#### Ammonium nonoxynol-4 sulfate

CAS 9051-57-4 (generic); 31691-97-1 (generic); 63351-73-5

**Synonyms:** PEG-4 nonyl phenyl ether sulfate, ammonium salt; PEG 200 nonyl phenyl ether sulfate, ammonium salt; POE (4) nonyl phenyl ether sulfate, ammonium salt

**Definition:** Ammonium salt of sulfated nonoxynol-4

**Formula:** (C<sub>7</sub>H<sub>4</sub>O)<sub>x</sub>C<sub>15</sub>H<sub>24</sub>O<sub>4</sub>S • H<sub>3</sub>N

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** High-foaming surfactant, wetting agent, dispersant, emulsifier for cosmetics, shampoos, skin cleansers, lt. duty cleaners, emulsion polymerization (vinyl acetate, acrylates, methacrylates, styrene, butadiene, latex); dyeing assistant; antistat; surfactant in adhesives, paints, paper coatings, textile, and industrial and architectural coatings; emulsifier in mfg. of food-contact articles

**Regulatory:** FDA 21CFR §178.3400

**Trade Names:** Abex® EP-100; Rhodapex® CO-436

#### Ammonium nonoxynol-9 sulfate

CAS 9051-57-4 (generic)

**Properties:** Anionic

**Uses:** Emulsifier, stabilizer for emulsion polymerization; for adhesives, paints, paper, textile, and industrial coatings

**Trade Names:** Abex® EP-110

#### Ammonium nonoxynol-30 sulfate

CAS 9051-57-4 (generic); 31691-97-1 (generic)

**Synonyms:** PEG-30 nonyl phenyl ether sulfate, ammonium salt; POE (30) nonyl phenyl ether sulfate, ammonium salt

**Definition:** Ammonium salt of sulfated nonoxynol-30

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier for emulsion polymerization, adhesives, paints, paper, textile, and industrial coatings; surfactant in cosmetics

**Trade Names:** Abex® EP-120

**Ammonium octadecanoate.** See Ammonium stearate

**Ammonium 9-octadecenoate.** See Ammonium oleate

#### Ammonium oleate

CAS 544-60-5; EINECS/ELINCS 208-873-1

**Synonyms:** Ammonium 9-octadecenoate; 9-Octadecenoic acid, ammonium salt; Oleic acid ammonium salt

**Classification:** Ammonium soap

**Definition:** Ammonium salt of oleic acid

**Empirical:** C<sub>18</sub>H<sub>37</sub>NO<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>COONH<sub>4</sub>

**Properties:** Ylsh.-brn. paste; ammonia odor; sol. in water; sl. sol. in acetone, ethanol, methanol, benzene, CCl<sub>4</sub>, xylene, naphtha; m.w. 299.50; soften. pt. 50-55 F; m.p. 70-72 F; dec. on heating

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Detergent; solidifying alcohol; demonstrating liq. crystals; surfactant, emulsifier in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260

**Manuf./Distrib.:** Hart Prods.; Independent Chem.; Original Bradford Soap Works

**Trade Names:** EW-POL 9110

#### Ammonium oleic acid sulfate

**Uses:** Defoamer in food-contact paper coatings

**Regulatory:** FDA 21CFR §176.200

#### Ammonium oleic sulfate

**Properties:** Anionic

**Uses:** Mold release agent; lubricant; emulsifier

**Trade Names:** Actrasol SR 75

**Ammonium peroxydisulfate.** See Ammonium persulfate

#### Ammonium persulfate

CAS 7727-54-0; EINECS/ELINCS 231-786-5; UN No. 1444 (DOT)

**Synonyms:** Ammonium peroxydisulfate; Diammonium peroxodisulfate; Peroxydisulfuric acid diammonium salt

**Classification:** Inorganic salt

**Empirical:** H<sub>8</sub>N<sub>2</sub>O<sub>8</sub>S<sub>2</sub>

**Formula:** (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub>

**Properties:** Wh. cryst. solid; sol. in water; m.w. 228.20; dens. 1.982; m.p. dec. @ 120 C; dec. in water forming O<sub>2</sub>

**Toxicology:** ACGIH TLV/TWA 5 mg(S<sub>2</sub>O<sub>8</sub>)<sub>2</sub>/m<sup>3</sup>; LD50 (oral, rat) 689 mg/kg, (IP, rat) 226 mg/kg, (IV, rabbit) 178 mg/kg; poison by IV and IP routes; mod. toxic by ing.; TSCA listed

**Precaution:** Powerful oxidizer; corrosive; fire risk in contact with reducers; releases oxygen when heated; mixts. with sodium peroxide are explosive; violent reaction with iron or sol'ns. of ammonia + silver salts

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>x</sub>, NH<sub>3</sub>, and NO<sub>x</sub>

**Storage:** Store @ R.T.

**Uses:** Oxidizing agent for dyestuffs; bleaching agent in cosmetics; textile bleach stabilizer; photographic chem.; etchant for printed circuit boards, copper; electroplating; deodorizing oils; aniline dyes; depolarizer in batter-

## Ammonium phosphate

ies; washing infected yeast; mfg. of other persulfates; crosslinking agent; polymerization initiator for latex, polyacrylonitrile, styrene copolymers; hair coloring agent; food preservative; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §172.892, 175.105, 176.170, 177.1200, 178.3520; Japan approved

**Manuf./Distrib.:** AMRESKO; Aceto; Aldrich; Alfa Aesar; Allchem Ind.; Am. Int'l.; Ashland; Ayers Int'l.; BCH Brühl; Brown; Browning; Chem One; Chemconnect; Chemical; Coyne; Dastech Int'l.; Degussa-Hüls; E-Chemicals; EM Ind.; FMC; Fluka; GIBCO; Harcross; Hydrite; Independent Chem.; Int'l. Chem. Inc.; JTS Enterprises; Kaltron/Pettibone; Los Angeles Chem.; Miljac; Mitsubishi Int'l.; Monomer-Polymer & Dajac Labs; Noah; Pacific West; Primachem; Research Organics; Sigma; Spectrum Quality Prods.; Total Spec. Chems.; Van Waters & Rogers; Westco

## Ammonium phosphate

CAS 7722-76-1; EINECS/ELINCS 231-764-5

**Synonyms:** MAP; Ammonium acid phosphate; Ammonium biphosphate; Ammonium dihydrogen orthophosphate; Ammonium dihydrogen phosphate; Ammonium phosphate monobasic; Monoammonium phosphate; Primary ammonium phosphate

**Empirical:** H<sub>2</sub>NO<sub>2</sub>P

**Formula:** NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>

**Properties:** Brilliant wh. cryst. or powd., odorless; mildly acidic in reaction; moderately sol. in water; sl. sol. in alcohol; pract. insol. in acetone; m.w. 115.04; dens. 1.803; m.p. 190 C; pH 4.5 (1%, 20 C)

**Toxicology:** LD50 (oral, rat) 3160-4500 mg/kg; irritant; TSCA listed

**Precaution:** Incompat. with NaOCl

**NFPA:** Health 2; Flammability 0; Reactivity 0

**Storage:** Store @ R.T.

**Uses:** Fertilizer ingred.; plant nutrient sol'ns.; analytical chemistry; as flameproofing agent for textiles, paints, paper, cellulosic fabrics, wood prods.; dyeing aux.; buffer in cosmetics; oral care agent; mfg. of yeast, vinegar, yeast foods and bread improvers; yeast/microbial fermentation nutrient; mold culture nutrient in mfg. of pharmaceuticals; food additive, buffer, dough conditioner, leavening agent

**Regulatory:** FDA 21CFR §184.1141a, GRAS; Japan approved

**Manuf./Distrib.:** AMRESKO; Agrium; Albright & Wilson Am.; Aldrich; Alfa Aesar; Am. Biorganics; Ashland; Browning; Cargill Fertilizer; Cater Chems.; Charkit; Chisso Am.; Coyne; E-Chemicals; FMC Foret; Fluka; Heico; IMC Global; Int'l. Chem. Inc.; Monsanto; Noah; Occidental; Poly Research; Research Organics; Rhodia Food Ingreds.; Ruger; San Yuan; Showa Denko; Sigma; Solutia; Spectrum Quality Prods.; Total Spec. Chems.

See also Ammonium phosphate, dibasic

## Ammonium phosphate, dibasic

CAS 7783-28-0; EINECS/ELINCS 231-987-8

**Synonyms:** DAP; Ammonium phosphate; Diammonium hydrogen orthophosphate; Diammonium hydrogen phosphate; Diammonium phosphate; Dibasic ammonium phosphate; Phosphoric acid diammonium salt; Secondary ammonium phosphate

**Classification:** Inorganic salt

**Empirical:** H<sub>2</sub>N<sub>2</sub>O<sub>7</sub>P

**Formula:** (NH<sub>4</sub>)<sub>2</sub>HPO<sub>4</sub>

**Properties:** Wh. cryst. or powd., odorless, cooling salty taste; mildly alkaline in reaction; sol. 1 g/1.7 ml in water; pract. insol. in alcohol, acetone; m.w. 132.07; dens. 1.619; m.p. 155 C (dec.); pH ≈ 8 (1%); noncombustible

**Toxicology:** LD50 (oral, rat) 3160-4500 mg/kg; low to moderate toxicity; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of PO<sub>x</sub>, NO<sub>x</sub>, and NH<sub>3</sub>

**HMS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Store @ R.T.; keep well closed

**Uses:** Flame retardant for wood, paper, textiles, plastics, cellulose; prevents afterglow in matches; fertilizer; plant nutrient sol'ns.; feed additive; flux for soldering, purifying sugar; binder in refractory bricks, tiles; in ammoniacal dentifrices; yeast/microbial fermentation nutrient; mfg. of yeast, vinegar; bread improvers, buffer, dough conditioner, leavening agent in foods, wines, pharmaceuticals

**Regulatory:** FDA 21CFR §573.320, 184.1141b, GRAS; BATF 27CFR 240.1051, limitation 0.17% as yeast nutrient in wine prod., 0.8% in sparkling wines; Japan approved; USP/NF compliance

**Manuf./Distrib.:** AMRESKO; Agrium; Albright & Wilson Am.; Aldrich; Alfa Aesar; Am. Biorganics; Ashland; Brown; Browning; Cargill Fertilizer; Cater Chems.; Chisso Am.; Coyne; E-Chemicals; EM Ind.; Fluka; Heico; IMC Global; Int'l. Chem. Inc.; LaRoche Ind.; Monsanto; Noah; Occidental; Poly Research; Research Organics; Rhodia Food Ingreds.; Ruger; San Yuan; Seeler Ind.; Sigma; Solutia; Spectrum Quality Prods.; Telechem Int'l.

See also Ammonium phosphate

**Ammonium phosphate monobasic.** See Ammonium phosphate

**Ammonium POE (12) lauryl ether sulfate.** See Ammonium laureth-12 sulfate

## Ammonium polyacrylate

CAS 9003-03-6

**Synonyms:** Poly (acrylic acid), ammonium salt; 2-Propenoic acid, homopolymer, ammonium salt

**Definition:** Ammonium salt of polyacrylic acid

**Empirical:** (C<sub>3</sub>H<sub>3</sub>O<sub>2</sub>)<sub>x</sub> · xH<sub>3</sub>N

**Properties:** Pale yel. liq. (sol'n.); dens. 1.12 kg/l (20 C); anionic

**Uses:** Pigment dispersant for paints and coatings, ceramics, paper; thickener and stabilizer for syn. latexes; stabilizer for emulsion polymerization; wetting agent for cement/pigment mfg.; visc. stabilizer; in coatings; adhesives; dipped, cast, and molded goods; cements for rug backing; spraying, spreading, brushing, and extruding compds.; surfactant in cosmetics; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105

**Manuf./Distrib.:** R.T. Vanderbilt

**Trade Names:** Dumasperse 543; SER-AD® FX 504

## Ammonium polycarboxylate

**Properties:** Anionic

**Uses:** Pigment dispersant for coatings, latexes, adhesives

**Trade Names:** SER-AD® FX 505

## Ammonium polymethacrylate

**Properties:** Pale yel. liq. (sol'n.); dens. 1.12 kg/l (20 C); visc. 50 mPa·s; pH 8.5-9.0 (5%)

**Uses:** Stabilizer and thickener in latex rubber processing; dispersant for pigments/fillers/clays in latex paints, ceramics, paper; also for polymerization and clay coating

## Ammonium polyphosphate

CAS 14728-39-3; 68333-79-9

**Synonyms:** APP; Polyphosphoric acid, ammonium salt

**Empirical:** H<sub>2</sub>NO<sub>2</sub>P

**Properties:** Wh. powd.; m.w. 97.01; dec. @ 250 C, with rapid decomp. @ 300 C

**Toxicology:** TSCA listed

**Uses:** Flame retardant for plastics, adhesives, elastomers, paints, intumescent coatings, mastics, PU foams, wood, chipboard, paper and textile coatings; intumescent paint ingred.; catalyst; sequestrant; in fertilizers, cement, refractories; environmentally friendly

**Manuf./Distrib.:** Albright & Wilson Am.; Celanese; Fabricchem; LaRoche Ind.; Miljac; Monsanto; Solutia; Total Spec. Chems.

**Trade Names:** Antiblaze® CL; Antiblaze® TR; FRCROS 481; FRCROS 484; Pyrex FA

## Ammonium pyrophosphate

**Uses:** Flame retardant for wood, paper, textiles, cellulosic materials

**Trade Names:** FRCROS 334

**Trade Names Containing:** FRCROS 349

**Ammonium saltpeter.** See Ammonium nitrate

## Ammonium stearate

CAS 1002-89-7; EINECS/ELINCS 213-695-2

**Synonyms:** Ammonium octadecanoate; Octadecanoic acid, ammonium salt; Stearic acid, ammonium salt

**Classification:** Sat. aliphatic carboxylic acid salt

**Definition:** Ammonium salt of stearic acid

**Empirical:** C<sub>18</sub>H<sub>39</sub>NO<sub>2</sub>

**Formula:** C<sub>17</sub>H<sub>35</sub>COONH<sub>4</sub>

**Properties:** Wh. to tan wax-like solid, free from ammonia odor; sol. in boiling water, hot toluene; partly sol. hot in butyl acetate, ethanol; m.w. 301.50; dens. 0.89 (22 C); m.p. 73-75 C; anionic

**Toxicology:** ACGIH TLV-TWA 10 mg/m<sup>3</sup> (stearates); LD50 (oral, rat) > 5 g/kg, (skin, guinea pig) > 3 g/kg; essentially nontoxic; nuisance dust; inh. of high concs. of dust may cause coughing and mild temporary irritation; sl. eye irritant; ing. may cause irritation, nausea, diarrhea; TSCA listed

**Precaution:** Probable combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>, ammonia

**Storage:** Store in cool area away from ignition sources

**Uses:** Waterproofing of cements, concrete, stucco, paper, textiles; frothing aid and foam stabilizer in acrylic and SBR latex systems; foam rubber additive; foam stabilizer; scouring agent; surfactant, lubricant, emulsifier in cosmetics (hand creams, brushless shaving creams, etc.); in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in paper/paperboard for contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260

**Manuf./Distrib.:** Ashland; Bencorp Int'l.; Davidson Labs; Huntsman; Jarchem Ind.; Magnesia GmbH; Northern Prods.; Original Bradford Soap Works; Pro Chem; Total Spec. Chems.; Universal Preserv-A-Chem

**Trade Names:** Stanfax 320; Stanfax 388

#### Ammonium sulfamate

CAS 7773-06-0; EINECS/ELINCS 231-871-7; UN No. 9089 (NA)

**Synonyms:** AMS; Ammonium amidosulfate; Monoammonium sulfamate; Sulfamic acid, monoammonium salt

**Classification:** Salt of sulfamic acid

**Empirical:** H<sub>2</sub>N<sub>2</sub>O<sub>3</sub>S

**Formula:** NH<sub>2</sub>SO<sub>3</sub>NH<sub>4</sub>

**Properties:** Colorless to wh. cryst. solid; odorless; sol. 225 g/100 ml water; sol. in liq. NH<sub>3</sub>, formamide, glycerol; m.w. 114.14; m.p. 131 C; b.p. 160 C (dec.); pH 5.2 (5%)

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup>; LD50 (oral, rat) 3900 mg/kg, (43% sol'n., dermal, rabbit) > 2000 mg/kg; mod. toxic by ing. and IP routes; sl. eye irritation; TSCA listed

**Precaution:** Powerful oxidizer; somewhat explosive when heated or by spontaneous chem. reaction in hot acid sol'n.

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NH<sub>3</sub>, NO<sub>x</sub>, SO<sub>x</sub>

**Storage:** Deliq., hygroscopic

**Uses:** Flameproofing agent for textiles, wood, and paper; herbicide; weed and brush killer; electroplating bath ingred.; generation of nitrous oxide; latent catalyst for urea-formaldehyde resins; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105; SARA reportable

**Manuf./Distrib.:** Aldrich; Alfa Aesar; Allchem Ind.; Am. Int'l.; Coyne; Dharamsi Morarji; Fluka; Heico; Int'l. Chem. Inc.; Int'l. Resources; Kaltron/Pettibone; Magna-Kron; Morre-Tec Ind.; Nissan Chem. Ind.; Northern Prods.; Sigma; Spartan Flame Retardants; Spectrum Quality Prods.

**Trade Names:** Necco Fire Retardant 2750; Necco Fire Retardant 2758; Necco Fire Retardant 2762

#### Ammonium sulfate

CAS 7783-20-2; EINECS/ELINCS 231-984-1; UN No. 2506 (DOT)

**Synonyms:** Diammonium sulfate; Mascagnite; Sulfuric acid diammonium salt; Sulfate of ammonia

**Classification:** Inorganic salt

**Empirical:** H<sub>8</sub>N<sub>2</sub>O<sub>4</sub>S

**Formula:** (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>

**Properties:** Colorless or wh. cryst. or gran., odorless; sol. in water; insol. in alcohol, acetone; m.w. 132.16; dens. 1.77; m.p. > 280 C (dec.)

**Toxicology:** LD50 (oral, rat) 2840 mg/kg, (oral, mouse) 640 mg/kg; moderately toxic by several routes; TSCA listed

**Precaution:** Incandescent reaction on heating with potassium chlorate; reaction with sodium hypochlorite gives the unstable explosive nitrogen trichloride

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NH<sub>3</sub>, and SO<sub>x</sub>

**HMS:** Health 2; Flammability 0; Reactivity 0

**Storage:** Store @ R.T.

**Uses:** Taste/odor control in water treatment; fertilizers; microbial fermentation nutrient; fire/flameproofing paper, textiles, wood; viscose rayon; tanning;

aluminum etchant ingred.; photographic chem.; textile/leather aux.; reducing agent, visc. control agent in cosmetics; food additive (dough conditioner, yeast food, firming agent, processing aid); in cellophane for food pkg.

**Use Level:** Limitation 0.15% (baked goods), 0.1% (gelatins, puddings)

**Regulatory:** FDA 21CFR §177.1200, 184.1143, GRAS; Japan approved

**Manuf./Distrib.:** AMRESCO; Accurate Chem. & Scientific; Advance Research Chems.; Agrium; Aldrich; Alfa Aesar; Allan; Am. Biorganics; Ashland; Atofina N. Am./Basic Chem.; BASF AG; BASF; Bethlehem Steel; Brown; Cater Chems.; Charkit; Chemconnect; Dakota Gasification; Fluka; GIBCO; General Alum & Chem.; General Chem.; Heico; Holland; Honeywell Perf. Polymers; LTV Steel; Lomac; Mallinckrodt Baker; Nissan Chem. Ind.; Noah; PCL Group; QC Corp.; Research Organics; Ruger; Sal Chem.; San Yuan; Showa Denko; Sigma; Spectrum Quality Prods.; Total Spec. Chems.

**Trade Names Containing:** Lomar® PWA Liq.

#### Ammonium tallate

CAS 68132-50-3; EINECS/ELINCS 268-643-1

**Synonyms:** Fatty acids, tall oil, ammonium salts; Tall oil fatty acids, ammonium salts

**Definition:** Ammonium salt of tall oil acid

**Uses:** Surfactant, emulsifier in cosmetics; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; food-contact cellophane; in resin-bonded filters for food contact

**Regulatory:** FDA 21CFR §175.320, 176.170, 176.200, 177.1200, 177.2260

#### Ammonium tallow sulfate

**Synonyms:** Tallow sulfated, ammonium salt

**Uses:** Defoamer in food-contact coatings; in paper/paperboard in contact with aq./fatty food

**Regulatory:** FDA 21CFR §176.170, 176.200

#### Ammonium thiosulfate

CAS 7783-18-8; EINECS/ELINCS 231-982-0

**Synonyms:** Ammonium hyposulfite; Diammonium thiosulfate; Thiosulfuric acid, diammonium salt

**Empirical:** H<sub>8</sub>N<sub>2</sub>O<sub>3</sub>S<sub>2</sub>

**Formula:** (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

**Properties:** Wh. cryst.; very sol. in water; m.w. 148.22; dec. by heat

**Toxicology:** LD50 (oral, rat) 2890 mg/kg, (oral, guinea pig) 1098 mg/kg; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NH<sub>3</sub> and SO<sub>x</sub>

**Uses:** Photographic fixing agent; analytical reagent; fungicide; reducing agent; brightener in silver plating baths; cleaning compounds for zinc-base die-cast metals; hair waving preparations; fog screens; fertilizers; source of sulfur in nitrogen in fertilizer formulations; dechlorination in waste treatment; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 176.170

**Manuf./Distrib.:** Aldrich; DuPont; Duso; E-Chemicals; Esseco SpA; FMC Foret; Fluka; General Chem.; Goodpasture; Honeywell Spec. Chems.; Jupiter; Montana Sulphur & Chem.; Sal Chem.; Spectrum Quality Prods.; Tessengerlo Kerley; Tilley; Van Waters & Rogers; Wm. Blythe Ltd

**Ammonium tricarbonatozirconate.** See Ammonium zirconyl carbonate  
**Ammonium, trimethyloctadecyl-, chloride.** See Steartrimonium chloride

#### Ammonium zirconium carbonate

CAS 68309-95-5

**Synonyms:** AZC; Zirconate (2-), bis[carbonate (2-)-0] dihydroxy-diammonium; Zirconium ammonium carbonate

**Empirical:** C<sub>2</sub>H<sub>16</sub>N<sub>2</sub>O<sub>8</sub>Zr

**Formula:** (NH<sub>4</sub>)<sub>2</sub>[Zr(CO<sub>3</sub>)<sub>2</sub>(OH)<sub>2</sub>]

**Uses:** Binder insolubilizer for paper and board coatings, nonwoven fabrics; deposit control agent in wet-end paper processes; str. additive for alkaline-sized paper; component of waterborne inks, overprint varnishes, adhesives; textile, leather, and paper water-repellent formulations; antimicrobial treatment for textiles and timber; coagulant in mfg. of syn. leather cloth; metal pretreatment coatings; precursor to zirconia in catalyst systems

**Manuf./Distrib.:** Sinochem Tianjin; Southern Ionics

**Trade Names:** Bacote™ 20; Nopcote® 1680

**Trade Names Containing:** Protec ZZA

**Ammonium zirconyl carbonate**

CAS 12616-24-9

*Synonyms:* Ammonium tricarbonatozirconate*Definition:* Avail. commercially as aq. sol'n.*Empirical:* C<sub>3</sub>H<sub>13</sub>N<sub>3</sub>O<sub>10</sub>Zr*Formula:* (NH<sub>4</sub>)<sub>2</sub>ZrOH(CO<sub>3</sub>)<sub>3</sub>*Properties:* M.w. 342.36; Dihydrate: Prisms; sol. in water; dec. in dil. acids, alkalis; dens. 1.238 (24/24 C); unstable in air; aq. sol'ns. dec. rapidly above 60 C producing ammonia, CO<sub>2</sub>, and zirconia*Uses:* Water-repellent for paper and textiles; textile fungicidal treatments; insolubilizing agent for starch, casein, soya protein paper binders; catalyst; stabilizer in latex emulsion paints; ingred. in floor wax to aid resist. to detergents; lubricant in fabrication of glass fibers; leaves zirconium residue after evaporation of ammonia and CO<sub>2</sub>*Manuf./Distrib.:* Southern Ionics**Amorphous silica.** See Diatomaceous earth, amorphous; Silica, amorphous hydrated**Amorphous silica dust.** See Silica, fumed**AMP.** See Aminomethyl propanol; Aminotrimethylene phosphonic acid**AMPS.** See 2-Acrylamido-2-methylpropanesulfonic acid**2-AMPS.** See 2-Acrylamido-2-methylpropanesulfonic acid**AMS.** See Ammonium sulfamate**Amsonic acid.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid**s-Amyl acetate**

CAS 626-38-0; UN No. 1104 (DOT)

*Synonyms:* 2-Acetoxypentane; 1-Methylbutyl acetate; 2-Pentanol acetate; 2-Pentyl acetate*Classification:* Carboxylic acid ester*Empirical:* C<sub>7</sub>H<sub>14</sub>O<sub>2</sub>*Formula:* CH<sub>3</sub>COOCH(CH<sub>3</sub>)CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>*Properties:* Colorless clear liq.; fruity odor; sol. in alcohol, ether; sl. sol. in water; m.w. 130.19; sp.gr. 0.862-0.866 (20/20 C); m.p. -78.5 C; b.p. 134 C; flash pt. (CC) 32 C*Toxicology:* ACGIH TLV/TWA 125 ppm; LCLo (inh., guinea pig, 5 h) 10,000 ppm; mild skin and eye irritant; inh. of vapor may cause nose/throat irritation; higher exposure may cause difficulty breathing, increased heart rate, CNS depression symptoms; ing. may cause mouth/throat irritation, increased heart rate, headache, dizziness, weakness; unconsciousness on severe exposure; TSCA listed*Precaution:* Flamm.; mod. explosive as vapor exposed to heat or flame; incompat. with oxidizing materials (increase fire/explosion hazard), strong acids, strong bases, reducing materials (decomp. can occur)*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist*Uses:* Solvent for nitrocellulose, ethylcellulose; mfg. of lacquers, varnishes, cements, artificial leather, nail enamels, coated paper, printing compds.; plastic wood; textile sizing*Manuf./Distrib.:* E-Chemicals; Penta Mfg.**n-Amyl alcohol**

CAS 71-41-0; EINECS/ELINCS 200-752-1; UN No. 1105 (DOT); FEMA 2056

*Synonyms:* Alcohol C-5; Amyl alcohol, normal; n-Butyl carbinol; 1-Pentanol; Pentanol-1; Pentan-1-ol; n-Pentanol; Pentyl alcohol; n-Pentyl alcohol; Primary amyl alcohol*Classification:* Primary aliphatic alcohol*Empirical:* C<sub>5</sub>H<sub>12</sub>O*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>4</sub>OH*Properties:* Colorless clear liq., somewhat sweet balsamic odor; sl. sol. in water; misc. with alcohol, ether; m.w. 88.15; sp.gr. 0.812 (20/4 C); m.p. -79 C; b.p. 137-139 C; flash pt. (CC) 38 C; ref. index 1.409*Toxicology:* LD50 (oral, rat) 3030 mg/kg, (skin, rabbit) 4490 mg/kg; highly toxic and narcotic; ingestion of 30 mg can cause death in humans; irritating to respiratory tract; severe eye and skin irritant; can be absorbed thru skin in toxic amts.; inh. can cause nose/throat irritation, CNS depression; extreme exposure may cause double vision, deafness, delirium, fatalities; may cause severe lung damage, respiratory/cardiac arrest, or death if aspirated into lungs; TSCA listed*Precaution:* DOT: Flamm. liq.; incompat. with oxidizing agents (increases fire/explosion risk)

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight*Uses:* Solvent in organic synthesis, for nail lacquers; extraction solvent for mineral processing; process solvent; raw material for pharmaceutical preparations; plastics processing; synthetic flavoring agent for foods and pharmaceuticals; fragrance; defoamer in food-contact paper/paperboard*Use Level:* 18 ppm (nonalcoholic beverages), 15 ppm (ice cream, ices), 35 ppm (candy), 24 ppm (baked goods), 7.7-50 ppm (gelatins, puddings), 150-340 ppm (chewing gum),  
*Regulatory:* FDA 21CFR §172.515, 176.210; FEMA GRAS; BP compliance  
*Manuf./Distrib.:* Aldrich; Alfa Aesar; Allchem Ind.; Ashland; Celanese; Condea Vista; E-Chemicals; Fluka; Grau Aromatics; Houghton Chem.; Jarchem Ind.; Penta Mfg.; Ruger; Sigma; Spectrum Quality Prods.; Union Carbide; Van Waters & Rogers**Amyl alcohol, normal.** See n-Amyl alcohol**Amylase**

CAS 9000-92-4; EINECS/ELINCS 232-567-7

*Synonyms:* 1,4-D-Glucan glucohydrolase; Glycogenase*Classification:* Enzyme*Definition:* Mixt. of enzymes that catalyze the hydrolysis of glycosidic linkages of polysaccharides such as glycogen, starch, or their degradation prods.*Properties:* Off-wh. powd. or suspension*Toxicology:* LD50 (oral, rat) > 15 g/kg; may produce hypersensitivity reactions; TSCA listed*Storage:* Hygroscopic; keep under argon*Uses:* Enzyme for textile desizing; conversion of starch-glucose sugars in syrups, baking, dry-cleaning, pharmaceuticals; prep. of paper coatings and sizes in paper industry; wastewater treatment; in brewing; animal feed; biological additive in cosmetics*Manuf./Distrib.:* Fluka*Trade Names:* Amizyme DTX-11; Amizyme TX-8; Tenase® 1200**α-Amylase**

CAS 9000-90-2; EINECS/ELINCS 232-565-6

*Definition:* Enzyme used to liquefy starch*Uses:* Natural enzyme for food use (starch hydrolysis reagent); reagent for paper size pretreatment*Regulatory:* FDA 21CFR §184.1027 (from *B. licheniformis*); GRAS for several other sources; UK, Japan approved*Manuf./Distrib.:* B.I. Chems.; Enzyme Development; Fluka; InterSpex Prods.; Sigma; Whyte Chems. Ltd*Trade Names:* Vanzyme® 191; Vanzyme® Powd.**Amylose**

CAS 9005-82-7; EINECS/ELINCS 232-685-9

*Synonyms:* (+)-Amylose*Classification:* Nonaromatic alcohol*Definition:* The inner, relatively soluble portion of starch granules*Properties:* Solid*Toxicology:* Harmful by inh., ing., skin contact; severe irritant; irritating to eyes, skin, respiratory system; TSCA listed*Uses:* Food ingred.; in paper/paperboard in contact with dry food*Regulatory:* FDA 21CFR §176.180*Manuf./Distrib.:* Aldrich; CarboMer; Fluka; Salor; Sigma**(+)-Amylose.** See Amylose**α-Amylose.** See Cellulose**AN.** See Acrylonitrile**Anadonis green.** See Chromium oxide (ic)**Anhydrite (natural form).** See Calcium sulfate**Anhydro-4,4'-bis (diethylamino) triphenylmethanol-2,4''-disulfonic acid, monosodium salt.** See Acid blue 1**3,6-Anhydro-d-galactan.** See Carrageenan (*Chondrus crispus*)**1,4-Anhydro-D-glucitol, 6-hexadecanoate.** See Sorbitan palmitate**Anhydro-d-glucitol monoctadecanoate.** See Sorbitan stearate**Anhydrohexitol sesquioleate.** See Sorbitan sesquioleate**Anhydrosorbitol monolaurate.** See Sorbitan laurate**Anhydrosorbitol monooleate.** See Sorbitan oleate**Anhydrosorbitol monostearate.** See Sorbitan stearate

**Anhydrosorbitol sesquioleate.** See Sorbitan sesquioleate  
**Anhydrosorbitol stearate.** See Sorbitan stearate  
**Anhydrosorbitol trioleate.** See Sorbitan trioleate  
**Anhydrosorbitol tristearate.** See Sorbitan tristearate  
**Anhydrous ammonia.** See Ammonia  
**Anhydrous calcium sulfate.** See Calcium sulfate  
**Anhydrous gypsum.** See Calcium sulfate  
**Anhydrous iron oxide.** See Ferric oxide  
**Anhydrous lanolin.** See Lanolin  
**Aniline, 4,4'-(imidocarbonyl) bis (N,N-dimethyl-, hydrochloride).** See Basic yellow 2  
**Aniline violet.** See Basic violet 3  
**Anilino benzene.** See Diphenylamine  
**Anilino naphthalene.** See Phenyl- $\beta$ -naphthylamine  
**2-Anilino naphthalene.** See Phenyl- $\beta$ -naphthylamine  
**m-[(p-Anilinophenyl) azo] benzenesulfonic acid sodium salt.** See Acid yellow 36  
**Animal glue**  
*Synonyms:* Bone glue; Glue, animal; Hide glue  
*Definition:* Proteinaceous extractives obtained from hides, bones, and other collagen-rich substances of animal origin; hydrolysis prod. of collagen  
*Properties:* Yel. to dk. amber hard solid; sol. in water; dens. 1.27 kg/l  
*Uses:* Adhesives (bookbinding, grinding disks, sandpapers); binder for match heads; paper gaskets; paper/textile sizing ingred.; plasticizer for rubber; component of food-contact articles  
*Regulatory:* FDA 21CFR §178.3120  
*Manuf./Distrib.:* Hudson Ind.  
**Anthium dioxide.** See Chlorine dioxide  
**9,10-Anthracenediol, 1,4-dihydro-, disodium salt.** See Disodium 1,4-dihydro-9,10-dihydroxyanthracene  
**9,10-Anthracenedione.** See Anthraquinone  
**9,10-Anthrachinon.** See Anthraquinone  
**Anthradione.** See Anthraquinone  
**Anthraquinone**  
 CAS 84-65-1; EINECS/ELINCS 201-549-0  
*Synonyms:* 9,10-Anthracenedione; 9,10-Anthrachinon; Anthradione; 9,10-Anthraquinone; 9,10-Dioxoanthracene  
*Classification:* A quinoid compd.  
*Empirical:* C<sub>14</sub>H<sub>8</sub>O<sub>2</sub>  
*Formula:* C<sub>6</sub>H<sub>4</sub>(CO)<sub>2</sub>C<sub>6</sub>H<sub>4</sub>  
*Properties:* Yel. needles; sol. in alcohol, ether, acetone; insol. in water; m.w. 208.22; dens. 1.419-1.438; vapor pressure 1 mm (190 C); m.p. 286 C; b.p. 379-381 C; flash pt. (CC) 185 C  
*Toxicology:* LD50 (oral, mouse) > 5 g/kg, (IP, rat) 3500 mg/kg, (dermal, rat) > 1 g/kg; LC50 (inh., rat, 4 h) > 1300 mg/m<sup>3</sup>; mod. toxic by IP route; mild allergen; tumorigen; mutagen; TSCA listed  
*Precaution:* Combustible exposed to heat or flame  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
 NFPA: Health 0; Flammability 1  
*Uses:* Intermediate for dyes and organics; organic inhibitor; bird repellent for seeds; wood pulping reagent; improves pulp yield and increases the rate of delignification in white liquors; in paper/paperboard in contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §176.170  
*Manuf./Distrib.:* Aldrich; Alfa Aesar; Allchem Ind.; Bencorp Int'l.; Biddle Sawyer; Boston-Charleston; Brøste; Buckton Scott Ltd; Ciba Spec. Chems./Colors; Fluka; Int'l. Chem. Inc.; Kelmar Ind.; Kimson; Nippon Shokubai; Nippon Steel Chem.; Spectrum Quality Prods.; U.P.T. Chems.; Uniqema Am.; Van Waters & Rogers; Vinings Ind.; Wego Chem. & Min.; Whyte Chems. Ltd; Wilshire  
*Trade Names:* Diaq 60; Fleetquest 8800; QEMI Q-AQ-60  
*Trade Names Containing:* Fleetquest QH-37; Raisacel 2510-L3  
**9,10-Anthraquinone.** See Anthraquinone  
**2,2'-(1,4-Anthraquinonylenediimino) bis (5-methylbenzenesulfonic acid) disodium salt.** See Acid green 25  
**6,6'-(1,4-Anthraquinonylenediimino) di-m-toluenesulfonic acid disodium salt.** See Acid green 25  
**Antimonic acid.** See Antimony pentoxide

**Antimonic anhydride.** See Antimony pentoxide

**Antimonic oxide.** See Antimony pentoxide

**Antimonious oxide.** See Antimony trioxide

**Antimony bloom.** See Antimony trioxide

**Antimony oxide.** See Antimony trioxide

**Antimony (III) oxide.** See Antimony trioxide

#### Antimony pentoxide

CAS 1314-60-9; EINECS/ELINCS 215-237-7

*Synonyms:* Antimonic acid; Antimonic anhydride; Antimonic oxide; Diantimony pentoxide; Stibic anhydride

*Empirical:* O<sub>5</sub>Sb<sub>2</sub>

*Formula:* Sb<sub>2</sub>O<sub>5</sub>

*Properties:* Wh. or ysh. powd., cube; sl. sol. in water; pract. insol. in HNO<sub>3</sub>; sl. sol. in warm KOH or HCl; m.w. 323.52; dens. 3.78; m.p. dec. @ 380 C; ref. index 1.7 (20 C)

*Toxicology:* ACGIH TLV/TWA 0.5 mg (Sb)/m<sup>3</sup>; LD50 (IP, rat) 4 g/kg; mod. toxic by intraperitoneal route; TSCA listed

*Uses:* Flame/fire retardant for fibers, fabrics, latex, plastics, resins, epoxies; prod. of antimonates and other antimony compds.

*Manuf./Distrib.:* Aldrich; Alfa Aesar; All Chemie Ltd; Atomergic Chemetals; Cerac; Great Western; Laurel Ind.; Noah; Nyacol Prods.; PQ; Pechiney World Trade USA; Total Spec. Chems.

*Trade Names:* Nyacol® A-1530; Nyacol® A-1550

**Antimony peroxide.** See Antimony trioxide

#### Antimony trioxide

CAS 1309-64-4; EINECS/ELINCS 215-175-0; UN No. 3077

*Synonyms:* Antimonious oxide; Antimony bloom; Antimony oxide; Antimony (III) oxide; Antimony peroxide; Antimony white; CI 77052; Diantimony trioxide; Flowers of antimony; Pigment white 11

*Empirical:* O<sub>3</sub>Sb<sub>2</sub>

*Formula:* Sb<sub>2</sub>O<sub>3</sub>

*Properties:* Wh. cubic or orthorhombic cryst., odorless; sol. in KOH, HCl and sulfuric acids, strong alkalis; very sl. sol. in water; m.w. 291.52; dens. 5.67; bulking value 0.022 gal/lb; oil absorp. 11; m.p. 655 C; b.p. 1425 C; ref. index 2.087

*Toxicology:* ACGIH TLV/TWA 0.5 mg(Sb)/m<sup>3</sup>; LD50 (rats) > 20 g/kg; poison by IV and subcut. routes; confirmed carcinogen, moderate toxicity otherwise; experimental teratogen, reproductive effects; mutation data; TSCA listed

*Precaution:* Incompat. with chlorinated rubber, heat (216 C), and BrF<sub>3</sub>

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic Sb fumes

*Uses:* Flame retardant for textiles, paper, plastics, PVC, rubber, cellulose, paint; as white pigment for paints and plastics; opacifier for ceramics, glass, porcelain, glazes; staining iron and copper; phosphorus; mordant; glass decolorization; catalyst; intermediate; filler for thermoplastic and thermoset plastics, rubbers, coatings; in enamels; glasses; mfg. of tartar emetic; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Acme-Hardesty; Akrochem; Aldrich; Alfa Aesar; Alfa Chem; Allchem Ind.; Amspec; Asarco; Ashland; Atlantic Equip. Engrs.; Atofina; Atomergic Chemetals; Auer-Remy; Celanese; Chem-Met; Chemisphere Ltd; Chemson Ltd; D.N. Lukens; First Continental Int'l.; Fluka; GNC Group; Gredmann USA; H.M. Royal; HoltraChem; Honeywell Spec. Chems.; ICC Chem.; Int'l. Chem. Inc.; Laurel Ind.; Miljac; Noah; Occidental; Punda Mercantile; Reade Advanced Materials; Revelli; Sigma; Skyline; Spectrum Quality Prods.; Supreme Resources; Total Spec. Chems.; United Min. & Chem.; Van Waters & Rogers

*Trade Names:* FireShield® H; FireShield® HPM; FireShield® L; Thermoguard® S; Thermoguard® UF

**Antimony white.** See Antimony trioxide

**APDEA.** See N-(3-Aminopropyl) diethanolamine

**APP.** See Ammonium polyphosphate; Polypropylene, amorphous

**Aqua.** See Water

**Aqua ammonia.** See Ammonium hydroxide

**Aqua ammonium.** See Ammonium hydroxide

**Aqueous ammonia.** See Ammonium hydroxide

**Aqueous hydrogen chloride.** See Hydrochloric acid

**Arachic acid.** See Arachidic acid



## Arachidic acid

### Arachidic acid

CAS 506-30-9; EINECS/ELINCS 208-031-3

*Synonyms:* Arachic acid; Eicosanoic acid

*Classification:* Fatty acid

*Empirical:* C<sub>20</sub>H<sub>40</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>18</sub>COOH

*Properties:* Shining wh. cryst. leaflets; very sol. in hot abs. alcohol, ether; sl. sol. in alcohol; insol. in water; m.w. 312.54; dens. 0.8240 (100/4 C); m.p. 75.4 C; b.p. 328 C; ref. index 1.4250

*Toxicology:* TDLo (implant, mouse) 1000 mg/kg; questionable carcinogen; experimental neoplastigen by implant route; tumorigen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Organic synthesis; lubricating greases; waxes; plastics; source of arachidyl alcohol; biochemical research; emulsifier in cosmetics

*Manuf./Distrib.:* Aldrich; Crompton/Witco; Fluka; Sigma

*Trade Names Containing:* Safacid 20/22 LF

### Arachidyl alcohol

CAS 629-96-9; EINECS/ELINCS 211-119-4

*Synonyms:* Alcohol C20; Eicosanol; 1-Eicosanol

*Classification:* Nonaromatic fatty alcohol

*Empirical:* C<sub>20</sub>H<sub>42</sub>O

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>18</sub>CH<sub>2</sub>OH

*Properties:* Wh. wax-like solid; insol. in water; sol. in alcohol, hot benzene; m.w. 298.56; m.p. 66.5 C; b.p. 369 C

*Toxicology:* TSCA listed

*Precaution:* Combustible

*Uses:* Emollient in cosmetics; lubricants; rubber; plastics; textiles; research; pharmaceutical raw material; emollient, lubricant, consistency factor for pharmaceutical topicals

*Manuf./Distrib.:* Aldrich; Condea Vista; Fluka; Indofine; Jarchem Ind.; M. Michel; Sigma

*Trade Names Containing:* Nafol® 1822; Nafol® 1822 B; Nafol® 1822 C

**Arachis hypogaea.** See Peanut (*Arachis hypogaea*) oil

**Arachis oil.** See Peanut (*Arachis hypogaea*) oil

### Aramid

*Definition:* Generic name for class of highly aromatic polyamide fibers which are characterized by flame retardant properties

*Uses:* Used in protective clothing, dust-filter bags, tire cord, bullet-resistant structures; as thixotropic additive for coatings, adhesives

*Trade Names:* Kevlar® 29, 49

**Aromatic castor oil.** See Castor (*Ricinus communis*) oil

**Arrowroot starch.** See Starch

**Artificial barite.** See Barium sulfate

**Artificial gum.** See Dextrin

**Artificial heavy spar.** See Barium sulfate

**Arylamide yellow RN.** See Pigment yellow 65

**ASA.** See Dodeceny succinic anhydride

### Asbestos

CAS 1332-21-4; 12001-29-5 (chrysotile); UN No. NA 2212 (DOT), 2590 (DOT)

*Synonyms:* Asbestos, chrysotile; Asbestos fiber; Chrysotile; Chrysotile asbestos; Fibrous grunerite; Serpentine asbestos; White asbestos

*Definition:* Natural magnesium silicate mineral fiber, of two types: serpentine and amphibole; common forms are chrysotile, anthophyllite, amosite, tremolite, crocidolite

*Empirical:* H<sub>3</sub>Mg<sub>3</sub>O<sub>7</sub>Si<sub>2</sub>

*Properties:* Grayish-wh. soft fibers; odorless; insol. in water; m.w. 277.13; dens. 2.56; bulking value 0.047 gal/lb; nonflamm.

*Toxicology:* ACGIH TLV/TWA 2 fibers/cc; highly toxic by inh. of dust particles; inh. of high concs. of fibers may cause irritation of nose and throat; unlikely to cause any short-term effects on skin, eyes, or GI system; overexposure may cause dyspnea, interstitial fibrosis, restricted pulmonary function; confirmed human carcinogen; causes lung tumors; experimental tumorigen; mutation data; TSCA listed

*Precaution:* A common air contaminant

*Uses:* In thermal and noise insulation materials; floor covering materials; roofing compositions; friction prods. (brake linings); paper; felts; fireproofing textiles; filler in paints, rubber, thermoplastics and thermosets; chemi-

cal filler; reinforcing agent in rubber, plastics, cements, food-contact cross-linked polyesters; diaphragm cells; furnace and hot pipe coverings; in food-pkg. adhesives; filler in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 177.2420, 177.2600

**Asbestos, chrysotile.** See Asbestos

**Asbestos fiber.** See Asbestos

**L-Aspartic acid, N-(3-carboxy-1-oxo-2-sulfopropyl)-N-octadecyl-, tetrasodium salt.** See Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

**L-Aspartic acid, N-(3-carboxy-1-oxosulfopropyl)-N-octadecyl-, tetrasodium salt.** See Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

### Asphalt

CAS 8052-42-4; UN No. NA 1999 (DOT)

*Synonyms:* Asphalt, petroleum; Asphaltum; Bitumen; Judean pitch; Mineral pitch; Petroleum asphalt; Petroleum bitumen; Petroleum pitch; Petroleum roofing tar; Road asphalt; Road tar; Trinidad pitch

*Properties:* Blk. solid or visc. liq.; sol. in carbon disulfide, oil turpentine, petroleum, chloroform, ether, acetone; insol. in water, alcohol, acids, alkalis; dens. ≈ 1.0; b.p. < 470 C; soften. pt. (R&B) 25-170 C; flash pt. 132 C

*Toxicology:* ACGIH TLV/TWA 5mg/m<sup>3</sup>; toxic by inh. of fume; moderate irritant; suspected carcinogen; tumorigen; mutagen; TSCA listed

*Precaution:* Flamm. liq.

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Paving and road-coating; roofing; sealing and joint filling; special paints; adhesive in electrical laminates and hot-melt compositions; diluent in low-grade rubber products; fluid loss control in hydraulic fracturing of oil wells; medium for radioactive waste disposal; pipeline and underground cable coating; rust-preventative hot-dip coatings; base for synthetic turf; water-retaining barrier for sandy soils; supporter of rapid bacterial growth; in food-pkg. adhesives; in internal sizing for paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170

*Manuf./Distrib.:* Crompton/Witco; Crowley Tar Prods.; Pioneer Asphalt; Ziegler Chem. & Min.

**Asphalt, petroleum.** See Asphalt

**Asphaltum.** See Asphalt

**A-stage resin.** See Phenolic resin

**Astraphloxin.** See Basic red 12

**Astraphloxine.** See Basic red 12

**Atactic butadiene polymer.** See Polybutadiene

**Atactic poly(acrylic acid).** See Polyacrylic acid

**Atactic polypropylene.** See Polypropylene; Polypropylene, amorphous

**Atactic polystyrene.** See Polystyrene

**Atactic poly(vinyl chloride).** See Polyvinyl chloride

**ATBC.** See Acetyl tributyl citrate

**ATEC.** See Acetyl triethyl citrate

**ATH.** See Aluminum hydroxide

**ATMP.** See Aminotrimethylene phosphonic acid

**Auramine hydrochloride.** See Basic yellow 2

**Auramine O.** See Basic yellow 2

**Auramine Pure.** See Basic yellow 2

**Auramine yellow.** See Basic yellow 2

**Azacyclotridecane-2-one, homopolymer.** See Nylon 12

**Azacyclotridecane-2-one polyamide.** See Nylon 12

**3-Azapentane-1,5-diamine.** See Diethylenetriamine

**AZC.** See Ammonium zirconium carbonate

**Azeite.** See Olive (*Olea europaea*) oil

**Aziridine, homopolymer.** See Polyethylenimine

**Aziridine, 2-methyl-.** See Propyleneimine

**Azobisisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

**α,α'-Azobisisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

**Azobisisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

### 2,2'-Azobisisobutyronitrile

CAS 78-67-1; EINECS/ELINCS 201-132-3; UN No. 2952 (DOT)

*Synonyms:* AIBN; Azobisisobutyronitrile; α,α'-Azobisisobutyronitrile; Azobisisobutyronitrile; 2,2'-Azobis(2-methylpropanenitrile); 2,2'-Azobis(2-methylpropionitrile); Azodisobutyronitrile; α,α'-Azodisobutyronitrile; 2,2'-Dicyano-2,2'-azopropane; 2,2'-Dimethyl-2,2'-azodipropionitrile; Propanenitrile, 2,2'-azobis (2-methyl-); Propionitrile, 2,2'-azobis (2-methyl)

*Empirical:* C<sub>8</sub>H<sub>12</sub>N<sub>4</sub>

*Formula:* (CH<sub>3</sub>)<sub>2</sub>C(CN)NNCN(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Wh. cryst. powd.; odorless; sol. in alcohol, many org. solvs., vinyl monomers; insol. in water, m.w. 164.24; m.p. 105 C (dec.); gas yield 125 cc/g

*Toxicology:* LD50 (oral, mouse) 0.7 g/kg, (IP, mouse) 25 mg/kg; mod. toxic by ingestion; poison by IP route; TSCA listed

*Precaution:* Flamm. solid; easily oxidized; unstable; violent exothermic reaction on heating; explodes when heated with heptane; container may explode if exposed to > 50 C

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub> and CN<sup>-</sup>

*Uses:* Catalyst/initiator for vinyl polymerizations and for curing unsaturated polyester resins; free radical generator; blowing agent for plastics esp. for PVC prod. of floats, buoys; polymerization catalyst for paper/paperboard in contact with aq./fatty foods; catalyst in food-contact crosslinked polyesters; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.2420

*Manuf./Distrib.:* ABCR; Aceto; Aldrich; Alfa Aesar; Biddle Sawyer; Century Multech; Charkit; Eiwa Chem. Ind.; Fabricchem; Fluka; Japan Hydrozine; Monomer-Polymer & Dajac Labs; Otsuka Chem.; Pfaltz & Bauer; Sigma

**2,2'-Azobis(2-methylpropanenitrile).** See 2,2'-Azobisisobutyronitrile

**2,2'-Azobis(2-methylpropionitrile).** See 2,2'-Azobisisobutyronitrile

**Azodiisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

**α,α'-Azodiisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

**Azoic diazo component 48.** See Dianisidine

**Azovan blue.** See Direct blue 53

**BA.** See Butyl acrylate

**Bacillus subtilis Carlsberg.** See Protease

**Baking soda.** See Sodium bicarbonate

**Balsam capivi.** See Balsam copaiba (Copaifera officinalis)

**Balsam copaiba.** See Balsam copaiba (Copaifera officinalis)

**Balsam copaiba (Copaifera officinalis)**

*Synonyms:* Balsam capivi; Balsam copaiba; Copaiba; Copaiba balsam; Copaiba oleoresin; Copaifera officinalis balsam; Jesuit's balsam

*Definition:* Oleoresin obtained from *Copaifera officinalis*

*Properties:* Pale yel. to brnsh.-yel. visc. transparent liq.; peculiar odor; bitter, acid, nauseating taste; sol. in oxygenated, aromatic and chlorinated solvs., benzene, chloroform, ether, oils, carbon disulfide, abs. alcohol, petrol. ether; insol. in water; dens. 0.930-0.995; acid no. 28-95

*Toxicology:* TSCA listed

*Precaution:* Incompat. with min. acids, magnesia, water

*Uses:* In varnishes; for removing old oil varnish from oil paintings; mfg. of photographic paper; perfume fixative in soaps; fragrance ingred.; moisturizer and lubricant for hair and skin care prods.

*Manuf./Distrib.:* Penta Mfg.; Polarome Int'l.; Spectrum Quality Prods.

**BAPP.** See Bis(aminopropyl) piperazine

**Barite.** See Barium sulfate

**Barium borate.** See Barium metaborate

**Barium boron oxide.** See Barium metaborate

**Barium carbonate**

CAS 513-77-9; EINECS/ELINCS 208-167-3; UN No. 1564 (DOT)

*Synonyms:* Carbonic acid barium salt

*Classification:* Inorganic barium salt

*Definition:* Occurs in nature as the mineral witherite

*Empirical:* CBaO<sub>3</sub>

*Formula:* BaCO<sub>3</sub>

*Properties:* Wh. powd.; odorless; sol. in acids except sulfuric, sol'n. of ammonium chloride + ammonium nitrate; pract. insol. in water; m.w. 197.37; sp.gr. 4.4; bulking value 0.027 gal/lb; oil absorp. 14; b.p. 1450 C

*Toxicology:* ACGIH TLV/TWA 0.5 mg(Ba)/m<sup>3</sup>; LD50 (oral, rat) 418 mg/kg, (IP, mouse) 50 mg/kg; poison by ing., IV, IP routes; human systemic effects by ing. (stomach ulcers, muscle weakness, paresthesia, paralysis, diarrhea, nausea, vomiting, lung changes); overexposure may cause cardiac arrest or death due to respiratory failure; experimental reproductive effects; TSCA listed

*Precaution:* DOT: Poisonous material; incompat. with BrF<sub>3</sub> and 2-furanpercarboxylic acid

*Storage:* Keep containers sealed

*Uses:* Treatment of brines in chlorine-alkali cells to remove sulfates; rodenticide; production of barium salts; ceramic flux; in clay tiles; optical glass; case-hardening baths; ferrites; in radiation-resistant glass for color television tubes, CRT screens; boiler water treatment; filler in rubber, thermoset plastics, photographic paper; paints; enamels; marble substitutes; electrodes; as analytical reagent; weighting agent in drilling muds

*Manuf./Distrib.:* AMC Chems.; Aldrich; All Chemie Ltd; Allan; BCH Brühl; Barium & Chems.; BassTech Int'l.; Cerac; FMC Foret; Fluka; Great Western; Hammill & Gillespie; Hummel Croton; ICC Ind.; Mallinckrodt Baker; Osram Sylvania; Poly Research; Prior; Rhodia; San Yuan; Sigma; Sinochem Liaoning; Solvay GmbH; Spectrum Quality Prods.; U.S. Petrochem. Ind.; Wego Chem. & Min.

**Barium diborate.** See Barium metaborate

**Barium hydroxide.** See Barium hydroxide lime

**Barium hydroxide lime**

CAS 17194-00-2 (anhyd.); 12230-71-6 (octahydrate); EINECS/ELINCS 241-234-5

*Synonyms:* Barium hydroxide

*Definition:* Mixt. of barium hydroxide octahydrate and calcium hydroxide

*Empirical:* BaH<sub>2</sub>O<sub>2</sub>

*Formula:* Ba(OH)<sub>2</sub>

*Properties:* Wh. or grayish wh. gran.; sl. sol. in water; m.w. 171.36 (anhyd.), 315.48 (octahydrate); dens. 2.20; m.p. > 300

*Toxicology:* Highly toxic; corrosive; target organs: nerves, heart, kidneys, GI system; TSCA listed

*Precaution:* Incompat. with chlorinated rubber

*Uses:* Sorbent for CO<sub>2</sub> in pharmaceuticals; aesthetic apparatus; filler in paper, sealants; reagent for vegetable oil, sugar production; vulcanization accelerator

*Regulatory:* USP compliance

*Manuf./Distrib.:* Aldrich; BassTech Int'l.; Fluka; Sigma

**Barium metaborate**

CAS 13701-59-2

*Synonyms:* Barium borate; Barium boron oxide; Barium diborate; Boric acid barium salt

*Empirical:* BHO<sub>2</sub> • ½Ba

*Properties:* Wh. powd.; sol. 3-4 g/l water; m.w. 176.54; m.p. 1000 C

*Toxicology:* TSCA listed

*Uses:* Flame retardant/mold-resist. additive for plastics, paints, textiles, paper; rust-inhibitive pigment, extender for paints; fungicide for PVC; tannin stain blocker; preservative for coatings and sizings used in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* Atomergic Chemetals; BassTech Int'l.; Buckman Labs; CasChem; D.N. Lukens; Joseph Storey; Seachem; Seegott

*Trade Names:* Busan® 11-M2

**Barium sulfate**

CAS 7727-43-7; EINECS/ELINCS 231-784-4; UN No. 1564 (DOT)

*Synonyms:* Artificial barite; Artificial heavy spar; Barite; Barium sulfate (1:1); Baryta white; Barytes; Blanc fixe; Blanc fixe (artificial, precipitated); Cl 77120; Enamel white; Heavy spar; Permanent white; Pigment white 21; Precipitated barium sulfate; Process white; Sulfuric acid barium salt (1:1)

*Classification:* Inorganic salt

*Empirical:* BaO<sub>3</sub>S

*Formula:* BaSO<sub>4</sub>

*Properties:* Wh. or yllsh. fine powd. free from grittiness, odorless, tasteless; sol. in conc. sulfuric acid; pract. insol. in water, dilute acids, alcohol; m.w. 233.40; dens. 4.25-4.5; bulking value 0.027 gal/lb; oil absorp. 7-14; GE brightness 80-95; m.p. 1580 C; ref. index 1.64; hardness (Mohs) 3.0-3.5

*Toxicology:* ACGIH TLV/TWA 10/mg<sup>3</sup> (total dust); poisonous when ingested; frequently causes skin reactions when applied; possible carcinogen; experimental tumorigen; mutagenic data; TSCA listed

*Precaution:* Heating with aluminum can cause explosion; incompat. with Al, P

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>x</sub>

*Uses:* Filler; extender; weighting mud in oil drilling; paper coating; printing inks; paints; filler and delustrant for textiles, rubber, plastics, and lithographic inks; radiation shield; x-ray contrast media; storage batteries; glass ingred.; extender pigment; filler pigment in floor coverings, paints,

**Formula:**  $(\text{CH}_3)_2\text{C}(\text{CN})\text{NNC}(\text{CN})(\text{CH}_3)_2$

**Properties:** Wh. cryst. powd.; odorless; sol. in alcohol, many org. solvs., vinyl monomers; insol. in water, m.w. 164.24; m.p. 105 C (dec.); gas yield 125 cc/g

**Toxicology:** LD50 (oral, mouse) 0.7 g/kg, (IP, mouse) 25 mg/kg; mod. toxic by ingestion; poison by IP route; TSCA listed

**Precaution:** Flamm. solid; easily oxidized; unstable; violent exothermic reaction on heating; explodes when heated with heptane; container may explode if exposed to > 50 C

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub> and CN<sup>-</sup>

**Uses:** Catalyst/initiator for vinyl polymerizations and for curing unsaturated polyester resins; free radical generator; blowing agent for plastics esp. for PVC prod. of floats, buoys; polymerization catalyst for paper/paperboard in contact with aq./fatty foods; catalyst in food-contact crosslinked polyesters; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 176.170, 177.2420

**Manuf./Distrib.:** ABCR; Aceto; Aldrich; Alfa Aesar; Biddle Sawyer; Century Multech; Charkit; Eiwa Chem. Ind.; Fabricchem; Fluka; Japan Hydrazine; Monomer-Polymer & Dajac Labs; Otsuka Chem.; Pfaltz & Bauer; Sigma

**2,2'-Azobis(2-methylpropanenitrile).** See 2,2'-Azobisisobutyronitrile

**2,2'-Azobis(2-methylpropionitrile).** See 2,2'-Azobisisobutyronitrile

**Azodiisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

**α,α'-Azodiisobutyronitrile.** See 2,2'-Azobisisobutyronitrile

**Azoic diazo component 48.** See Dianisidine

**Azovan blue.** See Direct blue 53

**BA.** See Butyl acrylate

**Bacillus subtilis Carlsberg.** See Protease

**Baking soda.** See Sodium bicarbonate

**Balsam capivi.** See Balsam copaiba (Copaifera officinalis)

**Balsam copaiba.** See Balsam copaiba (Copaifera officinalis)

**Balsam copaiba (Copaifera officinalis)**

**Synonyms:** Balsam capivi; Balsam copaiba; Copaiba; Copaiba balsam; Copaiba oleoresin; Copaifera officinalis balsam; Jesuit's balsam

**Definition:** Oleoresin obtained from *Copaifera officinalis*

**Properties:** Pale yel. to brnsh.-yel. visc. transparent liq.; peculiar odor; bitter, acid, nauseating taste; sol. in oxygenated, aromatic and chlorinated solvs., benzene, chloroform, ether, oils, carbon disulfide, abs. alcohol, petrol. ether; insol. in water; dens. 0.930-0.995; acid no. 28-95

**Toxicology:** TSCA listed

**Precaution:** Incompat. with min. acids, magnesia, water

**Uses:** In varnishes; for removing old oil varnish from oil paintings; mfg. of photographic paper; perfume fixative in soaps; fragrance ingred.; moisturizer and lubricant for hair and skin care prods.

**Manuf./Distrib.:** Penta Mfg.; Polarome Int'l.; Spectrum Quality Prods.

**BAPP.** See Bis(aminopropyl) piperazine

**Barite.** See Barium sulfate

**Barium borate.** See Barium metaborate

**Barium boron oxide.** See Barium metaborate

**Barium carbonate**

CAS 513-77-9; EINECS/ELINCS 208-167-3; UN No. 1564 (DOT)

**Synonyms:** Carbonic acid barium salt

**Classification:** Inorganic barium salt

**Definition:** Occurs in nature as the mineral witherite

**Empirical:** CBaO<sub>3</sub>

**Formula:** BaCO<sub>3</sub>

**Properties:** Wh. powd.; odorless; sol. in acids except sulfuric, sol'n. of ammonium chloride + ammonium nitrate; pract. insol. in water; m.w. 197.37; sp.gr. 4.4; bulking value 0.027 gal/lb; oil absorp. 14; b.p. 1450 C

**Toxicology:** ACGIH TLV/TWA 0.5 mg(Ba)/m<sup>3</sup>; LD50 (oral, rat) 418 mg/kg, (IP, mouse) 50 mg/kg; poison by ing., IV, IP routes; human systemic effects by ing. (stomach ulcers, muscle weakness, paresthesia, paralysis, diarrhea, nausea, vomiting, lung changes); overexposure may cause cardiac arrest or death due to respiratory failure; experimental reproductive effects; TSCA listed

**Precaution:** DOT: Poisonous material; incompat. with BrF<sub>3</sub> and 2-furanpercarboxylic acid

**Storage:** Keep containers sealed

**Uses:** Treatment of brines in chlorine-alkali cells to remove sulfates; rodenticide; production of barium salts; ceramic flux; in clay tiles; optical glass; case-hardening baths; ferrites; in radiation-resistant glass for color television tubes, CRT screens; boiler water treatment; filler in rubber, thermoset plastics, photographic paper; paints; enamels; marble substitutes; electrodes; as analytical reagent; weighting agent in drilling muds

**Manuf./Distrib.:** AMC Chems.; Aldrich; All Chemie Ltd; Allan; BCH Brühl; Barium & Chems.; BassTech Int'l.; Cerac; FMC Foret; Fluka; Great Western; Hammill & Gillespie; Hummel Croton; ICC Ind.; Mallinckrodt Baker; Osram Sylvania; Poly Research; Prior; Rhodia; San Yuan; Sigma; Sinochem Liaoning; Solvay GmbH; Spectrum Quality Prods.; U.S. Petrochem. Ind.; Wego Chem. & Min.

**Barium diborate.** See Barium metaborate

**Barium hydroxide.** See Barium hydroxide lime

**Barium hydroxide lime**

CAS 17194-00-2 (anhyd.); 12230-71-6 (octahydrate); EINECS/ELINCS 241-234-5

**Synonyms:** Barium hydroxide

**Definition:** Mixt. of barium hydroxide octahydrate and calcium hydroxide

**Empirical:** BaH<sub>2</sub>O<sub>2</sub>

**Formula:** Ba(OH)<sub>2</sub>

**Properties:** Wh. or grayish wh. gran.; sl. sol. in water; m.w. 171.36 (anhyd.), 315.48 (octahydrate); dens. 2.20; m.p. > 300

**Toxicology:** Highly toxic; corrosive; target organs: nerves, heart, kidneys, GI system; TSCA listed

**Precaution:** Incompat. with chlorinated rubber

**Uses:** Sorbent for CO<sub>2</sub> in pharmaceuticals; aesthetic apparatus; filler in paper, sealants; reagent for vegetable oil, sugar production; vulcanization accelerator

**Regulatory:** USP compliance

**Manuf./Distrib.:** Aldrich; BassTech Int'l.; Fluka; Sigma

**Barium metaborate**

CAS 13701-59-2

**Synonyms:** Barium borate; Barium boron oxide; Barium diborate; Boric acid barium salt

**Empirical:** BHO<sub>2</sub> • ½Ba

**Properties:** Wh. powd.; sol. 3-4 g/l water; m.w. 176.54; m.p. 1000 C

**Toxicology:** TSCA listed

**Uses:** Flame retardant/mold-resist. additive for plastics, paints, textiles, paper; rust-inhibitive pigment, extender for paints; fungicide for PVC; tannin stain blocker; preservative for coatings and sizings used in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Manuf./Distrib.:** Atomergic Chemetals; BassTech Int'l.; Buckman Labs; CasChem; D.N. Lukens; Joseph Storey; Seachem; Seegott

**Trade Names:** Busan® 11-M2

**Barium sulfate**

CAS 7727-43-7; EINECS/ELINCS 231-784-4; UN No. 1564 (DOT)

**Synonyms:** Artificial barite; Artificial heavy spar; Barite; Barium sulfate (1:1); Baryta white; Barytes; Blanc fixe; Blanc fixe (artificial, precipitated); Cl 77120; Enamel white; Heavy spar; Permanent white; Pigment white 21; Precipitated barium sulfate; Process white; Sulfuric acid barium salt (1:1)

**Classification:** Inorganic salt

**Empirical:** BaO<sub>3</sub>S

**Formula:** BaSO<sub>4</sub>

**Properties:** Wh. or yllsh. fine powd. free from grittiness, odorless, tasteless; sol. in conc. sulfuric acid; pract. insol. in water, dilute acids, alcohol; m.w. 233.40; dens. 4.25-4.5; bulking value 0.027 gal/lb; oil absorp. 7-14; GE brightness 80-95; m.p. 1580 C; ref. index 1.64; hardness (Mohs) 3.0-3.5

**Toxicology:** ACGIH TLV/TWA 10/mg<sup>3</sup> (total dust); poisonous when ingested; frequently causes skin reactions when applied; possible carcinogen; experimental tumorigen; mutagenic data; TSCA listed

**Precaution:** Heating with aluminum can cause explosion; incompat. with Al, P

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>x</sub>  
**Uses:** Filler; extender; weighting mud in oil drilling; paper coating; printing inks; paints; filler and delustrant for textiles, rubber, plastics, and lithographic inks; radiation shield; x-ray contrast media; storage batteries; glass ingred.; extender pigment; filler pigment in floor coverings, paints,

## Barium sulfate (1:1)

plastic foams; opacifier in cosmetics; in food-pkg. adhesives; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods; filler in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 177.1460, 177.2600, 178.3297; FDA approved for use in intrauterine prods.; BP compliance  
**Manuf./Distrib.:** Aldrich; Am. Biorganics; Am. Int'l.; Archway Sales; Arlington Int'l.; Atomergic Chemetals; Barium & Chems.; Barker Ind.; Baychem; Charkit; Cimbar Perf. Mins.; EM Ind.; Fluka; Gredmann USA; H.M. Royal; J.M. Huber/Chems.; J.T. Baker; Lenape Ind.; Lomas Int'l.; Mallinckrodt Baker; Mitsubishi Chem.; Ore & Chem.; R.E. Carroll; Rit-Chem; Rona; Ruger; Sachtleben Chemie GmbH; San Yuan; Sigma; Solvay SA; Spectrum Quality Prods.; Whittaker, Clark & Daniels

**Barium sulfate (1:1).** See Barium sulfate

**Baryta white.** See Barium sulfate

**Barytes.** See Barium sulfate

**Basic aluminum chloride.** See Polyaluminum chloride

**Basic aluminum sulfate.** See Aluminum hydroxide sulfate

### Basic blue 7

CAS 2390-60-5; EINECS/ELINCS 219-232-0  
**Synonyms:** Brilliant blue; CI 42595; N-[4-[[4-(Diethylamino) phenyl] [4-ethylamino)-1-naphthalenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-ethylethanaminium chloride; Victoria blue  
**Classification:** Azobenzene; triphenylmethane color  
**Empirical:** C<sub>33</sub>H<sub>40</sub>ClN<sub>3</sub>  
**Properties:** M.w. 514.15  
**Toxicology:** TSCA listed  
**Uses:** Basic dye for paper; pigment in printing inks; solvent dye for ballpen inks, printer ribbons; colorant in hair dyes  
**Manuf./Distrib.:** Aldrich; Sigma

**Basic chromic sulfate.** See Chromium sulfate, basic

**Basic chromium sulfate.** See Chromium sulfate, basic

**Basic copper sulfate.** See Cupric sulfate anhydrous

**Basic magnesium carbonate.** See Magnesium carbonate hydroxide

### Basic orange 1

CAS 4438-16-8  
**Synonyms:** Basic orange 1, monohydrochloride; 1,3-Benzenediamine, 4-methyl-6-(phenylazo)-, monohydrochloride; CI 11320; Methylchrysoidine; 5-(Phenylazo) toluene-3,4-diamine monohydrochloride; Toluene-2,4-diamine, 5-(phenylazo)-, monohydrochloride  
**Empirical:** C<sub>13</sub>H<sub>15</sub>ClN<sub>4</sub>  
**Formula:** C<sub>13</sub>H<sub>14</sub>N<sub>4</sub> • ClH  
**Properties:** M.w. 262.74  
**Uses:** Dye for cotton, bast, paper, leather, printing ink  
**Manuf./Distrib.:** Aakash Chems. & Dyestuffs; Albanil Dyestuff Int'l.; John Campbell; Org. Dyestuffs; Passaic Color & Chem.

**Basic orange 1, monohydrochloride.** See Basic orange 1

### Basic red 1

CAS 989-38-8; EINECS/ELINCS 213-584-9  
**Synonyms:** Basic red 1, monohydrochloride; Basic rhodamine yellow; Basic rhodaminic yellow; Benzoic acid, o-(6-(ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthen-9-yl)-, ethyl ester, monohydrochloride; CI 45160; Ethyl o-(6-(ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthen-9-yl) benzoate monohydrochloride; Rhodamine 6G; Xanthylum, 9-(2-(ethoxycarbonyl) phenyl)-3,6-bis(ethylamino)-2,7-dimethyl-, chloride  
**Classification:** Azobenzene  
**Empirical:** C<sub>28</sub>H<sub>31</sub>ClN<sub>2</sub>O<sub>3</sub>  
**Formula:** C<sub>28</sub>H<sub>30</sub>N<sub>2</sub>O<sub>3</sub> • ClH  
**Properties:** Bluish-pink cryst. or red-brn. solid; sol. (mg/ml): ≥ 100 mg in 95% ethanol (19.5 C), < 1 mg in water, DMSO, acetone (20 C); m.w. 479.02; volatilizes @ 200 C  
**Toxicology:** LD50 (IP, mouse) 6150 µg/kg; LDLo (oral, rat) 125 mg/kg; poison by ing., IP route; harmful by inh., skin contact; may cause severe eye irritation and possible injury; causes digestive/respiratory tract irritation, nausea, vomiting and diarrhea; possible risk of irreversible effects; may cause cardiac/liver/spleen changes, hemolysis, wt. loss; possible carcinogen; experimental tumorigen, teratogen; reproductive effector; mutagen; TSCA listed  
**Precaution:** Probably combustible; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Hydrogen chloride, CO, CO<sub>2</sub>; heated to decomp., emits very toxic fumes of Cl<sup>-</sup> and NO<sub>x</sub>

**Storage:** Refrigerate; store in cool, dry place in tightly closed container

**Uses:** Pigment for printing inks, lacquers, paper coatings; dye in tunable lasers; dye for silk, cotton, wool, paper; tracing agent in water pollution studies; in leather dyeing; an adsorption indicator

**Manuf./Distrib.:** Acros Org.; Aldrich; Dudley; Fluka; Sigma

### Basic red 2

CAS 477-73-6; EINECS/ELINCS 207-518-8  
**Synonyms:** CI 50240; Cotton red; 3,7-Diamino-2,8-dimethyl-5-phenylphenazinium chloride; Gossypimine; Safranin Y; Safranin A  
**Classification:** Phenazine color  
**Empirical:** C<sub>20</sub>H<sub>16</sub>N<sub>4</sub> • Cl  
**Properties:** M.w. 350.85  
**Toxicology:** LDLo 1600 mg/kg; irritant; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub> and Cl<sup>-</sup>  
**Uses:** Indicator; dye for cotton, wool, silk, leather, paper, and solvents; colorant in hair dyes  
**Manuf./Distrib.:** Aldrich; Fluka; Salor; Sigma

### Basic red 12

CAS 6320-14-5  
**Synonyms:** Astraphloxin; Astraphloxine; CI 48070; 3H-Indolium, 1,3,3-trimethyl-2-(3-(1,3,3-trimethyl-2-indolinylidene) propenyl)-, chloride; Verona paper red  
**Empirical:** C<sub>26</sub>H<sub>29</sub>ClN<sub>2</sub>  
**Properties:** M.w. 392.96  
**Toxicology:** LD50 (oral, rat) 18 mg/kg; poison by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub> and Cl<sup>-</sup>  
**Uses:** Dye for cotton, bast, acetate, nylon, paper, and leather  
**Manuf./Distrib.:** Aakash Chems. & Dyestuffs; Fabricolor; Leadertech Colors

**Basic red 1, monohydrochloride.** See Basic red 1

**Basic rhodamine yellow.** See Basic red 1

**Basic rhodaminic yellow.** See Basic red 1

**Basic violet.** See Basic violet 4

### Basic violet 3

CAS 548-62-9; EINECS/ELINCS 208-953-6  
**Synonyms:** Ammonium, (4-(bis(p-(dimethylamino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene) dimethyl-, chloride; Aniline violet; N-[4-Bis(4-(dimethylamino) phenyl) methylene]-2,5-cyclohexadien-1-ylidene]-N-methylmethanaminium chloride; Bismuth violet; CI 42555; Crystal violet; Gentian violet; Hexamethylparosaniline chloride; Hexamethyl p-rosaniline chloride; Hexamethyl p-rosaniline hydrochloride; Hexamethyl violet; Methylrosaniline chloride; Methyl violet; Parosaniline, N,N,N',N',N'',N'''-hexamethyl-, chloride  
**Classification:** Triphenylmethane color  
**Empirical:** C<sub>25</sub>H<sub>30</sub>ClN<sub>3</sub>  
**Properties:** Dk. grn. solid; sol. 0.01-0.1 g/100 ml in water (15.5 C); sol. in chloroform; sol. 1 g/10 ml alcohol, 1 gt/15 ml glycerin; pract. insol. in ether; m.w. 407.98; dens. 1.050; vapor pressure negligible; m.p. 215 C  
**Toxicology:** LD50 (oral, rat) 420 mg/kg, (IP, rat) 8900 µg/kg; LDLo (IV, mouse) 20 mg/kg; toxic by inh., ing.; primary irritant; irritating to eyes, skin, respiratory system; cancer suspect agent; may cause heritable genetic damage; tumorigen; reproductive effector; mutagen; TSCA listed  
**Storage:** Light-sensitive; protect from light; store in cool, dry, well-ventilated area away from incompat. substances  
**Uses:** Basic purple dye for cotton, silk, paper, wood; pigment in printing inks; solvent dye for ballpen inks, printer ribbons, rotogravure inks; as biological stain; differentiating gram-negative and gram-positive bacteria; staining chromatin and nucleoli in plant tissue; topical antiseptic, anti-infective, antimicrobial; anthelmintic  
**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich; Dudley; Fisher Scientific; Fluka; Schütz; Sigma

### Basic violet 4

CAS 2390-59-2; EINECS/ELINCS 219-231-5  
**Synonyms:** Basic violet; CI 42600; Ethanaminium, N-(4-(bis(4-(diethylamino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene)-N-ethyl-, chloride; Ethyl violet; Ethyl purple 6B

**Classification:** Azobenzene

**Empirical:** C<sub>31</sub>H<sub>42</sub>ClN<sub>3</sub>

**Properties:** Olive green; m.w. 492.15; m.p. 0 C

**Toxicology:** Prevent direct contact with skin or eyes; prevent inh.; TSCA listed

**Uses:** Dye for cotton; pigment for paper

**Manuf./Distrib.:** Acros Org.; Aldrich; Dudley; Fluka; Sigma

### Basic violet 10

CAS 81-88-9; EINECS/ELINCS 201-383-9

**Synonyms:** Ammonium, (9-(o-carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethyl-, chloride; 9-o-Carboxyphenyl-6-diethylamino-3-ethylimino-3-isoxanthene 3-ethochloride; (9-(o-Carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethylammonium chloride; N-[9-Carboxyphenyl]-6-(diethylamino)-3H-xanthen-3-ylidene]-N-ethylethaniminium chloride; CI 45170; D&C Red No. 19; Diethyl-m-aminophenolphthalein hydrochloride; 3-Ethochloride of 9-o-carboxyphenyl-6-diethylamino-3-ethylimino-3-isoxanthene; FD&C Red No. 19; Food red 15; Rhodamine B; Rhodamine, tetraethyl-; Tetraethyldiamino-o-carboxyphenyl xanthenyl chloride; Tetraethylrhodamine

**Classification:** Xanthene color

**Empirical:** C<sub>28</sub>H<sub>31</sub>ClN<sub>2</sub>O<sub>3</sub>

**Properties:** Greenish cryst. or yel. powd.; turns violet in sol'n.; strong odor; sol. in water, ethanol; sl. sol. in HCl, NaOH; m.w. 479.02; vapor pressure negligible; m.p. 210-211 C

**Toxicology:** LD50 (oral, mouse) 887 mg/kg, (IP, rat) 112 mg/kg, (IV, rat) 89 mg/kg, (subcut., mouse) 180 mg/kg; harmful by ing., inh., skin contact; handle with gloves; possible risk of irreversible effects; may cause changes in liver/kidney wt., wt. loss; carcinogen; tumorigen; mutagen; experimental reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NH<sub>3</sub>, and Cl<sup>-</sup>

**Storage:** Store in cool, dry place in tightly closed container

**Uses:** Basic dye for paper, leather; pigment in paints, printing inks; solvent dye in ballpen inks, printer ribbon, solvents; colorant for external pharmaceuticals; as a reagent for antimony, bismuth, cobalt, niobium, gold, manganese, mercury, molybdenum, tungsten, etc.; as a biological stain

**Regulatory:** D&C Red No. 19; Permanently listed in 1988; ruling reversed, no longer authorized for use in U.S.

**Manuf./Distrib.:** ABCR; AMRESCO; Acros Org.; Aldrich; Dudley; Fluka; Sigma

### Basic yellow 2

CAS 2465-27-2; EINECS/ELINCS 219-567-2; UN No. 3143

**Synonyms:** Aniline, 4,4'-(imidocarbonyl) bis (N,N-dimethyl-, hydrochloride; Auramine hydrochloride; Auramine O; Auramine Pure; Auramine yellow; Basic yellow 2, monohydrochloride; Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-, monohydrochloride; 4,4'-Bis (dimethylamino) benzohydrilideneimine hydrochloride; 4,4'-Bis (dimethylamino) benzophenone-imine hydrochloride; 1,1-Bis (p-dimethylaminophenyl) methylenimine hydrochloride; Canary yellow; 4,4'-Carbonimidoylbis (N,N-dimethylbenzenamine monohydrochloride; CI 41000; 4,4'-(Imidocarbonyl) bis (N,N-dimethylaniline) monohydrochloride

**Classification:** Azobenzene

**Empirical:** C<sub>17</sub>H<sub>22</sub>ClN<sub>3</sub>

**Properties:** Yel. flakes or powd.; odorless; sol. in ether, chloroform, glycerol; sol. (mg/ml): < 1 mg in water, DMSO, 95% ethanol, methanol, acetone, toluene (18 C); m.w. 303.84; dens. > 1; vapor pressure negligible; m.p. 267 C; flash pt. 250 C

**Toxicology:** LD50 (oral, mouse) 480 mg/kg, (IP, rat) 135 mg/kg, (skin, mouse) 300 mg/kg; toxic by ing. and skin contact; may cause eye/skin/respiratory/digestive tract irritation; may cause irreversible eye injury; readily absorbed thru skin; possible carcinogen; experimental neoplastigen; equivocal tumorigen; mutagen effects; TSCA listed

**Precaution:** Probably combustible; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Hydrogen chloride, CO, CO<sub>2</sub>, NO<sub>x</sub>

**Storage:** Store in tightly closed container in cool, dry, well-ventilated area away from incompat. substances

**Uses:** Dye for cotton, paper, silk, leather; biological stain for staining acid-fast bacteria in sputum or in paraffin sections of infected tissue; chelating agent; fungicide; antiseptic

**Manuf./Distrib.:** Acros Org.; Aldrich; Dudley; Fisher Scientific; Fluka; ProSciTech; Sigma

### Basic yellow 37

**Synonyms:** CI 41001

**Empirical:** C<sub>21</sub>H<sub>30</sub>ClN<sub>3</sub>

**Properties:** M.w. 359.94

**Uses:** Dye for paper, printing inks

**Manuf./Distrib.:** Aakash Chems. & Dyestuffs; Dye Specialties; Org. Dyestuffs; Spectra Colors

**Basic yellow 2, monohydrochloride.** See Basic yellow 2

**Battery acid.** See Sulfuric acid

**BBAB.** See 1,4-Bis (bromoacetoxy)-2-butene

**BBP.** See Butyl benzyl phthalate

**BCDMH.** See 1-Bromo-3-chloro-5,5-dimethyl hydantoin

**Beef tallow.** See Tallow

### Beef tallow triglycerides

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

### Beeswax

CAS 8006-40-4 (white); 8012-89-3 (yellow); EINECS/ELINCS 232-383-7; FEMA 2126 (wh.)

**Synonyms:** Cera alba; White wax; White beeswax; Yellow wax; Yellow beeswax

**Definition:** Purified wax from the honeycomb of the bee, *Apis mellifera*; commonly called white wax when bleached, yellow wax when not bleached

**Properties:** Brown or wh. (bleached) solid with faint odor; sl. balsamic taste; pract. insol. in water; sl. sol. in cold alcohol; sol. in hot alcohol, chloroform, benzene, ether, CS<sub>2</sub>, and oils; dens. 0.95; m.p. 62-65 C; acid no. 17-24; sapon. no. 84

**Toxicology:** Essentially nontoxic; mild allergen; may cause contact dermatitis, human intolerance reaction; TSCA listed

**Precaution:** Combustible when heated

**Storage:** Store away from heat

**Uses:** Food additive; flavoring agent; candy glaze/polish; furniture and floor waxes; shoe polishes; leather dressings; anatomical specimens; artificial fruit; textile sizes and finishes; candles; adhesive compds.; chewing gum base; emollient, emulsifier, film-former in cosmetics; pharmaceutical aid; wax paper; wood and paper finishes; viscosifier; tablet coating agent; filler, stiffener, emulsifier in pharmaceuticals

**Use Level:** 0.065% (chewing gum), 0.005% (confections, frostings), 0.04% (hard candy), 0.1% (soft candy), 0.002% (other food)

**Regulatory:** FDA 21CFR §184.1973, GRAS; FEMA GRAS (white); Japan approved; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP, Ph. Eur. compliance

**Manuf./Distrib.:** Aldrich; Alfa Chem; British Wax Refining; CC Pollen; Dussek Campbell; Fluka; Frank B. Ross; Koster Keunen; Penta Mfg.; Spectrum Quality Prods.; Strahl & Pitsch

**Trade Names:** Koster Keunen Beeswax; Ross Beeswax

**Beeswax, synthetic.** See Synthetic beeswax

### Behenic acid

CAS 112-85-6; EINECS/ELINCS 204-010-8

**Synonyms:** Docosanoic acid

**Classification:** Fatty acid

**Empirical:** C<sub>22</sub>H<sub>44</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>20</sub>COOH

**Properties:** Colorless waxy solid; faint odor; water-sol.; m.w. 340.57; dens. 0.8221 (100/4 C); m.p. 80 C; b.p. 306 C (60 mm), 265 C (15 mm); ref. index 1.4270 (100 C)

**Toxicology:** No known toxicity; TSCA listed

**Uses:** Emulsifier in cosmetics; waxes; plasticizers; chemicals; stabilizers; lubricating oils; lubricant for plastics processing; pharmaceutical opacifier, lubricant, emulsifier

**Manuf./Distrib.:** Acme-Hardesty; Aldrich; Alfa Aesar; Crompton/Witco; Fluka; Jarchem Ind.; Lutianhua; Sigma

**Trade Names Containing:** Safacid 20/22 LF

**Behenic imidazoline.** See Behenyl hydroxyethyl imidazoline

### Behentrimonium chloride

CAS 17301-53-0; EINECS/ELINCS 241-327-0

**Synonyms:** Behenyl trimethyl ammonium chloride; 1-Docosanaminium,

## Behenyl alcohol

N,N,N-trimethyl-, chloride; N,N,N-Trimethyl-1-docosanaminium chloride  
**Classification:** Quaternary ammonium salt  
**Empirical:** C<sub>22</sub>H<sub>46</sub>N • Cl  
**Formula:** [CH<sub>3</sub>(CH<sub>2</sub>)<sub>20</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub>]<sup>+</sup> Cl<sup>-</sup>  
**Properties:** M.w. 404.16; cationic  
**Uses:** Preservative in cosmetics; base, antistat, emulsifier, softener, emollient, conditioner for hair care prods., skin creams/lotions; germicide (duckweed killer) for water treatment; germicide for petroleum, textiles, foods, pulp/paper; plastics antistat  
**Trade Names:** Nissan Cation VB

## Behenyl alcohol

CAS 661-19-8; EINECS/ELINCS 211-546-6  
**Synonyms:** Alcohol C<sub>22</sub>; 1-Docosanol  
**Definition:** Mixture of fatty alcohols chiefly of n-docosanol  
**Empirical:** C<sub>22</sub>H<sub>46</sub>O  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>20</sub>CH<sub>2</sub>OH  
**Properties:** Colorless waxy solid; sol. in oxygenated solvs., ethanol, chloroform; insol. in water, m.w. 326.61; m.p. 71 C; b.p. 180 C (0.22 mm)  
**Toxicology:** Low toxicity; TSCA listed  
**Uses:** Synthetic fibers; lubricants; evaporation retardant on water surfaces; surfactant for polymerization; emollient in cosmetics; foam control agent; cosolvent; plasticizer; pharmaceutical raw material; as antihistamine; in surf. lubricants for mfg. of food-contact metallic articles  
**Regulatory:** FDA 21CFR §178.3910  
**Manuf./Distrib.:** AC Ind.; Aldrich; Brown; Condea Vista; Crompton/Witco; Fluka; Jarchem Ind.; M. Michel; Pechiney World Trade USA; Schweizerhall; Sea-Land; Sigma  
**Trade Names Containing:** Nafol® 1822; Nafol® 1822 B; Nafol® 1822 C

## Behenyl hydroxyethyl imidazoline

CAS 39957-00-1; EINECS/ELINCS 254-719-1  
**Synonyms:** Behenic imidazoline; Behenyl imidazoline; 1H-Imidazole-1-ethanol, 4,5-dihydro-2-docosanyl-  
**Classification:** Heterocyclic compd.  
**Empirical:** C<sub>26</sub>H<sub>47</sub>N<sub>2</sub>O  
**Properties:** Tan solid; m.w. 383; m.p. 45-49 C; cationic  
**Uses:** Antistat in cosmetics; dispersant; wetting agent; emulsifier; microbicide; acid cleaning; polishes; surface treatment; textile processing; paints; metal processing; agric.; cosmetic intermediate; in resinous/polymeric food-contact coatings; defoamer in mfg. of food-contact paper/paperboard; in food-contact textiles  
**Regulatory:** FDA 21CFR §175.300, 176.210, 177.2800

**Behenyl imidazoline.** See Behenyl hydroxyethyl imidazoline

## Behenyl methacrylate

**Uses:** Dispersant; lubricant additive; modifier for fibers; coating agent for paper; used in paints, inks, adhesives  
**Trade Names:** Blemmer VMA

**Behenyl trimethyl ammonium chloride.** See Behentrimonium chloride

**BEHP.** See s-Dioctyl phthalate

**Benne oil.** See Sesame (Sesamum indicum) oil

**Bentone.** See Kaolin

## Bentonite

CAS 1302-78-9; EINECS/ELINCS 215-108-5  
**Synonyms:** Bentonite magma; CI 77004; Mineral soap; Soap clay; Southern bentonite; Wilkinite  
**Definition:** Native hydrated colloidal aluminum silicate clay  
**Formula:** Al<sub>2</sub>O<sub>3</sub> • 4SiO<sub>2</sub> • nH<sub>2</sub>O  
**Properties:** Light to cream-colored impalpable powd., odorless, sl. earthy taste; forms colloidal suspension in water, thixotropic properties; insol. in water and org. solvs.; pH 9.5-10.5  
**Toxicology:** LD50 (IV, rat) 35 mg/kg; poison by IV route causing blood clotting; inert and generally nontoxic; questionable carcinogen with experimental tumorigenic data; TSCA listed  
**HMIS:** Health 1; Flammability 0; Reactivity 0  
**Storage:** Hygroscopic  
**Uses:** Oil-well drilling aid; cement slurries for oil-well casings; thickener; fireproofing; decolorizing agent; filler in ceramics, refractories, paper coatings; emulsifier for oils; suspending agent in pharmaceuticals; base for plasters; abrasives; extender for paints; asphalt modifier; polishes; bonding

agent in foundry sands and pelletizing of iron ores; sealant for canal walls; absorbent, emulsion stabilizer, visc. control agent in cosmetics; food additive, colorant, pigment, stabilizer for wine; coagulant, color removal aid for water treatment; in food-pkg. adhesives; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 177.1460, 178.3297, 184.1155, GRAS; Japan restricted (0.5% max. residual); Europe listed; UK approved; USP/NF, BP, Ph.Eur. compliance; FDA approved for orals, topicals; USP/NF compliance

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Allchem Ind.; Am. Colloid; Asbury Carbons; Cimbar Perf. Mins.; D.N. Lukens; Fluka; H.M. Royal; Hammill & Gillespie; IMERYS; Indofine; Kaopolite; Kraft Chem.; L.A. Salomon; Landers-Segal Color; Lomas Int'l; Norsk Hydro AS; Punda Mercantile; R.E. Carroll; R.T. Vanderbilt; Reade Advanced Materials; Ruger; Sal Chem.; Seegott; Sigma; Smectite; Southern Clay Prods.; Spectrum Quality Prods.; Süd-Chemie AG; Tamms Ind.; U.S. Silica; Whittaker, Clark & Daniels; Wyo-Ben

**Trade Names:** Aquagel Gold Seal™ 200; Aquagel Gold Seal™ 325; Copisil®; Lightcoat; Opazil®; Printosil®; Thermosil®

**Bentonite magma.** See Bentonite

## Benzalkonium chloride

CAS 8001-54-5; 61789-71-7; 63449-41-2; 68391-01-5; 68424-85-1; 68989-00-4; 85409-22-9; EINECS/ELINCS 204-479-9; 263-080-8; 264-151-6; 269-919-4; 270-325-2; 273-544-1; 287-089-1; UN No. 1760 (DOT)

**Synonyms:** Alkylbenzyltrimethylammonium chloride; Alkyl dimethyl benzyl ammonium chloride; Alkyldimethyl (phenylmethyl) quaternary ammonium chlorides; Alkyl ((ethylphenyl) methyl) dimethyl quaternary ammonium chlorides; Ammonium, alkyldimethyl (phenylmethyl)-, chloride; Octyloctadecyl dimethyl ethylbenzyl ammonium chlorides; Quaternary ammonium compds., benzyl-C8-18-alkyldimethyl, chlorides

**Classification:** Quaternary ammonium salt  
**Definition:** Mixt. of alkylbenzyltrimethylammonium chlorides

**Formula:** C<sub>8</sub>H<sub>5</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>2</sub>Cl, R = C<sub>8</sub>H<sub>17</sub> to C<sub>18</sub>H<sub>37</sub>

**Properties:** Wh. or ysh.-wh. amorphous powd. or gelatinous pieces; aromatic odor; bitter taste; very sol. in water, alcohol, acetone; sl. sol. in benzene; insol. in ether; m.p. 34-37 C; cationic

**Toxicology:** LD50 (oral, rat) 240 mg/kg, (IP, rat) 14,500 µg/kg; highly toxic; poison by parenteral, ing., IP, IV routes; human poison by ing.; large systemic doses can cause nausea, vomiting, muscle paralysis, CNS depression, local tissue damage; human skin and severe eye irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** DOT: Corrosive material; incompat. with anionic detergents  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl<sup>-</sup>, NH<sub>3</sub>, and NO<sub>x</sub>

**HMIS:** Health 2; Flammability 0; Reactivity 1

**Uses:** Surfactant; detergent; surface antiseptic, bactericide, fungicide, antimicrobial preservative, disinfectant, wetting agent, solubilizer in pharmaceuticals; latex coagulation, flotation; electrostatic paints; demulsification of hydrocarbons; emulsifier for emulsion polymerization; algicide and slimicide in swimming pool and industrial water and wastewater treatment; preservative in cosmetics; in food-pkg. adhesives; slimicide in food-contact paper/paperboard; as sanitizing solution for food contact

**Use Level:** 0.1-0.3%

**Regulatory:** USA not restricted; FDA 21CFR §175.105, 176.300, 178.1010; FDA approved for ophthalmics, injectables, otics, topicals; Japan, Europe listed; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Alfa Chem; Allchem Ind.; Amyl; Chemron; DeForest Enterprises; EM Ind.; Fluka; Gresco Mfg.; Jame Fine Chem.; Lonza Ltd; Mason; Rhodia HPCII France; Ruger; Schütz; Sigma; Spectrum Quality Prods.; Stepan Europe; Stepan; Triple Crown Am.; Universal Preserv-A-Chem

**Trade Names:** Alkaquat® DMB-451-50, DMB-451-80; Barquat® MB-50; Hyamine® 3500 50%; Paxgard BK 20; Paxgard BKC; Protectol® KLC 50; Protectol® KLC 80

**Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-, monohydrochloride.** See Basic yellow 2

**Benzene, (2-bromo-2-nitroethyl)-.** See β-Bromo-β-nitrostyrene  
**1,3-Benzenediamine, 4-methyl-6-(phenylazo)-, monohydrochloride.** See Basic orange 1

**Benzene diazonium, 4-(phenylamino)-, sulfate.** See p-Diazodiphenylamine

sulfate  
**1,4-Benzenedicarbonyl chloride.** See Terephthaloyl chloride  
**1,4-Benzenedicarbonyl dichloride.** See Terephthaloyl chloride  
**1,2-Benzenedicarboxylic acid, bis (2-ethylhexyl) ester.** See s-Diethyl phthalate  
**1,2-Benzenedicarboxylic acid, 2-butoxy-2-oxoethyl, butyl ester.** See n-Butyl phthalyl-n-butyl glycolate  
**1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester.** See Butyl benzyl phthalate  
**1,2-Benzenedicarboxylic acid, dibutyl ester.** See Dibutyl phthalate  
**o-Benzenedicarboxylic acid dibutyl ester.** See Dibutyl phthalate  
**Benzene-o-dicarboxylic acid di-n-butyl ester.** See Dibutyl phthalate  
**1,2-Benzenedicarboxylic acid, dicyclohexyl ester.** See Dicyclohexyl phthalate  
**1,2-Benzenedicarboxylic acid, dihexyl ester.** See Dihexyl phthalate  
**1,2-Benzenedicarboxylic acid, diisononyl ester.** See Diisononyl phthalate  
**1,2-Benzenedicarboxylic acid, diisooctyl ester.** See Diisooctyl phthalate  
**1,3-Benzenedicarboxylic acid, dimethyl ester.** See Dimethyl isophthalate  
**1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol.** See Polybutylene terephthalate  
**Benzene, 1-((diiodomethyl) sulfonyl)-4-methyl-.** See Diiodomethyl tolylsulfone  
**Benzene, 1,2-dimethyl.** See o-Xylene  
**1,2-Benzenediol.** See Pyrocatechol  
**1,4-Benzenediol.** See Hydroquinone  
**o-Benzenediol.** See Pyrocatechol  
**p-Benzenediol.** See Hydroquinone  
**Benzeneethanimidoyl chloride, N,4-dihydroxy- $\alpha$ -oxo-.** See 2-(p-Hydroxyphenyl) glyoxylohydroxymoyl chloride  
**Benzene, ethenyl-, homopolymer.** See Polystyrene  
**Benzene, ethenylmethyl-, polymer with (1-methylethenyl) benzene.** See Methylstyrene/vinyltoluene copolymer  
**Benzene, ethenyl-, polymer with 1,3-butadiene.** See Styrene/butadiene polymer  
**Benzene, hexachloro-.** See Hexachlorobenzene  
**Benzene hexahydride.** See Cyclohexane  
**Benzenemethanaminium, N-(4-((4-(diethylamino) phenyl) (4-(ethyl ((3-sulfophenyl) methyl) amino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene)-N-ethyl-3-sulfo-, hydroxide, inner salt, sodium salt.** See Acid violet 17  
**Benzenemethanaminium, N-[4-[[4-(dimethylamino) phenyl] [4-[ethyl ((3-sulfophenyl) methyl) amino] phenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-3-sulfo-, inner salt, sodium salt.** See Acid violet 49  
**Benzenemethanaminium, N,N-dimethyl-N-tetradecyl-, chloride.** See Myristalkonium chloride  
**Benzenemethanaminium, N,N,N-triethyl-, chloride.** See Benzyltriethyl ammonium chloride  
**Benzene, (1-methylethenyl)-, homopolymer.** See Poly- $\alpha$ -methylstyrene  
**Benzene, (2-nitroethenyl)-.** See  $\beta$ -Nitrostyrene  
**Benzenepropanoic acid, 3,5-bis (1,1-dimethylethyl)-4-hydroxy-.** See Pentaerythryl tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]  
**Benzenepropanoic acid, 3,5-bis (1,1-dimethylethyl)-4-hydroxy-, thiodi-2,1-, ethanediyl ester.** See Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate  
**Benzenesulfonamide, N-cyclohexyl-4-methyl-.** See N-Cyclohexyl-p-toluenesulfonamide  
**Benzenesulfonamide, 4-methyl-, polymer with formaldehyde.** See Tosylamide/formaldehyde resin  
**Benzenesulfonic acid, 2,2'-(1,4-anthraquinonylenediimino) bis (5-methyl)-, disodium salt.** See Acid green 25  
**Benzenesulfonic acid, 2,2'-(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl) diimino) bis (5-methyl)-, disodium salt.** See Acid green 25  
**Benzenesulfonic acid, dodecyl-.** See Dodecylbenzenesulfonic acid  
**Benzenesulfonic acid, dodecyl-, sodium salt.** See Sodium dodecylbenzenesulfonate  
**Benzenesulfonic acid, 2,2'-(1,2-ethenediyl) bis [5-[[4-[bis (2-hydroxyethyl) amino]-6-[[4-sulfophenyl) amino]-1,3,5-triazin-2-yl] amino]-, tetrasodium salt**  
 CAS 16470-24-9  
*Synonyms:* 2,2'-Stilbenedisulfonic acid, 4,4'-bis ((4-bis (2-hydroxyethyl) amino)-6-(p-sulfoanilino)-s-triazin-2-yl) amino)-, tetrasodium salt  
*Empirical:* C<sub>40</sub>H<sub>44</sub>N<sub>12</sub>O<sub>16</sub>S<sub>4</sub> • 4Na

*Properties:* M.w. 1169.01

*Uses:* Optical brightener for food-contact paper/paperboard; fluorescent probe

*Regulatory:* FDA 21CFR §176.170, 176.180

*Trade Names:* Leucophor® U Liq.; Leucophor® UO Liq.

**Benzenesulfonic acid, 2,2'-(1,2-ethylenediyl) bis (5-amino)-.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**Benzenesulfonic acid, 4-(2-hydroxy-1-naphthalenyl) azo-, monosodium salt.** See Acid orange 7

**Benzenesulfonic acid, 3-((4-(phenylamino) phenyl) azo)-, monosodium salt.** See Acid yellow 36

**Benzenol.** See Phenol

## Benzidine

CAS 92-87-5; EINECS/ELINCS 202-199-1; UN No. 1885

*Synonyms:* P-Benzidine; Benzidine base; 4,4'-Bianiline; p,p'-Bianiline; 4,4'-Biphenyldiamine; (1,1'-Biphenyl)-4,4'-diamine; Biphenyl, 4,4'-diamino-; 4,4'-Biphenylenediamine; CI 37225; CI azoic diazo component 112; 4,4'-Diaminobiphenyl; 4,4'-Diamino-1,1'-biphenyl; p,p'-Diaminobiphenyl; 4,4'-Diaminodiphenyl; p-Diaminodiphenyl; p,p'-Dianiline; 4,4'-Diphenylenediamine; Fast corinth base B

*Empirical:* C<sub>12</sub>H<sub>12</sub>N<sub>2</sub>

*Formula:* NH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>C<sub>6</sub>H<sub>4</sub>NH<sub>2</sub>

*Properties:* Wh., grayish-yel., or reddish-gray cryst. powd.; odorless; sol. in DMSO, acetone, less polar solvs.; sol. 10-50 mg/ml in 95% ethanol; sol. 1 g/50 ml in ether; sol. < 1 mg/ml in water; m.w. 184.23; sp.gr. 1.250 (20/4 C); m.p. 128 C; b.p. 400 C (740 mm); can be sublimed

*Toxicology:* LD50 (oral, rat) 309 mg/kg, (IP, mouse) 110 mg/kg; poison by ing. and IP routes; toxic by inh., skin contact; rapidly absorbed thru skin; severe eye/skin irritant; any exposure considered extremely hazardous; may cause nausea, vomiting, liver/kidney/blood damage, skin sensitization, painful urination, cystitis, etc.; may be fatal; human carcinogen which produces bladder tumors and blood in urine; experimental carcinogen, tumorigen; human mutagenic data; target organs: bladder, liver; TSCA listed

*Environmental:* Very toxic to aquatic organisms; may cause long-term adverse effects in aquatic environment; avoid release to environment

*Precaution:* Combustible; a weak base that forms insol. salts with sulfuric acid; can be diazotized, acetylated, alkylated; hypergolic with red fuming nitric acid; darkens on exposure to air and light; avoid heat

*Hazardous Decomp. Prods.:* Heated to decomp., emits highly toxic fumes of CO, CO<sub>2</sub>, NO<sub>x</sub>; emits toxic fumes under fire conditions

*Storage:* Keep container tightly closed under inert atmosphere; store refrigerated; protect from light

*Uses:* Precursor in synthesis of dyes and pigments used to color textiles, rubber, plastics, printing inks, paints, lacquers, leather, paper prods.; mfg. of organic chems.; stiffening agent in rubber compounding; reagent for hydrogen peroxide; in milk; detection of blood stains; stain in microscopy; mfg. of plastic films; prod. of security paper; laboratory reagent in determining hydrogen cyanide, sulfate, nicotine, and certain sugars

*Regulatory:* SARA §313 reportable; use prohibited in UK

*Manuf./Distrib.:* AccuStandard; Fluka; George Uhe; Isotec; Pfaltz & Bauer; Riedel-deHaën; Sigma; Supelco; TCI Am.

**p-Benzidine.** See Benzidine

**Benzidine base.** See Benzidine

**Benzidine, 3,3'-dimethoxy.** See Dianisidine

**Benzidine yellow AAOT.** See Pigment yellow 14

**Benzidine yellow G.** See Pigment yellow 14

**Benzil dimethyl acetal.** See 2,2-Dimethoxy-2-phenylacetophenone

**Benzil  $\alpha,\alpha$ -dimethyl acetal.** See 2,2-Dimethoxy-2-phenylacetophenone

**2-Benzimidazolecarbamate, methyl ester.** See Carbendazim

**Benzimidazole, 2-(4-thiazolyl)-, monophosphinate.** See Thiabendazole hyppophosphite salt

**1H-Benzimidazole-2-yl methyl carbamate.** See Carbendazim

**N-2-(Benzimidazolyl) carbamate.** See Carbendazim

**1H-Benzimidazol-2-ylcarbamate methyl ester.** See Carbendazim

**4-(2-Benzimidazolyl) thiazol.** See Thiabendazole

**Benzin.** See Naphtha; VM&P naphtha

**Benzine.** See Naphtha

**Benzine (light petroleum distillate).** See VM&P naphtha

**Benzisothiazolinone.** See 1,2-Benzisothiazolin-3-one



**1,2-Benzisothiazolin-3-one**

CAS 2634-33-5; EINECS/ELINCS 220-120-9

*Synonyms:* BIT; Benzisothiazolinone; 1,2-Benzisothiazol-3(2H)-one; 1,2-Benzisothiazolin-3-one; Benzisothiazolin-3-one*Classification:* Heterocyclic compd.*Empirical:* C<sub>7</sub>H<sub>7</sub>NOS*Properties:* M.w. 151.18*Toxicology:* LD50 (oral, rat) 1020 mg/kg, (oral, mouse) 1150 mg/kg; mod. toxic by ing.; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub> and SO<sub>x</sub>*Uses:* Biocide; microbiostat preservative for aq. formulations, latex emulsions, metalworking fluids, aq. paints, food-pkg. adhesives, and polishes; antimicrobial in cosmetics; preservative in paper/paperboard in contact with aq./fatty/dry foods; slmicide in food-contact paper/paperboard; biocide in food-contact uncurd liq. rubber latex*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.300*Manuf./Distrib.:* Avecia; PMC Spec.; Troy*Trade Names:* Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Proxel® BD 20*Trade Names Containing:* Biochek® 410; Nipacide® BIT 20; Nipacide® CBX A; Proxel® DL; Proxel® GXL; Proxel® XL2; Troysan® 586**1,2-Benzisothiazol-3(2H)-one.** See 1,2-Benzisothiazolin-3-one**Benzoate of soda.** See Sodium benzoate**Benzoate sodium.** See Sodium benzoate**Benzo dark green.** See Direct green 1**Benzohydroquinone.** See Hydroquinone**Benzoic acid, 5-((4-(7-amino-1-hydroxy-3-sulfo-2-naphthalenyl) azo) (1,1'-biphenyl)-4-yl) azo)-2-hydroxy-, disodium salt.** See Direct brown 2**Benzoic acid, diester with diethylene glycol.** See Diethylene glycol dibenzoate**Benzoic acid diester with dipropylene glycol.** See Dipropylene glycol dibenzoate**Benzoic acid-n-dipropylene glycol diester.** See Dipropylene glycol dibenzoate**Benzoic acid, o-(6-(ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthen-9-yl)-, ethyl ester, monohydrochloride.** See Basic red 1**Benzoic acid, 4-hydroxy-, phenylmethyl ester.** See Benzylparaben**Benzoic acid peroxide.** See Benzoyl peroxide**Benzoic acid sodium salt.** See Sodium benzoate**1,2-Benzisothiazolin-3-one.** See 1,2-Benzisothiazolin-3-one**Benzisothiazolin-3-one.** See 1,2-Benzisothiazolin-3-one**Benzoperoxide.** See Benzoyl peroxide**Benzophenone**

CAS 119-61-9; EINECS/ELINCS 204-337-6; FEMA 2134

*Synonyms:* Benzoylbenzene; Diphenyl ketone; Diphenyl methanone;  $\alpha$ -Oxodiphenylmethane; Phenyl ketone*Classification:* Organic compd.*Empirical:* C<sub>13</sub>H<sub>10</sub>O*Formula:* C<sub>6</sub>H<sub>5</sub>COC<sub>6</sub>H<sub>5</sub>*Properties:* Wh. rhombic cryst., persistent rose-like odor; sol. in fixed oils; sl. sol. in propylene glycol; m.w. 182.23; sp.gr. 1.0976 ( $\alpha$ , 50/50 C), 1.108 ( $\beta$ , 23/40 C); m.p. 49 C ( $\alpha$ ), 26 C ( $\beta$ ), 47 C ( $\gamma$ ); b.p. 305 C*Toxicology:* LD50 (oral, mouse) 2895 mg/kg, (IP, mouse) 727 mg/kg; mod. toxic by ing. and IP routes; TSCA listed*Precaution:* Combustible when heated; incompat. with oxidizers*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid and irritating fumes*Uses:* UV absorber for cosmetics, sunscreens; UV protective agents in polymers, petroleum waxes, etc.; photosensitizers in printing inks, wood and metal finishes; intermediate for mfg. of antihistamines, insecticides; syn. flavoring agent for foods/pharmaceuticals; organic synthesis; fragrance ingred./odor fixative; soap fragrance; polymerization inhibitor for styrene; photoinitiator for radiation-cured inks and lacquers; plasticizer in food-contact rubber articles for repeated use*Use Level:* 0.5 ppm (nonalcoholic beverages), 0.61 ppm (ice cream, ices), 1.7 ppm (candy), 2.4 ppm (baked goods)*Regulatory:* FDA 21CFR §172.515, 177.2600; FEMA GRAS; BP compliance*Manuf./Distrib.:* 3V; Aceto; Aldrich; Allchem Ind.; Atofina; BASF; BCH Brühl; Berje; Charkit; Chemisphere; Dastech Int'l.; EM Ind.; Fluka; GCA;

Goldensun Mfg.; Haarmann &amp; Reimer; Indofine; Jiangsu Eternal Union; Monomer-Polymer &amp; Dajac Labs; Nipa Labs; Penta Mfg.; Polarome Int'l.; Protameen; R.W. Greeff; Schweizerhall; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Velsicol; Whyte Chems. Ltd

*Trade Names:* BPO**p-Benzophenone, methyl-.** See 4-Methylbenzophenone**Benzophenone, 4-phenyl-.** See p-Phenylbenzophenone**2H-1-Benzopyran-2-one, 7-(diethylamino)-4-methyl.** See 7-Diethylamino-4-methylcoumarin**Benzoquinone.** See Hydroquinone**2-Benzothiazolethiol.** See 2-Mercaptobenzothiazole**2(3H)-Benzothiazolethione.** See 2-Mercaptobenzothiazole**2-Benzothiazolyl mercaptan.** See 2-Mercaptobenzothiazole**2-(Benzothiazolylthio) methyl ester.** See 2-Thiocyanomethylthiobenzothiazole**(2-Benzothiazolylthio) methyl isocyanate.** See 2-Thiocyanomethylthiobenzothiazole**Benzoylbenzene.** See Benzophenone**4-Benzoylbiphenyl.** See p-Phenylbenzophenone**p-Benzoylbiphenyl.** See p-Phenylbenzophenone**Benzoyl peroxide**

CAS 94-36-0; EINECS/ELINCS 202-327-6; UN No. 2085 (DOT), 2086 (DOT), 2087 (DOT), 2088 (DOT), 2089 (DOT), 2090 (DOT), 3102, 3104

*Synonyms:* BP; BPO; Acetoxyl; Benzoic acid peroxide; Benzoperoxide; Benzoyl superoxide; Dibenzoyl peroxide*Classification:* Aromatic organic peroxide*Empirical:* C<sub>14</sub>H<sub>10</sub>O<sub>4</sub>*Formula:* [C<sub>6</sub>H<sub>5</sub>C(O)]<sub>2</sub>O<sub>2</sub>*Properties:* Colorless to wh. cryst. or gran. powd.; faint odor of benzaldehyde; tasteless; sol. in nearly all org. solvs. incl. benzene, chloroform, ether; sl. sol. in alcohols, veg. oils, water; m.w. 242.23; dens. 1.3340; m.p. 103-105 C; b.p. dec.; flash pt. (CC) 80 C*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 7710 mg/kg, (IP, mouse) 250 mg/kg; highly toxic by inh.; poison by ingestion, IP routes; eye, skin, mucous membrane irritant; may cause sensitization by skin contact; human mutation data reported; tumorigen; TSCA listed*Precaution:* Flamm.; ignites readily and burns rapidly; oxidizing agent; explosion hazard; can dec. explosively if confined when heated*Hazardous Decomp. Prods.:* CO<sub>x</sub>

HMIS: Health 2; Flammability 3; Reactivity 4

*Uses:* Oxidizing agent in bleaching fats, oils, flours, waxes; catalyst for plastics; fire retardant initiator in polymerization of PVC and polymethyl methacrylate; rubber vulcanization without sulfur; drying agent for unsat. oils; cosmetics; burn out agent for acetate yarns; source of free radicals for industrial processes; curing agent for unsat. polyester resin and silicone rubber; direct food additive (bleaching agent, oxidizing agent, flour treatment); pharmaceutical ophthalmics; in food-pkg. adhesives; preservative in paper/paperboard in contact with aq./fatty foods; catalyst in food-contact crosslinked polyesters; accelerator for food-contact rubber for repeated use*Regulatory:* FDA 21CFR §175.105, 176.170, 177.2420, 177.2600, 184.1157, GRAS; Japan approved with limitations; FDA approved for ophthalmics; BP, Ph. Eur. compliance*Manuf./Distrib.:* Abco Ind.; Akzo Nobel; Aldrich; Am. Int'l.; Ashland; Atofina N. Am./Org. Peroxides; Aztec Peroxides; Fluka; Great Western; Indofine; KIC Chems.; Mallinckrodt Baker; Monomer-Polymer & Dajac Labs; Norac; Ruger; Sanken Chem.; Sigma; Spectrum Quality Prods.; Van Waters & Rogers; Varsal Instruments**Benzoyl superoxide.** See Benzoyl peroxide**Benzyl butyl phthalate.** See Butyl benzyl phthalate**Benzyl n-butyl phthalate.** See Butyl benzyl phthalate**Benzyl dimethyl ketal.** See 2,2-Dimethoxy-2-phenylacetophenone**Benzyl dimethylstearyl ammonium chloride.** See Stearalkonium chloride**Benzyl 4-hydroxybenzoate.** See Benzylparaben**Benzyl p-hydroxybenzoate.** See Benzylparaben**Benzylparaben**

CAS 94-18-8; EINECS/ELINCS 202-311-9

*Synonyms:* Benzoic acid, 4-hydroxy-, phenylmethyl ester; Benzyl 4-hydroxybenzoate; Benzyl p-hydroxybenzoate; Phenylmethyl 4-hydroxy-

benzoate

*Definition:* Ester of benzyl alcohol and p-hydroxybenzoic acid*Empirical:* C<sub>14</sub>H<sub>12</sub>O<sub>3</sub>*Toxicology:* TSCA listed*Uses:* Preservative, bactericide, fungicide for industrial, food, pharmaceutical applics.; antimicrobial in cosmetics*Regulatory:* BP compliance*Manuf./Distrib.:* Aldrich; Alfa Aesar; Archimica Inc; ChemDesign; Dastech Int'l.; Indofine; Int'l. Sourcing; Napp Tech.; Nipa Labs; Penta Mfg.; R S A; Rochem Int'l.; Schütz; Specialty Chem Prods.; Thornley; Universal Preserv-A-Chem*Trade Names:* Nipabenzyl**Benzyl sacrllet 3BS.** See Direct red 39**Benzylstearyl dimethylammonium chloride.** See Stearalkonium chloride**Benzyltriethyl ammonium chloride**

CAS 56-37-1; EINECS/ELINCS 200-270-1

*Synonyms:* BETEC; BTEAC; TEBAC; Ammonium, benzyltriethyl-, chloride; Benzenemethanaminium, N,N,N-triethyl-, chloride; N,N,N-Triethylbenzenemethanaminium chloride; Triethyl benzyl ammonium chloride*Classification:* Quaternary ammonium salt*Empirical:* C<sub>17</sub>H<sub>27</sub>N • Cl*Formula:* C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>N(Cl)(C<sub>2</sub>H<sub>5</sub>)<sub>3</sub>*Properties:* Solid; m.w. 227.8; m.p. 197-199 C (dec.)*Toxicology:* LD50 (IV, mouse) 18 mg/kg; poison by IV route; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>2</sub> and Cl*Storage:* Hygroscopic*Uses:* Solvent for cellulose; gelling inhibitor in polyester resins; intermediate; phase transfer catalyst; antistat in cosmetics*Manuf./Distrib.:* Aceto; Aldrich; Alfa Aesar; Amyl; Biddle Sawyer; Chemical; Dishman USA; Fluka; Hawks Chem. Co Ltd; Honeywell Spec. Chems.; Koei Chem.; Lindau Chems; R S A; Raschig; Spectrum Quality Prods.; Triple Crown Am.; Zeeland*Trade Names:* TEBAC**Benzyl violet.** See Acid violet 49**Benzyl violet 4B.** See Acid violet 49**Beta-alanine diacetic acid.** See β-Alanine diacetic acid**Betaines, coco alkylidimethyl.** See Coco-betaine**Betanaphthol orange.** See Acid orange 7**BETEC.** See Benzyltriethyl ammonium chloride**BHA**

CAS 25013-16-5; EINECS/ELINCS 246-563-8; FEMA 2183

*Synonyms:* Butylated hydroxyanisole; Butylhydroxyanisole; t-Butylhydroxyanisole; t-Butyl-4-hydroxyanisole; 2(3)-t-Butyl-4-hydroxyanisole; t-Butyl-4-methoxyphenol; (1,1-Dimethylethyl)-4-methoxyphenol; Hydroxyanisole, butylated*Definition:* Mixture of isomers of tertiary butyl-substituted 4-methoxyphenols*Empirical:* C<sub>11</sub>H<sub>16</sub>O<sub>2</sub>*Properties:* Wh. or sl. yel. waxy solid, faint char. odor; sol. in petrol. ether, 50% or higher alcohol, propylene glycol, chloroform, fats, oils; insol. in water; m.w. 180.27; m.p. 48-55 C; b.p. 264-270 C (733 mm)*Toxicology:* LD50 (oral, mouse) 2000 mg/kg; mod. toxicity by ing., IP routes; may cause rashes, hyperactivity; confirmed carcinogen; experimental neoplastigen, tumorigen, reproductive effects; mutagenic data; TSCA listed*Precaution:* Combustible*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid and irritating fumes

HMIS: Health 1; Flammability 1; Reactivity 0

*Uses:* Antioxidant for fats and oils; antioxidant, preservative for foods, cosmetics, pharmaceuticals, plastics, food pkg., food-pkg. adhesives, pressure-sensitive adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food-contact use*Use Level:* 1000 ppm (active dry yeast), 2 ppm (beverages and desserts prepared from dry mixes), 32 ppm (dry diced glaceed fruits); ADI 0-0.5 mg/kg (EU); 0.02% max. (preservation of fixed oils, fats, vitamin oil concs.)*Regulatory:* FDA 21CFR §166.110, 172.110, 172.515, 172.615, 173.340, 175.105, 175.125, 175.300, 175.380, 175.390, 176.170, 176.210, 177.1010,

177.1210, 177.1350, 178.3120, 178.3570, 179.45; 181.22, 181.24 (0.005% migrating from food pkg.), 182.3169 (0.02% max. of fat or oil), GRAS; FEMA GRAS; USDA 9CFR 318.7, 381.147; Japan approved 0.2-1 g/kg; Europe approved; UK approved; approved for orals, rectals, topicals; USP/NF, BP compliance

*Manuf./Distrib.:* Aceto; Aldrich; Allan; Allchem Ind.; Am. Roland; Ashland; Eastman; Fluka; Int'l. Chem. Inc; Penta Mfg.; Ruger; Sigma; Spectrum Quality Prods.; UOP; Universal Preserv-A-Chem**BHMT.** See Bis-hexamethylenetriamine**BHT**

CAS 128-37-0; EINECS/ELINCS 204-881-4; FEMA 2184

*Synonyms:* DBPC; 2,6-Bis (1,1-dimethylethyl)-4-methylphenol; Butylated hydroxytoluene; 2,6-Di-t-butyl-p-cresol; 2,6-Di-t-butyl-4-methylphenol; Hydroxytoluene, butylated; Methyl di-t-butylphenol; 4-Methyl-2,6-di-t-butylphenol*Classification:* Substituted toluene*Empirical:* C<sub>15</sub>H<sub>24</sub>O*Formula:* [C(CH<sub>3</sub>)<sub>2</sub>CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>OH*Properties:* Wh. cryst. solid, faint char. odor; sol. in toluene, alcohols, MEK, acetone, Cellosolve, petrol. ether, chloroform, benzene, most HC solvs.; insol. in water, propylene glycol; m.w. 220.39; sp.gr. 1.048 (20/4 C); m.p. 68 C; b.p. 265 C; flash pt. (TOC) 260 F*Toxicology:* ACGIH TLV 10 mg/m<sup>3</sup>; LD50 (oral, rat) 890 mg/kg, (IP, mouse) 138 mg/kg, (IV, mouse) 180 mg/kg; mod. toxic by ing.; poison by IP, IV routes; suspected carcinogen; human skin irritant; eye irritant; may cause rashes, hyperactivity; experimental teratogen, reproductive effects; TSCA listed*Precaution:* Combustible exposed to heat or flame; reactive with oxidizing materials*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

HMIS: Health 1; Flammability 0; Reactivity 0

*Uses:* Antioxidant, preservative for foods, pharmaceuticals, animal feed, petroleum prods., jet fuels, lubricants, solvents, hot-melt adhesives, syn. rubbers, plastics (polyamide, polyolefins, POM, PU, PVC, PS), soaps; antioxidant for fats, oils, soap; antiskinning agent in paints and inks; oxidation/gum inhibitor in gasoline; antioxidant in food-contact coatings, food-pkg. adhesives and pressure-sensitive adhesives; defoamer in food-contact paper/paperboard; antioxidant in food-contact rubber articles for repeated use; in lubricants for incidental food-contact use*Use Level:* Limitation (total BHA and BHT): 50 ppm (dehydrated potato shreds), 50 ppm (dry breakfast cereals), 200 ppm (emulsion stabilizers for shortening), 10 ppm (potato granules); ADI 0-0.5 mg/kg (EU); 0.02% max. (preservation of fixed oils, fats, vitamin oil concs.)*Regulatory:* FDA 21CFR §137.350, 166.110, 172.115, 172.615 (0.1% max.), 173.340 (0.1% of defoamer), 175.105, 175.125, 175.300, 175.380, 175.390, 176.170, 176.210, 177.1010, 177.1210, 177.1350, 177.2260, 177.2600, 178.3120, 178.3570, 179.45, 181.22; 181.24 (0.005% migrating from food pkg.), 182.3173 (0.02% max. of fat/oil), GRAS; USDA 9CFR §318.7, 381.147; Japan 0.2-1 g/kg; Europe, UK; USP/NF, BP, Ph.Eur. compliance*Manuf./Distrib.:* Aceto; Aldrich; Alfa Chem; Allan; Allchem Ind.; Ashland; Bayer/Fiber, Addits., Rubber; E-Chemicals; Equistar; Ferro/Grant; Fluka; GE Spec.; Great Lakes; Int'l. Chem. Inc; Laporte Perf. Chems.; MelChem; PMC Spec.; Penta Mfg.; R.T. Vanderbilt; Raschig; Ruger; Sea-Land; Shell; Sigma; Spectrum Quality Prods.; UOP; Uniroyal; Universal Preserv-A-Chem; Varsal Instruments**4,4'-Bianiline.** See Benzidine**p,p'-Bianiline.** See Benzidine**Bianisidine.** See Dianisidine**Bicarbonate of soda.** See Sodium bicarbonate**Bichlorendo.** See Perchloropentacyclodecane**Biformyl.** See Glyoxal**2,2'-Bioxirane.** See DL-Diepoxybutane**(R\*,R\*)-(±)-2,2'-Bioxirane.** See DL-Diepoxybutane**1,1'-Biphenyl, butenylated**

CAS 81846-81-3

*Uses:* Solvent for aerosols, adhesives, electronic parts mfg. and cleaning, industrial cleaning, inks and paper coatings, metal cleaning, paints, plastics, sealants, tile mfg.

(1,1'-Biphenyl)-4,4'-diamine. See Benzidine

4,4'-Biphenyldiamine. See Benzidine

Biphenyl, 4,4'-diamino-. See Benzidine

(1,1'-Biphenyl)-2,2'-disulfonic acid, 4,4'-bis ((2-hydroxy-1-naphthalenyl) azo)-, disodium salt. See Acid red 97

4,4'-Biphenylenediamine. See Benzidine

1,1'-Biphenyl, 2,2',4,4',5,5'-hexachloro-. See 2,2',4,4',5,5'-Hexachlorobiphenyl

Biphenyl, isopropyl. See 1,1'-Biphenyl (1-methylethyl)

1,1'-Biphenyl (1-methylethyl)

CAS 25640-78-2

Synonyms: Biphenyl, isopropyl; Isopropyl diphenyl; Isopropylbiphenyl; Monoisopropyl biphenyl; (1-Methylethyl) 1,1'-biphenyl

Empirical: C<sub>15</sub>H<sub>16</sub>

Properties: M.w. 196.31

Toxicology: LD50 (oral, rat) 4570 mg/kg; LDLo (oral, rabbit) 4 g/kg; mod. toxic by ingestion; mutagen; may cause altered sleep time, tremors, ataxia; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

Uses: Solvent for aerosols, adhesives, electronic parts mfg. and cleaning, industrial cleaning, inks and paper coatings, metal cleaning, paints, plastics, sealants, tile mfg.

(1,1'-Biphenyl)-2-ol. See o-Phenylphenol

2-Biphenylol. See o-Phenylphenol

o-Biphenylol. See o-Phenylphenol

(1,1'-Biphenyl)-2-ol, sodium salt. See Sodium o-phenylphenate

2-Biphenylol, sodium salt. See Sodium o-phenylphenate

3,3'-(4,4'-Biphenylene) bis (azo) bis (5-amino-4-hydroxy)-2,7-naphthalenedisulfonic acid, tetrasodium salt. See Direct blue 6

4-Biphenyl phenyl ketone. See p-Phenylbenzophenone

p-Biphenyl phenyl ketone. See p-Phenylbenzophenone

((1,1'-Biphenyl)-4-yl) phenylmethanone. See p-Phenylbenzophenone

Biphenyl-4-yl-phenylmethanone. See p-Phenylbenzophenone

Bis (2-aminoethyl) amine. See Diethylenetriamine

Bis (β-aminoethyl) amine. See Diethylenetriamine

N,N'-Bis (2-aminoethyl)-1,2-diaminoethane. See Triethylenetetramine

N,N'-Bis (2-aminoethyl)-1,2-ethanediamine. See Triethylenetetramine

N,N'-Bis (2-aminoethyl) ethylenediamine. See Triethylenetetramine

N,N'-Bis (2-aminoethyl)-1,2-ethylenediamine. See Triethylenetetramine

4,4'-Bis (1-amino-8-hydroxy-2,4-disulfo-7-naphthylazo)-3,3'-bitolyl, tetrasodium salt. See Direct blue 53

4,4'-Bis [7-(1-amino-8-hydroxy-2,4-disulfo) naphthylazo]-3,3'-bitolyl, tetrasodium salt. See Direct blue 53

Bis(aminopropyl) piperazine

CAS 7209-38-3; UN No. 1760 (DOT)

Synonyms: BAPP; 1,4-Bis (aminopropyl) piperazine; 1,4-Bis-(3-aminopropyl) piperazine

Classification: Heterocyclic organic compd.

Empirical: C<sub>10</sub>H<sub>24</sub>N<sub>4</sub>

Properties: Clear liq.; m.w. 200.38; sp.gr. 0.97; m.p. 15 C; b.p. 295 C; flash pt. (COC) 325 F; ref. index 1.5001

Toxicology: LD50 (IV, mouse) 3500 µg/kg; poison by IV route; corrosive; irritating to eyes, skin, mucous membranes; TSCA listed

Precaution: Corrosive

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO<sub>x</sub>

Uses: Intermediate for prep. of textile and paper treating resins, dyestuffs, epoxy curing agents, pharmaceuticals, surfactants, polyamides; dietary supplement

Manuf./Distrib.: Aceto; Aldrich; BASF AG

1,4-Bis (aminopropyl) piperazine. See Bis(aminopropyl) piperazine

1,4-Bis-(3-aminopropyl) piperazine. See Bis(aminopropyl) piperazine

4,4'-Bis ((4-anilino-6-bis (2-hydroxyethyl) amino-w-triazin-2-yl) amino)-2,2'-stilbenedisulfonic acid disodium salt. See Disodium 2,2'-(1,2-ethenediyl) bis [5-[[4-[bis (2-hydroxyethyl) amino]-6-(phenylamine)-1,3,5-triazin-2-yl] amino] benzenesulfonate

N,N-Bis [2-[bis (carboxymethyl) amino] ethyl] glycine. See Pentetic acid

N,N-Bis[2-[bis (carboxymethyl) amino] ethyl] glycine, pentasodium salt. See Pentasodium pentetate

2,2-Bis ((3-(3,5-bis (1,1-dimethylethyl)-4-hydroxyphenyl)-1-oxopropoxy) methyl)-1,3-propanediyl ester. See Pentaerythrityl tetrakis [3-(3',5'-di-*t*-butyl-4-hydroxyphenyl) propionate]

1,4-Bis (bromoacetoxy)-2-butene

CAS 20679-58-7; EINECS/ELINCS 243-962-9; UN No. 1760

Synonyms: BBAB; Acetic acid, bromo-, 2-butene-1,4-diyl ester; Acetic acid, bromo-, 2-butenylene ester; Bis-1,4-bromoacetoxy-2-butene; Bis (bromoacetoxy)-2-butene; Butene-1,4-diol bis (bromoacetate); 2-Butene-1,4-diol bis (bromoacetate); 1,4-Di (bromoacetoxy) butenediol

Empirical: C<sub>8</sub>H<sub>10</sub>Br<sub>2</sub>O<sub>4</sub>

Properties: Dk. brn. oily liq.; sharp odor; sol. in acetone, toluene, methylene chloride; pract. insol. in water; m.w. 329.98; m.p. < -20 C; b.p. 135-136 C (0.05 mm Hg)

Toxicology: LD50 (oral, rat) 191 mg/kg, (dermal, rabbit) 983 mg/kg; corrosive to eyes, skin, mucous membranes; toxic, corrosive by ing.; causes burns; may be absorbed thru skin in sufficient amount to cause systemic toxicity; inh. may cause sore throat, coughing, shortness of breath, nasal irritation

Environmental: LC50 (zebra fish, 48 h) 0.32 mg/l; toxic to aquatic organisms; marine pollutant; biodeg.

Precaution: DOT corrosive liq.; incompat. with strong oxidizers, strong bases; avoid high temps.; contamination by water

Hazardous Decomp. Prods.: Heated to decomp., may release poisonous fumes of hydrogen bromide and bromine

Storage: Store in cool, dry, well-ventilated area away from incompat. materials; keep containers tightly closed

Uses: Biocide, slimicide for paper mill wastewater treatment; pesticide; slimicide in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.300

Manuf./Distrib.: Dead Sea Bromine

Bis-1,4-bromoacetoxy-2-butene. See 1,4-Bis (bromoacetoxy)-2-butene

Bis (bromoacetoxy)-2-butene. See 1,4-Bis (bromoacetoxy)-2-butene

1,2-Bis (bromoacetoxy) ethane

CAS 3785-34-0

Synonyms: Acetic acid, bromo-, diester with ethylene glycol; Acetic acid, bromo-, 1,2-ethanedyl ester; Acetic acid, bromo-, ethylene ester; 1,2-Bis (monobromoacetoxy) ethane; Bromoacetic acid ethylene ester; 1,2-Ethanedyl bromoacetate; Ethylene bis (bromoacetate); Ethylene bromoacetate; Ethylene glycol, bis (bromoacetate)

Empirical: C<sub>6</sub>H<sub>8</sub>Br<sub>2</sub>O<sub>4</sub>

Properties: M.w. 303.96

Toxicology: LD50 (IP, mouse) 39 mg/kg, (IV, mouse) 56 mg/kg; eye irritant; may cause somnolence, acute pulmonary edema

Uses: Slimicide in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.300

5,5-Bis (bromoacetoxy) methyl m-dioxane

Uses: Slimicide in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.300

Bis (3-*t*-butyl-4-hydroxy-6-methylphenyl) sulfide. See 4,4'-Thiobis-6-(*t*-butyl-*m*-cresol)

Bis (n-butyl) sebacate. See Dibutyl sebacate

N-[2-[Bis(carboxymethyl) amino] ethyl]-N-(2-hydroxyethyl) glycine, trisodium salt. See Trisodium HEDTA

3,6-Bis (carboxymethyl)-3,5-diazoctanedioic acid. See Edetic acid

N,N-Bis(carboxymethyl)glycine. See Nitriolotriacetic acid

N,N-Bis (carboxymethyl) glycine trisodium salt. See Trisodium NTA

Bis (2-chloroethyl) vinylphosphonate. See Bis (β-chloroethyl) vinyl phosphonate

Bis (β-chloroethyl) vinyl phosphonate

CAS 115-98-0

Synonyms: Bis (2-chloroethyl) vinylphosphonate; Di (2-chloroethyl) vinylphosphonate; Vinylphosphonic acid bis (2-chloroethyl) ester

Empirical: C<sub>4</sub>H<sub>11</sub>Cl<sub>2</sub>O<sub>3</sub>P

Formula: (ClCH<sub>2</sub>CH<sub>2</sub>O)<sub>2</sub>POCH=CH<sub>2</sub>

Properties: M.w. 233.04

Toxicology: LD50 (oral, rat) 990 mg/kg; mod. toxic by ing.; TSCA listed  
Hazardous Decomp. Prods.: Heated to decomp., emits very toxic fumes of PO<sub>x</sub> and Cl<sup>-</sup>

- Uses:* Reactive flame retardant for plastics, textiles, wood, and paper applics.; fire-retarded vinyl latex comonomer  
*Manuf./Distrib.:* ABCR; Akzo Nobel
- Bis (5-chloro-2-hydroxyphenyl) methane.** See Dichlorophene
- Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite**  
CAS 26741-53-7; EINECS/ELINCS 247-952-5  
*Synonyms:* Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite; Cyclic neopentane tetrayl bis (2,4-di-t-butylphenyl) ester phosphorous acid; Phosphorous acid, cyclic neopentane tetrayl bis (2,4-di-t-butylphenyl) ester; 2,4,8,10-Tetraoxa-3,9-diphosphaspiro (5.5) undecane, 3,9-bis (2,4-bis (1,1-dimethylethyl) phenoxy)-  
*Empirical:* C<sub>33</sub>H<sub>50</sub>O<sub>6</sub>P<sub>2</sub>  
*Formula:* C<sub>33</sub>H<sub>50</sub>(O<sub>2</sub>POC<sub>6</sub>H<sub>3</sub>(C[CH<sub>3</sub>])<sub>2</sub>)<sub>2</sub>  
*Properties:* M.w. 604.77  
*Toxicology:* LD50 (oral, rat) 5580 mg/kg, (skin, rabbit) > 200 mg/kg; LC50 (inh., rat) > 2 g/m<sup>3</sup>; low toxicity by ing., inh., and skin contact; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of PO,  
*Uses:* Antioxidant for polyolefins, polyamides, polyesters, PVC, PS, rubbers, food-grade polymers; impact modifier for PVC  
*Regulatory:* FDA 21CFR §178.2010  
*Manuf./Distrib.:* Aldrich; Ciba Spec. Chems./Addit.; GE Spec.  
*Trade Names:* Alkanox® P-24
- Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite.** See Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite
- Bis (2,6-diisopropylphenyl) carbodiimide**  
CAS 2162-74-5; EINECS/ELINCS 218-487-5  
*Empirical:* C<sub>25</sub>H<sub>34</sub>N<sub>2</sub>  
*Properties:* Wh. to lt. ysh. cryst.; sol. in acetone, insol. in water; m.w. 362.56; m.p. 48 C  
*Toxicology:* LD50 (oral, rat) 2395 mg/kg; nonirritant to skin or eyes; may cause sensitization, allergic skin reaction on repeated/prolonged exposure; TSCA listed  
*Precaution:* Incompat. with acids, alkalis, oxidizing agents; dust can form explosive mixts. with air  
*Hazardous Decomp. Prods.:* NO<sub>x</sub>, isocyanates  
*Storage:* Keep away from sources of ignition  
*Uses:* Stabilizer protecting polymers against hydrolysis in processing and long-term aging  
*Trade Names:* Stabilizer 7000
- 4,4'-Bis (dimethylamino)-benzhydridenimine hydrochloride.** See Basic yellow 2
- 4:4'-Bis (dimethylamino) benzophenone-imine hydrochloride.** See Basic yellow 2
- 2,6-Bis (dimethylaminomethyl) cyclohexanone**  
*Formula:* [(CH<sub>3</sub>)<sub>2</sub>NCH<sub>2</sub>]<sub>2</sub>C<sub>6</sub>H<sub>8</sub>O  
*Properties:* Dens. 0.95 (20 C)  
*Uses:* Preservative for aq. paint systems, casein, pigment disps., adhesives; slimicide in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.300
- N-[4-Bis [4-(dimethylamino) phenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-methylmethanaminium chloride.** See Basic violet 3
- 1,1-Bis (p-dimethylaminophenyl) methylenimine hydrochloride.** See Basic yellow 2
- Bis (dimethylcarbamoithioato,S,S') zinc.** See Zinc dimethyldithiocarbamate
- 2,5-Bis (1,1-dimethylethyl)-1,4-benzenediol.** See Di-t-butylhydroquinone
- 2,6-Bis (1,1-dimethylethyl)-4-methylphenol.** See BHT
- Bis (1,1-dimethylethyl) peroxide.** See Di-t-butyl peroxide
- Bis (dimethylthiocarbamoyl) sulfide.** See Tetramethylthiuram monosulfide
- Bis (dimethylthiocarbamyl) monosulfide.** See Tetramethylthiuram monosulfide
- 1,3-Bis (2,3-epoxypropoxy)-2,2-dimethyl propane.** See Neopentyl glycol diglycidyl ether
- 2,2-Bis (4-(2,3-epoxypropyloxy) phenyl) propane.** See Bisphenol A diglycidyl ether
- Bis (ethylhexanoate) triethylene glycol.** See PEG-3 di-2-ethylhexoate
- Bis (2-ethylhexyl)-1,2-benzenedicarboxylate.** See s-Dioctyl phthalate
- Bis (2-ethylhexyl) phthalate.** See s-Dioctyl phthalate
- Bis (2-ethylhexyl) sodium sulfosuccinate.** See Dioctyl sodium sulfosuccinate
- 1,4-Bis (2-ethylhexyl) sulfobutanedioic acid sodium salt.** See Dioctyl sodium sulfosuccinate
- Bis (4-glycidylxyphenyl) dimethylmethane.** See Bisphenol A diglycidyl ether
- 2,2-Bis (p-glycidylxyphenyl) propane.** See Bisphenol A diglycidyl ether
- Bis-hexamethylenetriamine**  
CAS 143-23-7; 68411-90-5  
*Synonyms:* BHMT  
*Classification:* Amine  
*Empirical:* C<sub>12</sub>H<sub>26</sub>N<sub>3</sub>  
*Formula:* NH<sub>2</sub>(CH<sub>2</sub>)<sub>6</sub>NH(CH<sub>2</sub>)<sub>6</sub>NH<sub>2</sub>  
*Properties:* M.w. 215  
*Uses:* Asphalt antistripping agent; cationic emulsifier; ore flotation collector; chelating agent; corrosion inhibitor; scale inhibitor; curing agent for epoxy resins and urethanes; catalyst, extender for PU; flocculant; wet str. paper resins; polyamide resins for adhesives, films, inks, plastics  
*Manuf./Distrib.:* BASF; DuPont; Solutia  
*Trade Names:* BHMT Amine; BHMT-HP
- Bis (hydrogenated tallow alkyl) amines.** See Hydrogenated ditallowamine
- Bis (hydrogenated tallowalkyl) dimethyl ammonium chloride.** See Quaternium-18
- Bis (4-hydroxy-5-t-butyl-2-methylphenyl) sulfide.** See 4,4'-Thiobis-6-(t-butyl-m-cresol)
- Bis-2-hydroxy-5-chlorophenyl) methane.** See Dichlorophene
- Bis [2-(2-hydroxyethoxy) ethyl] ether.** See PEG-4
- Bis (2-hydroxyethyl) amine.** See Diethanolamine
- N,N-Bis (2-hydroxyethyl) amine.** See Diethanolamine
- Bis (2-hydroxyethyl) cocamine.** See PEG-2 cocamine
- N,N (Bis (2-hydroxyethyl) cocamine oxide.** See Dihydroxyethyl cocamine oxide
- N,N-Bis (2-hydroxyethyl) coco amides.** See Cocamide DEA
- Bis (2-hydroxyethyl) cocoamine.** See PEG-2 cocamine
- Bis (2-hydroxyethyl) cocoamine oxide.** See Dihydroxyethyl cocamine oxide
- N,N-Bis (2-hydroxyethyl) coco fatty acid amide.** See Cocamide DEA
- N,N-Bis (2-hydroxyethyl) decanamide.** See Capramide DEA
- N,N-Bis (2-hydroxyethyl) dodecanamide.** See Lauramide DEA
- N,N-Bis (2-hydroxyethyl) hexadecanamide.** See Palmitamide DEA
- N,N-Bis (2-hydroxyethyl) hexadecan-1-amide.** See Palmitamide DEA
- Bis (2-hydroxyethyl) lauramide.** See Lauramide DEA
- N,N-Bis (2-hydroxyethyl) lauramide.** See Lauramide DEA
- N,N-Bis (β-hydroxyethyl) lauramide.** See Lauramide DEA
- N,N-Bis (2-hydroxyethyl) myristamide.** See Myristamide DEA
- (9Z,12Z)-N,N-Bis (2-hydroxyethyl) octadeca-9,12-dien-1-amide.** See Linoleamide DEA
- N,N-Bis (2-hydroxyethyl)-9,12-octadecadienamide.** See Linoleamide DEA
- N,N-Bis (2-hydroxyethyl) octadecanamide.** See Stearamide DEA
- N,N-Bis (2-hydroxyethyl)-9-octadecenamide.** See Oleamide DEA
- N,N-Bis (2-hydroxyethyl) octadecylamine.** See PEG-2 stearamine
- N,N-Bis (2-hydroxyethyl) oleamide.** See Oleamide DEA
- Bis-2-hydroxyethyl oleamine.** See PEG-2 oleamine
- Bis (2-hydroxyethyl) oleylamine.** See PEG-2 oleamine
- N,N-Bis (2-hydroxyethyl) palmitamide.** See Palmitamide DEA
- N,N-Bis (hydroxyethyl)soya amides.** See Soyamide DEA
- Bis (2-hydroxyethyl) soya amine.** See PEG-2 soyamine
- N,N-Bis (2-hydroxyethyl) stearamide.** See Stearamide DEA
- Bis-2-hydroxyethyl stearamine.** See PEG-2 stearamine
- Bis-2-hydroxyethyl stearylamine.** See PEG-2 stearamine
- N,N-Bis (2-hydroxyethyl) stearyl amine.** See PEG-2 stearamine
- N,N-Bis (2-hydroxyethyl)tallow acid amide.** See Tallowamide DEA
- N,N-Bis (2-hydroxyethyl)tallow amides.** See Tallowamide DEA
- Bis (2-hydroxyethyl) tallowamine.** See PEG-2 tallowamine
- N,N-Bis (2-hydroxyethyl) tetradecanamide.** See Myristamide DEA
- Bis (hydroxymethanesulfinato-O,O') zinc.** See Zinc formaldehyde sulfoxylate
- N-[1,3-Bis (hydroxymethyl)-2,5-dioxo-4-imidazolidinyl]-N,N'-bis (hydroxymethyl) urea.** See Diazolidinyl urea
- 2,2-Bis (hydroxymethyl)-1,3-propanediyl dioleate.** See Pentaerythritol dioleate
- 1,3-Bishydroxymethyl urea.** See Dimethylol urea
- N,N'-Bis (hydroxymethyl) urea.** See Dimethylol urea
- 4,4'-Bis ((2-hydroxy-1-naphthalenyl) azo)-(1,1'-biphenyl)-2,2'-disulfonic acid,**



route; mod. toxic by ing.; may cause enzyme inhibition, induction, or change in blood or tissue levels; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of Cl and SO<sub>2</sub>

**Uses:** Microbicide for paint, adhesives, latex, ink, mineral slurries, metal-working fluids, water treatment; paper mill slimicide; in food-pkg. adhesives; preservative for coatings in paper/paperboard in contact with dry food; slimicide in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.300

**Bisulfate.** See Sulfur dioxide

**Bisulfite.** See Sulfur dioxide

**BIT.** See 1,2-Benzisothiazolin-3-one

**Bitter ash.** See Quassia

**Bitter salts.** See Magnesium sulfate heptahydrate

**Bitter wood.** See Quassia

**Bitumen.** See Asphalt

**Black magnetic oxide.** See Iron oxide black

**Black oxide, precipitated.** See Iron oxide black

**Black rouge.** See Iron oxide black

**Blanc fixe.** See Barium sulfate

**Blanc fixe (artificial, precipitated).** See Barium sulfate

**Bleached deodorized tallow.** See Tallow

**Bleached shellac.** See Shellac

**Bleaching powder.** See Calcium hypochlorite

**Bleaching sol'n.** See Sodium hypochlorite

**Blue 2B.** See Direct blue 6

**Blue base.** See Dianisidine

**Blue copper.** See Cupric sulfate anhydrous

**Blue no. 1.** See FD&C Blue No. 1 aluminum lake

**Blue no. 3.** See FD&C Blue No. 1 aluminum lake

**Bluestone.** See Cupric sulfate anhydrous

**Blue vitriol.** See Cupric sulfate anhydrous

**BMC.** See Carbendazim

**BNPD.** See 2-Bromo-2-nitropropane-1,3-diol

**BNS.** See β-Nitrostyrene

**Boletic acid.** See Fumaric acid

**Bolus alba.** See Kaolin

### Bone black

CAS 8021-99-6

**Synonyms:** Bone char; Bone charcoal; Pigment black 9

**Definition:** Black pigment produced from carbonization of bones; primarily tricalcium phosphate with about 10% carbon

**Precaution:** Flamm. as suspended dust; nonflamm. in bulk

**Uses:** Pigment in paints, varnishes; mfg. activated carbon; decolorizing agent and filter medium; sugar/solvent decolorizing agent; cementation agent; adsorptive medium in gas masks; clarifying shellac; water purification

**Manuf./Distrib.:** Allchem Ind.; Ebonex; Landers-Segal Color

**Trade Names:** Cosmic Black 8-S; Cosmic Black AP; Cosmic Black D-2; Ebonex SC-5

**Bone char.** See Bone black

**Bone charcoal.** See Bone black

**Bone glue.** See Animal glue

**Boracic acid.** See Boric acid

**Borates, tetra, sodium salt, anhydrous.** See Sodium borate

**Borates, tetra, sodium salts, pentahydrate.** See Sodium tetraborate pentahydrate

**Borax.** See Sodium borate decahydrate

**Borax decahydrate.** See Sodium borate decahydrate

**Borax, fused.** See Sodium borate

### Boric acid

CAS 10043-35-3; EINECS/ELINCS 233-139-2

**Synonyms:** Boracic acid; Boron trihydroxide; Orthoboric acid

**Classification:** Inorganic acid

**Empirical:** H<sub>3</sub>BO<sub>3</sub>

**Formula:** BH<sub>3</sub>O<sub>3</sub>

**Properties:** Wh. or colorless cryst. powd., gran.; odorless; almost tasteless or sl. acidic taste; sol. in water, alcohol, glycerol; insol. in ether, benzene; m.w. 61.83; dens. 1.435; m.p. 171 C; b.p. 300 C; loses 1.5 H<sub>2</sub>O @ 300 C; nonflamm.

**Toxicology:** LD50 (oral, rat) 2660 mg/kg, (subcut., rat) 1400 mg/kg, (IV, rat) 1330 mg/kg; LDLo (IP, mouse) 800 mg/kg; poison by inh., subcut. routes; mod. toxic by IP, IV routes; human poison by ing.; mod. toxic to humans by skin contact, subcut. routes; human skin irritant; human systemic effects; acute poisoning causes digestive upsets in man, CNS stimulation, depression, renal damage, circulatory collapse; dose of 5-20 g in adults may be fatal; experimental reproductive effects; mutagenic data; TSCA listed

**Precaution:** Hygroscopic

**Hazardous Decomp. Prods.:** Boric anhydride

**NFPA:** Health 0; Flammability 0; Reactivity 0

**Storage:** Store @ R.T.

**Uses:** Heat-resist. glass; porcelain enamels; boron chemicals; metallurgy; flame retardant (cellulosic insulation, mattress batting, cotton textiles, wood, paper); fungistat in citrus fruits, ointments, eyewash; nickel electroplating baths; insecticide; preservative (foods/pharmaceuticals, rubber latex); medicine (protective disinfectant); antiseptic; antimicrobial in cosmetics; oral care agent; photography; leather finishing; buffering agent (eye drops, chrome plating, aluminum anodizing); oxidation catalyst; welding/brazing fluxes; in food-pkg. adhesives; preservative in coatings for paper/paperboard in contact with dry food; antioxidant/stabilizer for food-grade polymers

**Use Level:** 0.01-1.0%

**Regulatory:** FDA 21CFR §175.105, 176.180, 178.2010, 181.22, 181.30; USA not restricted; Europe listed; permitted in Switzerland and Sweden as preservative in some processed seafood; FDA approved for ophthalmics, otics, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** AMRESCO; Advance Research Chems.; Aldrich; Allchem Ind.; Am. Int'l.; Ashland; BCH Brühl; Coyne; Dragoco; Fluka; Nippon Denko; Occidental; Research Organics; Ruger; Sal Chem.; San Yuan; Schaefer Tech.; Seeler Ind.; Sigma; Spectrum Quality Prods.; U.S. Borax; Varsal Instruments; Veckridge

**Trade Names Containing:** Unisize® HA-26; Unisize® HA-70

**Boric acid barium salt.** See Barium metaborate

**Boric acid disodium salt.** See Sodium borate decahydrate

**Boric acid, disodium salt, pentahydrate.** See Sodium tetraborate pentahydrate

### Boron carbide

CAS 12069-32-8; EINECS/ELINCS 235-111-5

**Synonyms:** Carbon tetraboride

**Empirical:** CB<sub>4</sub>

**Formula:** B<sub>4</sub>C

**Properties:** Hard blk. cryst.; insol. in water; m.w. 55.26; dens. 2.510; m.p. 2350 C; b.p. > 3500 C; hardness (Mohs) 9.3; resist. to chem. attack; dec. by molten alkalis at red heat; does not burn in oxygen flame

**Toxicology:** Harmful dust; avoid inhalation of dust or particles; TSCA listed

**Uses:** Raw material for paint mfg.; alloying agent; mfg. of chem.-resist. ceramics; grinding wheel abrasive; neutron absorber; reinforcing agent in composites for military aircraft; control rods in nuclear reactors; polishing papers; abrasion resister and refractory; abrasion-resist. nozzles and surfaces

**Manuf./Distrib.:** Advanced Refractory Tech.; Alfa Aesar; Atlantic Equip. Engrs.; Atomergic Chemetals; Electro Abrasives; Noah; Reade Advanced Materials

**Boron sodium oxide, pentahydrate.** See Sodium tetraborate pentahydrate

**Boron trihydroxide.** See Boric acid

### Borosilicate glass

**Definition:** A soda-lime glass contg. approx. 5% boric oxide; heat-resistant glass

**Toxicology:** Irritating to eyes, skin, and respiratory system

**Uses:** Heat-resist. glass used in sunlight lamps, etc.; may be suitable as storage-disposal medium for high-level radioactive wastes; extender/filler for plastics, etc.; improves flow and leveling, provides hiding and corrosion protection, reduces VOC's in paint and coating systems, incl. primers, alkyd interior enamels, PU acrylic topcoats, epoxy polyamide topcoats; extends wh. pigments

**Manuf./Distrib.:** Aldrich; Sigma

**Trade Names:** Q-Cel® 6019

**BP.** See Benzoyl peroxide





**$\beta$ -Bromo- $\beta$ -nitrotrimethylene glycol.** See 2-Bromo-2-nitropropane-1,3-diol  
**(2-Bromo-2-nitrovinyl) benzene.** See  $\beta$ -Bromo- $\beta$ -nitrostyrene  
**Bromphthal.** See Tetrabromophthalic anhydride  
**Bronopol.** See 2-Bromo-2-nitropropane-1,3-diol  
**Bronze blue.** See Ferric ferrocyanide  
**Brown M.** See Direct brown 2  
**Brucite.** See Magnesium hydroxide  
**B/S.** See Styrene/butadiene polymer  
**BTEAC.** See Benzyltriethyl ammonium chloride  
**BTO.** See Tributyltin oxide  
**Burnt alum.** See Potassium alum anhydrous  
**Burnt ammonium alum.** See Ammonium alum  
**Burnt lime.** See Calcium oxide  
**Burnt potassium alum.** See Potassium alum anhydrous  
**Burnt sienna.** See Iron oxide red  
**Buta-1,3-diene.** See Polybutadiene  
**Butadiene/acrylonitrile copolymer**  
 CAS 9003-18-3  
*Synonyms:* NBR; Acrylonitrile rubber; Acrylonitrile/butadiene copolymer; Acrylonitrile/butadiene rubber; 1,3-Butadiene, polymer with 2-propenenitrile; Nitrile elastomer; Nitrile rubber; Nitrile/butadiene rubber; 2-Propenenitrile, polymer with 1,3-butadiene  
*Classification:* Polymer  
*Definition:* Synthetic rubber made by random polymerization of acrylonitrile and butadiene by free-radical catalysis  
*Empirical:* (C<sub>4</sub>H<sub>6</sub>N)<sub>x</sub>  
*Formula:* [CH<sub>2</sub>CH=CHCH<sub>2</sub>]<sub>x</sub>[CHCNCH<sub>2</sub>]<sub>y</sub>  
*Properties:* Dens. 0.980; tens. str. 1000-3000 psi; elong. 100-700%  
*Toxicology:* Suspected carcinogen  
*Precaution:* Combustible  
*Uses:* Elastomer for oil-well parts, fuel hoses, gaskets, hydraulic equip. (high ACN), general-purpose oil-resist. applics., shoe soles, kitchen mats, printing rolls (med. ACN), gaskets, grommets, o-rings (low ACN); binder; fuel binder in solid rocket propellants; in plasticizer masterbatches; as impact modifier for thermoplastics (PVC, ABS); film-former, visc. control agent in cosmetics; in coatings/adhesives/films for food, food-pkg. pressure-sensitive adhesives; for food-contact articles for repeated use  
*Regulatory:* FDA 21CFR §175.125, 175.300, 175.320, 177.1200, 177.1200, 177.2600, 181.32  
*Manuf./Distrib.:* Aldrich; Sigma  
*Trade Names:* Darex® 110L; Hycar® 1552; Hycar® 1561; Hycar® 1562; Hycar® 1571; Hycar® 1572; Hycar® 1572X64; Perbunan N Latex 2818; Perbunan N Latex 3310; Perbunan N Latex 3415 M; Perbunan N Latex T; Perbunan N Latex VT  
**Butadiene/acrylonitrile/styrene copolymer.** See Acrylonitrile/butadiene/styrene copolymer  
**1,3-Butadiene, 2-chloro-, polymers.** See Polychloroprene  
**(±)-DL-1,3-Butadiene diepoxide.** See DL-Diepoxbutane  
**DL-Butadiene dioxide.** See DL-Diepoxbutane  
**Butadiene homopolymer.** See Polybutadiene  
**1,3-Butadiene, homopolymer.** See Polybutadiene  
**1,3-Butadiene, 2-methyl-, homopolymer.** See Polyisoprene  
**1,3-Butadiene-2-methyl polymer with 2-methyl-1-propene.** See Isobutylene/isoprene copolymer  
**Butadiene oligomer.** See Polybutadiene  
**Butadiene polymer.** See Polybutadiene  
**1,3-Butadiene, polymer with 2-propenenitrile.** See Butadiene/acrylonitrile copolymer  
**1,3-Butadiene, polymers.** See Polybutadiene  
**Butadiene resin.** See Polybutadiene  
**Butadiene rubber.** See Polybutadiene  
**Butadiene/styrene copolymer.** See Styrene/butadiene polymer  
**1,3-Butadiene/styrene copolymer.** See Styrene/butadiene polymer  
**Butadiene/styrene polymer.** See Styrene/butadiene polymer  
**1,3-Butadiene/styrene polymer.** See Styrene/butadiene polymer  
**Butadiene/styrene resin.** See Styrene/butadiene polymer  
**1,3-Butadiene/styrene resin.** See Styrene/butadiene polymer  
**Butadiene/styrene rubber.** See Styrene/butadiene polymer  
**Butal.** See n-Butyraldehyde  
**Butaldehyde.** See n-Butyraldehyde  
**Butalyde.** See n-Butyraldehyde

**Butanal.** See n-Butyraldehyde  
**n-Butanal.** See n-Butyraldehyde  
**Butanamide, 2,2'-(3,3'-dichloro(1,1'-biphenyl)-4,4'-diyl) bis (azo) bis (N-(2-methylphenyl)-3-oxo-.** See Pigment yellow 14  
**1,4-Butanedicarboxylic acid.** See Adipic acid  
**Butane-1,4-dicarboxylic acid.** See Adipic acid  
**Butane, (±)-1,2:3,4-diepoxy-.** See DL-Diepoxbutane  
**Butanedioic acid, dimethyl ester.** See Dimethyl succinate  
**Butanedioic acid, sulfo-, 1,4-dihexyl ester, sodium salt.** See Dihexyl sodium sulfosuccinate  
**Butanedioic acid, sulfo-, 1-[1-methyl-2-[(1-oxo-9-octadeceny)] amino] ethyl] ester, disodium salt.** See Disodium oleamido MIPA-sulfosuccinate  
**Butanedioic acid, sulfo-, 4-[1-methyl-2-[(1-oxo-9-octadeceny)] amino] ethyl] ester, disodium salt.** See Disodium oleamido MIPA-sulfosuccinate  
**Butane, 1,4-epoxy-.** See Tetrahydrofuran  
**1,2,4-Butanetricarboxylic acid, 2-phosphono-.** See 2-Phosphono butane tricarboxylic acid-1,2,4  
**1,2,4-Butanetriol**  
 CAS 3068-00-6; EINECS/ELINCS 221-323-5  
*Classification:* Nonaromatic alcohols  
*Empirical:* C<sub>4</sub>H<sub>10</sub>O<sub>3</sub>  
*Formula:* HOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>OH  
*Properties:* Almost colorless liq.; odorless; misc. in water and ethanol; m.w. 106.12; dens. 1.184; b.p. 190-191 C (18 mm); flash pt. 166 C; ref. index 1.473  
*Toxicology:* Irritating to eyes, skin, respiratory system; TSCA listed  
*Precaution:* Combustible  
*Storage:* Hygroscopic  
*Uses:* Intermediate for alkyd resins, explosives, paints; cellulose plasticizer; emulsifier for cosmetics, inks, finishes, paper, cork, textiles  
*Manuf./Distrib.:* Aldrich; BASF; Chemcentral; Fluka  
**Butanol.** See Butyl alcohol  
**1-Butanol.** See Butyl alcohol  
**Butan-1-ol.** See Butyl alcohol  
**2-Butanol**  
 CAS 78-92-2; EINECS/ELINCS 201-158-5; UN No. 1120 (DOT)  
*Synonyms:* SBA; s-Butanol; Butan-2-ol; 2-Butyl alcohol; s-Butyl alcohol; Butylene hydrate; Ethylmethyl carbinol; 2-Hydroxybutane; Methyl ethyl carbinol; 1-Methyl propanol; Secondary butyl alcohol  
*Classification:* Sec. aliphatic alcohol  
*Empirical:* C<sub>4</sub>H<sub>10</sub>O  
*Formula:* CH<sub>3</sub>CH<sub>2</sub>CH(OH)CH<sub>3</sub>  
*Properties:* Colorless liq.; sweet odor; sol. in water, ethanol, ether, acetone, benzene; m.w. 74.12; sp.gr. 0.807 (20/4 C); m.p. -89 C; b.p. 99-100 C; flash pt. 23 C; ref. index 1.3972 (20 C)  
*Toxicology:* ACGIH TLV/TWA 100 ppm; LD50 (oral, rat) 6480 mg/kg, (IP, rabbit) 277 mg/kg; poison by IV and IP routes; mildly toxic by ing.; skin and eye irritant; excessive inh. may cause nose/throat irritation, headache, nausea, fatigue, dizziness; unconsciousness, coma in extreme cases; if aspirated into lungs, may cause severe lung damage, respiratory and cardiac arrest, possibly death  
*Precaution:* Flamm.; incompat. with alkali metals (increases fire/explosion risk, forms flamm. hydrogen gas), acids, acid chlorides, acid anhydrides (vigorous reactions), chlorine, isocyanates, ethylene oxide  
*Hazardous Decomp. Prods.:* Unstable peroxides may form after prolonged storage  
 NFPA: Health 1; Flammability 3; Reactivity 0  
*Storage:* Store in cool, well-ventilated area out of direct sunlight  
*Uses:* Solvent for coatings, paint removers, adhesives, resins, lacquers, industrial cleaners; prep. of methyl ethyl ketone; petroleum octane booster; extraction of fish protein; ingred. in hydraulic brake fluids; perfumes; syn. flavoring agent in foods; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §172.515, 176.180  
*Manuf./Distrib.:* Ashland; Chemcentral; E-Chemicals; Exxon; Fluka; Houghton Chem.; Hukill; Quaker City; Shell; Spectrum Quality Prods.; Total Spec. Chems.; Van Waters & Rogers  
**Butan-2-ol.** See 2-Butanol  
**n-Butanol.** See Butyl alcohol  
**s-Butanol.** See 2-Butanol

## t-Butanol

**t-Butanol.** See t-Butyl alcohol

**2-Butanol acetate.** See s-Butyl acetate

**Butanone.** See Methyl ethyl ketone

**2-Butanone.** See Methyl ethyl ketone

**3-Butanone.** See Methyl ethyl ketone

**Butene-1.** See 1-Butene

### 1-Butene

CAS 106-98-9; 25167-67-3; EINECS/ELINCS 203-449-2; UN No. 1012 (DOT)

**Synonyms:** But-1-ene; Butene-1; Butylene;  $\alpha$ -Butylene; C-4 alpha olefin; Ethylethylene

**Classification:** Liquefied petrol. gas

**Empirical:** C<sub>4</sub>H<sub>8</sub>

**Formula:** CH<sub>2</sub>:CHCH<sub>2</sub>CH<sub>3</sub>

**Properties:** Colorless liquefied gas; sol. in most org. solvs.; insol. in water; m.w. 56.11; dens. 0.5951 (20/4 C); vapor pressure 50 psig (100 F); f.p. -185 C; b.p. -6.3 C; flash pt. -79 C

**Toxicology:** Asphyxiant gas; handling hazards incl. fire, suffocation, and frostbite; TSCA listed

**Environmental:** Marine pollutant

**Precaution:** Highly flamm. gas; flamm. limits in air 1.6-9.3% by vol.; dangerous fire and explosion risk

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Chemical intermediate; polybutenes, butadiene, polyethylene and other polymers; C4 and C5 aldehydes, alcohols, maleic anhydride, plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricant; polymer and alkylate gasoline; intermediate for biodeg. surfactants, household detergents, hard surface and industrial hand cleaners, shampoos, bubble baths

**Manuf./Distrib.:** Air Prods.; Albemarle; Aldrich; BP Amoco; Chemconnect; ChevronPhillips; Coyne; Exxon; Fluka; MG Ind.; Shell; Texas Petrochem.

**Trade Names:** Gulfene® 4

**But-1-ene.** See 1-Butene

**But-1-ene compd. with but-2-ene.** See Hydrogenated polybutene

**2-Butenedioic acid.** See Fumaric acid

**(E)-Butenedioic acid.** See Fumaric acid

**trans-Butenedioic acid.** See Fumaric acid

**2-Butenedioic acid, (Z)-, dioctyl ester.** See Dioctyl maleate

**cis-Butenedioic anhydride.** See Maleic anhydride

**Butene-1,4-diol bis (bromoacetate).** See 1,4-Bis (bromoacetoxy)-2-butene

**2-Butene-1,4-diol bis (bromoacetate).** See 1,4-Bis (bromoacetoxy)-2-butene

**Butene, homopolymer.** See Polybutene

**1-Butene, homopolymer.** See Polybutene

**Butene polymer.** See Polybutene

**Butene, polymers.** See Polybutene

**2-Butenoic acid, ethyl ester.** See Ethyl crotonate

**trans-2-Butenoic acid ethyl ester.** See Ethyl crotonate

**2-Butenoic acid, polymer with ethenyl acetate.** See VA/crotonates copolymer; Vinyl acetate/crotonic acid copolymer

**Butoxydiethylene glycol.** See Butoxydiglycol

### Butoxydiglycol

CAS 112-34-5; EINECS/ELINCS 203-961-6

**Synonyms:** DEGBE; Butoxydiethylene glycol; 2-(2-Butoxyethoxy) ethanol; Butyl 'Carbitol'; o-Butyl diethylene glycol; Butyldiglycol; Diethylene glycol butyl ether; Diethylene glycol n-butyl ether; Diethylene glycol monobutyl ether; Diglycol butyl ether; Diglycol monobutyl ether; PEG-2 butyl ether

**Classification:** Aliphatic ether alcohol; aliphatic glycol ether

**Empirical:** C<sub>8</sub>H<sub>18</sub>O<sub>3</sub>

**Formula:** C<sub>8</sub>H<sub>18</sub>OCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>OH

**Properties:** Colorless liq.; faint butyl odor; very sol. in ether, alcohol, acetone; sol. in oils and water; misc. with most org. solvs.; m.w. 162.26; sp.gr. 0.9553 (20/4 C); vapor pressure 0.02 mm Hg (20 C); m.p. -68.1 C; b.p. 230.6 C; flash pt. (CC) 78 C; ref. index 1.4316 (20 C)

**Toxicology:** LD50 (oral, rat) 6.56 g/kg, (skin, rabbit) 4120 mg/kg; mod. toxic by ing., IP routes; mildly toxic by skin contact; severe eye irritant; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; incompat. with strong oxidizers (increases risk of fire and explosion)

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>; heated to

decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 2; Reactivity 0

**Storage:** Store in cool, dry area away from heat and ignition sources

**Uses:** Coupling solvent for liq. cleaners, cutting fluids, textile auxs., nitrocellulose, coatings, oils, dyes, gums, soaps, polymers, stamp pad inks, high-based enamels, household cleaners; plasticizer intermediate; diluent for hydraulic brake fluids; coalescing agent for latex paints; dispersant for vinyl chloride resins in organosols; wetting-out sol'n. in textile industry; solvent in cosmetics; in food-pkg. adhesives; in paper/paperboard in contact with dry foods; surf. lubricant in mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.180, 178.3910

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Ashland; BCH Brühl; Brown; Eastman; Fluka; Lyondell; Occidental; Ruger; Sal Chem.; Shell; Union Carbide

**Trade Names Containing:** Monawet MO-70

### Butoxyethanol

CAS 111-76-2; EINECS/ELINCS 203-905-0; UN No. 2369 (DOT)

**Synonyms:** N-Butoxyethanol; 2-n-Butoxyethanol; 2-Butoxyethanol; 2-Butoxy-1-ethanol; o-Butyl ethylene glycol; Butyl glycol; n-Butyl glycol; Ethylene glycol butyl ether; Ethylene glycol n-butyl ether; Ethylene glycol monobutyl ether; Ethylene glycol mono-n-butyl ether; Glycol butyl ether; Glycol monobutyl ether; Monobutyl glycol ether; 3-Oxa-1-heptanol

**Classification:** Ether alcohol

**Empirical:** C<sub>6</sub>H<sub>14</sub>O<sub>2</sub>

**Formula:** HOCH<sub>2</sub>CH<sub>2</sub>OC<sub>4</sub>H<sub>9</sub>

**Properties:** Colorless clear mobile liq.; mild pleasant odor; sol. in water, alcohol, ether; misc. wit most org. solvs.; m.w. 118.20; sp.gr. 0.9019 (20/20 C); vapor pressure 300 mm Hg (140 C); m.p. -74.8 C; b.p. 171.2 C; flash pt. 62 C

**Toxicology:** ACGIH TLV/TWA 25 ppm (skin); LD50 (oral, rat) 1480 mg/kg, (IP, rat) 220 mg/kg, (skin, rabbit) 490 mg/kg; poison by ing., skin contact, IP, IV routes; mod. toxic by inh., subcut.; human systemic effects; skin/eye irritant; TSCA listed

**Precaution:** DOT: Poisonous material; flamm. exposed to heat or flame; incompat. with oxidizers, strong caustics; attacks some types of rubber, plastics, and coatings

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2; Flammability 2; Reactivity 0

**Storage:** Store in tightly closed, grounded containers in cool, ventilated area, away from work areas; use in minimal quantities

**Uses:** Solvent for nitrocellulose, natural/syn. resins, sol. oils, lacquers, varnishes, adhesives, enamels, insecticides, herbicides, dry-cleaning compds., textiles, organosol prod., cosmetics; cosolvent; flume wash water additive for food processing; coupling agent in cleaners; in textile dyeing/printing; leather treatment; prod. of plasticizers; stabilizer in metal and household cleaners, hydraulic fluids, insecticides, herbicides, rust removers; hydraulic brake fluids; gas chromatography; wetting agent; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; solvent in food-contact polysulfide polymer/polyeoxy resins

**Use Level:** Limitation 1 ppm (in wash water)

**Regulatory:** FDA 21CFR §173.315, 175.105, 176.210, 177.1650, 178.1010, 178.3297, 178.3570

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Ashland; Brown; Eastman; Fluka; Lyondell; Occidental; Ruger; Sal Chem.; Shell; Sigma; Spectrum Quality Prods.; Union Carbide

**Trade Names Containing:** Dehydran® 1293; Surfynol® 104BC

**2-Butoxyethanol.** See Butoxyethanol

**2-Butoxy-1-ethanol.** See Butoxyethanol

**2-n-Butoxyethanol.** See Butoxyethanol

**n-Butoxyethanol.** See Butoxyethanol

**2-Butoxyethanol phosphate.** See Tributoxyethyl phosphate

**2-(2-Butoxyethoxy) ethanol.** See Butoxydiglycol

**Button lac.** See Shellac

**2-Butyl acetate.** See s-Butyl acetate

### s-Butyl acetate

CAS 105-46-4; EINECS/ELINCS 203-300-1; UN No. 1123 (DOT)

**Synonyms:** Acetic acid 2-butoxy ester; Acetic acid, s-butyl ester; Acetic acid 2-butyl ester; Acetic acid 1-methylpropyl ester; 2-Butanol acetate; 2-Butyl acetate; s-Butyl alcohol acetate; 1-Methylpropyl acetate

**Classification:** Carboxylic acid ester

**Definition:** Ester of butyl alcohol and acetic acid

**Empirical:** C<sub>8</sub>H<sub>12</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>COOCH(CH<sub>2</sub>)(C<sub>2</sub>H<sub>5</sub>)

**Properties:** Colorless liq.; mild fruity odor; sol. in oxygenated solvs., alcohol, ether, acetone; insol. in water; m.w. 116.16; sp.gr. 0.870 (20/4 C); m.p. -146 C; b.p. 112.2 C; flash pt. (OC) 31 C; ref. index 1.389 (20 C)

**Toxicology:** ACGIH TLV/TWA 200 ppm; STEL 150 ppm; mild skin and eye irritant; allergen; inh. of vapors can probably irritate nose and throat; ing. may irritate mouth and throat; high concs. may cause CNS depression, headache, dizziness, nausea, unconsciousness; TSCA listed

**Precaution:** Flamm.; incompat. with strong oxidizers (increases fire/explosion risk), strong acids, strong bases (decomp. can occur)

**Hazardous Decomp. Prods.:** S-Butyl alcohol, acetic acid; heated to decomp., emits acid and irritating fumes

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in a cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist

**Uses:** Solvent for nitrocellulose lacquers, varnishes, thinners, nail enamels, leather finishes, adhesives; textile sizes; paper coatings

**Manuf./Distrib.:** Aldrich; E-Chemicals; Hukill; Schweizerhall; Van Waters & Rogers

### Butyl acid phosphate

CAS 12788-93-1; UN No. 1718 (DOT)

**Synonyms:** Acid butyl phosphate; n-Butyl acid phosphate; Butyl phosphoric acid; n-Butylphosphoric acid; Phosphoric acid, butyl ester

**Empirical:** C<sub>4</sub>H<sub>11</sub>O<sub>4</sub>P

**Properties:** Water-wh. liq.; sol. in alcohol, acetone, toluene; insol. in water, petrol. naphtha; m.w. 154.10; dens. 1.120-1.125 (25/40 C); flash pt. (COC) 110 C; ref. index 1.429

**Toxicology:** Toxic and corrosive; strong irritant to skin and tissue; TSCA listed

**Precaution:** DOT: Corrosive material; combustible when exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of PO<sub>4</sub>

**Uses:** High reactivity catalyst used in coatings and inks; for appliance, automotive, floor, furniture, paper, and other finishes; polymerizing agent; curing catalyst/accelerator in resins and coatings, special detergents; also for antistatic agents, corrosion inhibitors, solder fluxes, lubricants, and tanning chems.; ingred. in industrial cleaning agents

**Manuf./Distrib.:** Akzo Nobel; Alfa Aesar; Occidental

**Trade Names:** Albrite® N-Butyl Acid Phosphate

**n-Butyl acid phosphate.** See Butyl acid phosphate

### Butyl acrylate

CAS 141-32-2; EINECS/ELINCS 205-480-7; UN No. 2348 (DOT)

**Synonyms:** BA; Acrylic acid, butyl ester; Acrylic acid, n-butyl ester; n-Butyl acrylate; Butyl-2-propenoate; 2-Propenoic acid, n-butyl ester

**Empirical:** C<sub>7</sub>H<sub>12</sub>O<sub>2</sub>

**Formula:** CH<sub>2</sub>:CHCOOC<sub>4</sub>H<sub>9</sub>

**Properties:** Water-wh. liq.; fruity odor; freely misc. with most org. solvs.; insol. in water; m.w. 128.19; dens. 0.89 (25/25 C); vapor pressure 4.3 mbar (20 C); f.p. -64.6 C; b.p. 69 C (50 mm); flash pt. (OC) 120 F; ref. index 1.415 (20 C)

**Toxicology:** ACGIH TLV/TWA 10 ppm; LD50 (oral, rat) 900 mg/kg, (IP, rat) 550 mg/kg, (skin, rabbit) 2000 mg/kg; LC50 (inh., rat, 4 h) 2730 ppm; mod. toxic by ing., inh., skin contact, IP routes; skin and eye irritant; TSCA listed

**Precaution:** Flamm. liq. exposed to heat or flame; incompat. with oxidizers; extremely reactive monomer

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid and irritating fumes

**Storage:** Store in inhibited condition under air (not under inert gases)

**Uses:** Intermediate in organic synthesis; monomer in mfg. of homopolymers and copolymers; polymers and copolymers for solvent coatings, adhesives, paints, binders, emulsifiers; modifier for oils/alkyds in food-contact coatings; acrylic toughener; acrylic resin comonomer

**Regulatory:** FDA 21CFR §175.300

**Manuf./Distrib.:** Aldrich; Alfa Aesar; Allchem Ind.; Ashland; BASF; Bencorp Int'l.; Bröste; Celanese; Filo; Fluka; G.J. Chem.; Monomer-Polymer & Dajac Labs; Total Spec. Chems.; Union Carbide; United Min. & Chem.;

Varsal Instruments; Whyte Chems. Ltd

**Trade Names:** Norsocryl® BA; Rohamere® FF-20

**Trade Names Containing:** Rohamere® 587; Rohamere® 626; Rohamere® 1410; Rohamere® 1900-D; Rohamere® 8437; Rohamere® FF-6; Rohamere® FF+40

**n-Butyl acrylate.** See Butyl acrylate

### Butyl acrylate/acrylonitrile/styrene copolymer

**Synonyms:** N-Butyl acrylate/acrylonitrile/styrene copolymer

**Uses:** Binder for paper/paperboard coatings

**Trade Names:** Acronal® S 504

**n-Butyl acrylate/acrylonitrile/styrene copolymer.** See Butyl acrylate/acrylonitrile/styrene copolymer

### Butyl alcohol

CAS 71-36-3; EINECS/ELINCS 200-751-6; UN No. 1120 (DOT); FEMA 2178

**Synonyms:** Butanol; 1-Butanol; n-Butanol; Butan-1-ol; n-Butyl alcohol; Butyl hydroxide; Butyric alcohol; 1-Hydroxybutane; Methylolpropane; Propyl carbinol; Propylmethanol

**Classification:** Primary aliphatic alcohol

**Empirical:** C<sub>4</sub>H<sub>10</sub>O

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>3</sub>CH<sub>2</sub>OH

**Properties:** Colorless clear mobile liq., char. penetrating vinous odor; sol. in water; misc. with alcohol, ether, many org. solvs.; m.w. 74.14; sp.gr. 0.8109 (20/20 C); vapor pressure 5.5 mm Hg (20 C); m.p. -90 C; b.p. 117.7 C; flash pt. 35 C; ref. index 1.3993 (20 C)

**Toxicology:** ACGIH TLV/CL 50 ppm (skin); LD50 (oral, rat) 790 mg/kg, (IV, mouse) 377 mg/kg, (skin, rabbit) 3400 mg/kg; poison by IV route; mod. toxic by skin contact, ing., subcut., IP routes; skin and severe eye irritant; CNS depressant; TSCA listed

**Precaution:** Flamm.; dangerous fire hazard exposed to heat, flame, oxidizers; mod. explosive exposed to flame; incompat. with oxidizing materials, aluminum, chromium trioxides; increased fire and explosion hazard; reacts at elevated temps. with Al

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in cool, well-ventilated area, out of direct sunlight

**Uses:** Prep. of esters; solvent for fats, waxes, resins, gums, shellac, varnish, plasticizers, paints, inks; extraction solvent for mineral processing; mfg. of rayon, detergents, other butyl compds.; hydraulic fluids; dehydration agents; denaturant; syn. flavoring agent for foods and pharmaceuticals; color diluent for confectionery; solvent in pharmaceutical orals; in food-pkg. adhesives; adjuvant in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings; fragrance; surfactant intermediate; solvent in food-contact polysulfide polymer/polyepoxy resins

**Use Level:** 12 ppm (nonalcoholic beverages), 1 ppm (alcoholic beverages), 7 ppm (ice cream, ices), 34 ppm (candy), 32 ppm (baked goods), 4 ppm (cream)

**Regulatory:** FDA 21CFR §73.1, 172.515, 172.560, 175.105, 175.320, 176.180, 176.200, 177.1200, 177.1440, 177.1650; 27CFR §21.99; FEMA GRAS; FDA approved for orals; USP/NF, BP compliance

**Manuf./Distrib.:** Aldrich; Alfbro; Allchem Ind.; Amyl; Ashland; BASF; BP Chems. Ltd; Baychem; Celanese; Chemcentral; Chisso Am.; Condea Vista; Coyne; Eastman; Fisher Scientific; Fluka; GNC Group; Grau Aromatics; Harcross; Houghton Chem.; Hukill; J.T. Baker; Jilin Chem. Ind.; Penta Mfg.; Punda Mercantile; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Shell; Sigma; Spectrum Quality Prods.; Sunnyside; Union Carbide; Van Waters & Rogers

**Trade Names Containing:** Albrite® PA-75; Ancamide® 700-B-75; Beetle® 216-8; Beetle® 227-8; Beetle® 1050; Cymel® 245-8; Cymel® 247-10; Cymel® 248-8; Cymel® 1158; GPRI™ 4000; GPRI™ 7550; GPRI™ 7590; GPRI™ 7597; Resimene® 717; Resimene® BM-5901; Resimene® CE-6517; Resimene® U-901; Resimene® U-918; Resimene® U-920; Surfynol® SM-745

**2-Butyl alcohol.** See 2-Butanol

**n-Butyl alcohol.** See Butyl alcohol

**s-Butyl alcohol.** See 2-Butanol

**t-Butyl alcohol**

CAS 75-65-0; EINECS/ELINCS 200-889-7; UN No. 1120 (DOT)

*Synonyms:* TBA; t-Butanol; t-Butyl hydroxide; 1,1-Dimethylethanol; 2-Methyl-2-propanol; 2-Methylpropan-2-ol; 2-Propanol, 2-methyl-; Trimethyl carbinol*Classification:* Tertiary aliphatic alcohol*Empirical:* C<sub>4</sub>H<sub>10</sub>O*Formula:* (CH<sub>3</sub>)<sub>3</sub>COH*Properties:* Colorless liq. or rhombic prisms; unpleasant camphor-like odor; sol. in ethanol, ether, water; m.w. 74.12; sp.gr. 0.786 (20 C); vapor pressure 40 mm Hg (24.5 C); m.p. 25-26 C; b.p. 83 C; flash pt. (CC) 11 C; ref. index 1.3870 (20 C)*Toxicology:* ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 3500 mg/kg; toxic; irritant to mucous membranes; inh. of 25 ppm causes pulmonary problems in man; CNS depressant; inh. of high concs. can cause headache, drowsiness, unconsciousness; ing. can cause headache, dizziness, drowsiness; may cause severe lung damage, respiratory/cardiac arrest, and death if aspirated into lungs; skin contact can cause contact dermatitis, possible allergic reactions; eye irritant; mutagenic data; TSCA listed*Precaution:* Flamm.; dangerous fire hazard exposed to heat, flame; mod. explosive as vapor; incompat. with strong oxidizers, potassium-sodium alloy, hydrogen peroxide and sulfuric acid (fire/explosion risk), strong min. acids (can dec. to flamm. isobutylene gas)

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight*Uses:* Solvent, coupling agent, processing aid for pharmaceuticals, personal care prods., aq. coatings and adhesives, agric. formulations, polymer processing, cleaners/disinfectants; alcohol denaturant; dehydration agent; fragrance/flavoring ingred.; perfumery; chem. intermediate; paint removers; prep. of methyl methacrylate; octane improver in unleaded gasoline; denaturant, solvent, and processing aid for pharmaceuticals; defoamer in food-contact paper coatings; surf. lubricant in mfg. of food-contact metallic articles*Regulatory:* FDA 21CFR §176.200, 178.3910, 27CFR §21.100*Manuf./Distrib.:* AC Ind.; Aldrich; Alfa Aesar; Allchem Ind.; Artek; Ashland; Bencorp Int'l.; Columbia Sales Int'l.; Creanova; E-Chemicals; Filo; Fluka; J.H. Calo; Lyondell; Mitsui & Co. USA; Pechiney World Trade USA; Quaker City; Romil Ltd; Sigma; Spectrum Quality Prods.; Van Waters & Rogers**s-Butyl alcohol acetate.** See s-Butyl acetate**n-Butylaldehyde.** See n-Butyraldehyde**Butylated hydroxyanisole.** See BHA**Butylated polyoxytoluene.** See BHT**Butylated polyoxymethylene urea.** See Urea/formaldehyde resin, butylated**Butylated triphenyl phosphate.** See t-Butylphenyl diphenyl phosphate**Butyl benzyl phthalate**

CAS 85-68-7; EINECS/ELINCS 201-622-7

*Synonyms:* BBP; 1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester; Benzyl butyl phthalate; Benzyl n-butyl phthalate; n-Butyl benzyl phthalate*Classification:* Aromatic ester*Empirical:* C<sub>19</sub>H<sub>20</sub>O<sub>4</sub>*Formula:* C<sub>4</sub>H<sub>9</sub>OOCC<sub>6</sub>H<sub>4</sub>COOC<sub>2</sub>H<sub>5</sub>*Properties:* Clear oily liq., sl. odor; insol. in water; m.w. 312.39; dens. 1.116 (25/25 C); m.p. < -35 C; b.p. 370 C; flash pt. 390 F; ref. index 1.535-1.540*Toxicology:* LD50 (oral, rat) 20,400 mg/kg, (IP, mouse) 3160 mg/kg; moderate toxicity by ingestion, IP routes; experimental carcinogen and reproductive effects; TSCA listed*Precaution:* Combustible exposed to heat or flame; can react with oxidizers  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* High-solvating plasticizer for polyvinyl and cellulosic resins incl. NC lacquers and films, PVC flooring/plastisols, PVAc adhesives/sealants/caulks, acrylic coatings, chlorinated rubber, cellulose propionate, polyamide, castable PU; organic intermediate; film-former in cosmetics; plasticizer in food-contact polymers; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty/dry foods; solvent for adjuvants in food-contact crosslinked polyesters*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.2420, 178.3740; SARA reportable*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Bayer; Bencorp Int'l.; Solutia; Westtec Ind.**n-Butyl benzyl phthalate.** See Butyl benzyl phthalate**s-Butylbiphenyl***Uses:* Carbonless papers*Trade Names:* Sure Sol®-290*Trade Names Containing:* Sure Sol®-333**n-Butyl carbinol.** See n-Amyl alcohol**Butyl 'Carbitol'.** See Butoxydiglycol**Butyl carbobutoxymethyl phthalate.** See n-Butyl phthalyl-n-butyl glycolate**2-Butyl-1-decanol**

CAS 21078-81-9

*Manuf./Distrib.:* Jarchem Ind.*Trade Names Containing:* Jarcol™ I-14T**o-Butyl diethylene glycol.** See Butoxydiglycol**Butyldiglycol.** See Butoxydiglycol**Butylene.** See 1-Butene**α-Butylene.** See 1-Butene**Butylene glycol montanate**

CAS 73138-44-0

*Synonyms:* Fatty acids, montan wax, 1-methyl-1,3-propanediyl esters; Montan acid, butylene glycol ester; Montan wax acid, 1,3-butanediol diester*Definition:* Ester of butylene glycol and montan acid wax*Uses:* Emollient in cosmetics*Trade Names Containing:* Hoechst Wax OP**Butylene hydrate.** See 2-Butanol**Butylene oxide.** See Tetrahydrofuran**Butyl ethylene.** See 1-Hexene**o-Butyl ethylene glycol.** See Butoxyethanol**Butyl glycol.** See Butoxyethanol**n-Butyl glycol.** See Butoxyethanol**t-Butyl hydroperoxide**

CAS 75-91-2; EINECS/ELINCS 200-915-7; UN No. 2093 (DOT), 2094 (DOT)

*Synonyms:* TBHP; 1,1-Dimethylethylhydroperoxide; 2-Hydroperoxy-2-methylpropane*Classification:* Organic peroxide*Empirical:* C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>*Formula:* (CH<sub>3</sub>)<sub>2</sub>COOH*Properties:* Water-wh. liq.; very sol. in esters and alcohols; sol. in org. solvs.; sl. sol. in water; m.w. 90.12; dens. 0.896 (20/4 C); m.p. -8 C; b.p. 35 C; flash pt. 62 C; ref. index 1.4007*Toxicology:* LD50 (oral, rat) 560 mg/kg, (dermal, rat) 790 mg/kg; LC50 (inh., rat, 4 h) 500 ppm; poison by ing. and inh.; severe skin and eye irritant; may cause severe depression, cyanosis, death at highest dosage levels; mutagenic data; TSCA listed*Precaution:* Flamm. oxidizing liq.; very dangerous fire hazard when exposed to heat or flame or by spontaneous chem. reaction; mod. explosive*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes*Uses:* Initiator, catalyst in polymerization reactions, esp. latex; oxidative membrane in RBC suspensions; introduces peroxy group into organic molecules; raw material for paints; sulfonation catalyst; deodorizing; oxidizing reagent; source of act. oxygen for pulp and paper bleaching, metal sulfide oxidations; flocculant for borine-contg. sol'ns. in ore, coal, slurry processing; recycling and waste treatment; in food-pkg. adhesives; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods*Regulatory:* FDA 21CFR §175.105, 176.170*Manuf./Distrib.:* Akzo Nobel; Aldrich; Allchem Ind.; Atofina; Aztec Peroxides; Crompton/Witco; Fluka; Lyondell; SAF Bulk Chems.; Sigma*Trade Names:* T-Hydro® Sol'n.**Butyl hydroxide.** See Butyl alcohol**t-Butyl hydroxide.** See t-Butyl alcohol**Butylhydroxyanisole.** See BHA**2(3)-t-Butyl-4-hydroxyanisole.** See BHA**t-Butylhydroxyanisole.** See BHA

**t-Butyl-4-hydroxyanisole.** See BHA

**4,4'-Butylidenebis (6-t-butyl-m-cresol)**

CAS 85-60-9

**Synonyms:** 1,1-Bis (2-methyl-4-hydroxy-5-t-butylphenyl) butane; 4,4'-Butylidenebis (6-t-butyl-3-methylphenol); 4,4'-Butylidenebis (3-methyl-6-t-butylphenol)

**Empirical:** C<sub>26</sub>H<sub>38</sub>O<sub>2</sub>

**Formula:** [(CH<sub>3</sub>)<sub>2</sub>CC<sub>6</sub>H<sub>3</sub>(OH)(CH<sub>2</sub>)<sub>2</sub>CHC<sub>3</sub>H<sub>7</sub>]

**Properties:** Wh. powd.; m.w. 382.64; dens. 1.03; m.p. 209 C (min.)

**Toxicology:** LDLo (oral, rat) 17 g/kg; mildly toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Antioxidant for rubber and latexes, NR, synthetics, cellulose, EVA, polyamide, polyesters, polyolefins, PVC, PU, PS; polymer stabilizer; in food-pkg. adhesives; can end cement for food contact; finish component for poly (phenyleneterephthalamide) food-pkg. resins; antioxidant in food-contact rubber articles for repeated use; antioxidant/stabilizer for food-grade polymers

**Regulatory:** FDA 21CFR §175.105, 175.300, 177.1632, 177.2600, 178.2010

**Manuf./Distrib.:** Aldrich; Flexsys Am.; Monsanto; PMC Spec.; R.T. Vanderbilt; Salor

**Trade Names:** Santowhite® BBMC

**4,4'-Butylidenebis (6-t-butyl-3-methylphenol).** See 4,4'-Butylidenebis (6-t-butyl-m-cresol)

**4,4'-Butylidenebis (3-methyl-6-t-butylphenol).** See 4,4'-Butylidenebis (6-t-butyl-m-cresol)

**Butyl-3-iodo-2-propynylcarbamate.** See Iodopropynyl butylcarbamate

**Butyl methacrylate**

CAS 97-88-1; EINECS/ELINCS 202-615-1; UN No. 2227 (DOT)

**Synonyms:** N-Butyl methacrylate; Butyl-2-methacrylate; Butyl 2-methyl-2-propenoate; Methacrylic acid butyl ester; 2-Methyl butylacrylate

**Definition:** Ester of n-butyl alcohol and methacrylic acid

**Empirical:** C<sub>8</sub>H<sub>14</sub>O<sub>2</sub>

**Formula:** CH<sub>2</sub>:C(CH<sub>3</sub>)COO(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>

**Properties:** Colorless liq., ester odor; insol. in water; m.w. 142.22; dens. 0.895 (20/4 C); vapor pressure 4.9 mm (20 C); b.p. 163 C; flash pt. (TOC) 126 F

**Toxicology:** LD50 (oral, rat) 22,600 mg/kg, (IP, rat) 2304 mg/kg, (skin, rabbit) 11,300 mg/kg; mod. toxic by IP route; mildly toxic by ing., inh., skin contact; skin irritant; experimental teratogen, reproductive effector; TSCA listed

**Precaution:** Combustible; mod. fire risk; violent polymerizations can be caused by heat, moisture, oxidizers; explosive as vapor exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Monomer for acrylic resins, solvent coatings, adhesives, lube oil additives; emulsions for textiles, leather, paper finishing; modifier for fibers; coating agent for paper; dispersant; modifier for oils/alkyds in food-contact coatings; visc. control agent in cosmetics

**Regulatory:** FDA 21CFR §175.300, 177.2420

**Manuf./Distrib.:** Aldrich; Ashland; Degussa-Hüls; Fluka; Monomer-Polymer & Dajac Labs; ProSciTech; Rohm & Haas; Rohm Tech; Rohm Am.; San Esters; Sigma; Whyte Chems. Ltd

**Trade Names:** Blemmer BMA; Mhoromer® AM 103H

**Trade Names Containing:** Elvacite® 2044, 2045, 2046

**Butyl-2-methacrylate.** See Butyl methacrylate

**N-Butyl methacrylate.** See Butyl methacrylate

**t-Butyl-4-methoxyphenol.** See BHA

**Butyl 2-methyl-2-propenoate.** See Butyl methacrylate

**Butyl myristate**

CAS 110-36-1; EINECS/ELINCS 203-759-8

**Synonyms:** N-Butyl myristate; Butyl tetradecanoate; Butyl n-tetradecanoate; Tetradecanoic acid, butyl ester

**Definition:** Ester of butyl alcohol and myristic acid

**Empirical:** C<sub>18</sub>H<sub>36</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>COOC<sub>4</sub>H<sub>9</sub>

**Properties:** Water-wh. oily liq.; sol. in acetone, castor oil, chloroform, methanol, min. oil, toluene; insol. in water; dens. 0.850-0.858; f.p. 1-7 C; b.p.

167-197 C (5 mm); sapon. no. 193-203

**Toxicology:** LD50 (oral, rat) > 8 g/kg; low toxicity by ing.; irritating to skin; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Emollient, solubilizer, lubricant for cosmetics; chemical intermediate; chemical synthesis; plasticizer, lubricant in min., cutting, lamination, textile oils, and rust inhibitors; textile and leather applic.; paper stencils; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §176.210, 177.2800

**Manuf./Distrib.:** Alzo; Penta Mfg.; Phoenix; Thornley; Uniqema N. Am.

**n-Butyl myristate.** See Butyl myristate

**Butyl octadecanoate.** See Butyl stearate

**n-Butyl octadecanoate.** See Butyl stearate

**Butyl 9-octadecenoate.** See Butyl oleate

**2-Butyl octanoic acid**

CAS 27610-92-0

**Uses:** Emollient for cosmetics and pharmaceuticals; in detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles

**Manuf./Distrib.:** Jarchem Ind.

**Trade Names:** Jaric I-12

**Butyloctanol**

CAS 3913-02-8; EINECS/ELINCS 223-470-0

**Synonyms:** 2-Butyloctanol; 2-Butyl-1-octanol; 2-Butyloctan-1-ol; 2-Butyloctyl alcohol

**Classification:** Nonaromatic alcohol

**Empirical:** C<sub>12</sub>H<sub>26</sub>O

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>5</sub>CHCH<sub>2</sub>OHCH<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>

**Properties:** Liq.; m.w. 186.38; dens. 0.8355 (20/20 C); m.p. -80 C; b.p. 253.3 C; flash pt. (COC) 120 C

**Toxicology:** LD50 (oral, rat) 13 g/kg; mildly toxic by ing.; skin and eye irritant; TSCA listed

**Precaution:** Combustible exposed to heat or flame; incompat. with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid and irritating fumes

**Uses:** Humectant for cosmetics; solubilizer for cosmetics, pharmaceuticals

**Manuf./Distrib.:** Aldrich; Jarchem Ind.

**Trade Names:** Jarcol™ I-12

**2-Butyloctanol.** See Butyloctanol

**2-Butyl-1-octanol.** See Butyloctanol

**2-Butyloctan-1-ol.** See Butyloctanol

**2-Butyloctyl alcohol.** See Butyloctanol

**Butyl oleate**

CAS 142-77-8; EINECS/ELINCS 205-559-6

**Synonyms:** Butyl 9-octadecenoate; n-Butyl oleate; 9-Octadecenoic acid, butyl ester

**Definition:** Ester of butyl alcohol and oleic acid

**Empirical:** C<sub>22</sub>H<sub>42</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH:CH(CH<sub>2</sub>)<sub>7</sub>COOC<sub>4</sub>H<sub>9</sub>

**Properties:** Pale yel. oleaginous liq.; mild odor; misc. with alcohol, ether, veg. and min. oils; insol. in water; m.w. 338.58; dens. 0.873; f.p. opaque @ 12 C; solid @ -26.4 C; b.p. 173-227 C (2 mm); iodine no. 76.8; flash pt. 204 C; nonionic

**Toxicology:** Skin irritant; TSCA listed

**Precaution:** Combustible exposed to heat or flame; incompat. with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Plasticizer for PVC, PVB, PVAc, PS, cellulose, surface coatings; solvent; lubricant in rolling oils; water-resisting agent; coatings; polishes; waterproofing compds.; emulsifier/bodying agent/emollient for cosmetics and toiletries; plasticizer in food-contact rubber articles for repeated use; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210, 177.2600, 177.2800

**Manuf./Distrib.:** Anar; C.P. Hall; Cardinal; Chemol; Crompton/Witco; Eastech; Ferro/Keil; Harwick; Indofine; Inolex; Intl. Paper; Jarchem Ind.; Novachem

## n-Butyl oleate

Corp.; Sea-Land; Sigma; Sybron; Thornley; Uniqema N. Am.; Uniqemal Oleochems.; Velsicol

**n-Butyl oleate.** See Butyl oleate

**Butyl oleate sulfate.** See Sulfated butyl oleate

**Butyl oleate, sulfated.** See Sulfated butyl oleate

**t-Butyl peroxide.** See Di-t-butyl peroxide

## t-Butylphenyl diphenyl phosphate

CAS 56803-37-3

**Synonyms:** Butylated triphenyl phosphate; Diphenyl t-butylphenyl phosphate

**Empirical:** C<sub>22</sub>H<sub>22</sub>O<sub>4</sub>P

**Properties:** M.w. 382.39; dens. 1.15-1.18 (20 C); flash pt. (COC) 246 C; ref. index 1.553

**Toxicology:** LD50 (oral, rat) > 4640 mg/kg

**Uses:** Flame retardant plasticizer in PVC, vinyl and vinyl nitrile foams, PVAc emulsions, cellulosic resins; as fire-retardant hydraulic fluid

**Manuf./Distrib.:** Akzo Nobel; Ashland; C.P. Hall; FMC; Monsanto

**Trade Names:** Phosflex® 61B; Phosflex® 71B

## t-Butylphenyl phosphate

**Uses:** Antiwear and extreme pressure agent

**Trade Names:** Durad® 110B; Durad® 150B; Durad® 620B

## Butyl phosphate

CAS 68439-39-4

**Properties:** Liq.; sl. sol. in water; sp.gr. 1.13; acid no. 430; flash pt. (TCC) 265 F; anionic

**Uses:** Acid catalyst in resin curing; chemical intermediate in formulation of rust preventatives; antistat; textile lubricant; oil additive; heavy metal extractant; surfactant

**Manuf./Distrib.:** Albright & Wilson Am.

**Trade Names:** Servoxyl® VPIZ 100

See also Tributyl phosphate

**n-Butyl phosphate.** See Tributyl phosphate

**Butyl phosphoric acid.** See Butyl acid phosphate

**n-Butylphosphoric acid.** See Butyl acid phosphate

**Butyl phthalate.** See Dibutyl phthalate

**n-Butyl phthalate.** See Dibutyl phthalate

**Butyl phthalate butyl glycolate.** See n-Butyl phthalyl-n-butyl glycolate

**Butyl phthalyl butyl glycolate.** See n-Butyl phthalyl-n-butyl glycolate

## n-Butyl phthalyl-n-butyl glycolate

CAS 85-70-1; EINECS/ELINCS 201-624-8

**Synonyms:** 1,2-Benzenedicarboxylic acid, 2-butoxy-2-oxoethyl, butyl ester; Butyl carbobutoxymethyl phthalate; Butyl phthalate butyl glycolate; Butyl phthalyl butyl glycolate; Dibutyl-o-(o-carboxybenzoyl) glycolate; Dibutyl-o-carboxybenzoyloxyacetate

**Classification:** Aromatic ester

**Empirical:** C<sub>18</sub>H<sub>24</sub>O<sub>6</sub>

**Formula:** C<sub>4</sub>H<sub>9</sub>OOCC<sub>6</sub>H<sub>4</sub>COOCH<sub>2</sub>COOC<sub>4</sub>H<sub>9</sub>

**Properties:** Colorless liq., odorless; insol. in water; m.w. 336.42; dens. 1.093-1.103 (25/25 C); b.p. 219 C (5 mm); flash pt. 390 F; ref. index 1.4880; extremely light-stable

**Toxicology:** LD50 (oral, rat) 7 g/kg, (IP, rat) 6889 mg/kg; mildly toxic by IP; eye irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid and irritating fumes

**Uses:** Plasticizer for PVC, in food-contact coatings; plasticizer migrating from food pkg.; film-former in cosmetics; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 181.22, 181.27

**Manuf./Distrib.:** Aldrich; Fabrichem; Morflex

**Trade Names Containing:** Morflex® 190

**Butyl-2-propenoate.** See Butyl acrylate

**Butyl rubber.** See Isobutylene/isoprene copolymer

## Butyl stearate

CAS 123-95-5; EINECS/ELINCS 204-666-5; FEMA 2214

**Synonyms:** Butyl octadecanoate; n-Butyl octadecanoate; n-Butyl stearate; Octadecanoic acid butyl ester

**Definition:** Ester of butyl alcohol and stearic acid

**Empirical:** C<sub>22</sub>H<sub>44</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COO(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>

**Properties:** Colorless liq., solidifying @ 19 C; pract. odorless; sol. in alcohol, ether, hydrocarbon oils; sl. sol. in water; m.w. 340.60; dens. 0.86 (20/4 C); m.p. 17-22 C; b.p. 343 C; flash pt. (CC) 160 C; ref. index 1.4430 (20 C)

**Toxicology:** LD50 (oral, rat) 32 g/kg; low toxicity by ing.; skin irritant; experimental reproductive data; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Solvent, spreading agent, softener in plastics, textiles, cosmetics, rubbers; syn. flavoring agent for foods and pharmaceuticals; plasticizer for food-pkg. materials; plasticizer/flow improver for plastics, rubber, lacquers; lubricant/slip agent for coatings and inks; polishes; lubricant for metals, textiles, molding; dye solvent in wax polishes; chlorinated rubber; carbon paper and inks; emollient in cosmetics, pharmaceuticals; dampproof for concrete; pigment wetting agent/dispersant; in food-pkg. adhesives; defoamer in food-contact coatings; plasticizer in food-contact rubber articles for repeated use; in surf. lubricants for mfg. of food-contact metallic articles

**Use Level:** 1 ppm (nonalcoholic beverages), 5 ppm (alcoholic beverages), 2 ppm (ice cream, ices), 190 ppm (candy), 340 ppm (baked goods), 330 ppm (chewing gum)

**Regulatory:** FDA 21CFR §172.515, 173.340, 175.105, 175.300, 175.320, 176.200, 176.210, 177.2260, 177.2600, 177.2800, 178.3910, 181.22, 181.27; FDA approved for topicals; FEMA GRAS

**Manuf./Distrib.:** Aldrich; Alzo; Amerchol; Anar; Ashland; C.P. Hall; Chemol; Cognis/Chems. Group; Fluka; Independent Chem.; Indofine; Inolex; Int'l. Paper; Jarchem Ind.; Kenrich Petrochems.; Kraft Chem.; Lipo; Mosselman NV; NOF Am.; Norman, Fox; Penta Mfg.; Phoenix; Ruger; Sea-Land; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Stepan; Thornley; Uniqema N. Am.; Unitex; Universal Preserv-A-Chem

**n-Butyl stearate.** See Butyl stearate

**Butyl tetradecanoate.** See Butyl myristate

**Butyl n-tetradecanoate.** See Butyl myristate

**Butyral.** See n-Butyraldehyde

## n-Butyraldehyde

CAS 123-72-8; EINECS/ELINCS 204-646-6; UN No. 1129 (DOT); FEMA 2219

**Synonyms:** Butal; Butaldehyde; Butalyde; Butanal; n-Butanal; n-Butylaldehyde; Butyral; Butyric aldehyde

**Classification:** Aldehyde

**Empirical:** C<sub>4</sub>H<sub>8</sub>O

**Formula:** CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CHO

**Properties:** Colorless liq.; sol. in water; misc. with ether @ 75 C, org. solvs.; m.w. 72.10; sp.gr. 0.800; m.p. -99 C; f.p. 12 F; b.p. 75-76 C; flash pt. (CC) 20 F; ref. index 1.3843

**Toxicology:** LD50 (oral, rat) 2490 mg/kg, (IP, rat) 800 mg/kg, (skin, rabbit) 3560 mg/kg; LCLo (inh., rat, 4 h) 8000 ppm; mod. toxic by ing., inh., skin contact, IP, and subcut. routes; severe skin and eye irritant; delayed hypersensitivity; suspected carcinogen; TSCA listed

**Precaution:** DOT: Flamm. liq.; dangerous fire hazard when exposed to heat and flame; incompat. with oxidizing materials; reacts vigorously with chlorosulfonic acid, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Plasticizers; rubber accelerators; solvents; high polymers; intermediate for paints; synthetic flavoring agent in foods and pharmaceuticals; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

**Use Level:** 0.71 ppm (nonalcoholic beverages), 0.5 ppm (alcoholic beverages), 4.8 ppm (ice cream, ices), 2.9 ppm (candy), 5.4 ppm (baked goods), 0.25 ppm (icings)

**Regulatory:** FDA 21CFR §172.515, 175.105, 176.170; FEMA GRAS

**Manuf./Distrib.:** Aldrich; Alfa Aesar; Alfrebro; BASF AG; Celanese; Chisso Am.; Eastman; Fluka; Honeywell Perf. Polymers; Penta Mfg.; Union Carbide; Van Waters & Rogers

**Butyric alcohol.** See Butyl alcohol

**Butyric aldehyde.** See n-Butyraldehyde

**CA.** See Cellulose acetate

**CAB.** See Cellulose acetate butyrate

**n-Butyl oleate**

Corp.; Sea-Land; Sigma; Sybron; Thornley; Uniqema N. Am.; Uniqemal Oleochems.; Velsicol

**n-Butyl oleate.** See Butyl oleate

**Butyl oleate sulfate.** See Sulfated butyl oleate

**Butyl oleate, sulfated.** See Sulfated butyl oleate

**t-Butyl peroxide.** See Di-t-butyl peroxide

**t-Butylphenyl diphenyl phosphate**

CAS 56803-37-3

*Synonyms:* Butylated triphenyl phosphate; Diphenyl t-butylphenyl phosphate

*Empirical:* C<sub>22</sub>H<sub>22</sub>O<sub>4</sub>P

*Properties:* M.w. 382.39; dens. 1.15-1.18 (20 C); flash pt. (COC) 246 C; ref. index 1.553

*Toxicology:* LD50 (oral, rat) > 4640 mg/kg

*Uses:* Flame retardant plasticizer in PVC, vinyl and vinyl nitrile foams, PVAc emulsions, cellulosic resins; as fire-retardant hydraulic fluid

*Manuf./Distrib.:* Akzo Nobel; Ashland; C.P. Hall; FMC; Monsanto

*Trade Names:* Phosflex® 61B; Phosflex® 71B

**t-Butylphenyl phosphate**

*Uses:* Antiwear and extreme pressure agent

*Trade Names:* Durad® 110B; Durad® 150B; Durad® 620B

**Butyl phosphate**

CAS 68439-39-4

*Properties:* Liq.; sl. sol. in water; sp.gr. 1.13; acid no. 430; flash pt. (TCC) 265 F; anionic

*Uses:* Acid catalyst in resin curing; chemical intermediate in formulation of rust preventatives; antistat; textile lubricant; oil additive; heavy metal extractant; surfactant

*Manuf./Distrib.:* Albright & Wilson Am.

*Trade Names:* Servoxyl® VPIZ 100

See also Tributyl phosphate

**n-Butyl phosphate.** See Tributyl phosphate

**Butyl phosphoric acid.** See Butyl acid phosphate

**n-Butylphosphoric acid.** See Butyl acid phosphate

**Butyl phthalate.** See Dibutyl phthalate

**n-Butyl phthalate.** See Dibutyl phthalate

**Butyl phthalate butyl glycolate.** See n-Butyl phthalyl-n-butyl glycolate

**Butyl phthalyl butyl glycolate.** See n-Butyl phthalyl-n-butyl glycolate

**n-Butyl phthalyl-n-butyl glycolate**

CAS 85-70-1; EINECS/ELINCS 201-624-8

*Synonyms:* 1,2-Benzenedicarboxylic acid, 2-butoxy-2-oxoethyl, butyl ester; Butyl carbobutoxymethyl phthalate; Butyl phthalate butyl glycolate; Butyl phthalyl butyl glycolate; Dibutyl-o-(o-carboxybenzoyl) glycolate; Dibutyl-o-carboxybenzoyloxyacetate

*Classification:* Aromatic ester

*Empirical:* C<sub>18</sub>H<sub>24</sub>O<sub>6</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>OOCC<sub>6</sub>H<sub>4</sub>COOCH<sub>2</sub>COOC<sub>4</sub>H<sub>9</sub>

*Properties:* Colorless liq., odorless; insol. in water; m.w. 336.42; dens. 1.093-1.103 (25/25 C); b.p. 219 C (5 mm); flash pt. 390 F; ref. index 1.4880; extremely light-stable

*Toxicology:* LD50 (oral, rat) 7 g/kg, (IP, rat) 6889 mg/kg; mildly toxic by IP; eye irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid and irritating fumes

*Uses:* Plasticizer for PVC, in food-contact coatings; plasticizer migrating from food pkg.; film-former in cosmetics; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 181.22, 181.27

*Manuf./Distrib.:* Aldrich; Fabrichem; Morflex

*Trade Names Containing:* Morflex® 190

**Butyl-2-propenoate.** See Butyl acrylate

**Butyl rubber.** See Isobutylene/isoprene copolymer

**Butyl stearate**

CAS 123-95-5; EINECS/ELINCS 204-666-5; FEMA 2214

*Synonyms:* Butyl octadecanoate; n-Butyl octadecanoate; n-Butyl stearate; Octadecanoic acid butyl ester

*Definition:* Ester of butyl alcohol and stearic acid

*Empirical:* C<sub>22</sub>H<sub>44</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COO(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>

*Properties:* Colorless liq., solidifying @ 19 C; pract. odorless; sol. in alcohol, ether, hydrocarbon oils; sl. sol. in water; m.w. 340.60; dens. 0.86 (20/4 C); m.p. 17-22 C; b.p. 343 C; flash pt. (CC) 160 C; ref. index 1.4430 (20 C)

*Toxicology:* LD50 (oral, rat) 32 g/kg; low toxicity by ing.; skin irritant; experimental reproductive data; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Solvent, spreading agent, softener in plastics, textiles, cosmetics, rubbers; syn. flavoring agent for foods and pharmaceuticals; plasticizer for food-pkg. materials; plasticizer/flow improver for plastics, rubber, lacquers; lubricant/slip agent for coatings and inks; polishes; lubricant for metals, textiles, molding; dye solvent in wax polishes; chlorinated rubber; carbon paper and inks; emollient in cosmetics, pharmaceuticals; dampproof for concrete; pigment wetting agent/dispersant; in food-pkg. adhesives; defoamer in food-contact coatings; plasticizer in food-contact rubber articles for repeated use; in surf. lubricants for mfg. of food-contact metallic articles

*Use Level:* 1 ppm (nonalcoholic beverages), 5 ppm (alcoholic beverages), 2 ppm (ice cream, ices), 190 ppm (candy), 340 ppm (baked goods), 330 ppm (chewing gum)

*Regulatory:* FDA 21CFR §172.515, 173.340, 175.105, 175.300, 175.320, 176.200, 176.210, 177.2260, 177.2600, 177.2800, 178.3910, 181.22, 181.27; FDA approved for topicals; FEMA GRAS

*Manuf./Distrib.:* Aldrich; Alzo; Amerchol; Anar; Ashland; C.P. Hall; Chemol; Cognis/Chems. Group; Fluka; Independent Chem.; Indofine; Inolex; Int'l. Paper; Jarchem Ind.; Kenrich Petrochems.; Kraft Chem.; Lipo; Mosselman NV; NOF Am.; Norman, Fox; Penta Mfg.; Phoenix; Ruger; Sea-Land; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Stepan; Thornley; Uniqema N. Am.; Unitex; Universal Preserv-A-Chem

**n-Butyl stearate.** See Butyl stearate

**Butyl tetradecanoate.** See Butyl myristate

**Butyl n-tetradecanoate.** See Butyl myristate

**Butyral.** See n-Butyraldehyde

**n-Butyraldehyde**

CAS 123-72-8; EINECS/ELINCS 204-646-6; UN No. 1129 (DOT); FEMA 2219

*Synonyms:* Butal; Butaldehyde; Butalyde; Butanal; n-Butanal; n-Butylaldehyde; Butyral; Butyric aldehyde

*Classification:* Aldehyde

*Empirical:* C<sub>4</sub>H<sub>8</sub>O

*Formula:* CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CHO

*Properties:* Colorless liq.; sol. in water; misc. with ether @ 75 C, org. solvs.; m.w. 72.10; sp.gr. 0.800; m.p. -99 C; f.p. 12 F; b.p. 75-76 C; flash pt. (CC) 20 F; ref. index 1.3843

*Toxicology:* LD50 (oral, rat) 2490 mg/kg, (IP, rat) 800 mg/kg, (skin, rabbit) 3560 mg/kg; LCLo (inh., rat, 4 h) 8000 ppm; mod. toxic by ing., inh., skin contact, IP, and subcut. routes; severe skin and eye irritant; delayed hypersensitivity; suspected carcinogen; TSCA listed

*Precaution:* DOT: Flamm. liq.; dangerous fire hazard when exposed to heat and flame; incompat. with oxidizing materials; reacts vigorously with chlorosulfonic acid, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Plasticizers; rubber accelerators; solvents; high polymers; intermediate for paints; synthetic flavoring agent in foods and pharmaceuticals; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Use Level:* 0.71 ppm (nonalcoholic beverages), 0.5 ppm (alcoholic beverages), 4.8 ppm (ice cream, ices), 2.9 ppm (candy), 5.4 ppm (baked goods), 0.25 ppm (icings)

*Regulatory:* FDA 21CFR §172.515, 175.105, 176.170; FEMA GRAS

*Manuf./Distrib.:* Aldrich; Alfa Aesar; Alfrebro; BASF AG; Celanese; Chisso Am.; Eastman; Fluka; Honeywell Perf. Polymers; Penta Mfg.; Union Carbide; Van Waters & Rogers

**Butyric alcohol.** See Butyl alcohol

**Butyric aldehyde.** See n-Butyraldehyde

**CA.** See Cellulose acetate

**CAB.** See Cellulose acetate butyrate



**C-8 acid.** See Caprylic acid

**C40-60 acid**

*Definition:* Mixt. of syn. aliphatic acids with 40-60 carbons in the alkyl chain

*Uses:* Emulsifier in cosmetics

*Trade Names Containing:* Unidac™ 700 Acid

**Cake alum.** See Aluminum sulfate

**Calcia.** See Calcium oxide

**Calciate (2-), ((ethylenedinitrilo) tetraacetato)-, disodium.** See Calcium disodium EDTA

**Calcined alumina.** See Alumina

**Calcined kaolin.** See Kaolin, calcined

**Calcined kaolin clay.** See Kaolin, calcined

**Calcined magnesite.** See Magnesium oxide

**Calcined magnesite.** See Magnesium oxide

**Calcined soda.** See Sodium carbonate

**Calcite.** See Calcium carbonate

**Calcium abietate.** See Calcium resinolate

**Calcium acid sulfite.** See Calcium hydrogen sulfite

**Calcium bisulfite.** See Calcium hydrogen sulfite

**Calcium carbonate**

CAS 1317-65-3

*Synonyms:* Agricultural limestone; Calcite; Calcium carbonate natural; Chalk; CI 77220; Dolomite; Franklin; Limestone; Lithographic stone; Marble; Natural calcium carbonate; Paris white; Pigment white 18; Portland stone; Vaterite; Whiting

*Classification:* Inorganic salt

*Definition:* Found in nature as the minerals limestone, marble, aragonite, calcite, and vaterite

*Empirical:* CO<sub>3</sub> • Ca

*Properties:* Wh. powd. or cryst.; odorless, tasteless; sol. in dil. acids; very sl. sol. in water; insol. in alcohol; m.w. 100.09; dens. 2.7-2.95; m.p. 825 C (dec.); stable in air; noncombustible

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> of air (nuisance particulate); severe eye and mod. skin irritant; common air contaminant; TSCA listed

*Precaution:* Ignites on contact with F<sub>2</sub>; incompat. with acids, alum, ammonium salts

*Storage:* Hygroscopic; store @ R.T.

*Uses:* Alkali; mfg. of lime; neutralizer; paper opacifier; putty; tooth powds.; whitewash; Portland cement; filler/extender in paint, rubber, plastics, caulks, cements, ceramics, coatings; insecticides; in chemical analysis; precipitant in waste treatment; filler; pigment; coagulant/flocculant in potable water treatment; foods (nutrient, dough conditioner, yeast food, colorant, alkali); pharmaceuticals (alkali, neutralizer, colorant, opacifier, tablet/capsule diluent, antacid, antidiarrheal medicine); food-contact applics.

*Manuf./Distrib.:* Hammill & Gillespie

*Trade Names:* Atomite®; Carbital® 35; Carbital® 75; Carbital® 90; CC™-103; Micro-White® 10 Slurry; Micro-White® 25 Slurry; Micro-White® Superamide; Opacimite™

*Trade Names Containing:* Kotamite®

See also Calcium monocarbonate; CI 77220

**Calcium carbonate (1:1).** See Calcium monocarbonate

**Calcium carbonate natural.** See Calcium carbonate

**Calcium carbonate, precipitated.** See Calcium monocarbonate

**Calcium carbonate, prepared.** See Whiting

**Calcium carrageenan**

CAS 9049-05-2

*Synonyms:* Algin gum; Calcium carrageenin; Calcium carrageenate; Carrageenan, calcium salt; Carrageenan, calcium (II) salt

*Definition:* Calcium salt of carrageenan; mixt. of highly sulfated polygalactosides, extracted from seaweed

*Toxicology:* LD50 (oral, rat) 5140 mg/kg, (oral, mouse) 8710 mg/kg; mod. toxic by ing.; experimental reproductive effects; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>x</sub>

*Uses:* Emulsion stabilizer, film-former, visc. control agent in cosmetics; emulsifier, stabilizer, thickener for foods and pharmaceuticals; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §136.110, 136.115, 136.130, 136.160, 136.180, 139.121, 139.122, 150.141, 150.161, 172.626, 176.170; approved for orals

**Calcium carrageenin.** See Calcium carrageenan

**Calcium carrageenate.** See Calcium carrageenan

**Calcium chlorohydrochlorite.** See Calcium hypochlorite

**Calcium dihydrogen sulfite.** See Calcium hydrogen sulfite

**Calcium dihydroxide.** See Calcium hydroxide

**Calcium disodium edathamil.** See Calcium disodium EDTA

**Calcium disodium edetate.** See Calcium disodium EDTA

**Calcium disodium EDTA**

CAS 62-33-9 (anhyd.); 23411-34-9; EINECS/ELINCS 200-529-9

*Synonyms:* Acetic acid, (ethylene dinitrilo) tetra-, calcium disodium salt; Calciate (2-), ((ethylenedinitrilo) tetraacetato)-, disodium; Calcium disodium edathamil; Calcium disodium edetate; Calcium disodium ethylenediamine tetraacetic acid; Calcium EDTA; Disodium calcium ethylenediaminetetraacetate; Edetate calcium disodium; Edetic acid calcium disodium salt; EDTA calcium disodium salt; Ethylenediaminetetraacetic acid, calcium disodium salt; Sodium calcium edetate

*Classification:* Substituted diamine

*Definition:* Mixt. of calcium disodium ethylenediaminetetraacetate dihydrate (predominantly) and trihydrate

*Empirical:* C<sub>10</sub>H<sub>12</sub>CaN<sub>2</sub>Na<sub>2</sub>O<sub>8</sub>

*Formula:* CaNa<sub>2</sub>C<sub>10</sub>H<sub>12</sub>N<sub>2</sub>O<sub>8</sub>

*Properties:* Wh. cryst. powd. or gran., odorless, faint salt taste; sol. in water; insol. in org. solvs.; m.w. 374.27 (anhyd.), 410.30 (dihydrate); bulk dens. 0.67; pH 6.5-8.0; stable in air

*Toxicology:* LD50 (oral, rat) 10 g/kg, (IP, rat) 3850 mg/kg; mod. toxic by IP route; mildly toxic by ing. and IV routes; possible link to liver damage in test animals; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub>

*Storage:* Sl. hygroscopic

*Uses:* Preservative, chelating agent, sequestrant in cosmetics, foods, pharmaceuticals, water treatment, textiles, soaps/detergents, electroless copper plating, polymer prod., disinfectants, pulp/paper; hog scald agent; scale control aid in water treatment; medicine (treating lead poisoning); food antioxidant; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Use Level:* Limitation 220 ppm (pickled cabbage), 33 ppm (soft drinks), 25 ppm (alcoholic beverages), 200 ppm (egg prods.), 75 ppm (mayonnaise), 75 ppm (oleomargarine), 75 ppm (sauces); ADI 0-2.5 mg/kg (EU)

*Regulatory:* FDA 21CFR §155.200, 161.173, 166.110, 169.115, 169.140, 169.150, 172.120, 175.105, 176.170; USDA 9CFR §318.7; Japan approved (0.035 g/kg max.); Europe listed; permitted in UK only in canned fish, shellfish; FDA approved for injectables (IM, IV), intravenous, orals

*Manuf./Distrib.:* Akzo Nobel; Am. Biorganics; Hampshire; Hickson Danchem; Int'l. Sourcing; R.W. Greeff; Ruger; Sigma; Universal Preserv-A-Chem  
*Trade Names:* Versene CA

**Calcium disodium ethylenediamine tetraacetic acid.** See Calcium disodium EDTA

**Calcium distearate.** See Calcium stearate

**Calcium EDTA.** See Calcium disodium EDTA

**Calcium hydrate.** See Calcium hydroxide

**Calcium hydrogen sulfite**

CAS 13780-03-5; UN No. 1923 (DOT)

*Synonyms:* Calcium acid sulfite; Calcium bisulfite; Calcium dihydrogen sulfite

*Empirical:* H<sub>2</sub>CaO<sub>2</sub>S<sub>2</sub>

*Formula:* Ca(HSO<sub>3</sub>)<sub>2</sub>

*Properties:* Ylsh. liq.; strong sulfur dioxide odor; m.w. 204.24; dens. 1.06

*Toxicology:* Irritating and corrosive to skin and tissue

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>x</sub>

*Uses:* Antichlor in bleaching textiles; paper pulp (dissolving lignin) preservative; bleaching sponges; hydroxylamine salts; germicide; disinfectant

**Calcium hydrosilicate.** See Calcium silicate

**Calcium hydroxide**

CAS 1305-62-0; EINECS/ELINCS 215-137-3

*Synonyms:* Agricultural lime; Calcium dihydroxide; Calcium hydrate; Carboxide; Caustic lime; Hydrated lime; Lime, hydrated; Lime milk; Lime, slaked; Lime water; Milk of lime; Slaked lime

*Classification:* Inorganic base

*Empirical:* H<sub>2</sub>CaO<sub>2</sub>

*Formula:* Ca(OH)<sub>2</sub>

*Properties:* Wh. soft cryst. powd., alkaline sl. bitter taste; sl. sol. in water; sol. in glycerol, syrup, acid; insol. in alcohol; m.w. 74.10; dens. 2.34; m.p. loses water at 580 C; pH 12.4 (sat. sol'n. @ 25 C)

*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 7.34 g/kg; mildly toxic by ingestion; severe eye irritant; irritating to skin, mucous membrane, respiratory tract; dust is industrial hazard; causes dermatitis; mutation data reported; common air contaminant; TSCA listed

*Precaution:* Corrosive material; violent reaction with maleic anhydride, nitroethane, nitromethane, nitroparaffins, etc.; reaction with polychlorinated phenols + potassium nitrate forms extremely toxic prods.

HMIS: Health 2; Flammability 0; Reactivity 1

*Uses:* Mortar; plasters; cements; calcium salts; disinfectant; lubricants; pesticides; mfg. of paper pulp; activator in vulcanization; coagulant, color removal, iron/manganese removal, pH control, softener in water treatment; depilatory; filler; causticizing soda; dehairing hides; whitewash; soil conditioner; ammonia recovery; rubber accelerator; petrochemicals; buffer in cosmetics; food additive, buffer, neutralizing agent, firming agent, processing aid; in beer-making; pharmaceuticals

*Use Level:* ADI no limit (EU)

*Regulatory:* FDA 21CFR §135.110, 184.1205, GRAS; USDA 9CFR §318.7; Japan restricted (1% max. as calcium); Europe listed; UK approved; FDA approved for injectables, orals, topicals; BP compliance

*Manuf./Distrib.:* Aldrich; Am. Biorganics; Charkit; EM Ind.; Fluka; Int'l. Chem. Inc; Int'l. Sourcing; Kraft Chem.; Lohmann; Mallinckrodt Baker; Mississippi Lime; O.C. Lugo; Pfizer Int'l.; Ruger; Sigma; Specialty Mins.; Spectrum Quality Prods.; U.S. Gypsum; Universal Preserv-A-Chem; Varsal Instruments; Whittaker, Clark & Daniels

**Calcium hypochloride.** See Calcium hypochlorite

### Calcium hypochlorite

CAS 7778-54-3; EINECS/ELINCS 231-908-7; UN No. 1748 (dry) (DOT), 2208 (DOT), 2880 (hydrated) (DOT)

*Synonyms:* Calcium hypochloride; Calcium oxychloride; Chlorinated lime; Lime, chlorinated; Lime chloride; Bleaching powder; Calcium chlorohydrochlorite; Hypochlorous acid, calcium salt

*Classification:* Salt of hypochlorous acid

*Definition:* Commercial grade usu. 50% or more Ca(OCl)<sub>2</sub>

*Empirical:* CaCl<sub>2</sub>O<sub>2</sub>

*Formula:* Ca(OCl)<sub>2</sub>

*Properties:* Wh. cryst. solid, strong chlorine odor; dec. in water, alcohol; m.w. 142.99; sp.gr. 2.35; dec. > 100 C; pH 11.5 (5%)

*Toxicology:* LD50 (oral, rat) 850 mg/kg; moderate toxicity by ingestion; severe skin, eye, and mucous membrane irritant; corrosive; tumorigen, mutagen; TSCA listed

*Precaution:* Dangerous; strong oxidizer capable of igniting materials that are combustible (wood, grease, org. materials); mod. explosive in solid form when heated

*Hazardous Decomp. Prods.:* Heated to decomp., or on contact with acid or acid fumes, emits highly toxic fumes of HCl and explodes; reacts with water to produce toxic and corrosive fumes of Cl<sup>-</sup> and HCl

NFPA: Health 3; Flammability 0; Reactivity 2

*Uses:* Algicide; bactericide; slimicide; deodorant; bleaching agent; oxidizing agent; odor control; potable water purification; disinfectant for pools; water sanitization; cooling water and sewage treatment; bacteria/algae control in reservoirs, water mains; treatment plants; bleaching paper and textiles; tanning aux.; agric. use; food, dairy, and beverage processing plants; sanitizer in household, institutional use; chlorinating agent; as sanitizing solution for food contact

*Regulatory:* FDA 21CFR §178.1010; SARA reportable

*Manuf./Distrib.:* Aldrich; AllChem Ind.; Alloychem; Arch Chems.; Ashland; Bencorp Int'l.; Bio-Lab; Browning; Coyne; Dastech Int'l.; Fluka; Great Lakes; Harcros; Los Angeles Chem.; Melchemie bv; PPG Ind.; Quadra; Robeco; Rochem Int'l.; RYTE Prods.; Sal Chem.; Schaefer Tech.; Sedco; Spectrum Quality Prods.; Surpass; Tomen Am.; United Min. & Chem.; Van Waters & Rogers; Wegco Chem. & Min.

*Trade Names:* Induclor®; Pittchlor®

### Calcium isostearate

*Uses:* Stabilizer with decyl alcohol for calcium stearate disps. in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Calcium lignin sulfonate.** See Calcium lignosulfonate

### Calcium lignosulfonate

CAS 8061-52-7; 68131-32-8 (fermented)

*Synonyms:* Calcium lignin sulfonate; Lignin calcium sulfonate; Lignosulfonic acid, calcium salt

*Definition:* Calcium salt of polysulfonated lignin

*Properties:* Anionic

*Toxicology:* TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Dispersant; emulsifier; emulsion stabilizer; wetting agent; binder; gypsum board; industrial use; refractories; construction; insecticides; pesticides; extender for adhesives and binder systems; dispersant for water treatment, oil-well drilling muds; concrete admixtures; emulsifier in cosmetics; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §172.715, 175.105, 176.170, 176.210

*Manuf./Distrib.:* LignoTech USA; R.T. Vanderbilt; Wesco Tech. Ltd

*Trade Names Containing:* Lignosite® AC

### Calcium metasilicate

CAS 10101-39-0

*Synonyms:* Calcium silicate; Calcium silicate n-hydrate; Silicic acid, calcium salt; Silicic acid, calcium salt (1:1); Silicic acid (H<sub>2</sub>SiO<sub>3</sub>), calcium salt (1:1)

*Empirical:* CaH<sub>2</sub>O<sub>3</sub>Si

*Properties:* Wh. powd.; m.w. 118.18

*Toxicology:* Irritating dust; TSCA listed

*Uses:* Extender for paints; absorbent, antacid, filler for paper, paper coatings, cosmetics; anticaking additive for foods; mfg. of glass and Portland cement; in food-pkg. adhesives

*Use Level:* Use in foods restricted to 5% in baking powd., 2% in table salt

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Am. Colloid; Nyco Mins.; R.T. Vanderbilt

See also Calcium silicate

### Calcium monocarbonate

CAS 471-34-1; EINECS/ELINCS 207-439-9

*Synonyms:* Allied whiting; Calcium carbonate; Calcium carbonate (1:1); Calcium carbonate, precipitated; Carbonic acid calcium salt; Carbonic acid calcium salt (1:1); Monocalcium carbonate; Pigment white 18; Precipitated calcium carbonate; Precipitated chalk; Prepared chalk; Vienna white; White powder; Whiting

*Classification:* Inorganic salt

*Empirical:* CCaO<sub>3</sub>

*Formula:* CO<sub>3</sub> · Ca

*Properties:* Wh. powd. or colorless crystals, odorless, tasteless; sol. in dil. acids; very sl. sol. in water; insol. in alcohol; m.w. 100.09; dens. 2.7-2.95; bulking value 0.045 gal/lb; oil absorp. 63; m.p. 825 C (dec.); stable in air

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> of air (nuisance particulate); LD50 (oral, rat) 6450 mg/kg; mildly toxic by ing.; severe eye and mod. skin irritant; irritating to respiratory system; common air contaminant; may cause kidney damage, CNS effects; TSCA listed

*Precaution:* Incompat. with acids, alum, ammonium salts

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic; store in a cool, dry, well-ventilated area away from incompatible substances

*Uses:* Alkali; source of lime; neutralizer; paper opacifier; putty; dentifrices; whitewash; Portland cement; filler/extender in paint, rubber, plastics, adhesives; insecticides; ceramics; polishes; in chemical analysis; precipitant (waste treatment); polishes; inks; crayons; insulation; coagulant/flocculant in water treatment; foods (nutrient, dough conditioner, yeast food, colorant); pharmaceuticals (neutralizer, colorant, opacifier, tablet/capsule diluent, antacid); oral care agent; abrasive, buffer, opacifier, colorant in cosmetics; colorant in food-contact polymers; in resinous/polymeric food-contact coatings; in melamine-formaldehyde food-contact molded articles

*Use Level:* ADI not specified; WHO limitation: 40 g/kg (cheese), 200 mg/kg (jams, jellies)

*Regulatory:* FDA 21CFR §73.1070, 137.105, 137.155, 137.160, 137.165,

137.170, 137.175, 137.180, 137.185, 137.350, 169.115, 175.300, 177.1460, 178.3297, 181.22, 181.29, 182.5191, 184.1191, 184.1409, GRAS; BATF 27CFR §240.1051, limitation 30 lb/1000 gal of wine; Japan approved (1-2%); Europe listed; UK approved; FDA approved for implants, orals, otics; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** ABCR; AMRESCO; Acros Org.; Aldrich; AluChem; Am. Ingreds.; Archway Sales; BASF; C.P. Hall; Cerac; ECC Int'l.; EM Ind.; Engelhard; Fisher Scientific; Fluka; Genstar Stone Prods.; Georgia Marble; H.M. Royal; J.M. Huber/Chems.; J.T. Baker; Jesse S. Young; Landers-Segal Color; Lohmann; Mallinckrodt Baker; Melchemie bv; Miljac; Mississippi Lime; NeoResins; Pfizer Int'l.; Punda Mercantile; R.E. Carroll; Ruger; Seegott; Sigma; Spectrum Quality Prods.; Tamms Ind.; Whittaker, Clark & Daniels

**Trade Names:** Albacar® 5970; Albacar® PCC; Albalfil® PCC; Albaglos® PCC; Calcitem S; Calwhite®; Camel-CAL®; Camel-CAL® Slurry; Camel-FINE; Camel-WITE®; Camel-WITE® Slurry; Gamaco®; Gama-Sperse® 80; Gama-Sperse® 255; G-White; Hubercarb® Optifil; Hubercarb® Q 1; Hubercarb® Q 2; Hubercarb® Q 3; Hubercarb® Q 4; Hubercarb® Q 6; Hubercarb® Q 6-20; Hubercarb® Q 20-60; Hubercarb® Q 40-200; Hubercarb® Q 60; Hubercarb® Q 100; Hubercarb® Q 200; Hubercarb® Q 325; Hubercarb® W 2; Hubercarb® W 3; Hubercarb® W 3N; Hubercarb® W 4; H-White; Hydrocarb 60-ME 78%; Hydrocarb 75-ME 78%; Hydrocarb 90-ME 78%; Jetcoat™ PCC; Magnum Gloss; Megafil® PCC; Microblanc 1; Microblanc 2; Microblanc 3; Microblanc 5; Microtem 95; Opacarb® PCC; RO-40; Ultrapaque® PCC; Zetafil 1; Zetafil 2; Zetafil 3

**Trade Names Containing:** Camel-CAL® ST; Camel-WITE® ST; Dualite® M6050AE; Dualite® MS7000; Dualite® MS7020; Hubercarb® Optifil T; Hubercarb® Q 1T; Hubercarb® Q 2T; Hubercarb® Q 3T; Hubercarb® Q 200T; Hubercarb® W 2T; Hubercarb® W 3T

See also Calcium carbonate; Whiting

**Calcium monosilicate.** See Calcium silicate

#### Calcium montanate

CAS 68308-22-5; EINECS/ELINCS 269-637-1

**Synonyms:** Montan acid, calcium salt

**Definition:** Calcium salt of the acids derived from montan acid wax

**Properties:** Solid; m.p. 1223 C

**Uses:** Lubricant for PVC; cosmetic additive

**Trade Names Containing:** Hoechst Wax OP

**Calcium octadecanoate.** See Calcium stearate

#### Calcium oxide

CAS 1305-78-8; EINECS/ELINCS 215-138-9; UN No. 1910 (DOT)

**Synonyms:** Burnt lime; Calcia; Calx; Fluxing lime; Lime; Pebble lime; Quicklime; Unslaked lime

**Classification:** Alkaline earth oxide

**Empirical:** CaO

**Properties:** Wh. or gray cryst. or powd., odorless; sol. in acids, glycerol, sugar sol'n.; sol. in water forming Ca(OH)<sub>2</sub> and generating heat; pract. insol. in alcohol; m.w. 56.08; dens. 3.40; m.p. 2570 C; b.p. 2850 C; noncombustible

**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup>; strong caustic; may cause severe irritation to skin, mucous membranes, eyes; a common air contaminant; TSCA listed

**Precaution:** DOT: Corrosive material; powd. may react explosively with water; mixts. with ethanol may ignite if heated; violent reactions with B<sub>2</sub>O<sub>3</sub> + CaCl<sub>2</sub>; interhalogens; F<sub>2</sub>; HF; P<sub>2</sub>O<sub>5</sub> + heat; incandescent reaction with liq. HF

NFPA: Health 3; Flammability 0; Reactivity 1

**Storage:** Moisture-sensitive

**Uses:** Refractory; insecticides; fungicides; mfg. of steel, aluminum; flotation of nonferrous ores; mfg. of glass, paper, Ca salts; in drilling fluids, lubricants; laboratory; desiccant for extruded rubber goods; pharmaceutical topicals; filler; activator; coagulant, color removal, Fe/Mn removal, pH control, softening, corrosion control for water treatment; sewage treatment; bauxite processing reagent; buffer in cosmetics; foods (alkali, nutrient, dietary supplement, dough conditioner, yeast food, hog/poultry scald agent)

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §182.1210, 182.5210, 184.1210, GRAS; USDA 9CFR §318.7, 381.147; Europe listed; UK approved

**Manuf./Distrib.:** Aldrich; AluChem; Am. Int'l.; Ash Grove Cement; Atlantic Equip. Engrs.; Cerac; Fluka; Kraft Chem.; Mallinckrodt Baker; Mins. Tech.; Mississippi Lime; Pfizer Int'l.; Reade Advanced Materials; Ruger; Schaefer Tech.; Sigma; Specialty Mins.; Spectrum Quality Prods.; U.S. Gypsum; Universal Preserv-A-Chem; Whittaker, Clark & Daniels

**Calcium oxychloride.** See Calcium hypochlorite

**Calcium polysilicate.** See Calcium silicate

#### Calcium resinate

CAS 9007-13-0; UN No. 1313 (DOT), 1314 (DOT)

**Synonyms:** Calcium abietate; Calcium rosinate; Limed rosin; Rosin, lime-hardened

**Empirical:** C<sub>98</sub>H<sub>124</sub>CaO<sub>8</sub>

**Formula:** Ca(C<sub>24</sub>H<sub>32</sub>O<sub>4</sub>)<sub>8</sub>

**Properties:** Ylsh. -wh. amorphous powd. or lumps, rosin odor; sol. in acid, amyl acetate, butyl acetate, ether, amyl alcohol; insol. in water; m.w. 1349.5; soften. pt. 115-165 C

**Toxicology:** TSCA listed

**Precaution:** Flamm. solid; dangerous fire risk; spontaneous heating; reactive with oxidizing materials

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Waterproofing; mfg. of paint driers, porcelains, perfumes, cosmetics, enamels; color diluent for egg shells; coating for fabrics, wood, paper; tanning leather; binder in printing inks, wood varnishes; drier in food-contact coatings; component of food-contact articles

**Regulatory:** FDA 21CFR §73.1, 175.300, 178.3870

**Manuf./Distrib.:** Arakawa USA; Ascona; Barium & Chems.; Hummel Croton; Resinall

**Calcium rosinate.** See Calcium resinate

#### Calcium silicate

CAS 1344-95-2; EINECS/ELINCS 215-710-8

**Synonyms:** Calcium hydrosilicate; Calcium monosilicate; Calcium polysilicate; Okenite; Silicic acid, calcium salt

**Classification:** Carbonates

**Definition:** Hydrous or anhydrous silicate with varying proportions of calcium oxide and silica

**Empirical:** (1) CaO<sub>3</sub>Si; (2) Ca<sub>2</sub>O<sub>4</sub>Si; (3) Ca<sub>3</sub>O<sub>5</sub>Si

**Formula:** Common forms: (1) CaSiO<sub>3</sub>, (2) Ca<sub>2</sub>SiO<sub>4</sub>, (3) Ca<sub>3</sub>SiO<sub>5</sub>

**Properties:** Wh. or cream-colored powd.; odorless; sol. in nitriilotriacetic acid; pract. insol. in water; forms a gel with min. acids; m.w. 116.16 (1); dens. 2.10; bulk dens. 15-16 lb/ft<sup>3</sup>; absorp. power 600% (water); surf. area 95-175 m<sup>2</sup>/g; m.p. 1540 C; pH 8.4-10.2 (5% aq. susp.); nonflamm.

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance particulate; pract. nontoxic orally, but inh. may cause respiratory tract irritation; TSCA listed

**Precaution:** Avoid prolonged contact with water (sol'n. reverts to sol. calcium salts and amorphous silica)

**Uses:** Constituent of lime glass, Portland cement; reinforcing filler in elastomers, plastics, coatings; absorbent for liqs., gases, vapors; suspending agent; pigment and pigment extender; binder for refractories; in chromatography; road building; absorbent, opacifier, visc. control agent in cosmetics; anticaking agent, filter aid for foods and pharmaceuticals; glazing, release agents (sweets); dusting agent (chewing gum); antacid (pharmacology); colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Use Level:** ADI not specified (FAO/WHO)

**Regulatory:** FDA 21CFR §172.410, 175.300, 176.170, 177.1460, 178.3297, 182.2227, GRAS (limitation 2% in table salt, 5% in baking powd.); Europe listed; UK approved; approved for orals; USP/NF compliance

**Manuf./Distrib.:** Aldrich; BPI; Cary; Celite; Chem-Materials; Crosfield; D.N. Lukens; Degussa-Hüls; Eastech; Great Western; H.M. Royal; J.M. Huber/Chems.; Kraft Chem.; R.T. Vanderbilt; Ruger; Seegott

**Trade Names:** Micro-Cel® T-26; Micro-Cel® T-49

See also Calcium metasilicate

**Calcium silicate n-hydrate.** See Calcium metasilicate

#### Calcium stearate

CAS 1592-23-0; EINECS/ELINCS 216-472-8

**Synonyms:** Calcium distearate; Calcium octadecanoate; Octadecanoic acid

calcium salt; Stearic acid, calcium salt  
*Classification:* Aliphatic organic compd.  
*Definition:* Calcium salt of stearic acid  
*Empirical:* C<sub>36</sub>H<sub>70</sub>CaO<sub>4</sub>  
*Formula:* Ca(C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>)<sub>2</sub>  
*Properties:* Wh. impalpable powd., sl. char. odor; insol. in water, alcohol, ether; sl. sol. in hot alcohol, hot veg. and min. oils; m.w. 607.04; bulk dens. 20 lb/ft<sup>3</sup>; m.p. 149 C  
*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance dust; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
 HMIS: Health 1; Flammability 0; Reactivity 0  
*Uses:* Water repellent; flattening agent in paints, emulsions; release agent for plastic molding powd.; foundry mold release; lubricant, stabilizer for PVC resins; lubricant for paper coating; slip agent; thickener; cement/stucco additive; wax ingred.; in pencils; crayons; explosives; fabric waterproofing agent; emulsifier in hair creams; colorant in cosmetics; conditioning agent in foods and pharmaceuticals; anticaking agent; binder; emulsifier; lubricant; release agent; stabilizer; thickener; tablet lubricant; drier in food-contact coatings; plasticizer in food-contact rubber articles for repeated use; stabilizer for food-grade polymers  
*Use Level:* ADI not specified (FAO/WHO)  
*Regulatory:* FDA 21CFR §169.179, 169.182, 172.863, 173.340; must conform to FDA specs for fats or fatty acids derived from edible oils, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2410, 177.2600, 178.2010, 179.45; 181.22, 181.29, 184.1229, GRAS; FDA approved for implants, orals, rectals, topicals; USP/NF, BP, Ph.Eur. compliance  
*Manuf./Distrib.:* Adeka Fine Chem.; Alfa Chem; Allan; Allchem Ind.; Atofina N. Am./Wire Mill Prods.; Chemisphere; Cognis/Chems. Group; Comets; Crompton/Witco; Eka Chems. Ltd; Fallek; Ferro/Grant; Harwick; In-Cide Tech.; Lohmann; Mallinckrodt Baker; Miljac; NOF; Norac; PPG Ind.; R.T. Vanderbilt; Ruger; Sea-Land; Spectrum Quality Prods.  
*Trade Names:* Calsan™ 50; Calsan™ 55; Calsan™ 65; Cecavon® CA 31; Cecavon® CA 350 P; Lubracal® 48; Lubracal® 53; Lubracal® 60; Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free; Ombrelub® CD; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Struktol® Calcium Stearate; Sunkote® 450; Sunkote® 452; Sunkote® 455  
*Trade Names Containing:* Estane® 5715; Sunkote® 460

**Calcium stearoyl lactylate**

CAS 5793-94-2; EINECS/ELINCS 227-335-7  
*Synonyms:* Calcium stearoyl-2-lactylate; Calcium stearyl-2-lactylate; Calcium stelate; Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, calcium salt; Stearic acid ester with lactate of lactic acid calcium salt  
*Definition:* Calcium salt of stearic acid ester of lactyl lactate  
*Empirical:* C<sub>48</sub>H<sub>86</sub>CaO<sub>12</sub>  
*Properties:* Cream-colored nonhygroscopic powd., caramel odor; sparingly sol. in water; m.w. 895.30; m.p. 45-60 C; HLB 5.1; acid no. 50-86; pH 4.7 (2% aq. susp.); anionic  
*Toxicology:* No known toxicity; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
*Uses:* Dough conditioner for bakery prods.; stabilizer; whipping agent; emulsifier in cosmetics, foods, and pharmaceuticals; acid neutralizer/acceptor/scavenger for polyolefins, flame retardants, pigments; lubricant for PVC; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.  
*Use Level:* Limitation 0.5 parts/100 parts flour (bakery prods.), 0.05% (egg white), 0.3% (whipped vegetable topping), 0.5% (dehydrated potatoes); ADI 0-20 mg/kg (EU)  
*Regulatory:* FDA 21CFR §172.844, 176.170, 177.1200; must conform to FDA specs for fats or fatty acids derived from edible oils; Japan approved with restrictions; Europe listed; UK approved  
*Manuf./Distrib.:* Aceto; Am. Ingreds./Patco; R.I.T.A.; Wilshire

**Calcium stearoyl-2-lactylate.** See Calcium stearoyl lactylate  
**Calcium stearyl-2-lactylate.** See Calcium stearoyl lactylate  
**Calcium stelate.** See Calcium stearoyl lactylate

**Calcium sulfamate**

*Empirical:* CaH<sub>4</sub>N<sub>2</sub>O<sub>6</sub>S<sub>2</sub> · 4H<sub>2</sub>O  
*Formula:* Ca(SO<sub>3</sub>NH<sub>2</sub>)<sub>2</sub> · 4H<sub>2</sub>O  
*Properties:* Wh. cryst.; sol. in water  
*Uses:* Flameproofing agent for textiles and certain grades of paper

**Calcium sulfate**

CAS 7778-18-9; EINECS/ELINCS 231-900-3  
*Synonyms:* Anhydrite (natural form); Anhydrous calcium sulfate; Anhydrous gypsum; Calcium sulfate (1:1); Calcium sulfonate; Gypsum; Plaster of Paris  
*Classification:* Inorganic salt  
*Empirical:* CaO<sub>4</sub>S  
*Formula:* Ca · H<sub>2</sub>O<sub>4</sub>S  
*Properties:* Wh. to sl. yel.-wh. powd. or crystals, odorless, tasteless; sl. sol. in water; sol. in 3 N HCl; m.w. 136.14; dens. 2.964; bulking value 0.052 gal/lb; oil absorp. 10; m.p. 1450 C; Rust preventive, detergent for diesels; pigment dispersant for thermoplastic and epoxy color concs.; visc. stabilizer; anionic  
*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance dust; ingestion may result in intestinal obstruction because it absorbs water and hardens; no known toxicity on the skin; irritant; TSCA listed  
*Precaution:* Reacts violently with aluminum when heated; mixts. with phosphorus ignite at high temps.  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>  
 HMIS: Health 1; Flammability 0; Reactivity 0  
*Uses:* Filler, extender, pigment, drier in paints; plastics; Portland cement retarder; paper filler, coatings; polishes; dyeing/printing; metallurgy; desiccant; pharmaceuticals (excipient, tablet diluent; abrasive in dentifrices; surgical casts); soil conditioner; foods (nutrient, dietary supplement, yeast food, dough conditioner/strengthener, firming agent, sequestrant, anticaking agent, coloring agent, leavening agent, pH control agent, processing aid, stabilizer, texturizer, thickener); abrasive, opacifier in cosmetics; visc. stabilizer; pigment dispersant for thermoplastic and epoxy color concs.; rust preventive, detergent for diesels; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods  
*Use Level:* Limitation 1.3% (baked goods), 3% (frostings), 0.5% (frozen dairy desserts), 0.4% (gelatins, puddings), 0.5% (grain prods., pasta), 0.35% (processed vegetables), 0.07% (other food); ADI not specified (EU)  
*Regulatory:* FDA 21CFR §133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.195, 137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 150.141, 150.161, 155.200, 175.300, 176.170, 177.1460, 178.3297, 184.1230, GRAS; BATF 27CFR §240.1051, limitation 16.69 lb/1000 gal; Japan approved with restrictions (1% max.); Europe listed; UK approved; FDA approved for orals; USP/NF compliance  
*Manuf./Distrib.:* AMRESCO; Advance Research Chems.; Aldrich; Am. Ingreds.; EM Ind.; Fluka; Franklin Ind. Mins.; H.M. Royal; J.T. Baker; Kemira Kemi AB; Lohmann; R.E. Carroll; Ruger; Seegott; U.S. Gypsum; Universal Preserv-A-Chem; Van Waters & Rogers; Varsal Instruments; Whittaker, Clark & Daniels  
*Trade Names:* USG® Paper Filler #1  
**Calcium sulfate (1:1).** See Calcium sulfate  
**Calcium sulfate dihydrate**  
 CAS 10101-41-4; EINECS/ELINCS 231-900-3  
*Synonyms:* Alabaster; Calcium(II) sulfate dihydrate (1:1:2); CI 77231; Gypsum; Gypsum stone; Land plaster; Light spar; Magnesia white; Mineral white; Native calcium sulfate; Pigment white 25; Precipitated calcium sulfate; Terra alba  
*Classification:* Calcium compd.; sulfate salt  
*Empirical:* CaO<sub>4</sub>S · 2H<sub>2</sub>O  
*Formula:* CaSO<sub>4</sub> · 2H<sub>2</sub>O  
*Properties:* Wh. lumps or powd.; odorless; sol. in water; very slowly sol. in glycerol; pract. insol. in most org. solvs.; m.w. 172.10; dens. 2.32; m.p. 128 C (loses 1.5 H<sub>2</sub>O); b.p. 163 C (loses 2 H<sub>2</sub>O)  
*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance dust; irritant; human systemic effects by inh. (fibrosing alveolitis, respiratory system effects, effects on nose); questionable carcinogen  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>  
 HMIS: Health 1; Flammability 0; Reactivity 0  
*Storage:* Hygroscopic

*Uses:* Mfg. of Portland cement, plaster of Paris, artificial marble, sulfuric acid, calcium carbide, and ammonium sulfate; as white pigment, filler, extender, glaze in paints, pharmaceuticals, paper, insecticide dusts, yeast, polishing powds.; soil conditioner; water treatment; flame retardant for plastics; pharmaceuticals (excipient, filler, desiccant, tablet/capsule diluent; in plaster casts); food-contact applics.

*Regulatory:* FDA approved for orals; USP/NF, BP, JP compliance

*Manuf./Distrib.:* Aldrich; EM Ind.; Fluka; Franklin Ind. Mins.; R.E. Carroll; Ruger; Sigma; Spectrum Quality Prods.; Whittaker, Clark & Daniels

**Calcium(II) sulfate dihydrate (1:1:2).** See Calcium sulfate dihydrate

#### Calcium sulfate hemihydrate

CAS 10034-76-1; 26499-65-0; EINECS/ELINCS 231-900-3

*Synonyms:* Dried calcium sulfate; Dried gypsum; Gypsum hemihydrate; Plaster of Paris

*Formula:* CaO,S • ½H<sub>2</sub>O

*Properties:* Wh. or almost wh. fine powd., odorless, tasteless; sl. sol. in water; sol. in dil. min. acids; pract. insol. in alcohol; m.w. 145.15; m.p. 163 C (loses ½ water to form anhyd. material); nonflamm.

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (calcium sulfate); ing. of large amts. may cause blockage of upper intestinal tract; pract. nontoxic by inh.; high concs. of dust may cause coughing and mild temporary irritation; dust is nonirritating to skin and eyes; alpha form may cause severe skin burns when mixed with water (3:1)

*Precaution:* Nonhazard reaction with water to produce gypsum

*Storage:* Hygroscopic

*Uses:* Wall plasters, 'gypsum' wallboard, tiles, stucco, blocks, and moldings for building industry; statues; jewelry castings; paper industry; pharmaceuticals (plaster of Paris bandages, orthopedic and dental casts)

*Regulatory:* FDA approved for orals; BP, JP compliance

*Manuf./Distrib.:* Aldrich; Fluka

#### Calcium sulfite

CAS 10257-55-3

*Synonyms:* Sulfurous acid, calcium salt (1:1)

*Empirical:* CaO<sub>3</sub>S

*Formula:* CaSO<sub>3</sub>

*Properties:* Wh. powd.; sol. in sulfurous acid; sl. sol. in water; m.w. 120.14

HMS: Health 1; Flammability 0; Reactivity 0

*Uses:* Textiles (antichlor); disinfectant in sugar industry, brewing, biological cleansing; food preservative and discoloration retarder; paper mfg.; in cement

*Manuf./Distrib.:* Ruger

**Calcium sulfonate.** See Calcium sulfate

#### Calcium-zinc complex

*Uses:* Heat stabilizer for rigid and plasticized PVC, food-grade polymers, profiles, bottles, pipe, plastisols; stabilizer for flooring base coats, artificial leather, wallpaper, conveyor belts; compat. with isocyanate adhesion promoter

**C-10 alcohol.** See Decyl alcohol

#### C8-10 alcohols

CAS 85566-12-7

*Synonyms:* Alcohols, C8-10

*Uses:* Chemical intermediate; also for lube oil additives, plasticizers, surfactant feedstocks

*Trade Names:* Nafol® 810 D

#### C10 alcohols

*Synonyms:* Alcohols, C10

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

#### C10-14 alcohols

EINECS/ELINCS 283-066-5

*Synonyms:* Alcohols, C10-14

*Uses:* Lubricant in polymer processing, metal rolling, emollients/lubricants for cosmetics, defoamers; surfactant intermediate

*Trade Names:* Nafol® 1014

#### C12-18 alcohols

CAS 67762-25-8; EINECS/ELINCS 267-006-5

*Synonyms:* Alcohols, C12-18

*Uses:* Surfactant intermediate; polymerization; lubricant in polymer processing, metal rolling; emollient for cosmetics

*Trade Names:* Nafol® 1218

**C16-18 alcohols.** See Cetearyl alcohol

#### C20-24 alcohols

EINECS/ELINCS 307-145-1

*Synonyms:* Alcohols, C20-24

*Uses:* Intermediate for mfg. of toiletries, cosmetics, detergents, laundry softeners, lubricating oil additives, plasticizers, plastics additives, textile/leather additives, disinfectants, agrochem., paper defoamers, flotation agents

*Trade Names:* Nafol® 20+

#### C20-40 alcohols

*Synonyms:* Alcohols, C20-40

*Definition:* Mixture of syn. fatty alcohols with 20-40 carbons in the alkyl chain

*Uses:* Antioxidant; heat stabilizer; UV stabilizer; visc. depressant; emulsifier in cosmetics; promotes emollient protective films for skin care prods.; food-pkg. adhesives; chemical intermediate for oxidation, ethoxylation, sulfation, amination, esterification; coemulsifier and direct additive in coatings; plastics additive (processing aid, lubricant, dispersant)

*Trade Names:* Unilin® 425 Alcohol

**C18-alkenyl succinic anhydride.** See Octadecenyl succinic anhydride

**Callitris quadrivalvis.** See Sandarac (Callitris quadrivalvis) gum

**Callitris quadrivalvis gum.** See Sandarac (Callitris quadrivalvis) gum

**C-4 alpha olefin.** See 1-Butene

**C12 alpha olefin.** See Dodecene-1

#### C12-14 alpha olefin

CAS 64743-02-8 (generic); 68855-58-3 (generic); 68866-68-3; EINECS/ELINCS 272-492-7; UN No. NA 1993

*Properties:* Water-wh. liq.; dens. 0.764 g/ml (20 C); pour pt. -35 C; b.p. 216-250 C (5-95%); flash pt. (TCC) 81 C

*Toxicology:* LD50 (oral) > 10,000 mg/kg, (dermal) > 10,000 mg/kg; low acute toxicity; nonirritating to eyes and skin

*Precaution:* Combustible liq.; avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)

*Storage:* Store under nitrogen

*Uses:* Intermediate for biodeg. surfactants and specialty industrial chemicals; prod. of amines, amine oxides, oxo alcohols, alkylated aromatics, epoxides, and syn. fatty acids

*Manuf./Distrib.:* Albemarle

*Trade Names:* Neodene® 12/14

#### C14-16 alpha olefin

CAS 64743-02-8 (generic); 68855-59-3 (generic); EINECS/ELINCS 272-493-2

*Definition:* Blend of tetradecene and hexadecene

*Properties:* Water-wh. clear liq.; dens. 0.776 g/ml (20 C); b.p. 245-279 C (5-95%); pour pt. -14 C; flash pt. (PMCC) 113 C

*Toxicology:* Low acute toxicity by oral and dermal exposure; not expected to be skin or eye irritant

*Precaution:* Avoid contact with air or oxygen (explosion danger from peroxide formation, adverse effect on subsequent reactions)

*Storage:* Store under nitrogen blanket

*Uses:* Intermediate in prod. of biodeg. surfactants, oxo alcohols, alkylated aromatics, epoxides, tanning oils, syn. fatty acids, and alpha olefin sulfonates

*Manuf./Distrib.:* Albemarle; BP Amoco

*Trade Names:* Neodene® 14/16

#### C16-18 alpha olefin

CAS 64743-02-8 (generic); 68866-60-7; EINECS/ELINCS 272-494-8

*Properties:* Water-wh. liq.; dens. 0.787 g/ml (20 C); pour pt. -2 C; b.p. 285-316 C (5-95%); flash pt. (PMCC) 135 C

*Toxicology:* LD50 (oral) > 10,000 mg/kg, (dermal) > 10,000 mg/kg; low acute toxicity; nonirritating to eyes and skin

*Precaution:* Avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)

*Storage:* Store under nitrogen

## C20-24 alpha olefin

*Uses:* Intermediate for biodeg. surfactants and specialty industrial chemicals; prod. of oxo alcohols, alkylated aromatics, epoxides, tanning oils, syn. fatty acids, alpha olefin sulfonates

*Manuf./Distrib.:* Albemarle

*Trade Names:* Neodene® 16/18

## C20-24 alpha olefin

CAS 64743-02-8 (generic)

*Uses:* Intermediate for surfactants for personal care, specialty industrial chems. (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)

*Trade Names:* Gulftene® 20-24; Neodene® 20/22/24

## C24-28 alpha olefin

*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)

*Trade Names:* Gulftene® 24-28

## C30 alpha olefin

*Uses:* Intermediate for biodeg. surfactants for personal care and laundry, and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants)

*Trade Names:* Gulftene® 30+

**Calx.** See Calcium oxide

**Canarium indicum resinoid.** See Elemi gum

**Canary yellow.** See Basic yellow 2

**Candelilla.** See Candelilla (*Euphorbia cerifera*) wax

**Candelilla cera.** See Candelilla (*Euphorbia cerifera*) wax

## Candelilla (*Euphorbia cerifera*) wax

CAS 8006-44-8; EINECS/ELINCS 232-347-0; FEMA 3479

*Synonyms:* Candelilla; Candelilla cera; Candelilla wax; *Euphorbia cerifera* wax

*Definition:* Wax from *Euphorbia cerifera*

*Properties:* Yel.-brown to translucent solid; sol. in acetone, benzene, carbon disulfide, hot petrol. ether, gasoline, oils, turpentine, CCl<sub>4</sub>; sparingly sol. in alcohol; pract. insol. in water; dens. 0.983; m.p. 67-68 C; acid no. 10-20; sapon. no. 50-65; ref. index 1.4555

*Toxicology:* No known toxicity

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Mfg. of cosmetics, rubber substitutes, polishes, candles, sealing waxes, varnishes, leather dressing, cements, creams; for waterproofing; insect proofing; elec. insulation; inks; molding compositions; sizing paper; hardening other waxes; paint removers; food additive, lubricant, protective coating for citrus; masticatory substance in chewing gum base; pharmaceutical skin preps. and orals; emollient, film-former, gellant in cosmetics; in food-pkg. adhesives; adjuvant in resinous/polymeric food-contact coatings; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.180, 184.1976, GRAS; FEMA GRAS; Japan approved; approved for orals, topicals

*Manuf./Distrib.:* Aldrich; Allyson Enterprises; Charkit; Charlotte Chem.; Darwin; Frank B. Ross; Hansotech; Koster Keunen; Mutchler; Penta Mfg.; R.I.T.A.; Ruger; Spectrum Quality Prods.; Stevenson Cooper; Strahl & Pitsch; Universal Preserv-A-Chem

*Trade Names:* Candelilla Wax SP 50; Candelilla Wax SP 75; Candelilla Wax SP 76; Candelilla Wax SP 78 Prime Quality Crude; Candelilla Wax SP 99; Candelilla Wax SP 350; Candelilla Wax Fine; Koster Keunen Candelilla; Ross Candelilla Wax

*Trade Names Containing:* Ross Beeswax Substitute No. 628/5

## Candelilla synthetic

CAS 136097-95-5

*Uses:* Gellant, thickener, stabilizer, and moisturizer for cosmetics, leather dressings, furniture and other polish; cements; varnishes; sealing wax; elec. insulating compositions; phonograph records; rubber; waterproofing; wax for pharmaceuticals, precision casting, lubricants, adhesives, paper coatings/sizing, chewing gum base, candles

*Trade Names:* Candelilla Wax SP 24A; Candelilla Wax SP 803; Koster Keunen Synthetic Candelilla

**Candelilla wax.** See Candelilla (*Euphorbia cerifera*) wax

**Canola oil (low erucic acid rapeseed oil).** See Rapeseed (*Brassica campestris*) oil

**Caoutchouc.** See Natural rubber

**CAP.** See Cellulose acetate propionate

## Capramide DEA

CAS 136-26-5; EINECS/ELINCS 205-234-9

*Synonyms:* Capric acid diethanolamide; N,N-Bis (2-hydroxyethyl) decanamide; Decanamide, N,N-bis(2-hydroxyethyl)-

*Definition:* Mixture of ethanolamides of capric acid

*Empirical:* C<sub>14</sub>H<sub>29</sub>NO<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>CON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant; antistat, visc. control agent in cosmetics; foam booster/stabilizer; wetting agent; thickener; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2260, 177.2800

## Capric acid

CAS 334-48-5; EINECS/ELINCS 206-376-4; FEMA 2364

*Synonyms:* N-Capric acid; Capric acid; Caprylic acid; Carboxylic acid C<sub>10</sub>; Decanoic acid; n-Decanoic acid; Decoic acid; n-Decoic acid; Decylic acid; n-Decylic acid; 1-Nonanecarboxylic acid

*Classification:* Fatty acid

*Empirical:* C<sub>10</sub>H<sub>20</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>COOH

*Properties:* Wh. to pale yel. crystals, unpleasant odor; sol. in org. solvs. incl. ethanol, alkalis; insol. in water; m.w. 172.27; dens. 0.8858 (40 C); m.p. 31.5 C; b.p. 270 C; acid no. 320-330; ref. index 1.4288 (40 C)

*Toxicology:* LD50 (IV, mouse) 129 mg/kg; poison by IV route; skin irritant; mutagenic data; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Esters for perfumes and flavors; base for wetting agents; emulsifier in cosmetics; intermediate for chemical synthesis, food-grade additives; plasticizer; resins; foods (defoamer, lubricant); pharmaceutical flavoring agent; in food-pkg. adhesives; in food-contact paper/paperboard; defoamer in food-contact paper coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; FEMA GRAS

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Ashland; Berje; Cognis/Chems. Group; Conдор; Fluka; Grau Aromatics; Independent Chem.; JarChem Ind.; Kraft Chem.; Penta Mfg.; Primachem; Procter & Gamble; Robeco; Sea-Land; Sigma; Uniqema N. Am.; Universal Preserv-A-Chem; Varsal Instruments

**n-Capric acid.** See Capric acid

**Capric acid diethanolamide.** See Capramide DEA

**Capric alcohol.** See Decyl alcohol

**Caprinic acid.** See Capric acid

**Caprinic alcohol.** See Decyl alcohol

## Caprolactone acrylate monomer

*Formula:* CH<sub>2</sub>HOCOCH<sub>2</sub>CH<sub>2</sub>OCOCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH

*Uses:* Adhesion props. for UV and electron beam curing; as protective coating for metal, plastics, wood, and paper; as acrylic adhesive for metal, plastics, PC, acrylic sheet, and paper

*Trade Names:* SR 495

**1-Caprylene.** See Octene-1

## Caprylic acid

CAS 124-07-2; EINECS/ELINCS 204-677-5; FEMA 2799

*Synonyms:* C-8 acid; n-Caprylic acid; 1-Heptanecarboxylic acid; Octanoic acid; n-Octanoic acid; Octic acid; Octoic acid; n-Octoic acid; n-Octylic acid

*Classification:* Fatty acid

*Empirical:* C<sub>8</sub>H<sub>16</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>6</sub>COOH

*Properties:* Colorless leaf or oily liq.; unpleasant odor; burning rancid taste; sol. in alkalis, ethanol, chloroform, ether, carbon disulfide, petrol. ether,

glac. acetic acid; sl. sol. in water; m.w. 144.21; dens. 0.91 (20/4 C); m.p. 16 C; b.p. 237.5 C; ref. index 1.4280

**Toxicology:** LD50 (oral, rat) 10,080 mg/kg, (IV, mouse) 600 mg/kg; mod. toxic by IV route; mildly toxic by ing.; skin irritant; yields irritating vapors which can cause coughing; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Mfg. of dyes, drugs, perfumes; antimicrobial agent; component of food- and pharmaceutical-grade additives; defoamer; flavoring agent; fragrance; lubricant; antimicrobial preservative in cheese wraps; plasticizer; emulsifier in cosmetics; in food-pkg. adhesives; in food-contact paper/paperboard; defoamer in food-contact paper coatings, paper/paperboard

**Use Level:** Limitation 0.013% (baked goods), 0.04% (cheese), 0.005% (fats, oils, frozen dairy desserts, gelatins/puddings, meat prods., soft candy), 0.016% (snack foods), 0.001% (other food)

**Regulatory:** FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910, 184.1025, 186.1025, GRAS; GRAS as indirect additive; FEMA GRAS; BP compliance

**Manuf./Distrib.:** ADA Int'l.; Akzo Nobel; Aldrich; Alfrebro; Ashland; Berje; Cognis/Chems. Group; Condor; Fluka; Grau Aromatics; Independent Chem.; Indofine; JarChem Ind.; Kraft Chem.; Napp Tech.; Penta Mfg.; Primachem; Procter & Gamble; Robeco; Sea-Land; Sigma; Spectrum Quality Prods.; Uniqema N. Am.; Uniqema/Oleochems.; United Coconut Chem.; Varsal Instruments

**n-Caprylic acid.** See Caprylic acid

**Caprylic acid, methyl ester.** See Methyl caprylate

**Caprylic, capric acid, propylene glycol diester.** See Propylene glycol dicaprylate/dicaprate

**Caprynic acid.** See Capric acid

### Captan

CAS 133-06-2; EINECS/ELINCS 205-087-0

**Synonyms:** 1H-Isindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-(trichloromethyl)thio-; 1,2,3,6-Tetrahydro-N-(trichloromethylthio)phthalimide; N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide; N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide; N-(Trichloromethylthio)cyclohex-4-ene-1,2-dicarboximide; N-Trichloromethylthiotetrahydrophthalimide

**Classification:** Organic compd.

**Empirical:** C<sub>8</sub>H<sub>8</sub>Cl<sub>3</sub>NO<sub>2</sub>S

**Properties:** Crystal, odorless; pract. insol. in water; partly sol. in benzene, chloroform, tetrachloroethane; m.w. 300.59; dens. 1.74; m.p. 178 C

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 9000 mg/kg; LC50 (inh., mouse, 2 h) 5000 mg/m<sup>3</sup>; LDLo (IP, rat) 25 mg/kg; poison by IP route; mod. toxic to humans by ing.; mod. toxic by inh.; irritant; tumorigen; experimental teratogen; questionable carcinogen; human mutation data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl<sub>2</sub>, SO<sub>x</sub>, and NO<sub>x</sub>

**Uses:** Seed treatment; fungicide, mildewcide, and bacteriostat in plants, plastics, solv.-based coatings, leather, fabrics, fruit preservation; plastics biostabilizer; gas odorant; antimicrobial preservative for topical pharmaceuticals; mold- and mildew-proofing agent in food-contact coatings; in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.170; SARA reportable

**Manuf./Distrib.:** R. T. Vanderbilt

**Carbamic acid, butyl-3-iodo-2-propynyl ester.** See Iodopropynyl butylcarbamate

**Carbamic acid, dimethyldithio-, anhydrosulfide.** See Tetramethylthiuram monosulfide

**Carbamic acid, dimethyldithio-, potassium salt, hydrate.** See Potassium dimethyldithiocarbamate

**Carbamic acid, dimethyldithio-, zinc salt (2:1).** See Zinc dimethyldithiocarbamate

**Carbamic acid, homopolymer, octadecyl-ethenyl ester.** See Polyvinyl octadecyl carbamate

**Carbamic acid, N-hydroxymethyl-n-methyldithio-, potassium salt.** See Potassium N-hydroxymethyl-N-methyldithiocarbamate

**Carbamide.** See Urea

**Carbamide resin.** See Urea

**Carbamic acid.** See Urea

**Carbamimidic acid.** See Urea

**Carbamodithioic acid, cyano-, disodium salt.** See Disodium cyanodithioimidocarbonate

**Carbamodithioic acid, dimethyl-, potassium salt.** See Potassium dimethyldithiocarbamate

**Carbamodithioic acid, dimethyl-, sodium salt.** See Sodium dimethyldithiocarbamate

**Carbamodithioic acid, N-methyl-N-hydroxymethyl-, potassium salt.** See Potassium N-hydroxymethyl-N-methyldithiocarbamate

**Carbazole violet.** See Pigment violet 23

### Carbendazim

CAS 10605-21-7; 63090-40-4; 63278-70-6; 83601-81-4; 105268-95-9; EINECS/ELINCS 234-232-0

**Synonyms:** BMC; MBC; 2-Benzimidazolecarbamic acid, methyl ester; 1H-Benzimidazol-2-ylcarbamic acid methyl ester; 1H-Benzimidazole-2-yl methyl carbamate; N-2-(Benzimidazolyl) carbamate; Carbendazol; 2-(Methoxycarbonylamino) benzimidazol; 2-(Methoxycarbonylamino) benzimidazole; Methyl 2-benzimidazolecarbamate; Methyl benzimidazole-2-yl carbamate; Methyl benzimidazol-2-yl carbamate; 2-(Methyloxycarbonylamino) benzimidazole

**Empirical:** C<sub>8</sub>H<sub>8</sub>N<sub>2</sub>O<sub>2</sub>

**Properties:** Nearly wh. powd.; odorless; sol. in DMF; sl. sol. in most solvs.; sol. < 1 g/100 g in xylene, cyclohexanone; m.w. 190.18; m.p. 302-307 C (dec.)

**Toxicology:** LD50 (oral, rat) 6400 mg/kg, (skin, rat) 2 g/kg, (IP, rat) 1720 mg/kg; mod. toxic by skin contact, mildly toxic by ing. and IP routes; experimental teratogen, reproductive effector; mutagen; human mutagenic data; TSCA listed

**Environmental:** Aquatic LC50 (carp, 96 h) 4 mg/l, (rainbow trout, 96 h) 2.3 mg/l; avian LD50 (oral, Japanese quail) 10,996 mg/kg; nontoxic to bees

**Precaution:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Uses:** Systemic fungicide; pesticide; biocide for preservatives

**Manuf./Distrib.:** Aldrich; BASF/Agri; Gilmore; Helm AG; Hoechst Schering AgrEvo

**Trade Names:** Protectol<sup>®</sup> BCM; Protectol<sup>®</sup> BCM-FL

**Carbendazol.** See Carbendazim

**Carbinol.** See Methyl alcohol

**'Carbitol'.** See Ethoxydiglycol

**'Carbolic acid'.** See Phenol

### Carbomer

CAS 9003-01-4 (generic); 9007-16-3 (generic); 9007-17-4 (generic); 9007-20-9; 9062-04-8; 54182-57-9; 76050-42-5

**Synonyms:** Acrylic acid, polymer with sucrose-polyallyl ether; Carboxypolymethylene

**Definition:** Homopolymer of acrylic acid crosslinked with an allyl ether of pentaerythritol or an allyl ether of sucrose

**Properties:** Wh. fluffy powd., odorless; dens. 1.41; anionic

**Toxicology:** LD50 (oral, rat) 4100 mg/kg; mod. toxic by ingestion; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Storage:** Hygroscopic

**Uses:** Emulsifier; thickener; stabilizer; suspending agent; for lubricating, quenching and silicone emulsions; graphite; polyethylene; fiber and paper suspensions; textile backcoatings; pharmaceuticals; emulsion stabilizer, visc. control agent in cosmetics; solvent thickener for cosmetics, pharmaceuticals; food-pkg. adhesives, coatings, paper/paperboard, polymers; defoamer in food-contact coatings

**Use Level:** 0.4% (suspending agent), 0.5-5% (aq. ointment base)

**Regulatory:** FDA approved for orals, rectals, topicals; BP compliance

**Manuf./Distrib.:** Aldrich; Sigma; Spectrum Quality Prods.

**Trade Names:** Acritamer<sup>®</sup> 501E; Acritamer<sup>®</sup> 504E; Carbopol<sup>®</sup> 2984; Carbopol<sup>®</sup> 5984

**Trade Names Containing:** Foambreaker

### Carbomer 910

CAS 9003-01-4 (generic)

**Definition:** Polymer of acrylic acid crosslinked with allyl ether of pentaerythritol

**Properties:** Wh. fluffy powd., sl. char. odor; when neutralized with alkali



hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 750,000; visc. 3000-7000 cps (1% aq. disp.); pH 3 (1% disp.); anionic

*Toxicology:* TSCA listed

*Storage:* Hygroscopic

*Uses:* Suspending agent, thickener for pharmaceuticals; emulsifier; thickener; stabilizer; suspending agent

*Regulatory:* USP/NF compliance

*Manuf./Distrib.:* Aldrich; Sigma; Spectrum Quality Prods.

*Trade Names:* Carbopol® 910

#### Carbomer 934

CAS 9003-01-4 (generic); 9007-16-3 (generic)

*Definition:* Polymer of acrylic acid crosslinked with allyl ether of sucrose

*Properties:* Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 3,000,000; visc. 30,500-39,400 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic

*Toxicology:* LD50 (oral, rat) 4100 mg/kg, (oral, mouse) 4550 mg/kg; TSCA listed

*Storage:* Hygroscopic

*Uses:* Thickener, suspending agent, dispersant, emulsifier for pharmaceuticals

*Regulatory:* FDA approved for orals, rectals, topicals; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Sigma

*Trade Names:* Carbopol® 934

#### Carbomer 940

CAS 9003-01-4 (generic); 9007-17-4 (generic)

*Definition:* Polymer of acrylic acid crosslinked with allyl ether of pentaerythritol

*Properties:* Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 4,000,000; visc. 40,000-60,000 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic

*Toxicology:* No known toxicity; TSCA listed

*Storage:* Hygroscopic

*Uses:* Thickener, suspending agent, dispersant, emulsifier for pharmaceuticals

*Regulatory:* FDA approved for ophthalmics, topicals; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Sigma; Spectrum Quality Prods.

*Trade Names:* Carbopol® 940; Carbopol® 980

#### Carbomer 941

CAS 9003-01-4 (generic)

*Definition:* Polymer of acrylic acid crosslinked with allyl ether of pentaerythritol

*Properties:* Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 1,250,000; visc. 4000-11,000 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic

*Toxicology:* No known toxicity; TSCA listed

*Storage:* Hygroscopic

*Uses:* Thickener, suspending agent, dispersant, emulsifier for pharmaceuticals

*Regulatory:* FDA approved for topicals; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Sigma; Spectrum Quality Prods.

*Trade Names:* Carbopol® 941; Carbopol® 971P; Carbopol® 981

#### Carbomer 934P

CAS 9003-01-4 (generic)

*Synonyms:* Carpolene

*Definition:* Polymer of acrylic acid crosslinked with allyl ether of sucrose

*Properties:* Wh. fluffy powd., sl. char. odor; when neutralized with alkali hydroxides or with amines, dissolves in water, alcohol, and glycerin; m.w. nominally 3,000,000; visc. 29,400-39,400 cps (0.5% aq. disp.); pH 3 (1% disp.); anionic

*Toxicology:* TSCA listed

*Storage:* Hygroscopic

*Uses:* Emulsifier, suspending agent, thickener for pharmaceuticals

*Regulatory:* USP/NF compliance

*Manuf./Distrib.:* Aldrich; BFGoodrich; Sigma; Spectrum Quality Prods.

*Trade Names:* Carbopol® 934P; Carbopol® 974P

#### Carbon, activated

CAS 7440-44-0; 16291-96-6; 64365-11-3; EINECS/ELINCS 231-153-3; UN No. NA 1361 (DOT), 1362 (DOT)

*Synonyms:* Activated carbon; Activated charcoal; Active carbon; CI 77265; Charcoal, activated; Decolorizing carbon; Graphite; Pigment black 10

*Definition:* The residue from the destructive distillation of various org. materials, treated to increase its adsorptive power

*Empirical:* C

*Properties:* Black porous solid, coarse gran., or powd.; odorless; tasteless; insol. in water, org. solvs.; m.w. 12.01; dens. 0.08-0.5

*Toxicology:* Toxic by inh. of dust; dust irritant, esp. to eyes and mucous membranes; TSCA listed

*Precaution:* Flamm. solid; DOT: spontaneously combustible; dust is flamm. and explosive when exposed to heat, flame, or oxides

*HMIS:* Health 0; Flammability 1; Reactivity 0

*Uses:* Adsorbent; clarifying, deodorizing, decolorizing, filtering, dechlorination for air, water and wastewater treatment; solvent recovery; SO<sub>2</sub> removal from stack gases and clean rooms; decolorizing, taste/odor control agent in food processing; brewing; removal of jet fumes from airports; catalyst/natural gas purification; chromium electroplating; air conditioning; refining of pharmaceutical chemicals; car catalytic converters; in medicine as antidote, adsorptive; in diarrheal prods.; in closure-sealing gaskets for food containers

*Use Level:* Limitation 0.9% (wine), 0.25% (pale dry sherry), 0.4% (red and blk. grape juice); ADI not specified (FAO/WHO)

*Regulatory:* FDA 21CFR §177.1210, 240.361, 240.365, 240.401, 240.405, 240.527, 240.527a, GRAS; BATF 27CFR §240.1051; USDA 9CFR §318.7; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Asbury Carbons; Atofina; Calgon Carbon; Carbochem; Ceca SA; Fluka; Harcros; Honeywell Perf. Polymers; Melchemie bv; Norit Am.; O.C. Lugo; Pica SA; ProSciTech; Reade Advanced Materials; Ruger; Sigma; Spectrum Quality Prods.; Süd-Chemie Inc; Westvaco

*Trade Names:* Actitex®

**Carbonate magnesium.** See Magnesium carbonate

#### Carbon black

CAS 1333-86-4; EINECS/ELINCS 215-609-9

*Synonyms:* Acetylene black; Carbon black acetylene; Channel black; Charcoal; CI 77266; Furnace black; Lamp black; Oil-furnace black; Pigment black 6; Pigment black 7; Thermal acetylene black; Thermal atomic black; Thermal black; Vegetable carbon

*Definition:* Finely divided particles of elemental carbon obtained by incomplete combustion of hydrocarbons (channel or impingement process)

*Properties:* Insol. in water, ethanol, veg. oil

*Toxicology:* ACGIH TLV/TWA 3.5 mg/m<sup>3</sup>; TCLo (inh., rat, 6 h) 50 mg/m<sup>3</sup>; TLV 3.5 mg/m<sup>3</sup>; low toxicity by ingestion, inhalation, and skin contact; nuisance dust in high concs.; suspected carcinogen; tumorigen, mutagen; TSCA listed

*Uses:* Conductive colorant, filler, reinforcing agent in plastics; antistat; opacifier; in tire treads; belt covers; abrasion-resistant rubber prods.; leather; UV light absorber; colorant for paints, printing inks, carbon paper, typewriter ribbons; dye for paper; stove polish; phonograph records; nucleating agent in weather modification; battery electrodes; expander in battery plates; solar-energy absorber; antioxidant for rubber and latex; color additive, purification agent in food processing; colorant in food-contact polymers (channel process); in polymer systems for food contact (channel process); filler in food-contact rubber articles for repeated use (channel or furnace process)

*Regulatory:* Banned by U.S. FDA; channel carbon black: FDA 21CFR §176.170, 177.1650, 177.2400, 177.2600, 178.3297; may be used in foods for the European community; UK approved

*Manuf./Distrib.:* Akrochem; Akzo Nobel; Alfa Chem; Ameripol Synpol; Archway Sales; Asbury Carbons; BASF; BFGoodrich Hilton Davis; Cabot/Cab-O-Sil; Chem-Materials; Columbian Chems.; Continental Carbon; D.N. Lukens; Degussa-Hüls; Elementis Spec. Colorants/Addit.; Engelhard; Engineered Carbons; Exxon; Heucotech Ltd; J.M. Huber/Chems.; Landers-Segal Color; R.T. Vanderbilt; Reade Advanced Materials; Royale Pigments & Chems.; San Yuan; Spectrum Quality Prods.; Tamms Ind.; Tiarco; Whittaker, Clark & Daniels; Zeochem

*Trade Names:* Black Pearls® 430; Black Pearls® 450; Black Pearls® L; Continex® LH-10; Continex® N351; Mogul® L; Ponolith™ Fast Black P Liq.; Ponolith™ Supra Black B Liq.; Printex® XE 2; Raven® H2O;

Regal® 99I; Regal® 99R; Regal® 300R; Regal® 330; Regal® 330R;  
Regal® 400; Regal® 400R; Regal® SRF-S; Sterling® R  
*Trade Names Containing:* T-1133A; T-2005A; T-9087A

**Carbon black acetylene.** See Carbon black

### Carbon dioxide

CAS 124-38-9; EINECS/ELINCS 204-696-9; UN No. 1013 (DOT), 1015 (DOT), 1041 (DOT), 1845 (DOT), 1952 (DOT), 2187 (DOT)

*Synonyms:* Carbonic acid anhydride; Carbonic acid gas; Carbonic anhydride; Dry ice

*Classification:* Gas

*Empirical:* CO<sub>2</sub>

*Properties:* Colorless gas; odorless; sol. 1 vol. dissolves in about 1 vol. of water; m.w. 44.01; m.p. subl. @ -78.5 C; nonflamm.

*Toxicology:* ACGIH TLV/TWA 5000 ppm; STEL 30,000 ppm; LCLo, (inh., human, 1 min) 10 pph; asphyxiant at > 10%; skin contact can cause burns; experimental teratogen; TSCA listed

*Precaution:* Various dusts explode in CO<sub>2</sub> atmospheres; several bulk metals will burn in CO<sub>2</sub>; reacts vigorously with various chems.; incompat. with acrylaldehyde, aziridine, metal acetylides, sodium peroxide

*Uses:* Refrigeration; aerosol propellant; chemical intermediate; fire extinguishing; inert atmospheres; medicine; oil wells; mining; blowing agent; municipal water treatment; precipitant for waste stream treatment; pH control; silica activation; recarbonation in water softening; propellant in cosmetics; food additive, preservative, aerating agent, carbonation, cooling agent, leavening agent, pH control agent, processing aid, propellant, carbonated beverages; air displacement in pharmaceutical inhalants

*Regulatory:* FDA 21CFR §169.115, 169.140, 169.150, 184.120, GRAS, 193.45 (modified atm. for pest control); USDA 9CFR §318.7, 381.147; BATF 27CFR 240.1051; Japan approved; Europe listed; UK approved; FDA approved for inhalants; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Air Liquide Am.; Air Prods.; Aldrich; BOC Gases; Carbonic Ind.; Great Western; MG Ind.; Nissan Chem. Ind.; Norsk Hydro AS; Nova Ltd; Praxair; Scott Spec. Gases; Showa Denko

*Trade Names Containing:* MS-122DF

**Carbonic acid anhydride.** See Carbon dioxide

**Carbonic acid barium salt.** See Barium carbonate

**Carbonic acid calcium salt.** See Calcium monocarbonate; Whiting

**Carbonic acid calcium salt (1:1).** See Calcium monocarbonate

**Carbonic acid, cyclic propylene ester.** See Propylene carbonate

**Carbonic acid disodium salt.** See Sodium carbonate

**Carbonic acid gas.** See Carbon dioxide

**Carbonic acid magnesium salt.** See Magnesium carbonate

**Carbonic acid magnesium salt (1:1).** See Magnesium carbonate

**Carbonic acid magnesium salt (2:1).** See Magnesium carbonate

**Carbonic acid monosodium salt.** See Sodium bicarbonate

**Carbonic acid, 1,2-propylene glycol ester.** See Propylene carbonate

**Carbonic acid, zinc salt (1:1).** See Zinc carbonate

**Carbonic anhydride.** See Carbon dioxide

**4,4'-Carbonimidoylbis (N,N-dimethylbenzenamine monohydrochloride).**  
See Basic yellow 2

**Carbon tetraboride.** See Boron carbide

**Carbonyl diamide.** See Urea

**Carbonyldiamine.** See Urea

**1,3-Carbonyl dioxypropane.** See Propylene carbonate

**Carbothialdine.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazole-2-thione

**Carboxide.** See Calcium hydroxide

**3-Carboxy-4-hydroxybenzenesulfonic acid.** See 5-Sulfosalicylic acid

**3-Carboxy-4-hydroxybenzenesulfonic acid, dihydrate.** See 5-Sulfosalicylic acid dihydrate

**3-Carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole trisodium salt.** See Tartrazine

### Carboxylated styrene butadiene

*Synonyms:* Carboxylated styrene-butadiene copolymer

*Uses:* Nonwoven binder for textiles; in interior vapor barrier primer sealers and flat wall paint; binder for paper coatings; food-pkg. adhesives/paper

*Trade Names:* GenFlo® 557; GenFlo® 559; GenFlo® 576; Hitex-S103; Hitex-S107; Hitex-S108; Hitex-S301; Rovene® 4100; Rovene® 4106; Rovene® 4112; Rovene® 4305; Rovene® 4402; Rovene® 5005; Styronal™ BN 4204; Styronal™ BN 4606X; Styronal™ ND 430;

Styronal™ ND 656; Styronal™ ND 810; Styronal™ ND 834; Styronal™ NX 4515 X; Tychem® 68710-00; Tylac® 68219-00

### Carboxylated styrene-butadiene-acrylonitrile

*Uses:* Latex in papermaking; binder for printing papers

*Trade Names:* GenCryl® 9705; GenCryl® 9715

**Carboxylated styrene-butadiene copolymer.** See Carboxylated styrene butadiene

**Carboxylic acid C<sub>10</sub>.** See Capric acid

**Carboxylic acid C<sub>18</sub>.** See Stearic acid

**Carboxymethylcellulose.** See Carboxymethylcellulose sodium

### Carboxymethylcellulose sodium

CAS 9004-32-4; EINECS/ELINCS 265-995-8

*Synonyms:* CMC; NaCMC; SCMC; Carboxymethylcellulose; Carboxymethylcellulose, sodium salt; Carboxymethyl ether cellulose sodium salt; Carmellose sodium; Cellulose carboxymethyl ether; Cellulose carboxymethyl ether sodium salt; Cellulose glycolic acid sodium salt; Cellulose gum; Cellulose, polyanionic; Cellulose sodium glycolate; CMC sodium salt; Sodium carboxymethylcellulose; Sodium cellulose glycolate; Sodium CMC; Sodium CM-cellulose

*Classification:* Synthetic cellulose gum

*Definition:* Sodium salt of the polycarboxymethyl ether of cellulose

*Formula:* R<sub>n</sub>OCH<sub>2</sub>COONa

*Properties:* Colorless or wh. powd. or gran., odorless; water sol. depends on degree of substitution; insol. in org. liqs.; m.w. 21,000-500,000; visc. various; m.p. > 300 C; pH 6.5-8.5 (1%); anionic

*Toxicology:* LD50 (oral, rat) 27,000 mg/kg; LC50 (inh., 4 h, rat) > 5800 mg/m<sup>3</sup>; mildly toxic by ing.; questionable carcinogen; experimental reproductive effects, neoplastigenic data; tumorigen; migrates to food from pkg. materials; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O  
HMIS: Health 1; Flammability 1; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Viscosifier/fluid loss agent in drilling muds; in detergents as soil-suspending agent; in emulsion paints; adhesives; inks; textile sizes; protective colloid in paints, inks; binder in paper coatings; in rubber industry; dry-str. additive in paper; flotation depressant; thickener in cosmetics, printing dyes; binder, emulsion stabilizer, film-former in cosmetics; weakly acidic ion-exchange resins; food stabilizer, binder, thickener, extender, boiler water additive; in pharmaceuticals as suspending agent, excipient, viscosity modifier; dispersant; emulsifier; in food-pkg. adhesives

*Use Level:* ADI 0-25 mg/kg (FAO/WHO)

*Regulatory:* FDA 21CFR §133.134, 133.178, 133.179, 150.141, 150.161, 173.310, 175.105, 175.300, 182.70, 182.1745, GRAS; USDA 9CFR 318.7, limitation 1.5%, must be added dry; 9CFR 381.147; Japan restricted (2% max.); Europe listed; UK approved; approved for dentals, injectables, orals, topicals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Alfa Chem; Browning; CarboMer; FMC; Fabrichem; Fluka; Hercules/Aqualon; J.W.S. Delavau; Ruger; Sigma; Sinochem Tianjin; Spectrum Quality Prods.

*Trade Names:* Aqualon® CMC-T; Tylose® C, CB Series; Tylose® CBR Grades; Tylose® C-G1; Tylose® CR

**Carboxymethylcellulose, sodium salt.** See Carboxymethylcellulose sodium

### Carboxymethyl corn starch

*Uses:* Visc. builder and water retention aid in aq. pigment coatings, paper coatings

*Trade Names:* Vandrox® 184

**N-(Carboxymethyl)-N,N-dimethyl-1-hexadecanaminium hydroxide, inner salt.** See Cetyl betaine

**Carboxymethyl ether cellulose sodium salt.** See Carboxymethylcellulose sodium

### Carboxymethyl guar

*Uses:* Thickener, suspending agent for personal care prods.

*Manuf./Distrib.:* P.L. Thomas

*Trade Names:* Jaguar® 8707

**(Carboxymethyl) hexadecyldimethylammonium hydroxide, inner salt.** See Cetyl betaine

**N-(Carboxymethyl)-N'-(2-hydroxyethyl)-N,N'-ethylenedi-, trisodium salt.**

See Trisodium HEDTA

**Carboxymethyl hydroxypropyl guar**

CAS 68130-15-4

*Synonyms:* Guar gum, carboxymethyl 2-hydroxypropyl ether, sodium salt

*Definition:* Sodium salt of a propylene glycol ether of carboxymethyl guar

*Uses:* Emulsion stabilizer, visc. control agent in cosmetics; thickener; suspending agent

*Manuf./Distrib.:* Aldrich; P.L. Thomas

*Trade Names:* Jaguar® 418

**N-Carboxymethyliminobis (ethylenenitrilo) tetra (acetic acid).** See Pentetic acid

**N-(3-Carboxy-1-oxosulfo)propyl-N-octadecyl-L-aspartic acid, tetrasodium salt.** See Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

**9-o-Carboxyphenyl-6-diethylamino-3-ethylimino-3-isoxanthene 3-ethochloride.** See Basic violet 10

**(9-(o-Carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene) diethylammonium chloride.** See Basic violet 10

**N-[9-Carboxyphenyl)-6-(diethylamino)-3H-xanthen-3-ylidene]-N-ethylethanaminium chloride.** See Basic violet 10

**Carboxypolymethylene.** See Carbomer

**Carmellose sodium.** See Carboxymethylcellulose sodium

**Carnauba.** See Carnauba (*Copernicia cerifera*) wax

**Carnauba (*Copernicia cerifera*) wax**

CAS 8015-86-9; EINECS/ELINCS 232-399-4

*Synonyms:* Brazil wax; Carnauba; Carnauba wax; Cera carnauba; Copernicia cerefera wax; Copernicia cerifera wax; Waxes, carnauba

*Definition:* Wax obtained from leaves and leaf buds of the carnauba palm, *Copernicia cerifera*

*Properties:* Yel. greenish brown lumps, solid, char. odor; sol. in ether, alkalis, warm benzene, warm chloroform, toluene; sl. sol. in boiling alcohol; insol. in water; dens. 0.995 (15/15 C); m.p. 82-85.5 C; acid no. 2-7; sapon. no. 78-89; ref. index 1.4500

*Toxicology:* Essentially nontoxic; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Protect from light

*Uses:* Leather finishes; varnishes; waterproofing; hardening candles; paraffin wax modifier; substitute for beeswax; plasticizer for dental compds.; barrier, emollient, film-former, stabilizer in cosmetics; film-former; slip agent, lubricant in paints; car/floor/furniture/shoe polish ingred.; carbon paper ingred.; foods (anticaking agent, candy glaze/polish, formulation aid, lubricant, release agent, surface-finishing agent); pharmaceutical coating agent; adjuvant in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.320, 184.1978, GRAS; Japan approved; Europe listed (permitted only in chocolate prods.); UK approved; approved for orals, topicals; USP/NF, BP, Ph.Eur., JP compliance

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Allyson Enterprises; Bruchem; Charkit; Chemcor; Frank B. Ross; Hansotech; Koster Keunen; Maypro Ind.; Mitsui & Co. USA; Mutchler; Pangaea Sciences; Penta Mfg.; Ruger; Scheel; Serra Int'l. Trading; Shamrock Tech.; Sigma; Specialty Prods.; Spectrum Quality Prods.; Stevenson Cooper; Strahl & Pitsch; Universal Preserv-A-Chem; Zetapharm

*Trade Names:* Carnauba Wax SP 8; Carnauba Wax SP 59-2; Carnauba Wax SP 63; Carnauba Wax SP 63 NF; Carnauba Wax SP 64 (Extra Light); Carnauba Wax SP 135; Carnauba Wax SP 142; Carnauba Wax SP 200; Carnauba Wax Coarse; Carnauba Wax Fine; Carnauba Wax Hard; Carnauba Wax Soft; Carnauba Wax Superfine; Koster Keunen Carnauba; Ross Carnauba Wax; Shamrock Hydrocer EC 98; Shamrock S-Nauba 5021

**Carnauba wax.** See Carnauba (*Copernicia cerifera*) wax

**Carob bean gum.** See Locust bean (*Ceratonia siliqua*) gum

**Carob flour.** See Locust bean (*Ceratonia siliqua*) gum

**Carob gum.** See Locust bean (*Ceratonia siliqua*) gum

**C<sub>8</sub> aromatics.** See Xylene

**Carpolene.** See Carbomer 934P

**Carrageen.** See Carrageenan (*Chondrus crispus*)

**Carrageenan.** See Carrageenan (*Chondrus crispus*)

**Carrageenan, calcium salt.** See Calcium carrageenan

**Carrageenan, calcium (II) salt.** See Calcium carrageenan

**Carrageenan (*Chondrus crispus*)**

CAS 9000-07-1; EINECS/ELINCS 232-524-2

*Synonyms:* 3,6-Anhydro-d-galactan; Carrageen; Carrageenan; Carrageenan gum; Carrageenin; Carragheanin; Carraghennan; Chondrus; Gum carrageenan; Irish gum; Irish moss

*Classification:* Sulfated polysaccharide

*Definition:* Hydrocolloid obtained from various members of the *Gigartinales* or *Solieriales* families of the red seaweed, *Rhodophyceae*; consists of sulfite esters of galactose and 3,6-anhydrogalactose copolymers

*Properties:* Yel. wh. powd., odorless, tasteless; sol. in hot water, hot conc. NaCl sol'n; insol. in oils and org. solvs.

*Toxicology:* LDLo (IV, rabbit) 5 mg/kg; poison by IV route; experimental tumorigen; suspected carcinogen; linked to ulcers in colon, fetal damage in test animals; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Emulsifier, binder, extender, stabilizer, thickener, gelling agent in food prods. (milk/dairy prods.), toothpaste, cosmetics, pharmaceuticals; stabilizing aid in ice cream; protective colloid; in paper/paperboard in contact with aq./fatty foods

*Use Level:* 1-5%; ADI 75 mg/kg; 1-5%

*Regulatory:* FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 136.110, 136.115, 136.130, 136.160, 136.180, 139.121, 139.122, 150.141, 150.161, 172.620, 172.623, 172.626, 176.170, 182.7255, GRAS; USDA 9CFR §318.7, 381.147; Japan approved; JSCI, European listed; UK approved; FDA approved for orals, topicals; USP/NF compliance

*Manuf./Distrib.:* AEP Colloids; Active Organics; Aldrich; Alfa Chem; Ashland; Browning; CarboMer; Carrageenan Co.; Charkit; Chart; Colloides Naturels; Colony Ind.; Dastech Int'l.; FMC; Fabrichem; Frutarom Meer; Gumix Int'l.; Helm NY; Hercules/Aqualon; Nitta Gelatin NA; P.L. Thomas; Rambach; Rochem Int'l.; Sarcom; Schweizerhall; Seppic; Sigma; Spectrum Quality Prods.; Spice King; TIC Gums; Tomen Am.; Toyota Tsusho Am.; Universal Preserv-A-Chem; V.L. Clark

**Carrageenan gum.** See Carrageenan (*Chondrus crispus*)

**Carrageenan, potassium salt.** See Potassium carrageenan

**Carrageenan, sodium salt.** See Sodium carrageenan

**Carrageenin.** See Carrageenan (*Chondrus crispus*)

**Carragheanin.** See Carrageenan (*Chondrus crispus*)

**Carraghennan.** See Carrageenan (*Chondrus crispus*)

**Carthamus tinctorius.** See Safflower (*Carthamus tinctorius*) oil

**Carthamus tinctorious oil.** See Safflower (*Carthamus tinctorius*) oil

**Casal green.** See Chromium oxide (Ic)

**Casein**

CAS 9000-71-9; EINECS/ELINCS 232-555-1

*Synonyms:* Milk protein, casein; Proteins, milk

*Definition:* Mixt. of phosphoproteins obtained from cow's milk

*Properties:* Wh. powd.; sol. in alkaline sol'ns.

*Toxicology:* Mild sensitive reactions in persons allergic to cow's milk; TSCA listed

*Storage:* Hygroscopic

*Uses:* Dietary supplement; animal feed ingred.; food processing aid (Japan); cheesemaking; frozen desserts; migrating to food from paper/paperboard; pharmaceuticals (slow-release, microencapsulation); raw material for paints; plastic items; binder in paper coatings; adhesives; textile sizing/finishing agent; textile fibers; binder in foundry sands; protective colloid in emulsion polymerization; stabilizer in rosin paper sizes; antistat in cosmetics

*Regulatory:* FDA 21CFR §166.110, 182.90, GRAS; Japan restricted; BP compliance

*Manuf./Distrib.:* Aabbitt Adhesives; Aldrich; Alfa Chem; Allchem Ind.; Am. Biorganics; Am. Casein; Browning; Chemical; Fluka; Houghton Chem.; Int'l. Casein; Nat'l. Casein; Research Organics; Sigma; Spectrum Quality Prods.; Trugman Nash; Ultra Additives

See also Milk protein

**Casein, ammonium salt.** See Ammonium caseinate

**Casein-sodium.** See Sodium caseinate

**Casein-sodium complex.** See Sodium caseinate

**Casein sodium salt.** See Sodium caseinate

**Caseins, sodium complexes.** See Sodium caseinate

**Castor oil.** See Castor (*Ricinus communis*) oil

**Castor oil acid, methyl ester.** See Methyl ricinoleate

**Castor oil aromatic.** See Castor (*Ricinus communis*) oil  
**Castor oil ethoxylate.** See PEG castor oil  
**Castor oil, hydrogenated.** See Hydrogenated castor oil  
**Castor oil, hydrogenated, ethoxylated.** See PEG hydrogenated castor oil  
**Castor oil, polyoxyethylated (42 moles EO).** See PEG-42 castor oil  
**Castor oil, potassium salt.** See Potassium castorate  
**Castor oil, sodium salt.** See Sodium castorate  
**Castor oil sulfated.** See Sulfated castor oil  
**Castor oil, sulfated, ammonium salt.** See Ammonium castor oil sulfate  
**Castor oil, sulfated, potassium salt.** See Potassium castor oil sulfate  
**Castor oil, sulfated, sodium salt.** See Sodium castor oil sulfate  
**Castor oil, sulfonated.** See Sulfated castor oil

#### Castor oil triglycerides

Uses: Defoamer in food-contact paper/paperboard  
 Regulatory: FDA 21CFR §176.210

#### Castor (*Ricinus communis*) oil

CAS 1323-38-2; 8001-79-4; EINECS/ELINCS 232-293-8; FEMA 2263  
 Synonyms: Castor oil; Aromatic castor oil; Castor oil aromatic; Ricinus oil; Aceite de ricino; Huile de ricini; Oleum ricini; Ricini oleum; Oil of Palma Christi; Ricinus communis oil; Tangantangan oil

Classification: Vegetable oil

Definition: Fixed oil obtained from seeds of *Ricinus communis*

Properties: Colorless to pale yel. viscous oily liq., char. odor; sol. in alcohol; misc. with glac. acetic acid, chloroform, ether; negligible sol. in water; dens. 0.961; m.p. -12 C; b.p. 313 C; acid no. < 4; iodine no. 83-88; sapon. no. 176-187; hyd. no. 160-168; flash pt. 230 C; ref. index 1.478; surf. tens. 39 dynes/cm (20 C)

Toxicology: Moderately toxic by ingestion; allergen; eye irritant; mild skin irritant; mist may cause sl. irritation of nose and throat; purgative, laxative in large doses; TSCA listed

Precaution: Combustible when exposed to heat; spontaneous heating may occur; incompat. with acids and bases (hydrolysis can occur), strong oxidizing agents (increased fire hazard)

Hazardous Decomp. Prods.: @ 340-400 C, pyrolysis occurs yielding heptaldehyde and undecylenic acids; further decomp. yields CO, CO<sub>2</sub>, possibly acrolein

NFPA: Health 0; Flammability 1; Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist

Uses: Plasticizer in lacquers, nitrocellulose, inks; PU coatings; drying oil; hydraulic fluids; in mfg. of Turkey red oil, soaps; leather treatment; surfactants; lubricant (metal drawing, machine lubrication, engine fuels); emollient in cosmetics; rubber preservative; food additive (emulsifier, stabilizer, foamer, antisticking agent, release agent, drying oil, flavoring); component of protective coatings; pharmaceutical vehicle, plasticizer, solvent, cosolvent; embalming fluids; laxative; drying oil in food-contact coatings; plasticizer in food-contact rubber articles for repeated use; in food-contact textiles, paper; in lubricants for incidental food-contact use; in surf. lubricants for mfg. of food-contact metallic articles

Use Level: 500 ppm max. (finished foods), 500 ppm max. (hard candy); 0.08-23 mg (solid oral dosage forms); 5-12.5% (topicals)

Regulatory: FDA 21CFR §73.1, 172.510, 172.876, 175.300, 176.210, 177.2600, 177.2800, 178.3120, 178.3570, 178.3910, 181.22, 181.26, 181.28; FEMA GRAS; FDA approved for injectables, orals, topicals; USP/NF, BP, Ph.Eur., JP compliance

Manuf./Distrib.: Actrachem; Air Prods.; Aldrich; Alzo; Am. Oil & Supply; Amber Syn.; Arista Ind.; Ashland; CasChem; Costec; Dastech Int'l.; Degen; Fanning; Fluka; George Uhe; Harcross; Indofine; J.H. Calo; Lanaetex Prods.; Lipo; Norman, Fox; Penta Mfg.; RTD; Rhodia HPCII; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Stevenson Cooper; Süd-Chemie AG; Thornley; Uniqema/ICI Surf. Am.; Van Waters & Rogers; Vliengenthart BV; Welch, Holme & Clark; Zeochem

**Castorwax.** See Hydrogenated castor oil

**Catechol.** See Pyrocatechol

**Caustic lime.** See Calcium hydroxide

**Caustic soda.** See Sodium hydroxide

**(C16-C18) alkyl alcohol ethoxylate.** See Cetareth

**(C16-C18) fatty alcohol, ethylene oxide reaction prod.** See Cetareth

#### C8, C12 olefin polymer, hydrogenated

CAS 163149-29-9

Classification: Olefin polymer, hydrogenated

Trade Names Containing: Chevron Clarity® Synthetic Paper Machine Oil ISO 100; Chevron Clarity® Synthetic Paper Machine Oil ISO 150; Chevron Clarity® Synthetic Paper Machine Oil ISO 220; Chevron Clarity® Synthetic Paper Machine Oil ISO 320; Chevron Clarity® Synthetic Paper Machine Oil ISO 460

**Cellaburate.** See Cellulose acetate butyrate

**Celloidin.** See Nitrocellulose

#### Cellophane

CAS 9006-02-4; 61788-77-0; EINECS/ELINCS 270-493-7

Synonyms: Cellulose, regenerated; Rayon; Rayon flock; Regenerated cellulose; Viscose rayon

Definition: Syn. fibers and filaments composed of regenerated cellulose

Formula: (C<sub>6</sub>H<sub>10</sub>O<sub>5</sub>)<sub>n</sub>

Properties: Transparent film or fiber; dens. 1.51 kg/l; strong, flexible; resist. to grease, oil, air

Toxicology: TDLo (implant, rat) 18 mg/kg; tumorigen

Environmental: Environmentally friendly; biodegradable

Precaution: Flamm.; mod. fire risk; untreated film loses str. @ 149 C and dec. @ 176-204 C on exposure to heat; non-self-extinguishing

Uses: Wrapping film or protective pkg. for fabricated articles, industrial applics., food, tobacco prods.; cellulose sponges; textile fibers; visc. control agent in cosmetics; in paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170, 177.1200

#### Cellulase

CAS 9012-54-8; EINECS/ELINCS 232-734-4

Classification: Enzyme complex

Definition: Derived from *Aspergillus niger*

Properties: Off-wh. powd.; m.w. ≈ 31,000

Toxicology: May cause respiratory allergy in susceptible individuals, mild skin or irritation on prolonged or direct contact

Storage: Refrigerate; hygroscopic; keep under argon

Uses: Enzyme; digestive aid in medicine and brewing industry; aids bacteria in the hydrolysis of cellulose; paper size and coatings; textile desizing; starch adhesives; cleaning starch processing equip.

Regulatory: FDA 21CFR §173.120, GRAS; UK, Japan approved

Manuf./Distrib.: Enzyme Development; Fluka; Schweizerhall; Sigma; Spectrum Quality Prods.; Whyte Chems. Ltd

**Celluloid.** See Nitrocellulose

#### Cellulose

CAS 9004-34-6; 65996-61-4; EINECS/ELINCS 232-674-9

Synonyms: α-Amylose; α-Cellulose; Cellulose crystalline; Cellulose gel; Cellulose powder; Cellulose, powdered; Cellulose pulp; Cotton fiber; Crystalline cellulose; Hydroxycellulose; Powdered cellulose; Pyrocellulose; Wood pulp, bleached

Definition: Natural polysaccharide derived from plant fibers

Properties: Colorless to wh. solid, odorless; sl. sol. in sodium hydroxide sol'n.; insol. in water, dil. acids, and org. solvs.; m.w. 160,000-560,000; dens. ≈ 1.5

Toxicology: ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance dust; cannot be digested by humans; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Fibers: reinforcing filler, visc./sag control for textile, paper, rubber, plastics, coatings, grouts; for mfg. of nitrocellulose, cellulose acetate, etc.; in chromatography; as ion exchange material; in resin-bonded filters for food contact; absorbent, opacifier, visc. control agent in cosmetics; microcrystalline: as binder-disintegrants in pharmaceutical tableting; colloidal: stabilizer, emulsifier, thickener, dispersant, anticaking agent, binding agent in foods

Use Level: ADI not specified; 5-20% (tablet binders, disintegrants), 30% (capsule diluent)

Regulatory: FDA 21CFR §177.2260; GRAS; Europe listed; use in baby foods not permitted in UK; FDA approved for buccals, dentals, orals; powdered USP/NF, BP, Ph.Eur., JP compliance

Manuf./Distrib.: Aldrich; Alfa Chem; Am. Fillers & Abrasives; CarboMer; Celite; Degussa-Hüls; Eastman; FMC; Fluka; Hercules Ltd; NB Entre-

preneurs; Penwest Pharmaceuticals; Reed; Sigma; Spectrum Quality Prods.; U.S. Synthetics; Whittaker, Clark & Daniels

**α-Cellulose.** See Cellulose

**Cellulose acetate**

CAS 9004-35-7

**Synonyms:** CA; Acetate cotton; Acetate ester of cellulose; Acetic acid, cellulose ester; Acetose; Acetylcellulose; Cellulose, acetate; Cellulose 2,5-acetate; Cellulose acetate ester; Cellulose, 2,5-diacetate; Cellulose monoacetate; Cellulose, triacetate; Monoacetylcellulose; Secondary cellulose acetate

**Classification:** Cellulosics; thermoplastic resin

**Properties:** Triacetate insol. in water, alcohol, ether, sol. in glacial acetic acid; tetraacetate insol. in water, alcohol, ether, glacial acetic acid, methanol; pentaacetate insol. in water, sol. in alcohol; m.w. ≈ 37,000; dens. 1.300

**Uses:** Mfg. of rubber and celluloid substitutes; nonflamm. photographic and cinema films; airplane dopes; varnishes; lacquers; waterproofing and sizing for textiles; textile fibers; coating skins; insulating elec. wires; acetate fiber; transparent sheeting and household goods; thermoplastic molding composition; cigarette filters; magnetic tapes; osmotic cell membranes; migrating to food from paper/paperboard; polymer membrane, coating agent for pharmaceuticals; film-former in cosmetics; in food-contact coatings

**Regulatory:** FDA 21CFR §175.300, 182.90, GRAS; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Akzo Nobel; Aldrich; CarboMer; Celanese; Eastman; FMC; Fluka; Kingsfield; Rotuba Extruders; Scientific Adsorbents; Sigma

**Trade Names:** CA-394-60S; CA-398-3; CA-398-6; CA-398-10; CA-398-30

**Cellulose, acetate.** See Cellulose acetate

**Cellulose 2,5-acetate.** See Cellulose acetate

**Cellulose, acetate butanoate.** See Cellulose acetate butyrate

**Cellulose acetate butyrate**

CAS 9004-36-8

**Synonyms:** CAB; Cellaburate; Cellulose, acetate butanoate; Cellulose acetobutyrate

**Classification:** Thermoplastic resin

**Definition:** Butyric acid ester of a partially acetylated cellulose

**Properties:** Wh. pellets or gran.; sol. in ketones, org. acetates, lactates, methylene, ethylene, and propylene chlorides, high-boiling solvs.; dens. 1.250; exc. weathering props.; high dielec. str.; high resist. to oil and grease; high transparency

**Precaution:** Combustible

**Uses:** Thermoplastic for automotive, tool, building, furniture industries, domestic appliances, lighting, elec., radio, and TV industries, optical, photographic film, stationery, toys, toiletries, pkg. applics., protective coatings, printing inks, lacquers; molding compositions; pipe coatings; film and sheet; taillight lenses; water desalination membranes piping and tubing; hydrometers; excipient for formulation of drug-loaded microparticles; film-former in cosmetics, coatings, adhesives; in food-pkg. adhesives; in hot-melt strippable food coatings; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.230, 175.300, 177.1200

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Bencorp Int'l.; Eastman; FMC; KIC Chems.; Sigma; Van Waters & Rogers; Whitfield Chem. Ltd

**Trade Names:** CAB-171-15; CAB-321-0.1; CAB-381-0.1; CAB-381-0.5; CAB-381-2; CAB-381-2BP; CAB-381-20; CAB-500-1; CAB-500-5; CAB-531-1; CAB-551-0.01; CAB-551-0.2; CAB-553-0.4

**Cellulose acetate ester.** See Cellulose acetate

**Cellulose, acetate propanoate.** See Cellulose acetate propionate

**Cellulose acetate propionate**

CAS 9004-39-1

**Synonyms:** CAP; CP; Cellulose, acetate propanoate; Cellulose acetate propionate ester; Cellulose acetopropionate; Cellulose propionate

**Classification:** Thermoplastic

**Definition:** Propionic acid ester of a partially acetylated cellulose

**Properties:** Dens. 1.18-1.23 kg/l; high transparency; scratch resist.; tough

**Uses:** Thermoplastic for automotive, tool, building, furniture industries, domestic appliances, lighting, elec., radio, and TV industries, optical, photographic, stationery, toy, toiletries, and pkg. applics.; paints; printing inks; paper and cloth coatings; lacquer resin; film-former in cosmetics, inks,

coatings, polishes; in food-pkg. adhesives; excipient for pharmaceuticals; in hot-melt strippable food coatings; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.230, 175.300, 177.1200

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Eastman; SAF Bulk Chems.

**Trade Names:** CAP-482-0.5; CAP-482-20; CAP-504-0.2

**Cellulose acetate propionate ester.** See Cellulose acetate propionate

**Cellulose acetobutyrate.** See Cellulose acetate butyrate

**Cellulose acetopropionate.** See Cellulose acetate propionate

**Cellulose carboxymethyl ether.** See Carboxymethylcellulose sodium

**Cellulose carboxymethyl ether sodium salt.** See Carboxymethylcellulose sodium

**Cellulose crystalline.** See Cellulose

**Cellulose, 2,5-diacetate.** See Cellulose acetate

**Cellulose gel.** See Cellulose

**Cellulose glycolic acid sodium salt.** See Carboxymethylcellulose sodium

**Cellulose gum.** See Carboxymethylcellulose sodium

**Cellulose hydroxyethylate.** See Hydroxyethylcellulose

**Cellulose hydroxyethyl ether.** See Hydroxyethylcellulose

**Cellulose, 2-hydroxyethyl ether.** See Hydroxyethylcellulose

**Cellulose, 2-hydroxypropyl ether.** See Hydroxypropylcellulose

**Cellulose methyl.** See Methylcellulose

**Cellulose methylate.** See Methylcellulose

**Cellulose methyl ether.** See Methylcellulose

**Cellulose monoacetate.** See Cellulose acetate

**Cellulose nitrate.** See Nitrocellulose

**Cellulose, polyanionic.** See Carboxymethylcellulose sodium

**Cellulose powder.** See Cellulose

**Cellulose, powdered.** See Cellulose

**Cellulose propionate.** See Cellulose acetate propionate

**Cellulose pulp.** See Cellulose

**Cellulose, regenerated.** See Cellophane

**Cellulose sodium glycolate.** See Carboxymethylcellulose sodium

**Cellulose tetranitrate.** See Nitrocellulose

**Cellulose, triacetate.** See Cellulose acetate

**Cera alba.** See Beeswax

**Cera carnauba.** See Carnauba (Copernica cerifera) wax

**Cera microcrystallina.** See Microcrystalline wax

**Ceratonina.** See Locust bean (Ceratonina siliqua) gum

**Ceratonina siliqua.** See Locust bean (Ceratonina siliqua) gum

**Ceratonina siliqua gum.** See Locust bean (Ceratonina siliqua) gum

**Ceresin**

CAS 8001-75-0; EINECS/ELINCS 232-290-1

**Synonyms:** Cerin; Ceresine; Ceresine wax; Ceresin wax; Earth wax; Mineral wax; White ceresin wax; White ozokerite wax

**Definition:** Waxy mixture of hydrocarbons obtained by purification of ozokerite

**Properties:** Wh. or yel. waxy cake; tasteless; odorless (wh.), sl. odor (yel.); sol. in benzene, chloroform, naphtha, hot oils, petrol. ether, 30 parts abs. alcohol, most org. solvs.; insol. in water; dens. 0.92-0.94; m.p. 68-72 C

**Toxicology:** May cause allergic reactions; TSCA listed

**Precaution:** Combustible

**Uses:** Candles; wax figures; sizing; bottles for hydrofluoric acid; antifouling paints; waterproofing textiles; substitute for beeswax; dental wax compds.; rubber compounding; elec. insulation; waxed paper and cloth; coating wax (pkg., textiles); heat-seal/hot melt flow additive; in food-pkg. adhesives; wood/shoe/leather/car polish ingred.; antistat, binder, emulsion stabilizer, opacifier, visc. control agent; gellant; stabilizer; thickener in pharmaceutical protective creams

**Regulatory:** FDA 21CFR §175.105

**Manuf./Distrib.:** Allyson Enterprises; Frank B. Ross; Hansotech; Koster Keunen; Ruger; Scheel; Spectrum Quality Prods.; Stevenson Cooper; Strahl & Pitsch; Universal Preserv-A-Chem

**Trade Names:** Koster Keunen Ceresine; Ross Ceresine Wax

See also Ozokerite

**Ceresine.** See Ceresin

**Ceresine wax.** See Ceresin

**Ceresin wax.** See Ceresin

**Cerin.** See Ceresin

**Ceteareth**

CAS 68439-49-6 (generic)

**Synonyms:** Alcohols, C16-18, ethoxylated; Aliphatic (C16-C18) alcohol, ethoxylated; (C16-C18) alkyl alcohol ethoxylate; Cetomacrogolum; Cetylstearyl alcohol ethoxylates; (C16-C18) fatty alcohol, ethylene oxide reaction prod.; Ethoxylated fatty alcohols (C16-18); Polyoxyl cetostearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{CH}_2\text{CH}_2\text{O})_n\text{OH}$ , R = cetylstearyl, n = 3-100**Properties:** Soft solids; nonionic

**Toxicology:** LD50 (oral, rat) 1260 mg/kg; LDLo (rabbit, skin) 1260 mg/kg; primary irritant; mod. skin and eye irritant; may cause changes to respiration, GI, liver, and food intake (animal)

**Uses:** Emulsifier for fatty amines, amides, oils, solvs., waxes; antistat, lubricant for wool carding, textile spin finishes; lubricant for hydrophobic fibers; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paper-board

**Trade Names:** Serdiox® NKL 6; Surfonic® L68-18**Ceteareth-2**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-2 cetyl/stearyl ether; PEG 100 cetyl/stearyl ether; POE (2) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 2**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Detergent, emollient, wetting agent, emulsifier, dispersant, solubilizer, and coupling agent for cosmetics, textiles, metalworking lubricants, household prods., and industrial applics.

**Trade Names:** Volpo CS2**Ceteareth-5**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-5 cetyl/stearyl ether; POE (5) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 5**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Detergent, emulsifier, leveling agent, gellant in personal care prods., wax, oil and textiles, scouring agents, dyes, household formulations, silicone emulsification, surfactants; intermediate

**Trade Names:** Volpo CS5**Ceteareth-10**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-10 cetyl/stearyl ether; PEG 500 cetyl/stearyl ether; POE (10) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 10**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Rubber emulsifier; lubricant; dye and fulling assistant; emulsifier, conditioner, and emollient for personal care prods., pharmaceuticals; emulsion polymerization; floor waxes; paper finishes; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800**Trade Names:** Volpo CS10**Ceteareth-11**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-11 cetyl/stearyl ether; POE (11) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 11**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Solubilizer, emulsifier, dispersant for cosmetic and pharmaceutical preparations; coating material for foam suppressant, enzymes, etc.; dyeing auxiliaries; in food-contact textiles; binding agent

**Regulatory:** FDA 21CFR §177.2800**Trade Names:** Oxetal TG 111**Ceteareth-14**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-14 cetyl/stearyl ether; POE (14) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 14**Properties:** Nonionic

**Uses:** Rubber emulsifier; lubricant; dye and fulling assistant; conditioner and emollient for personal care prods., pharmaceuticals; emulsion polymerization; floor waxes; paper finishes; textile lubricant

**Ceteareth-15**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-15 cetyl/stearyl ether; POE (15) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 15**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Surfactant, detergent, emulsifier, leveling agent, intermediate used in personal care prods., wax, oil, textiles, scouring agents, dyes, household formulations, silicone emulsification, surfactants; emollient in pharmaceutical topicals; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800; approved for topicals**Trade Names:** Volpo CS15**Ceteareth-18**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-18 cetyl/stearyl ether; POE (18) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 18**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Dispersant; prod. of powd. detergents; binding agent and base material for solid cleaning agents (toilet sticks); coating material for foam suppressant, enzymes, etc.; dyeing auxiliaries; emulsifier in cosmetics; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800**Trade Names:** Oxetal TG 118**Ceteareth-20**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-20 cetyl/stearyl ether; POE (20) cetyl/stearyl ether; Polyoxyl 20 cetostearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 20

**Properties:** Cream-colored waxy unctuous mass, melting to brnsh. yel. clear liq.; sol. in water, alcohol, acetone; insol. in hexane; HLB 15.6; acid no. 0.5 max.; sapon. no. 2 max.; hyd. no. 42-60; pH 4.5-7.5 (10%); nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, dispersant, solubilizer, wetting agent, detergent, solubilizer, visc. control agent for cosmetics, pharmaceuticals, and industrial applics.; emulsion polymerization; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800; FDA approved for topicals; USP/NF compliance**Manuf./Distrib.:** Aldrich; Fluka; Sigma**Trade Names:** Volpo CS20**Ceteareth-50**

CAS 68439-49-6 (generic)

**Synonyms:** PEG-50 cetyl/stearyl ether; POE (50) cetyl/stearyl ether

**Definition:** PEG ether of cetearyl alcohol**Formula:**  $R(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = blend of cetyl and stearyl radicals, avg. n = 50**Properties:** Nonionic**Toxicology:** TSCA listed

**Uses:** Wetting agent, detergent for industrial/domestic applics.; emulsifier, foam control agent in syn. heavy-duty detergents; emulsion polymerization; surfactant, emulsifier in cosmetics; emulsion stabilizer; in food-contact

textiles

Regulatory: FDA 21CFR §177.2800

Trade Names: Volpo CS50

**Cetareth-60**

CAS 68439-49-6 (generic)

Synonyms: PEG-60 cetyl/stearyl ether; POE (60) cetyl/stearyl ether

Definition: PEG ether of cetyl alcohol

Formula:  $R(OCH_2CH_2)_nOH$ , R = blend of cetyl and stearyl radicals, avg. n = 60

Properties: Nonionic

Uses: Surfactant, emulsifier in cosmetics

Trade Names: Rhodasurf® A-60

**Cetearyl alcohol**

CAS 8005-44-5; 67762-27-0; EINECS/ELINCS 267-008-6

Synonyms: Alcohols, C16-18; n-Alkanol (C16-C18); C16-18 alcohols;

Cetostearyl alcohol; Cetyl-stearyl alcohol; Stearyl-cetyl alcohol

Definition: Mixture of fatty alcohols, predominantly cetyl and stearyl alcohols

Empirical:  $C_{18}H_{38}O$ Formula:  $CH_3(CH_2)_nOH$ , n = 15-17

Properties: Wh. unctuous flakes or gran., faint char. odor, bland mild taste; sol. in alcohol, ether; insol. in water; m.w. 270.50; m.p. 48-55 C; acid no. ≤ 2; iodine no. ≤ 4; hyd. no. 208-228; nonionic

Toxicology: TSCA listed

Uses: Surfactant intermediate; raw material for ethoxylation, sulfation, etc.; stabilizer in emulsion polymerization; lubricant in rigid PVC; emollient, emulsifier, emulsion stabilizer, opacifier, visc. control agent in cosmetics; cosolvent, emollient, consistency factor for pharmaceutical creams, hand lotions, bath oils, shaving creams; pearlescent shampoo ingred.; antiseptic in topical anti-infective prods.; in food-pkg. adhesives

Regulatory: FDA 21CFR §175.105; FDA approved for orals, otics, topicals; USP/NF, BP, Ph.Eur. compliance

Manuf./Distrib.: Ruger; Sea-Land; Spectrum Quality Prods.; Westco; Whyte Chems. Ltd

Trade Names: Loxiol® G 53

Cetene. See Hexadecene-1

**Ceteth-2**

CAS 9004-95-9 (generic); 5274-61-3

Synonyms: 2-[2-Hexadecyloxy] ethanol; PEG-2 cetyl ether; PEG 100 cetyl ether; POE (2) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Empirical:  $C_{20}H_{42}O_3$ Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 2

Properties: Nonionic

Toxicology: TSCA listed

Uses: Detergent, emulsifier, leveling agent, thickener, stabilizer, solubilizer, conditioner in cosmetics, household formulations, silicone emulsification, textile processing; emulsifier in pharmaceutical topicals; intermediate

Regulatory: Approved for topicals

Manuf./Distrib.: Aldrich; Seabrook Ind.; Sigma

Trade Names: Volpo C2

**Ceteth-3**

CAS 9004-95-9 (generic); 4484-59-7

Synonyms: 2-[2-[2-(Hexadecyloxy) ethoxy] ethoxy] ethanol; PEG-3 cetyl ether; POE (3) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Empirical:  $C_{22}H_{46}O_4$ Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 3

Properties: Nonionic

Toxicology: TSCA listed

Uses: Surfactant; emulsifier, cleaner, dispersant for cosmetics, esp. creams and lotions; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

**Ceteth-4**

CAS 9004-95-9 (generic); 5274-63-5

Synonyms: PEG-4 cetyl ether; POE (4) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Empirical:  $C_{24}H_{50}O_5$ Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 4

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier, cleaner, dispersant for cosmetics, esp. creams and lotions; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

**Ceteth-5**

CAS 9004-95-9 (generic); 4478-97-1

Synonyms: PEG-5 cetyl ether; 3,6,9,12,15-Pentaoxahentriacontan-1-ol; POE (5) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Empirical:  $C_{26}H_{54}O_6$ Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 5

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier, cleaner, dispersant for cosmetics and pharmaceuticals, esp. creams and lotions; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

**Ceteth-6**

CAS 9004-95-9 (generic); 5168-91-2

Synonyms: 3,6,9,12,15,18-Hexaoxotetratriacontan-1-ol; PEG-6 cetyl ether; PEG 300 cetyl ether; POE (6) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Empirical:  $C_{28}H_{58}O_7$ Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 6

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier in cosmetics and pharmaceuticals; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

**Ceteth-7**

CAS 9004-95-9 (generic)

Synonyms: PEG-7 cetyl ether; POE (7) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 7

Properties: Nonionic

Toxicology: LD50 (oral, mouse) 2602 mg/kg; TSCA listed

Uses: Emulsifier for cosmetic and pharmaceuticals; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

**Ceteth-10**

CAS 9004-95-9 (generic); 14529-40-9

Synonyms: 3,6,9,12,15,18,21,24,27,30-Dexaoxahexatetracontan-1-ol; PEG-10 cetyl ether; PEG 500 cetyl ether; POE (10) cetyl alcohol; POE (10) cetyl ether

Classification: Nonaromatic ether

Definition: PEG ether of cetyl alcohol

Empirical:  $C_{36}H_{74}O_{11}$ Formula:  $CH_3(CH_2)_{14}CH_2(OCH_2CH_2)_nOH$ , avg. n = 10

Properties: HLB 12.9; nonionic

Toxicology: TSCA listed

Uses: Surfactant, emulsifier, defoamer, wetting agent, conditioner for personal care prods.; solubilizer for fragrances; emulsifier for pharmaceuticals; leveling agent; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200, 177.2800

Manuf./Distrib.: Aldrich; Seabrook Ind.; Sigma

**Ceteth-11**

CAS 9004-95-9 (generic)

Synonyms: PEG-11 cetyl ether; POE (11) cetyl ether



*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 11$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200

**Ceteth-12**

CAS 9004-95-9 (generic); 13149-83-2  
*Synonyms:* 3,6,9,12,15,18,21,24,27,30,33,36-Dodecaoxapentacontan-1-ol; PEG-12 cetyl ether; PEG 600 cetyl ether; POE (12) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 12$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier, cleaner, dispersant for cosmetics and pharmaceuticals, esp. creams and lotions; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200, 177.2800  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-14**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-14 cetyl ether; POE (14) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 14$   
*Properties:* Nonionic  
*Uses:* Surfactant, emulsifier in cosmetics; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-15**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-15 cetyl ether; POE (15) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 15$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier, cleaner, dispersant for cosmetics and pharmaceuticals, esp. creams and lotions; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200, 177.2800  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-16**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-16 cetyl ether; POE (16) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 16$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier, lubricant in cosmetics and pharmaceuticals; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-17**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-17 cetyl ether; POE (17) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, cleaner, dispersant for cosmetics, esp. creams and lotions; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-20**

CAS 9004-95-9 (generic)  
*Synonyms:* Cetomacrogol 1000; PEG-20 cetyl ether; PEG 1000 cetyl ether; PEG 1000 monocetyl ether; POE (20) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$   
*Properties:* Waxy solid; sol. in water; HLB 15.7; pour pt.  $\approx 39$  C; cloud pt.  $\approx 45$  C; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier, wetting agent, antistat, solubilizer, defoamer, detergent, lubricant, emulsion stabilizer for cosmetics, pharmaceuticals, industrial applics.; solubilizer for fragrances; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200, 177.2800; FDA approved for topicals; BP compliance  
*Manuf./Distrib.:* Aldrich; Fluka; Ruger; Seabrook Ind.; Sigma  
*Trade Names:* Volpo C20

**Ceteth-23**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-23 cetyl ether; POE (23) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 23$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier for cosmetic and pharmaceuticals; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-24**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-24 cetyl ether; POE (24) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 24$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier, cleaner, dispersant for cosmetics and pharmaceuticals, esp. creams and lotions; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200, 177.2800  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-25**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-25 cetyl ether; POE (25) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 25$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier for cosmetic and pharmaceuticals; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200, 177.2800  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-30**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-30 cetyl ether; POE (30) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 30$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier in cosmetics and pharmaceuticals; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200, 177.2800  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-40**

CAS 9004-95-9 (generic)

*Synonyms:* PEG-40 cetyl ether; POE (40) cetyl ether  
*Classification:* Nonaromatic ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 40$   
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, mouse) 2602 mg/kg; TSCA listed  
*Uses:* Emulsifier for cosmetic and pharmaceuticals; defoamer in food-contact paper coatings  
*Regulatory:* FDA 21CFR §176.200  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Ceteth-45**

CAS 9004-95-9 (generic)  
*Synonyms:* PEG-45 cetyl ether; POE (45) cetyl ether  
*Definition:* PEG ether of cetyl alcohol  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 45$   
*Uses:* Surfactant in cosmetics; defoamer in food-contact paper coatings; in food-contact textiles  
*Regulatory:* FDA 21CFR §176.200, 177.2800

**Cetoleth**

CAS 8065-81-4 (generic); 68920-66-1 (generic)  
*Synonyms:* Cetyloleylethyl alcohol ethoxylates; PEG monocetyloleylethyl ether; Poly (oxy-1,2-ethanediy),  $\alpha$ -hexadecyl- $\omega$ -hydroxy-, mixt. with (Z)- $\alpha$ -9-octadecenyl- $\omega$ -hydroxypoly (oxy-1,2-ethanediy)  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Formula:*  $\text{RO}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$ , R = cetyl/oleyl and  $n = 2-55$   
*Properties:* Pale yel. to wh. paste or solid; nonionic  
*Toxicology:* LD50 (IP, rat) 490 mg/kg; TDLo (oral, rat, 12 wks continuous) 42 g/kg; may cause vascular, blood, and metabolism changes  
*Uses:* Emulsifier for hydrocarbon oils, waxes; antistat for textile spin finishes  
*Trade Names:* Wax Emulsifier 4106

**Cetoleth-2**

CAS 8065-81-4 (generic); 68920-66-1 (generic)  
*Synonyms:* PEG-2 cetyl/oleyl ether; POE (2) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Properties:* Nonionic  
*Uses:* Emulsifier; mfg. of textile lubricants, solvent and waterless hand cleaners; coemulsifier; detergent additive in petrol. oils; intermediate for anionic surfactants  
*Trade Names:* Teric™ 17A2

**Cetoleth-3**

CAS 8065-81-4 (generic)  
*Synonyms:* PEG-3 cetyl/oleyl ether; POE (3) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Properties:* Nonionic  
*Uses:* Emulsifier; mfg. of textile lubricants, solvent and waterless hand cleaners; coemulsifier; detergent additive in petrol. oils; intermediate for anionic surfactants  
*Trade Names:* Teric™ 17A3

**Cetoleth-6**

CAS 8065-81-4 (generic)  
*Synonyms:* PEG-6 cetyl/oleyl ether; POE (6) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Formula:*  $\text{R}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R rep. cetyl/oleyl radicals, avg.  $n = 6$   
*Properties:* Nonionic  
*Uses:* Emulsifier, mfg. of textile lubricants, solvent and waterless hand cleaners; coemulsifier; detergent additive in petrol. oils; intermediate for anionic surfactants; surfactant in cosmetics; plastics antistat  
*Trade Names:* Teric™ 17A6

**Cetoleth-8**

CAS 8065-81-4 (generic)  
*Synonyms:* PEG-8 cetyl/oleyl ether; POE (8) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Properties:* Nonionic  
*Uses:* Wetting agent, dispersant, emulsifier; used in processing of yarns and fabrics; textile dyeing; horticultural sprays; removal of oil slicks  
*Trade Names:* Teric™ 17A8

**Cetoleth-10**

CAS 8065-81-4 (generic)

*Synonyms:* PEG-10 cetyl/oleyl ether; POE (10) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Properties:* Nonionic  
*Uses:* Wetting agent, dispersant, emulsifier; used in processing of yarns and fabrics; textile dyeing; horticultural sprays; removal of oil slicks; solubilizer for sanitation chemicals; emulsion polymerization; costabilizer  
*Trade Names:* Teric™ 17A10

**Cetoleth-13**

CAS 8065-81-4 (generic)  
*Synonyms:* PEG-13 cetyl/oleyl ether; PEG (13) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Properties:* HLB 14; nonionic  
*Uses:* Wetting agent, dispersant, emulsifier; used in processing of yarns and fabrics; textile dyeing; horticultural sprays; removal of oil slicks; solubilizer for sanitation chemicals; emulsion polymerization; latex stabilizer; dye leveling agent  
*Trade Names:* Teric™ 17A13

**Cetoleth-25**

CAS 8065-81-4 (generic); 54045-08-8  
*Synonyms:* PEG-25 cetyl/oleyl ether; POE (25) cetyl/oleyl ether  
*Definition:* PEG ether of cetyl alcohol and oleyl alcohol  
*Formula:*  $\text{R}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R rep. cetyl/oleyl radicals, avg.  $n = 25$   
*Properties:* Nonionic  
*Uses:* Wetting agent; dispersant; emulsifier; emulsion polymerization; processing of yarns and fabrics; textile dyeing; horticultural sprays; removal of oil slicks; solubilizer for sanitation chemicals; surfactant in cosmetics; costabilizer; plasticizer for soap prod.; food-contact paper/paperboard  
*Trade Names:* Disponil® O 250; Teric™ 17A25

**Cetomacrogol 1000.** See Ceteth-20

**Cetomacrogolum.** See Cetearth

**Cetostearyl alcohol.** See Cetearyl alcohol

**Cetrimonium chloride**

CAS 112-02-7; EINECS/ELINCS 203-928-6  
*Synonyms:* Cetyl trimethyl ammonium chloride; Hexadecyl trimethyl ammonium chloride; Palmityl trimethyl ammonium chloride; N,N,N-Trimethyl-1-hexadecanaminium chloride  
*Classification:* Quaternary ammonium salt  
*Empirical:*  $\text{C}_{19}\text{H}_{42}\text{ClN}$   
*Formula:*  $\text{C}_{16}\text{H}_{33}(\text{CH}_3)_3\text{NCl}$   
*Properties:* M.w. 320.01; cationic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, dispersant, emollient, surfactant, softener, conditioner, bactericide, fungicide, odor inhibitor in personal care prods., pharmaceuticals; preservative in cosmetics; antistat for hair, fibers, plastics; antistat/softener for textile finishes; gel sensitizer in latex foam prod.; emulsion polymerization; germicide (duckweed killer), dispersant, coagulant for water treatment; coagulant in antibiotic prod.  
*Regulatory:* FDA approved for topicals  
*Manuf./Distrib.:* Aldrich; Fluka  
*Trade Names:* Chemquat 16/50; Nissan Cation PB-40; Nissan Cation PB-300  
*Trade Names Containing:* Arquad® 16-50

**Cetyl alcohol**

CAS 124-29-8; 36653-82-4; EINECS/ELINCS 253-149-0; FEMA 2554  
*Synonyms:* Alcohol C16; C16 linear primary alcohol; Ethal; Ethol; 1-Hexadecanol; Hexadecyl alcohol; Palmityl alcohol  
*Classification:* Fatty alcohol  
*Empirical:*  $\text{C}_{16}\text{H}_{34}\text{O}$   
*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2\text{OH}$   
*Properties:* Wh. waxy solid; partially sol. in alcohol, chloroform, ether; pract. insol. in water; m.w. 242.27; dens. 0.8176 (49.5 C); m.p. 49.3 C; b.p. 344 C; acid no.  $\leq 2$ ; iodine no.  $\leq 5$ ; hyd. no. 218-238; flash pt.  $> 110$  C; ref. index 1.4283; surface-active dispersant, wetting agent, and compatibility aid for enhancing color acceptance in high solids coatings (alkyds, epoxies, UV and EB-cured coatings); emulsifier for emulsion polymerization  
*Toxicology:* LD50 (oral, rat) 6400 mg/kg; mod. toxic by ingestion, intraperitoneal routes; eye and human skin irritant; can cause hives; TSCA listed  
*Precaution:* Flamm. when exposed to heat or flame; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**HMIS:** Health 1; Flammability 0; Reactivity 1

**Uses:** Perfumery; emulsifier; emollient; coupling agent; surface-active dispersant; wetting agent; foam stabilizer in detergents; opacifier; thickener; chemical intermediate; external mold release for acrylics; raw material for antioxidants; emulsion polymerization; color enhancer in high-solids coatings; flavoring agent, color diluent, intermediate for confectionery, food supplements in tablet form, gum; cosolvent; pharmaceutical acid (emulsifier, stiffener); emollient, emulsifier, opacifier, visc. control agent in cosmetics; in food-pkg. adhesives; in food-contact coatings; defoamer in food-contact paper coatings; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §73.1, 73.1001, 172.515, 172.864, 175.105, 175.300, 176.200, 177.1010, 177.1200, 177.2800, 178.3480, 178.3910; FEMA GRAS; FDA approved for ophthalmics, orals, otics, rectals, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** AC Ind.; Aarhus Oliefabrik A/S; Albemarle; Aldrich; Alfa Aesar; Allchem Ind.; Amerchol; Ashland; Brown; Chemron; Cognis/Chems. Group; Condea Vista; Croda Chem. Ltd; E-Chemicals; Fluka; Jarchem Ind.; Lipo; Lonza; M. Michel; Norman, Fox; Penta Mfg.; Procter & Gamble; Protameen; R.W. Greeff; Rhodia HPCII; Ruger; Salim Oleochems.; Sea-Land; Sigma; Spectrum Quality Prods.; Stepan; Whyte Chems. Ltd

**Trade Names:** Kessco® Cetyl Alcohol NF

**Trade Names Containing:** Ross Beeswax Substitute No. 628/5

#### Cetyl arachidol

CAS 17658-63-8; EINECS/ELINCS 241-637-6

**Synonyms:** 1-Eicosanol, 2-hexadecyl-; Hexadecyl eicosanol; 2-Hexadecyl-1-eicosanol

**Classification:** Aliphatic alcohol

**Empirical:** C<sub>36</sub>H<sub>74</sub>O

**Uses:** Wax substitute; skin softener in stick formulations; emollient in cosmetics; in pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles

**Manuf./Distrib.:** Jarchem Ind.

**Trade Names:** Jarcol™ I-36

**Trade Names Containing:** Jarcol™ I-34T

#### Cetyl betaine

CAS 693-33-4; EINECS/ELINCS 211-748-4

**Synonyms:** N-(Carboxymethyl)-N,N-dimethyl-1-hexadecanaminium hydroxide, inner salt; (Carboxymethyl) hexadecyldimethylammonium hydroxide, inner salt; N,N-Dimethyl-N-hexadecylglycine; 1-Hexadecanaminium, N-(carboxymethyl)-N,N-dimethyl-, hydroxide, inner salt; Hexadecylbetaine

**Classification:** Zwitterion (inner salt)

**Empirical:** C<sub>20</sub>H<sub>41</sub>NO<sub>2</sub>

**Properties:** M.w. 327.62; amphoteric

**Toxicology:** LD50 (oral, rat) 1620 mg/kg, (IP, rat) 150 mg/kg; poison by IP route; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub>

**Uses:** Wetting agent; detergent; emulsifier; dispersant; surfactant; conditioner; dyeing applics.; softener for textiles; leveling and rewetting agent in the paper industry; dyeing assistant and degreaser in the leather industry; antistat on plastic films; alkaline peroxide bleaching systems; surfactant, antistat in cosmetics

**Trade Names:** Product BCO

#### Cetyl dimethicone copolyol

**Definition:** Copolymer of cetyl dimethicone and dimethicone copolyol

**Properties:** Nonionic

**Uses:** Surfactant, emollient for creams and lotions, pharmaceuticals; emulsifier for cyclomethicone, cosmetics

**Trade Names:** TEGO® Flow 354

#### Cetylic acid. See Palmitic acid

#### Cetyl methacrylate

CAS 2495-27-4

**Synonyms:** Hexadecyl methacrylate; Hexadecyl 2-methyl-2-propenoate; Methacrylic acid, hexadecyl ester; Palmityl methacrylate; 2-Propenoic acid, 2-methyl-, hexadecyl ester

**Empirical:** C<sub>20</sub>H<sub>38</sub>O<sub>2</sub>

**Properties:** M.w. 310.52

**Uses:** Additive for lubricating oil, paint, adhesives; modifier for fibers; coating agent for paper

**Manuf./Distrib.:** ABCR

**Trade Names:** Blemmer CMA

**Cetyloleyl alcohol ethoxylates.** See Ceteleth

**Cetyl-stearyl alcohol.** See Cetearyl alcohol

**Cetylstearyl alcohol ethoxylates.** See Ceteareth

**Cetyl trimethyl ammonium chloride.** See Cetrimonium chloride

**Chalk.** See Calcium carbonate

**Channel black.** See Carbon black

**Charcoal.** See Carbon black

**Charcoal, activated.** See Carbon, activated

**China clay.** See Kaolin

**Chinawood oil.** See Tung oil

**Chinese bean oil.** See Soybean (Glycine soja) oil

**Chinese blue.** See Ferric ferrocyanide

**Chinese tung oil.** See Tung oil

**Chinese white.** See Zinc oxide

**Chloracetamide.** See Chloroacetamide

#### Chloral hydrate

CAS 302-17-0; EINECS/ELINCS 206-117-5; UN No. 2075

**Synonyms:** 1,1-Ethanediole, 2,2,2-trichloro-; Knockout drops; Trichloroacetaldehyde hydrate; Trichloroacetaldehyde, hydrated; Trichloroacetaldehyde monohydrate; 1,1,1-Trichloro-2,2-dihydroxyethane; 1,1,1-Trichloro-2,2-ethanediole; 2,2,2-Trichloro-1,1-ethanediole; Trichloro ethylidene glycol

**Empirical:** C<sub>2</sub>H<sub>2</sub>Cl<sub>3</sub>O<sub>2</sub>

**Formula:** CCl<sub>3</sub>CH(OH)<sub>2</sub>

**Properties:** Colorless transparent cryst.; aromatic, penetrating, sl. acrid odor; sl. bitter sharp taste; sol. in water, alcohol, chloroform, ether, olive oil, turpentine oil; m.w. 165.40; dens. 1.901; m.p. 52 C; b.p. 97.5 C

**Toxicology:** LD50 (oral, rat) 479 mg/kg, (skin, rat) 3030 mg/kg, (IV, mouse) 530 mg/kg, (IP, rat) 472 mg/kg; TDLo (oral, human female) 465 mg/kg; LDLo (oral, human) 4 mg/kg; overdose is toxic; hypnotic drug; dangerous to eyes; skin irritant; may cause nausea, vomiting, somnolence, ataxia, coma, arrhythmias, blood pressure decrease, pulse rate increase; reproductive effector; mutagen; tumorigen; TSCA listed

**Precaution:** Slowly volatilizes when exposed to air

**Storage:** Hygroscopic

**Uses:** Polymerization reaction control agent in paper/paperboard in contact with dry food; in food-pkg. adhesives; medicine (sedative); mfg. of DDT, liniments

**Regulatory:** FDA 21CFR §175.105, 176.180

**Manuf./Distrib.:** Amend Drug & Chem.; Anmar Int'l.; Ceres Chem.; F.T.L. Int'l.; Fluka; McGean-Rohco; Ruger; Schütz; Sigma; Spectrum Quality Prods.; Zetapharm

**Chlorallyl methenamine chloride.** See Quaternium-15

**Chloramien blue 2B.** See Direct blue 6

**Chloramine black C.** See Direct black 38

**Chloramine brown M.** See Direct brown 2

**Chloramine carbon black S.** See Direct black 38

**Chloramine red 3B.** See Direct red 39

**Chlorate of soda.** See Sodium chlorate

**Chlorazol black E.** See Direct black 38

**Chlorazole black E.** See Direct black 38

**Chlorosane.** See Paraffin, chlorinated

**p-Chlor-m-cresol.** See p-Chloro-m-cresol

**Chlorhydric acid.** See Hydrochloric acid

**Chloric acid sodium salt.** See Sodium chlorate

**Chlorinated lime.** See Calcium hypochlorite

**Chlorinated paraffin.** See Paraffin, chlorinated

**Chlorinated polypropylene.** See Polypropylene, chlorinated

**Chlorinated PP.** See Polypropylene, chlorinated

**Chlorinated rubber.** See Rubber, chlorinated

#### Chlorine dioxide

CAS 10049-04-4; EINECS/ELINCS 233-162-8; UN No. NA 9191

**Synonyms:** Anthium dioxide; Chlorine oxide; Chlorine (IV) oxide; Chlorine peroxide; Chloroperoxyl; Chloryl radical

**Classification:** Halogen oxide



**2-(Chloromethyl) oxirane.** See Epichlorohydrin  
**4-Chloro-3-methylphenol.** See p-Chloro-m-cresol

**1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol**  
 CAS 2814-77-9; EINECS/ELINCS 220-562-2  
*Synonyms:* 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthol; CI 12085; D&C Red no. 36; Flaming red; Paranitroaniline red, chlorinated; Permanent red R; Pigment red 4; Tiger orange; Vulcan red R  
*Classification:* Monoazo color  
*Empirical:* C<sub>16</sub>H<sub>10</sub>ClN<sub>3</sub>O<sub>3</sub>  
*Properties:* M.w. 327.73  
*Toxicology:* TSCA listed  
*Uses:* Pigment for resins, paper, printing inks; colorant for cosmetics, pharmaceutical orals and topicals  
*Regulatory:* D&C Red No. 36; FDA 21CFR §74.1333, 74.1336, 74.2333, 74.2336, 82.1336; FDA approved for orals, topicals  
*Manuf./Distrib.:* Avesia Pigments/Addit.; Costec; Ruger; Sun Chem./Pigments; Warner-Jenkinson

**1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthol.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**Chloroparaffin.** See Paraffin, chlorinated  
**Chloroperoxy.** See Chlorine dioxide  
**Chloroprene polymer.** See Polychloroprene  
**Chloroprene resin.** See Polychloroprene  
**Chloroprene rubber.** See Polychloroprene  
**Chloropropylene oxide.** See Epichlorohydrin  
**3-Chloro-1,2-propylene oxide.** See Epichlorohydrin  
**γ-Chloropropylene oxide.** See Epichlorohydrin  
**Chlorosulfona.** See Bis (trichloromethyl) sulfone  
**Chlorotrifluoroethene, homopolymer.** See Chlorotrifluoroethylene polymer

**Chlorotrifluoroethylene polymer**  
 CAS 9002-83-9  
*Synonyms:* PCTFE; Chlorotrifluoroethene, homopolymer; Chlorotrifluoroethylene polymers; Chlorotrifluoroethylene resin; Ethylene, chlorotrifluoro-, polymers; Fluoroethene; Poly(chlorotrifluoroethene); Polychlorotrifluoroethylene; Poly (monochlorotrifluoroethylene); Polytrifluorochloroethylene; Poly (trifluoroethylene chloride); Poly (trifluoromonochloroethylene); Poly(trifluorovinyl chloride); Trifluorochloroethylene polymer  
*Classification:* Thermoplastic polymer; fluorocarbon resin  
*Definition:* A polymer of chlorotrifluoroethylene, usually incl. vinylidene fluoride  
*Empirical:* (C<sub>2</sub>ClF<sub>3</sub>)<sub>x</sub>  
*Formula:* [CF<sub>2</sub>CFCl]<sub>x</sub>  
*Properties:* M.w. 116.47; dens. 2.10-2.15; m.p. -158 C; b.p. -28.4 C; flash pt. -18 F; ref. index 1.43; tens. str. 30-40 MPa; tens. mod. 1300 MPa; elong. (@ break) 150-200%; relatively inert; low gas permeability  
*Toxicology:* LD50 (oral, rat) > 9200 mg/kg; LD (skin, rabbit) > 3700 mg/kg; mod. toxic by skin contact; low toxicity by ing.; TSCA listed  
*Precaution:* Dangerous fire risk  
*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of Cl<sup>-</sup> and F<sup>-</sup>  
*Uses:* Lubricant, EP additive for chem., aerospace, hydraulic fluids, metalworking, nuclear, pulp/paper, other industries; chemical piping; chem.-resist. seals/o-rings; gaskets; tank linings; wire/cable insulation; mold release for plastics, rubber; plasticizer; electronic components; transparent vapor barrier layer (electroluminescent devices, pharmaceutical pkg.); transparent chem.-resist. moldings; film-former in cosmetics; food pkg.  
*Regulatory:* FDA 21CFR §177.1380  
*Manuf./Distrib.:* Aldrich; Sigma  
*Trade Names:* Halocarbon Grease 25-10M; Halocarbon Grease 25-20M; Halocarbon Grease X90-10M; Halocarbon Oil 0.8; Halocarbon Oil 1.8; Halocarbon Oil 4.2; Halocarbon Oil 6.3; Halocarbon Oil 27; Halocarbon Oil 56; Halocarbon Oil 95; Halocarbon Oil 200; Halocarbon Oil 400; Halocarbon Oil 700; Halocarbon Oil 1000N; Halocarbon Wax 40; Halocarbon Wax 600; Halocarbon Wax 1200; Halocarbon Wax 1500  
*Trade Names Containing:* Halocarbon Grease 19; Halocarbon Grease 25-5S; Halocarbon Grease 28; Halocarbon Grease 28LT; Halocarbon Grease 32

**Chlorotrifluoroethylene polymers.** See Chlorotrifluoroethylene polymer  
**Chlorotrifluoroethylene resin.** See Chlorotrifluoroethylene polymer

**Chlorous acid, sodium salt.** See Sodium chlorite  
**Chloryl radical.** See Chlorine dioxide  
**Chondrus.** See Carrageenan (Chondrus crispus)  
**CHP.** See Cumene hydroperoxide  
**Chrome alum.** See Chromium potassium sulfate  
**Chrome green.** See Chromium oxide (ic)  
**Chrome leather black E.** See Direct black 38  
**Chrome leather blue 2B.** See Direct blue 6  
**Chrome leather brow M.** See Direct brown 2  
**Chrome leather dark green.** See Direct green 1  
**Chrome leather scarlet 3BS.** See Direct red 39  
**Chrome ocher.** See Chromium oxide (ic)  
**Chrome oxide.** See Chromium oxide (ic)  
**Chrome oxide green.** See Chromium oxide (ic)  
**Chrome oxide pigment.** See Chromium oxide (ic)  
**Chrome potash alum.** See Chromium potassium sulfate  
**Chromia.** See Chromium oxide (ic)  
**Chromic acid green.** See Chromium oxide (ic)  
**Chromic oxide.** See Chromium oxide (ic)  
**Chromic potassium sulfate.** See Chromium potassium sulfate  
**Chromic sesquioxide.** See Chromium oxide (ic)  
**Chromic sulfate, basic.** See Chromium sulfate, basic  
**Chromium hydroxide sulfate.** See Chromium sulfate, basic  
**Chromium oxide.** See Chromium oxide (ic)  
**Chromium (III) oxide.** See Chromium oxide (ic)  
**Chromium (III) oxide (2:3).** See Chromium oxide (ic)  
**Chromium oxide green.** See Chromium oxide (ic)  
**Chromium oxide greens.** See Chromium oxide (ic)

**Chromium oxide (ic)**  
 CAS 1308-38-9; EINECS/ELINCS 215-160-9  
*Synonyms:* Anadonis green; Casalis green; Chrome green; Chrome ocher; Chrome oxide; Chrome oxide green; Chrome oxide pigment; Chromia; Chromic acid green; Chromic oxide; Chromic sesquioxide; Chromium oxide; Chromium (III) oxide; Chromium (III) oxide (2:3); Chromium oxide green; Chromium oxide greens; Chromium sesquioxide; Chromium (3+) trioxide; CI 77288; Dichromium trioxide; Green chrome oxide; Green chromic oxide; Green cinnabar; Green rouge; Leaf green; Oxide of chromium; Pigment green 17; Ultramarine green  
*Classification:* Inorganic color  
*Empirical:* Cr<sub>2</sub>O<sub>3</sub>  
*Properties:* Ylsh. grn. hard cryst. solid; turns brn. on heating, reverts to grn. on cooling; sl. sol. in acids, alkalis; pract. insol. in water, alcohol, acetone; m.w. 151.99; dens. 5.21; m.p. 2435 C; b.p. 4000 C  
*Toxicology:* ACGIH TLV/TWA 0.5 mg(Cr)/m<sup>3</sup>; TDLo (IP, rat) 90 mg/kg; TCLo (inh., rat, 4 h, 6 wks intermittent) 150 mg/m<sup>3</sup>; harmful solid; toxic by ing. and inh.; probably severely irritating to eyes, skin, mucous membranes; sensitizer; avoid contact and inh.; confirmed carcinogen; tumorigen; mutagenic data  
*Precaution:* Powerful oxidizer; violent reactions with ClF<sub>3</sub>  
*Storage:* Hygroscopic  
*Uses:* Metallurgy; green pigment in paints, plastics, ceramics, concrete, roofing tiles, enamels, glass; green granules in asphalt roofing; colorant in cosmetics, hair dyes, eye makeup, soap, external pharmaceuticals; catalyst in org. and inorg. reactions; component of refractory brick; stainless steel polishing abrasive; in elec. semiconductors; in alloys; printing fabrics and banknotes; colorant in food-contact polymers  
*Regulatory:* FDA 21CFR §72.2327, 173.1327, 178.3297  
*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Atlantic Equip. Engrs.; Atomergic Chemetals; Cleveland Pigment & Color; Costec; D.N. Lukens; Engelhard; Ferro/Color; Fisher Scientific; Fluka; Great Western; Harcros; Hoover Color; Landers-Segal Color; Min. Pigments; Noah; Reade Advanced Materials; Seegott; Sigma; Spectrum Quality Prods.; Tammis Ind.; Universal Color Disps.; Warner-Jenkinson; Whittaker, Clark & Daniels  
*Trade Names:* Synox HG-5040; Synox HG-5050; Synox HG-5060; Synox HG-5080

**Chromium potassium sulfate**  
 CAS 10141-00-1; 7788-99-0 (dodecahydrate)  
*Synonyms:* Chrome alum; Chrome potash alum; Chromic potassium sulfate; Chromium (III) potassium sulfate; Chromium potassium sulfate (1:1:2); Potassium chrome alum; Potassium chromium sulfate  
*Definition:* Avail. commercially as the dodecahydrate



**CI azoic coupling component 1.** See  $\beta$ -Naphthol  
**CI azoic diazo component 48.** See Dianisidine  
**CI azoic diazo component 112.** See Benzidine  
**CI direct black 38.** See Direct black 38  
**CI direct black 80.** See Direct black 80  
**CI direct black 38, disodium salt.** See Direct black 38  
**CI direct blue 6.** See Direct blue 6  
**CI direct blue 53.** See Direct blue 53  
**CI direct blue 6, tetrasodium salt.** See Direct blue 6  
**CI direct blue 53, tetrasodium salt.** See Direct blue 53  
**CI direct brown 2, disodium salt.** See Direct brown 2  
**CI direct green 1.** See Direct green 1  
**CI direct green 1, disodium salt.** See Direct green 1  
**CI direct red 39.** See Direct red 39  
**CI disperse black 6.** See Dianisidine  
**CI 45160 lake.** See Pigment red 81  
**CI pigment red 2.** See Pigment red 2  
**CI pigment red 3.** See Pigment red 3  
**CI pigment yellow 74.** See Pigment yellow 74

**C10-11 isoparaffin**

CAS 64742-48-9 (generic)  
*Synonyms:* Alkanes, C10-11-iso-; Alkanes, iso-, C10-11  
*Definition:* Mixt. of branched chain aliphatic hydrocarbons with 9-11 carbons in the alkyl chain  
*Uses:* Solvent in cosmetics; solvent, diluent, carrier for personal care prods. for sprays; solvent for coatings, odorless alkyd/acrylic paints; extremely low surf. tens. to improve flow and wetting; thinner; cleaner; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free  
*Regulatory:* FDA 21CFR §172.882, 173.340  
*Trade Names:* Isopar® G

**C11-12 isoparaffin**

CAS 64742-48-9 (generic)  
*Synonyms:* Alkanes, C11-12-iso-; Alkanes, iso-, C11-12  
*Definition:* Mixt. of branched chain aliphatic hydrocarbons with 11 or 12 carbons in the alkyl chain  
*Uses:* Solvent, diluent, carrier for personal care prods. for sprays; solvent for coatings, odorless alkyd/acrylic paints; extremely low surf. tens. to improve flow and wetting; thinner; cleaner; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free  
*Regulatory:* FDA 21CFR §172.882, 173.340  
*Trade Names:* Isopar® H; Isopar® K

**C11-13 isoparaffin**

CAS 64742-48-9 (generic)  
*Synonyms:* Alkanes, C11-13-iso-; Alkanes, iso-, C11-13  
*Definition:* Mixt. of branched chain aliphatic hydrocarbons with 11 to 13 carbons in the alkyl chain  
*Uses:* Solvent for cosmetics, skin care prods., coatings, odorless alkyd/acrylic paints; extremely low surf. tens. to improve flow and wetting; thinner; cleaner; food-contact paper, rubber articles; defoamer in food-contact paper/paperboard; minimizes VOC; virtually HAPs-free  
*Regulatory:* FDA 21CFR §172.882, 173.340  
*Trade Names:* Isopar® L

**C13-14 isoparaffin**

CAS 64742-48-9 (generic)  
*Synonyms:* Alkanes, C13-14-iso-; Alkanes, iso-, C13-14  
*Definition:* Mixt. of branched chain aliphatic hydrocarbons with 13 or 14 carbons in the alkyl chain  
*Uses:* Solvent for hair sprays, coatings, antiperspirants, laundry prewash, furniture/floor polishes, waterless hand cleaners, agrochemicals, thinners, cleaners, degreasers; suitable for odorless alkyd/acrylic paints; in anti-biotic gels; emollient, solvent in cosmetics; carrier for insecticide actives; dispersant; flow control agent; wetting agent; food-contact paper, rubber articles; defoamer in food-contact paper/paper; minimizes VOC; virtually HAPs-free  
*Regulatory:* FDA 21CFR §172.882, 173.340  
*Trade Names:* Isopar® M

**Citric acid**

CAS 77-92-9 (anhyd.); EINECS/ELINCS 201-069-1; FEMA 2306  
*Synonyms:* 2-Hydroxy-1,2,3-propanetricarboxylic acid; 2-Hydroxypropane-1,2,3-tricarboxylic acid;  $\beta$ -Hydroxytricarballic acid  
*Classification:* Organic acid  
*Empirical:*  $C_6H_8O_7$   
*Formula:*  $HOC(COOH)(CH_2COOH)_2$   
*Properties:* Colorless translucent crystals or powd., odorless, strongly acidic tart taste; very sol. in water, alcohol, and ether; very sl. sol. in ether; m.w. 192.43; dens. 1.542; m.p. 153 C; flash pt. 212 F  
*Toxicology:* LD50 (oral, rat) 6730 mg/kg; poison by IV; mod. toxic by subcut. and IP routes; poison by IV route; mildly toxic by ingestion; primary irritant; severe eye, mod. skin irritant; some allergenic props.; erodes tooth enamel; TSCA listed  
*Precaution:* Combustible; potentially explosive reaction with metal nitrates  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke, fumes  
*HMS:* Health 1; Flammability 0; Reactivity 0  
*Uses:* Prep. of citrates; acidulant in beverages, foods; flavoring extracts, confections, soft drinks; antioxidant, chelating agent in foods; sequestrant; dispersant; detergent builder; metal cleaner; curing accelerator; intermediate for paints; complexing agent for iron in cooling water systems; removes mill scale, heavy iron oxide and copper deposits; efflorescent powds.; mineral flotation agent; electroplating/anodizing reagent; regulates set time in concrete, mortar, plaster; buffer in textile dyeing, leather tanning; chelating agent in paper and plastics mfg.; buffer, chelating agent in cosmetics; skin care additive; pharmaceuticals (buffer, flavoring)  
*Use Level:* 2500 ppm (nonalcoholic beverages), 1600 ppm (ice cream, ices), 4300 ppm (candy), 1200 ppm (baked goods), 3600 ppm (chewing gum); ADI no limit (EU)  
*Regulatory:* FDA 21CFR §131.111, 131.112, 131.136, 131.138, 131.144, 131.146, 133, 145.131, 145.145, 146.187, 150.141, 150.161, 155.130, 161.190, 166.40, 166.110, 169.115, 169.140, 169.150, 172.755, 173.160, 173.165, 173.280, 182.1033, 182.6033, GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, limitation 5.8 lb/1000 gal; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for injectables, buccals, inhalants, nasals, ophthalmics, topicals, orals, otics; USP/NF, BP, Ph.Eur.  
*Manuf./Distrib.:* A.E. Staley Mfg.; ADA Int'l.; ADM; AMC Chems.; AMRESO; Aktiva Ltd; Aldrich; Alfa Chem; Allan; Ashland; BCH Brühl; Baychem; Browning; Cargill/Citric Acid; Chemical; FBC Ind.; Fluka; Gadot Biochem.; Haarmann & Reimer; Harcros; Hoffmann-LaRoche; Int'l. Chem. Inc.; J.T. Baker; Jungbunzlauer Int'l. AG; Lohmann; Miljac; PMC Spec.; Penta Mfg.; Phelps Dodge Refining; Poly Research; R.W. Greeff; Research Organics; Rona; Ruger; Sal Chem.; San Yuan; Schaefer Tech.; Schweizerhall; Sigma; Sinochem Tianjin; Spectrum Quality Prods.; Tate & Lyle N. Am.; U.S. Petrochem. Ind.; Universal Preserv-A-Chem; V.L. Clark; Van Waters & Rogers; Varsal Instruments; Whyte Chems. Ltd  
*Trade Names:* Eldorado FCA-810; Liquinat®

**Citric acid, octadecyl ester.** See Stearyl citrate  
**Citric acid, tributyl ester, acetate.** See Acetyl tributyl citrate

**Citrucel.** See Methylcellulose

**CI vat yellow.** See Vat yellow 4

**Clay.** See Aluminum silicate dihydrate

**C18 linear alcohol.** See Stearyl alcohol

**C6 linear alpha olefin.** See 1-Hexene

**C8 linear alpha olefin.** See Octene-1

**C14 linear alpha olefin.** See Tetradecene-1

**C13 linear primary alcohol.** See Tridecyl alcohol

**C16 linear primary alcohol.** See Cetyl alcohol

**CMC.** See Carboxymethylcellulose sodium

**CMC sodium salt.** See Carboxymethylcellulose sodium

**Coal oil.** See Kerosene

**Coal tar naphtha.** See Naphtha

**Coal tar naphtha distillate.** See Naphtha

**Cobalt acetate (ous)**

CAS 6147-53-1; EINECS/ELINCS 200-755-8  
*Synonyms:* Acetic acid, cobalt (2+) salt, tetrahydrate; Cobalt acetate tetrahydrate; Cobalt (I) acetate tetrahydrate; Cobalt diacetate tetrahydrate; Cobaltous acetate; Cobaltous acetate tetrahydrate  
*Classification:* Carboxylic acid salt  
*Empirical:*  $C_4H_6CoO_4 \cdot 4H_2O$



*Formula:*  $\text{Co}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot 4\text{H}_2\text{O}$

*Properties:* Reddish-violet cryst.; sol. in water, acids, alcohol; m.w. 177.02 (anhyd.); 249.11 (tetrahydrate); dens. 1.7043; m.p. loses water @ 140°C

*Toxicology:* ACGIH TLV/TWA 0.05 mg (Co)/m<sup>3</sup>; LD50 (oral, rat) 708 mg/kg; mod. toxic by ing.; avoid inh.; skin and eye irritant; cancer suspect agent; human mutagenic data; target organs: thyroid, lungs; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Hygroscopic, deliq.

*Uses:* Inks; paint and varnish driers; catalyst; anodizing; mineral supplement in feed additives; foam stabilizer; in food-pkg. adhesives; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170

*Manuf./Distrib.:* AC Ind.; Aldrich; Alemark; Atomergic Chemetals; BCH Brühl; Barker Ind.; Celtic Chem. Ltd; Fluka; Hall Chem.; Mallinckrodt Baker; Min. R&D; Noah; OM Group; Shepherd; Sigma; Spectrum Quality Prods.

**Cobalt acetate tetrahydrate.** See Cobalt acetate (ous)

**Cobalt (I) acetate tetrahydrate.** See Cobalt acetate (ous)

#### **Cobalt aluminate**

*Uses:* Colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170, 178.3297

*Manuf./Distrib.:* Bayer; Ferro/Color

**Cobalt diacetate tetrahydrate.** See Cobalt acetate (ous)

**Cobaltous acetate.** See Cobalt acetate (ous)

**Cobaltous acetate tetrahydrate.** See Cobalt acetate (ous)

#### **Cocamide**

CAS 61789-19-3; EINECS/ELINCS 263-039-4

*Synonyms:* Amides, coco; Amides, coconut oil; Coco amide; Coconut acid amide; Coconut oil amides

*Classification:* Aliphatic amide

*Formula:*  $\text{RCO-NH}_2$ , where RCO- represents fatty acids derived from coconut oil

*Toxicology:* TSCA listed

*Uses:* Dry-cleaning detergent; internal lubricant, slip agent for plastics, coatings, films; foam/visc. stabilizer; water repellent for textiles; emulsifier, emulsion stabilizer, surfactant, visc. control agent in cosmetics; in closure-sealing gaskets for food containers; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.320, 176.210, 177.1210

#### **Cocamide DEA**

CAS 8051-30-7; 61791-31-9; 68603-42-9; EINECS/ELINCS 263-163-9; 271-657-0

*Synonyms:* Amides, coco, N,N-bis (2-hydroxyethyl)-; N,N-Bis (2-hydroxyethyl) coco amides; N,N-Bis (2-hydroxyethyl) coco fatty acid amide; Coconut acid diethanolamide; Coconut acid polydiethanolamide (2:1 type); Coconut acid superamide (1:1 type); Coconut diethanolamide; Cocoyl diethanolamide; Diethanolamine coconut fatty acid condensate

*Definition:* Ethanolamides of coconut acid

*Formula:*  $\text{RCO-N}(\text{CH}_2\text{CH}_2\text{OH})_2$ , RCO- represents the coconut acid radical

*Properties:* Amber liq.

*Toxicology:* May produce contact sensitivity; TSCA listed

*Uses:* Detergent, thickener, emulsifier, foam booster/stabilizer, wetting agent, solubilizer for cosmetics, pharmaceutical topicals, industrial and household cleaners, textiles, etc.; thickener, conditioner, stabilizer in shampoos; surfactant, emulsion stabilizer in cosmetics; plastics antistat; foods (delimiting of cottonseed for prod. of cottonseed oil); byprods. for use in animal feeds; in cellophane for food pkg.; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §172.710, 173.322 (0.2% max.), 175.105, 176.210, 177.1200, 177.2260, 177.2800; FDA approved for topicals

*Manuf./Distrib.:* Custom Ingreds.; McIntyre; Mitsui & Co. USA; Rhodia HPCII; Venus Ethoxyethers

*Trade Names:* DeMIDE MFM-200; DeMIDE MFS-200; DeMIDE RCN-100; DeMIDE RCN-100HV; DeMIDE RCN-200; DeMIDE RCN-276; DeMIDE RCN-MCY-100; DeMIDE RCN-ME-100; Norfox® DCS; Stafoam F

#### **Cocamidopropylamine oxide**

CAS 68155-09-9; EINECS/ELINCS 268-938-5

*Synonyms:* Amides, coco, N-[3-(dimethylamino) propyl], N-oxides; Cocamidopropyl dimethylamine oxide; Coco amides, N-[3-(dimethylamino) propyl], N-oxide; Cocoamidopropyldimethylamine oxide; N-[3-(Dimethylamino) propyl] coco amides-N-oxide

*Classification:* Tertiary amine oxide

*Formula:*  $\text{RCO-NH}(\text{CH}_2)_3\text{N}(\text{CH}_3)_2\text{O}$ , RCO- represents the coconut fatty acids

*Toxicology:* TSCA listed

*Uses:* Detergent, wetting agent, emulsifier, softener, conditioner, foam booster/stabilizer for rug shampoos, laundry detergents, dishwashing, shampoos, bath prods., cleaners, antistatic softeners; foam stabilizer in foam rubber, electroplating, paper coatings; surfactant in cosmetics; emulsifier for pharmaceuticals

*Trade Names:* DeMOX CAPO; Rhodamox® CAPO

**Cocamidopropyl dimethylamine oxide.** See Cocamidopropylamine oxide

#### **Coceth-5**

CAS 61791-13-7 (generic)

*Synonyms:* PEG-5 coconut alcohol; POE (5) coconut ether

*Definition:* PEG ether of coconut alcohol

*Formula:*  $\text{R}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R represents coconut radical, avg.  $n = 5$

*Properties:* Nonionic

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics; emulsifier in cosmetics

*Trade Names:* Genapol® C-050

#### **Coceth-8**

CAS 61791-13-7 (generic)

*Synonyms:* PEG-8 coconut alcohol; PEG 400 coconut ether; POE (8) coconut ether

*Definition:* PEG ether of coconut alcohol

*Formula:*  $\text{R}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R represents coconut radical, avg.  $n = 8$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics; emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

*Trade Names:* Genapol® C-080

#### **Coceth-10**

CAS 61791-13-7 (generic)

*Synonyms:* PEG-10 coconut alcohol; PEG 500 coconut ether; POE (10) coconut ether

*Definition:* PEG ether of coconut alcohol

*Formula:*  $\text{R}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R represents coconut radical, avg.  $n = 10$

*Properties:* Nonionic

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics; emulsifier in cosmetics; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800

*Trade Names:* Genapol® C-100

#### **Coceth-15**

CAS 61791-13-7 (generic)

*Synonyms:* PEG-15 coconut alcohol; POE (15) coconut ether

*Definition:* PEG ether of coconut alcohol

*Properties:* Nonionic

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics

*Trade Names:* Genapol® C-150

#### **Coceth-20**

CAS 61791-13-7 (generic)

*Synonyms:* PEG-20 coconut alcohol; POE (20) coconut ether

*Definition:* PEG ether of coconut alcohol

*Properties:* Nonionic

*Uses:* Raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics

*Trade Names:* Genapol® C-200

#### **Cocoalkonium chloride**

*Synonyms:* Cocoalkyl dimethyl benzyl ammonium chloride; Coco dimethyl

benzyl ammonium chloride; Coco dimonium chloride; Dimethyl cocobenzyl ammonium chloride; Quaternary ammonium compds., benzylcoco alkyldimethyl, chlorides

**Classification:** Quaternary ammonium salt

**Properties:** Liq.; cationic

**Uses:** Bactericide; fungicide; sanitizer; swimming pool treatment; demulsification of hydrocarbons; antistat in cosmetics, plastics; latex coagulation; flotation; electrostatic paints; disinfectant in detergent sanitizers; corrosion inhibitor for oil drilling; emulsifier in metalworking fluids; emulsifier and dispersant for sludge in oil drilling and wastewater treatment; germicide (duckweed killer) in water treatment, petrol., textiles, paper

**Trade Names:** Nissan Cation F2-20R; Nissan Cation F2-40E; Nissan Cation F2-50; Nissan Cation F2-50E; Nissan Cation F2-CONC.

**Cocoalkyl dimethyl benzyl ammonium chloride.** See Cocoalkonium chloride

#### Coco alkyl isoquinolinium bromide

**Uses:** Germicide (duckweed killer) for water treatment; germicide for textiles and pulp and paper industries; cosmetics rinse; germicide, insecticide in agric.

**Trade Names:** Firet Q

**Coco amide.** See Cocamide

**Coco amides, N-[3-(dimethylamino) propyl], N-oxide.** See Cocamidopropylamine oxide

**Cocoamidopropyldimethylamine oxide.** See Cocamidopropylamine oxide

**Cocoamine ethoxylates.** See PEG cocamine

**Cocoamino betaine.** See Coco-betaine

#### Coco-betaine

CAS 68424-94-2; 85409-25-2; EINECS/ELINCS 270-329-4

**Synonyms:** Betaines, coco alkyldimethyl; Cocoamino betaine; Cocodimethylamino betaine; Coco dimethyl betaine; Coco dimethyl glycine; Coconut betaine; Dimethylcocoamino betaine; Quaternary ammonium compds., carboxymethyl (coco alkyl) dimethyl hydroxides, inner salts

**Classification:** Zwitterion (inner salt)

**Formula:** RN<sup>+</sup>(CH<sub>3</sub>)<sub>2</sub>CH<sub>2</sub>COO<sup>-</sup>, where R = alkyl groups derived from coconut oil

**Properties:** Amphoteric

**Toxicology:** TSCA listed

**Uses:** Surfactant, detergent, wetting agent, emulsifier, foaming agent, solubilizer, biocide, bactericide, conditioner, visc. builder in industrial, household, pharmaceutical, and cosmetic applics.; plastics antistat

**Trade Names:** Paxogen COB

**Coco bis-2-hydroxyethylamine oxide.** See Dihydroxyethyl cocamine oxide

**Coco di(hydroxyethyl) amine oxide.** See Dihydroxyethyl cocamine oxide

**Cocodimethylamino betaine.** See Coco-betaine

**Coco dimethyl benzyl ammonium chloride.** See Cocoalkonium chloride

**Coco dimethyl betaine.** See Coco-betaine

**Coco dimethyl glycine.** See Coco-betaine

**Coco dimonium chloride.** See Cocoalkonium chloride

**Coco fatty acid.** See Coconut acid

**Coco fatty acids, potassium salts.** See Potassium cocoate

#### Coconut acid

CAS 61788-47-4; 8037-14-7; 67701-05-7; 68937-85-9; EINECS/ELINCS 262-978-7

**Synonyms:** Coco fatty acid; Coconut fatty acid; Coconut fatty acids; Coconut oil acids; Coconut oil fatty acids; Fatty acids, coco

**Definition:** Mixtures of fatty acids

**Empirical:** C<sub>12</sub>H<sub>24</sub>O<sub>2</sub>

**Formula:** RCOOH, R = coco

**Properties:** Pale yel. solid; insol. in water; m.w. 200.32; m.p. 23-27 C; acid no. 260-270; sapon. no. 262-272

**Toxicology:** TSCA listed

**Uses:** Lubricant; intermediate used in alkyd resins, rubber compding., detergents, water repellents, polishes, soaps, abrasives, cutting oils, candles, crayons, emulsifiers, personal care prods.; source of long-chain alkyl groups; activator; surfactant, emulsifier, emollient in cosmetics; in foods; emulsifier in pharmaceutical topicals; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.200, 176.210, 177.1010, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; approved for topicals

**Manuf./Distrib.:** ABITEC; Acme-Hardesty; Akzo Nobel; Alnor Oil; Chem. Distribution; Eastech; Magna-Kron; NOF Am.; Norman, Fox; Nottingham; Procter & Gamble; Sea-Land; Uniqema N. Am.

**Coconut acid amide.** See Cocamide

**Coconut acid diethanolamide.** See Cocamide DEA

**Coconut acid, hydrogenated.** See Hydrogenated coconut acid

**Coconut acid methyl ester.** See Methyl cocoate

**Coconut acid polydiethanolamide (2:1 type).** See Cocamide DEA

**Coconut acid, potassium salt.** See Potassium cocoate

**Coconut acid superamide (1:1 type).** See Cocamide DEA

#### Coconut alcohol

CAS 68425-37-6; EINECS/ELINCS 270-351-4

**Synonyms:** Alcohols, coco; Coconut fatty alcohol

**Definition:** Mixture of fatty alcohols

**Toxicology:** TSCA listed

**Uses:** Emollient, emulsifier in cosmetics; superfatting agent in shampoos; raw material for sulfation, ethoxylation; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §176.210, 177.2800

**Coconut betaine.** See Coco-betaine

**Coconut butter.** See Coconut (Cocos nucifera) oil

#### Coconut (Cocos nucifera) oil

CAS 8001-31-8; EINECS/ELINCS 232-282-8; UN No. 1363 (DOT)

**Synonyms:** Copra oil; Cocos nucifera; Coconut butter; Coconut oil; Coconut palm oil

**Classification:** Saturated fat

**Definition:** Fixed oil obtained from kernels of seeds of *Cocos nucifera*

**Properties:** Wh. fatty solid or liq., sweet nutty taste; sol. in oxygenated and chlorinated solvs.; very sol. in chloroform, ether, CS<sub>2</sub>; pract. insol. in water; dens. 0.903 (0/4 C); m.p. 21-27 C; acid no. < 6; iodine no. 8-9.5; sapon. no. 255-258; ref. index 1.4485-1.4495; flash pt. (CC) 550 F; surf. tens. 33.4 dynes/cm

**Toxicology:** May cause allergic skin reaction; TSCA listed

**Precaution:** Flamm. solid when exposed to heat or flame; may spontaneously heat and ignite if stored wet and hot

**Hazardous Decomp. Prods.:** CO<sub>2</sub> from combustion

**HMIS:** Health 0; Flammability 1; Reactivity 0

**Uses:** Emollient, solvent, superfatting agent, clouding agent, detergent, wetting agent, emulsifier in cosmetics and pharmaceuticals; drying oil for paints; soap ingred.; dyeing cotton; syn. detergents; source of fatty acids and alcohols; base for leather preps.; delivery/absorp. enhancement; diluent; foods (coating agent, emulsifier, formulation aid, texturizer); shortening/margarine ingred.; in food-pkg. adhesives; in food-contact coatings and textiles; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, 182.70; GRAS; FDA approved for orals, topicals; BP compliance

**Manuf./Distrib.:** ABITEC; Akzo Nobel; Alban Muller; Aldrich; Alnor Oil; Amber Syn.; Arista Ind.; Chemron; Jarchem Ind.; Lipo; Lomas Int'l.; Protameen; Rhodia HPCI; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Stevenson Cooper; Thornley; Tri-K Ind.; Universal Preserv-A-Chem; Welch, Holme & Clark

**Coconut diethanolamide.** See Cocamide DEA

**Coconut fatty acid.** See Coconut acid

**Coconut fatty acids.** See Coconut acid

**Coconut fatty acids, magnesium salts.** See Magnesium cocoate

**Coconut fatty acids, 1-methyl-1,2-ethanediyl ester.** See Propylene glycol dicocoate

**Coconut fatty acid, sodium salt.** See Sodium cocoate

**Coconut fatty alcohol.** See Coconut alcohol

**Coconut hydroxyethyl imidazoline.** See Cocoyl hydroxyethyl imidazoline

**Coconut oil.** See Coconut (Cocos nucifera) oil

**Coconut oil acids.** See Coconut acid

**Coconut oil amides.** See Cocamide

**Coconut oil fatty acids.** See Coconut acid

**Coconut oil fatty acids, hydrogenated.** See Hydrogenated coconut acid

**Coconut oil fatty acids, sodium salt.** See Sodium cocoate

## Coconut oil, hydrogenated

**Coconut oil, hydrogenated.** See Hydrogenated coconut oil

### Coconut oil triglycerides

Uses: Foods (soft fat and filling for prod. of cooling fillings); defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

**Coconut palm oil.** See Coconut (Cocos nucifera) oil

**Coconut trimethyl ammonium chloride.** See Cocotrimonium chloride

**Cocos nucifera.** See Coconut (Cocos nucifera) oil

### Cocotrimonium chloride

CAS 61789-18-2; EINECS/ELINCS 263-038-9

Synonyms: Coconut trimethyl ammonium chloride; Cocoyl trimethyl ammonium chloride; Quaternary ammonium compds., coco alkyl trimethyl chlorides

Classification: Quaternary ammonium salt

Formula:  $[RN(CH_3)_3]^+Cl^-$ , R rep. alkyl groups from coconut oil

Properties: Cationic

Toxicology: TSCA listed

Uses: Emulsifier; dispersant; corrosion inhibitor; for oil field brines and HCl acidizing systems; antistat and lubricant for syn. fibers, plastics; bactericide; fungicide; disinfectant; sanitizer; antimicrobial, antistat, surfactant in cosmetics; germicide (duckweed killer) for water treatment, petrol. industry

Trade Names: Nissan Cation FB

Trade Names Containing: Arquad® C-50

**Cocoyl diethanolamide.** See Cocamide DEA

### Cocoyl hydroxyethyl imidazoline

CAS 61791-38-6; EINECS/ELINCS 263-170-7

Synonyms: Coconut hydroxyethyl imidazoline; 2-Cocoyl-1-(hydroxyethyl) imidazoline; Cocoyl imidazoline; 1H-Imidazole-1-ethanol, 4,5-dihydro-2-norcoco alkyl derivs.; 1H-Imidazole-1-ethanol, 4,5-dihydro-2-norcocoyl

Classification: Heterocyclic compd.

Formula:  $R=N-N-(CH_2)_2OH$ , R is derived from coconut fatty radical

Toxicology: TSCA listed

Uses: Emulsifier for industrial detergents, cleaners; emulsifier, antistat, corrosion inhibitor, softener for textiles, plastics, asphalt, tar emulsion breakers, paints, printing inks; water repellent treatment of cement, concrete, and plaster; fungicide; surfactant in cosmetics

Trade Names: Miramine® CC

**2-Cocoyl-1-(hydroxyethyl) imidazoline.** See Cocoyl hydroxyethyl imidazoline

**Cocoyl imidazoline.** See Cocoyl hydroxyethyl imidazoline

**Cocoyl trimethyl ammonium chloride.** See Cocotrimonium chloride

### Cod liver oil

CAS 8001-69-2; EINECS/ELINCS 232-289-6

Synonyms: Gadidae oil; Gadi lecur; Morrhuia oil

Definition: Fixed oil expressed from fresh livers of *Gadus morrhua* and other species of codfish, contg. vitamins A and D, omega 3 fatty acid

Properties: Amber thin oily liq., sl. fishy odor and taste; sol. in ether, chloroform, ethyl acetate, carbon disulfide, petroleum ether; sl. sol. in alcohol; negligible sol. in water; dens. 0.918-0.927; iodine no. 145-180; sapon. no. 180-192; ref. index 1.4705-1.4745

Toxicology: No known toxicity

Precaution: Combustible

Hazardous Decomp. Prods.:  $CO_2$  from combustion

HMIS: Health 1; Flammability 0; Reactivity 0

Uses: Medicine (vitamin A and D content); protectant in diaper rash ointment; dietary supplement in foods and pharmaceuticals; chamois-leather tanning; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

Regulatory: FDA 21CFR §175.105, 176.200, 176.210, 177.2800; GRAS for use in dietary supplements; BP compliance

Manuf./Distrib.: Allan; Am. Roland; Arista Ind.; Artek; Bruchem; F.H. Taussig; Integra; J.H. Calo; Jedwards Int'l.; Marine Bio-Prods.; Maypro Ind.; Mutchler; Penta Mfg.; R.W. Greeff; Ruger; Sigma; Spectrum Quality Prods.

**Collagen hydrolysates.** See Hydrolyzed collagen

**Collodion.** See Nitrocellulose

**Collodion cotton.** See Nitrocellulose

**Collodion wool.** See Nitrocellulose

**Colloidal ferric oxide.** See Ferric oxide

**Colloidal silica.** See Silica, colloidal; Silica, fumed

**Colloidal silicon dioxide.** See Silica, fumed

**Colloxylin.** See Nitrocellulose

**Cologel.** See Methylcellulose

**Colonial spirit.** See Methyl alcohol

**Colophane.** See Rosin

**Colophonium.** See Rosin

**Colophony.** See Rosin

**Columbia black EP.** See Direct black 38

**Columbian spirits.** See Methyl alcohol

**Colza oil.** See Rapeseed (Brassica campestris) oil

**Common salt.** See Sodium chloride

**Condensation prods., epoxy.** See Epoxy resin

**Coomassie violet.** See Acid violet 49

**Copaiba.** See Balsam copaiba (Copaifera officinalis)

**Copaiba balsam.** See Balsam copaiba (Copaifera officinalis)

**Copaiba oleoresin.** See Balsam copaiba (Copaifera officinalis)

**Copaifera officinalis balsam.** See Balsam copaiba (Copaifera officinalis)

**Copernicia cerefera wax.** See Carnauba (Copernicia cerifera) wax

**Copernicia cerifera wax.** See Carnauba (Copernicia cerifera) wax

**Copper-8.** See Copper 8-quinolinolate

**Copperas red.** See Iron oxide red

**Copper dihydroxide.** See Copper hydroxide (ic)

**Copper dinitrate.** See Copper nitrate (ic)

**Copper hydrate.** See Copper hydroxide (ic)

**Copper (2+) hydroxide.** See Copper hydroxide (ic)

**Copper (II) hydroxide.** See Copper hydroxide (ic)

### Copper hydroxide (ic)

CAS 20427-59-2

Synonyms: Copper dihydroxide; Copper hydrate; Copper (II) hydroxide; Copper (2+) hydroxide; Copper oxide hydrated; Cupric hydroxide

Empirical:  $H_2CuO_2$

Formula:  $Cu(OH)_2$

Properties: Bluish-grn. powd.; sol. in acids and ammonium hydroxide; insol. in water; m.w. 97.59; dens. 3.368; m.p. dec. above 100 C producing cupric oxide

Toxicology: LD50 (oral, rat) 1000 mg/kg; toxic by ing. and inh.; eye irritant; TSCA listed

Uses: Copper salts; mordant; paper staining; pesticide; fungicide; catalyst; cuprammonium rayon process reagent; pigment; feed additive

Manuf./Distrib.: Agtrol Chem. Prods.; Aldrich; Am. Chemet; Cuproquim; Drexel; Faesy & Besthoff; Griffin; Helm AG; Lohmann

**Copper hydroxy quinolate.** See Copper 8-quinolinolate

**Copper-8-hydroxyquinolate.** See Copper 8-quinolinolate

**Copper-8-hydroxyquinoline.** See Copper 8-quinolinolate

**Copper monosulfate.** See Cupric sulfate anhydrous

**Copper (2+) nitrate.** See Copper nitrate (ic)

**Copper (II) nitrate.** See Copper nitrate (ic)

### Copper nitrate (ic)

CAS 3251-23-8 (anhyd.); 10031-43-3 (trihydrate); EINECS/ELINCS 221-838-5; UN No. NA 1479 (DOT)

Synonyms: Copper dinitrate; Copper (2+) nitrate; Copper (II) nitrate; Copper (II) nitrate trihydrate; Cupric dinitrate; Cupric nitrate; Cupric nitrate hexahydrate; Cupric nitrate trihydrate

Definition: Avail. commercially as the trihydrate

Empirical:  $CuN_2O_6 \cdot 3H_2O$ ;  $CuN_2O_6 \cdot 6H_2O$

Formula:  $Cu(NO_3)_2 \cdot 3H_2O$  or  $Cu(NO_3)_2 \cdot 6H_2O$

Properties: Anhyd.: Blue-grn. cryst.; sol. in water, ethyl acetate, dioxane; m.w. 187.55; dens. 2.047; m.p. 255-256 C; sublimes @ 150-225 C; Trihydrate: Dk. blue cryst., deliq.; sol. in water and ethanol; m.w. 241.60; dens. 2.32 kg/l; m.p. 114 C; Hexahydrate: Blue cryst. flakes, deliq.; sol. in water, ethanol; m.w. 295.66; dens. 2.0

Toxicology: Anhyd.: ACGIH TLV/TWA 1 mg (Cu)/m<sup>3</sup>; LD50 (oral, rat) 940 mg/kg; mod. toxic by ing.; severe skin and eye irritant; Trihydrate: ACGIH TLV/TWA 1 mg (Cu)/m<sup>3</sup>; LD50 (oral, rat) 940 mg/kg; mod. toxic by ing.; mutagenic data

Precaution: Anhyd.: Explosive or violent reactions possible; can ignite on



**Uses:** Source of glucose; visc. control agent in cosmetics; filler in baking powder; thickener in food prods.; dietary supplement; adhesives; coatings; additive in plastics; pharmaceutical excipient, filler, tablet disintegrant; powd. in rubber gloves; in food pkg., food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 178.3520, 182.70, 182.90; GRAS for use in dietary supplements; BP, Ph.Eur. compliance

**Manuf./Distrib.:** A.E. Staley Mfg.; ADM Corn Processing; Aldrich; Bruchem; Cerestar UK; Cerestar USA; Chemstar Prods.; Corn Prods.; Grain Processing; Houghton Chem.; NB Entrepreneurs; Nalco; Nat'l. Starch & Chem.; Penford Prods.; Ruger; Sigma; Varsal Instruments; Westco

**Trade Names:** Apollo® 4200 Cationic Starches; Apollo® Cationic Starches; B20F; B200; C110; Chargemaster® R415; Chargemaster® R462; Chargemaster® R515; Chargemaster® R615; Cleer-Cote® 625; Coatmaster® K61F; D12F; D120; Douglas® Starches; Electra® 7458; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; ICB® 3000, 3100, 3200; ICB® 3000D; Interbond® C; Koldex® 50, 60; Lok-Size® 30; Pearl; Pearl AP, R; Pencat® Cationic Starches; Penford® Gum; Sta-Lok® 120, 160, 180, 182; Sta-Lok® 140; Sta-Lok® 156; Sta-Lok® 300, 310, 330; Sta-Lok® 356; Sta-Lok® 374, 376; Staramic® 105; Staramic® 747; Star\*pol® 136; Star\*pol® 410; Star\*pol® 468, 469, 600; Star\*pol® 700, 800; Staysize® 140

**Cosmetic talc.** See Talc

**Cotton fiber.** See Cellulose

**Cotton oil.** See Cottonseed (Gossypium) oil

**Cotton red.** See Basic red 2

#### Cottonseed acid

CAS 68308-51-0; EINECS/ELINCS 269-656-5

**Synonyms:** Acids, cottonseed; Cottonseed fatty acids; Distilled fatty acids, cottonseed oil; Fatty acids, cottonseed oil

**Definition:** Mixture of fatty acids derived from cottonseed oil

**Uses:** Emollient in cosmetics; in food pkg. adhesives/coatings; defoamer in food-contact paper coatings, paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.200, 176.210, 177.2800

**Cottonseed fatty acids.** See Cottonseed acid

#### Cottonseed (Gossypium) oil

CAS 8001-29-4; EINECS/ELINCS 232-280-7

**Synonyms:** Aceite de Algodon; Cotton oil; Cottonseed oil; Cottonseed oil, winterized; Deodorized winterized cottonseed oil; Gossypium; Oleum Gossypii seminis

**Definition:** Refined fixed oil from seeds of various species of *Gossypium*

**Properties:** Pale yel. oily liq., nearly odorless; sol. in ether, benzene, chloroform; sl. sol. in alcohol; negligible sol. in water; dens. 0.915-0.921; f.p. 0-5°C; solid. pt. 31-33°C; iodine no. 109-120; sapon. no. 190-198; flash pt. (CC) 486 F

**Toxicology:** Questionable carcinogen; experimental tumorigen and teratogen; allergen; TSCA listed

**Precaution:** Combustible exposed to heat or flame; may be dangerous hazard due to spontaneous heating

**Hazardous Decomp. Prods.:** CO<sub>2</sub> from combustion

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Storage:** Light-sensitive

**Uses:** Emollient; foods (coating agent, emulsifier, formulation aid, texturizer); drying oil for paints; leather dressing; soap stock; lubricant; glycerol; cosmetic base; waterproofing compositions; pharmaceutical vehicle, solvent; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; drying oil and surf. lubricant in food-contact coatings; in food-contact textiles

**Use Level:** 56-92% (intramuscular preps.), 0.002-402 mg (solid oral dosage forms)

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, GRAS; FDA approved for intramuscular injectables, orals; USP/NF compliance

**Manuf./Distrib.:** ABITEC; Aldrich; Allyson Enterprises; Alnor Oil; Amber Syn.; Arista Ind.; Croda Inc; Mutchler; Natural Oils Int'l.; Oilseeds Int'l.; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Thornley; Tri-K Ind.; Welch, Holme & Clark

**Cottonseed oil.** See Cottonseed (Gossypium) oil

#### Cottonseed oil triglycerides

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Cottonseed oil, winterized.** See Cottonseed (Gossypium) oil

**Coumarin, 7-diethylamino-4-methyl-.** See 7-Diethylamino-4-methylcoumarin

**Coumarone/indene copolymer.** See Coumarone/indene resin

#### Coumarone/indene resin

CAS 35343-70-5

**Synonyms:** Coumarone/indene copolymer; Coumarone resin; Indene/coumarone resin; Poly (coumarone-co-indene); Polyindene resin

**Classification:** Thermosetting resin

**Properties:** Brn. solid; soft and sticky at R.T.; hardens on heating to solid; sol. in hydrocarbon solvs., pyridine, acetone, carbon disulfide, CCl<sub>4</sub>; insol. in water, alcohol; dens. 1.140; soften. pt. 126°C; flash pt. > 109°C; ref. index 1.63-1.64

**Toxicology:** May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; may be irritating to mucous membranes and upper respiratory tract; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in a cool, dry place

**Uses:** Extender in epoxy systems, adhesives, printing inks; floor tile binder; friction tape; aluminum paints; varnishes; enamels; plasticizer, softener, reinforcer, tackifier in rubbers; plasticizer/softener in PVC, bitumen, adhesives; tung oil-coumarone resins (aluminum decorative/structure paints, plaster, cement primer paints); protective coating on grapefruit, lemons, limes, oranges, tangerines; in chewing gum; in food-pkg. adhesives; in food-contact coatings; plasticizer in food-contact rubber articles for repeated use

**Use Level:** Limitation 200 ppm on fresh wt. basis (citrus coating)

**Regulatory:** FDA 21CFR §172.215, 175.105, 175.300, 177.2600

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Natrochem; Neville

**Trade Names:** Cumar® LX®-509; Cumar® R-3; Cumar® R-11; Cumar® R-12 (V-2, V-2½); Cumar® R-13; Cumar® R-17

**Coumarone resin.** See Coumarone/indene resin

**CP.** See Cellulose acetate propionate

#### C9-11 pareth-2

CAS 68439-46-3 (generic)

**Synonyms:** Pareth-91-2; PEG-2 C9-11 alcohol ether

**Classification:** Linear alcohol ethoxylate

**Definition:** PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 2 moles EO

**Properties:** Nonionic

**Uses:** Detergent, emulsifier; intermediate for sulfation giving high foaming anionics; polishes, waxes; dry cleaning; I&I cleaning

**Trade Names:** Teric™ G9A2

#### C9-11 pareth-3

CAS 68439-46-3 (generic)

**Synonyms:** Pareth-91-3; PEG-3 C9-11 alcohol ether

**Classification:** Linear alcohol ethoxylate

**Definition:** PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 3 moles EO

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier in cosmetics; wetting agent; intermediate; dispersant; surfactant

**Trade Names:** Imbentin-C/91/025

#### C9-11 pareth-4

CAS 68439-46-3 (generic)

**Synonyms:** Pareth-91-4; PEG-4 alkyl C9-11 alcohol

**Classification:** Linear alcohol ethoxylate

**Definition:** PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 4 moles EO

**Properties:** Nonionic

**Uses:** Scouring agent for textiles; soaking assistant in leather industry

**Trade Names:** Imbentin-C/91/040

**C9-11 pareth-5**

CAS 68439-46-3 (generic)  
*Synonyms:* Pareth-91-5; PEG-5 alkyl C9-11 alcohol  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 5 moles EO  
*Properties:* Nonionic  
*Uses:* Wetting agent, emulsifier; for hard surf. cleaners, degreasers and dispersants  
*Trade Names:* Imbentin-C/91/35

**C9-11 pareth-6**

CAS 68439-46-3 (generic)  
*Synonyms:* Pareth-91-6; PEG-6 C9-11 alcohol ether  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 6 moles EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier in cosmetics; wetting agent; intermediate; dispersant; surfactant; coupling agent; solubilizer; filter cake dewatering; dust suppression in coal industry  
*Trade Names:* Imbentin-C/91/060; Synperonic 91/6; Teric™ G9A6

**C9-11 pareth-8**

CAS 68439-46-3 (generic)  
*Synonyms:* Pareth-91-8  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 8 moles EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier in cosmetics; detergent; wetting agent; intermediate; dispersant; solubilizer; degreaser  
*Trade Names:* Imbentin-C/91/080 I; Imbentin-C/91/080 OFA; Synperonic 91/8; Synperonic 91/8T; Teric™ G9A8

**C9-11 pareth-9**

CAS 68439-46-3 (generic)  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 9 moles EO  
*Properties:* Nonionic  
*Uses:* O/w emulsifier for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment  
*Trade Names:* Imbentin-C/91/85

**C9-11 pareth-10**

CAS 68439-46-3 (generic)  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 10 moles EO  
*Properties:* Nonionic  
*Uses:* Detergent, emulsifier, wetting and scouring agent for agric. and oil field applics.  
*Trade Names:* Teric™ G9A10

**C9-11 pareth-12**

CAS 68439-46-3 (generic)  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C9-11 fatty alcohols with avg. 12 moles EO  
*Properties:* Nonionic  
*Uses:* Emulsifier, dispersant, stabilizer, solubilizer, wetting agent; used in detergent formulations for domestic use; degreaser in textile applics.  
*Trade Names:* Imbentin-C/91/120

**C10-12 pareth-3**

CAS 66455-15-0 (generic)  
*Classification:* Linear alcohol ethoxylate  
*Properties:* Nonionic  
*Uses:* Surfactant intermediate; emulsifier; wetting agent; adjuvant for pesticides; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg.

of food-contact articles; defoamer in food-contact coatings

*Trade Names:* Surfonic® L12-2.6; Surfonic® L12-3

**C10-12 pareth-5**

CAS 66455-15-0 (generic)  
*Synonyms:* PEG-5 C10-12 alcohol  
*Classification:* Linear alcohol ethoxylate  
*Properties:* Nonionic  
*Uses:* Detergent, wetting agent, emulsifier, foaming agent, intermediate, dispersant  
*Trade Names:* Alfonic® 1012-5.5

**C10-12 pareth-6**

CAS 66455-15-0 (generic)  
*Classification:* Linear alcohol ethoxylate  
*Properties:* Nonionic  
*Uses:* Surfactant, wetting agent, o/w emulsifier for detergent, laundry, hard surf. cleaners, personal care prods., agric. pesticides; rewetting agent for paper; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Trade Names:* Surfonic® L12-6

**C10-12 pareth-8**

CAS 66455-15-0 (generic)  
*Classification:* Linear alcohol ethoxylate  
*Properties:* Nonionic  
*Uses:* Surfactant, wetting agent, o/w emulsifier for detergent, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Trade Names:* Surfonic® L12-8

**C11-15 pareth-3**

CAS 68131-40-8 (generic)  
*Synonyms:* Pareth-15-3  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C11-15 fatty alcohols with avg. 3 moles EO  
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 32 ml/kg, (skin, rabbit) 5660 µl/kg; primary irritant; TSCA listed  
*Uses:* Detergent, emulsifier, wetting agent used in textile processing applics.; textile lubricant; latex emulsions; plastics antistat; surfactant in textiles, solvent cleaners, dry-cleaning, metalworking fluids, water treatment, oil field chems., pulp/paper deinking, latex emulsions; emulsifier in cosmetics  
*Manuf./Distrib.:* Sigma  
*Trade Names:* Tergitol® 15-S-3

**C11-15 pareth-5**

CAS 68131-40-8 (generic)  
*Synonyms:* Pareth-15-5  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C11-15 fatty alcohols with avg. 5 moles EO  
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 32 ml/kg, (skin, rabbit) 5660 µl/kg; primary irritant; TSCA listed  
*Uses:* Detergent, emulsifier, wetting agent used in textile processing applics.; textile lubricant; latex emulsion stabilizer; plastics antistat; emulsifier in cosmetics  
*Manuf./Distrib.:* Sigma  
*Trade Names:* Tergitol® 15-S-5

**C11-15 pareth-7**

CAS 68131-40-8 (generic)  
*Synonyms:* Pareth-15-7  
*Classification:* Linear alcohol ethoxylate  
*Definition:* PEG ether of a mixt. of syn. C11-15 fatty alcohols with avg. 7 moles EO  
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 32 ml/kg, (skin, rabbit) 5660 µl/kg; primary irritant; TSCA listed  
*Uses:* Detergent, emulsifier, wetting agent, stabilizer used in textile processing

## C11-15 pareth-9

applics.; textile lubricant; dyeing aid, dye leveling agent for leather and textile processing; household and industrial detergents; paper; paints; agric.; metal cleaners; oil field chems.; water treatment; emulsifier in cosmetics; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §178.3400

*Manuf./Distrib.:* Sigma

*Trade Names:* Tergitol® 15-S-7

## C11-15 pareth-9

CAS 68131-40-8 (generic)

*Synonyms:* Pareth-15-9

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C11-15 fatty alcohols with avg. 9 moles EO

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 32 ml/kg, (skin, rabbit) 5660 µl/kg; primary irritant; TSCA listed

*Uses:* Detergent, emulsifier, wetting agent, stabilizer used in textile processing applics.; textile lubricant; dyeing aid, dye leveling agent for leather and textile processing; household and industrial detergents; paper; paints; agric.; metal cleaners; oil field chems.; water treatment; surfactant in cosmetics; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §178.3400

*Manuf./Distrib.:* Sigma

*Trade Names:* Tergitol® 15-S-9

## C11-15 pareth-12

CAS 68131-40-8 (generic)

*Synonyms:* Pareth-15-12

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C11-15 fatty alcohols with avg. 12 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent, emulsifier, wetting agent, stabilizer used in textile processing applics.; textile lubricant; dyeing aid, dye leveling agent for leather and textile processing; household and industrial detergents; paper; paints; agric.; metal cleaners; oil field chems.; water treatment; surfactant, emulsifier in cosmetics; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §178.3400

*Trade Names:* Tergitol® 15-S-12

## C11-15 pareth-15

CAS 68131-40-8 (generic)

*Synonyms:* Pareth-15-15

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C11-15 fatty alcohols with avg. 15 moles EO

*Properties:* Nonionic

*Uses:* Detergent, emulsifier, wetting agent used in textile processing applics.; textile lubricant; pulp/paper processing aid; latex stabilizer; emulsifier in cosmetics

*Trade Names:* Tergitol® 15-S-15

## C12-13 pareth-7

CAS 66455-14-9 (generic)

*Synonyms:* Pareth-23-7; PEG-7 C12-13 fatty alcohol ether

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-13 fatty alcohols with avg. 7 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent intermediate used in preparation of sulfates for high-foaming liq. detergents; surfactant in cosmetics; wetting agent

*Trade Names:* Imbentin-C/123/065

## C12-14 pareth-1

CAS 68439-50-9 (generic)

*Synonyms:* PEG-1 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 1 mole EO

*Properties:* Nonionic

*Uses:* Surfactant intermediate; w/o emulsifier for detergents, personal care

prods.; sulfation intermediate; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings

*Trade Names:* Surfonic® L24-1.3

## C12-14 pareth-2

CAS 68439-50-9 (generic)

*Synonyms:* PEG-2 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 2 moles EO

*Properties:* Nonionic

*Uses:* Surfactant intermediate

*Trade Names:* Imbentin-AG/124/020 I; Imbentin-AG/124S/020 I

## C12-14 pareth-3

CAS 68439-50-9 (generic)

*Synonyms:* PEG-3 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 3 moles EO

*Properties:* Nonionic

*Uses:* Surfactant intermediate; costabilizer; agric. adjuvant; emulsifier, wetting agent for detergents, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; rewetting agent for paper; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard; food-contact slimeicide

*Trade Names:* Imbentin-AG/124/030 B; Imbentin-AG/124S/030; Surfonic® L24-3

## C12-14 pareth-4

CAS 68439-50-9 (generic)

*Synonyms:* PEG-4 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 4 moles EO

*Properties:* Nonionic

*Uses:* Surfactant intermediate; w/o and o/w emulsifier, wetting agent for detergents, laundry prespotters, personal care prods.; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Trade Names:* Imbentin-AG/124/040 I; Imbentin-AG/124S/040; Surfonic® L24-4

## C12-14 pareth-5

CAS 68439-50-9 (generic)

*Synonyms:* PEG-5 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 5 moles EO

*Properties:* Nonionic

*Uses:* Surfactant, wetting, washing, emulsifying, and dispersing agent; polymerization surfactant

*Trade Names:* Imbentin-AG/124/050; Imbentin-AG/124S/045; Surfonic® L24-5

## C12-14 pareth-6

CAS 68439-50-9 (generic)

*Synonyms:* PEG-6 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 6 moles EO

*Properties:* Nonionic

*Uses:* Surfactant intermediate

*Trade Names:* Imbentin-AG/124S/060

## C12-14 pareth-7

CAS 68439-50-9 (generic)

*Synonyms:* PEG-7 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 7 moles EO

*Properties:* Nonionic



*Uses:* Detergent; foaming agent; surfactant intermediate; agric. adjuvant; surfactant, wetting agent, o/w emulsifier for detergents, laundry prespotters, hard surf. cleaners, personal care prods.; pitch dispersant for pulp/paper processing; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Trade Names:* Imbentin-AG/124S/065; Imbentin-AG/124S/070; Sipol LAL-7; Surfonic® L24-7

**C12-14 pareth-8**

CAS 68439-50-9 (generic)

*Synonyms:* PEG-8 C12-14 alcohol; PEG-8 C12-14 fatty alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 8 moles EO

*Properties:* Nonionic

*Uses:* Detergent, wetting agent, dispersant, emulsifier for detergents, hard surf. cleaners, personal care prods.; agric. adjuvant; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Trade Names:* Imbentin-AG/124/075 90%; Imbentin-AG/124S/080 90%; Surfonic® L24-9

**C12-14 pareth-9**

CAS 68439-50-9 (generic)

*Synonyms:* PEG-9 C12-14 alcohol; PEG-9 C12-14 fatty alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 9 moles EO

*Properties:* Nonionic

*Uses:* Detergent, wetting agent, dispersant, emulsifier

*Trade Names:* Alfonic® 1412-9

**C12-14 pareth-11**

CAS 68439-50-9 (generic)

*Synonyms:* PEG-11 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 11 moles EO

*Properties:* Nonionic

*Uses:* Surfactant intermediate; wetting agent, emulsifier, solubilizer for cleaners, cosmetics; agric. adjuvant; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard

*Trade Names:* Imbentin-AG/124S/110 90%; Surfonic® L24-12

**C12-14 pareth-17**

CAS 68439-50-9 (generic)

*Synonyms:* PEG-17 C12-14 alcohol; POE (17) C12-14 alkyl

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 17 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier, wetting agent, dispersant, detergent for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Trade Names:* Surfonic® L24-17

**C12-14 pareth-22**

CAS 68439-50-9 (generic)

*Synonyms:* PEG-22 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 22 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier, wetting agent, dispersant, detergent for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Trade Names:* Surfonic® L24-22

**C12-14 pareth-23**

CAS 68439-50-9 (generic)

*Synonyms:* PEG-23 C12-14 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-14 fatty alcohols with avg. 23 moles EO

*Properties:* Nonionic

*Uses:* Solubilizer, cleaning agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, metal treatment, paper processing

*Trade Names:* Imbentin-AG/124S/230 G

**C12-15 pareth-3**

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-3; PEG-3 C12-15 fatty alcohol ether

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 3 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, detergent intermediate for dishwashing, personal care prods., industrial applics.; textile lubricant; gellant; dispersant; wetting agent; solubilizer; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §178.3910

*Trade Names:* Imbentin-C/125/030; Teric™ 12A3

**C12-15 pareth-5**

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-5; PEG-5 C12-15 alkyl ether

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 5 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent; wetting agent; emulsifier in cosmetics; textile surfactant and lubricant; gellant; dispersant; solubilizer

*Trade Names:* Imbentin-C/125/050

**C12-15 pareth-6**

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-6; PEG-6 C12-15 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 6 moles EO

*Properties:* Nonionic

*Uses:* Wetting agent, dispersant, detergent, chemical intermediate; used in textile processing, hard surface abrasives, metal descaling, detergent for household and industrial use in laundries; metal cleaning, sanitizer

*Trade Names:* Teric™ G12A6

**C12-15 pareth-7**

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-7; PEG-7 C12-15 fatty alcohol ether

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 7 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent, emulsifier, wetting agent, dispersant for sanitizers, metal cleaners, hard surface cleaners; detergent intermediate; for paper, paint, leather; emulsifier in cosmetics; coupler and solubilizer for perfumes and org. additives

*Trade Names:* Imbentin-C/125/070; Teric™ G12A7

**C12-15 pareth-8**

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-8; PEG-8 C12-15 alkyl ether

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 8 moles EO

*Properties:* Nonionic

*Uses:* Detergent intermediate

*Trade Names:* Imbentin-C/125/55 90%

**C12-15 pareth-9**

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-9; PEG-9 C12-15 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 9 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent intermediate used in preparation of sulfates for high-foaming liq. detergents; surfactant in textile processing, metal cleaners, paper, paint, leather applics.; coupler, solubilizer for perfumes; surfactant, emulsifier in cosmetics

*Trade Names:* Imbentin-C/125/090; Teric™ 12A9

#### C12-15 pareth-10

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-10; PEG-10 C12-15 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 10 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier, dispersant, wetting agent, gellant, scouring agent, solubilizer for industrial and cosmetic applics.

*Trade Names:* Imbentin-C/125/85

#### C12-15 pareth-12

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-12; PEG-12 C12-15 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 12 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant in cosmetics; detergent; emulsifier; wetting agent; detergent intermediate; coupling agent; solubilizer; pharmaceutical emollient

*Trade Names:* Teric™ G12A12

#### C12-15 pareth-13

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-13; PEG-13 C12-15 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 13 moles EO

*Properties:* Nonionic

*Uses:* O/w emulsifier for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment

*Trade Names:* Imbentin-C/125/130 80%

#### C12-15 pareth-23

CAS 68131-39-5 (generic)

*Synonyms:* Pareth-25-23; PEG-23 C12-15 alcohol

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C12-15 fatty alcohols with avg. 23 moles EO

*Properties:* Nonionic

*Uses:* Surfactant

*Trade Names:* Teric™ 12A23

#### C12-16 pareth-1

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. formulations

#### C12-16 pareth-2

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. adjuvant

*Trade Names:* Imbentin-AG/124PG/020

#### C12-16 pareth-3

CAS 68551-12-2 (generic)

*Synonyms:* PEG-3 C12, C14, C16 alcohols

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. adjuvant

*Trade Names:* Imbentin-AG/124PG/030

#### C12-16 pareth-5

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. adjuvant

*Trade Names:* Genapol® 26-L-5

#### C12-16 pareth-6

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. adjuvant

*Trade Names:* Genapol® 26-L-45

#### C12-16 pareth-7

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. adjuvant

*Trade Names:* Genapol® 26-L-50; Genapol® 26-L-60; Imbentin-AG/124PG/070

#### C12-16 pareth-8

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. formulations

#### C12-16 pareth-9

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Detergent intermediate for carboxylation or phosphorylation for use in household and I&I cleaners, textile wet processing, emulsions and dispersions, paper processing, agric. adjuvants

*Trade Names:* Genapol® 26-L-80

#### C12-16 pareth-11

CAS 68551-12-2 (generic)

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant, detergent, wetting/spreading agent, emulsifier, foaming agent, intermediate, dispersant, lubricant for household and hard surf. cleaners, textile processing, pulp processing, agric. adjuvant

#### C12-18 pareth-7

*Synonyms:* PEG-7 C12-18 alcohol

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Emulsifier, detergent

*Trade Names:* Imbentin-AG/128/070 90%

#### C12-18 pareth-11

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* O/w emulsifier for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing

*Trade Names:* Imbentin-AG/128/110 90%

**C13-15 pareth-3**

CAS 68131-39-5 (generic)

*Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* General purpose detergent, emulsifier; textile lubricant/antistat; filter cake dewatering; intermediate for phosphate ester prod., carboxymethylate mfg.*Trade Names:* Imbentin-C/135/030**C13-15 pareth-4**

CAS 68131-39-5 (generic)

*Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* Detergent, emulsifier for cleaners, personal care prods., textiles; sulfation intermediate; textile lubricant/antistat*Trade Names:* Imbentin-C/135/040**C13-15 pareth-7**

CAS 68131-39-5 (generic)

*Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* General purpose detergent, emulsifier; dye leveling agent; textile lubricant/antistat; coal dust suppression; tin plating*Trade Names:* Imbentin-C/135/070; Synperonic A7**C13-15 pareth-9**

CAS 68131-39-5 (generic)

*Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* Wetting agent, detergent, scouring agent, dye leveler, emulsifier for personal care, industrial, steel phosphation, oil field, agrochem. applics.*Trade Names:* Imbentin-C/135/090; Synperonic A9**C13-15 pareth-11**

CAS 68131-39-5 (generic)

*Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* General purpose detergent, emulsifier; dye leveling agent; textile lubricant/antistat*Trade Names:* Imbentin-C/135/110 85%; Synperonic A11**C13-15 pareth-20**

CAS 68131-39-5 (generic)

*Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* General purpose detergent, emulsifier, dispersant; latex stabilizer; solubilizer for fragrances*Trade Names:* Imbentin-C/135/200**C14-15 pareth-3**

CAS 68951-67-7 (generic)

*Synonyms:* Pareth-45-3; PEG-3 C14-15 alcohol ether*Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C14-15 fatty alcohols with avg. 3 moles EO*Properties:* Nonionic*Uses:* Wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicone and wax emulsions, metal treatment, paper processing*Trade Names:* Imbentin-C/145/030**C14-15 pareth-4**

CAS 68951-67-7 (generic)

*Synonyms:* Pareth-45-4; PEG-4 C14-15 alcohol ether*Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C14-15 fatty alcohols with avg. 4 moles EO*Properties:* Nonionic*Uses:* Wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicone and wax emulsions, metal treatment, paper processing*Trade Names:* Imbentin-L/145/040**C14-15 pareth-7**

CAS 68951-67-7 (generic)

*Synonyms:* Pareth 45-7; PEG-7 C14-15 alcohol ether*Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C14-15 fatty alcohols with avg. 7 moles EO*Properties:* Nonionic*Uses:* Detergent intermediate used in preparation of sulfates for high-foaming liq. detergents; emulsifier in cosmetics*Trade Names:* Imbentin-C/145/070**C14-15 pareth-8**

CAS 68951-67-7 (generic)

*Synonyms:* Pareth-45-8; PEG-8 C14-15 alcohol ether*Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C14-15 fatty alcohols with avg. 8 moles EO*Properties:* Nonionic*Uses:* O/w emulsifier for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing*Trade Names:* Imbentin-L/145/080**C14-15 pareth-11**

CAS 68951-67-7 (generic)

*Synonyms:* Pareth-45-11; PEG-11 C14-15 alcohol ether*Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C14-15 fatty alcohols with avg. 11 moles EO*Properties:* Nonionic*Uses:* Detergent intermediate used in preparation of sulfates for high-foaming liq. detergents; emulsifier in cosmetics*Trade Names:* Imbentin-C/145/110**C14-16 pareth-4***Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* Wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing*Trade Names:* Imbentin-AG/146/040**C14-16 pareth-7***Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* Surfactant, detergent, o/w emulsifier, wetting agent, foamer, penetrant, intermediate for detergent, laundry prespotters, hard surf. cleaners, personal care prods., agric. pesticides; food-pkg. adhesives, coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings, paper/paperboard*Trade Names:* Imbentin-AG/146/070; Surfonic® L46-7**C16-18 pareth-2***Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* W/o emulsifier, wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, paper processing*Trade Names:* Imbentin-AG/168S/020; Imbentin-POA/020 5055; Imbentin-POA/024 5055**C16-18 pareth-5***Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* Intermediate for prod. of nonionic biodeg. surfactants and emulsifiers for use in household laundry detergents, liq. cleaners, hard surf. cleaners, cosmetics, and industrial solvs. and degreasers*Trade Names:* Imbentin-POA/050 7075**C16-18 pareth-6***Classification:* Linear alcohol ethoxylate*Properties:* Nonionic*Uses:* Wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing

*Trade Names:* Imbentin-AG/168S/060; Imbentin-POA/060

**C16-18 pareth-8**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* O/w emulsifier, wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing

*Trade Names:* Imbentin-AG/168S/080; Imbentin-POA/080 90%

**C16-18 pareth-11**

*Synonyms:* PEG-11 sat. C16-18 alcohol

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Detergent, wetting, dispersing and emulsifying agent used in chemical industry, for household and industrial detergents; costabilizer

*Trade Names:* Imbentin-AG/168S/110

**C16-18 pareth-14**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Wetting agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment, plastics, paper processing

*Trade Names:* Imbentin-AG/168S/140

**C16-18 pareth-16**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Trade Names:* Teric™ 16A16

**C16-18 pareth-18**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Detergent, wetting, dispersing and emulsifying agent used in chemical industry, for household and industrial detergents

*Trade Names:* Imbentin-AG/168S/180 G; Imbentin-POA/180; Imbentin-POA/220 G

**C16-18 pareth-20**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Solubilizer, cleaning agent for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, metal treatment, paper processing

*Trade Names:* Imbentin-AG/168S/200 G

**C16-18 pareth-22**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Trade Names:* Teric™ 16A22

**C16-18 pareth-25**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Detergent, wetting, dispersing and emulsifying agent used in chemical industry, for household and industrial detergents; binder; emulsion stabilizer

*Trade Names:* Imbentin-AG/168S/250 G; Imbentin-POA/220 6065 G

**C16-18 pareth-29**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Wetting agent, emulsifier, dispersant for oil- and water-based systems, consumer detergents, cosmetics, agric., min. processing, pulp/paper, textiles, water treatment

*Trade Names:* Teric™ 16A29

**C16-18 pareth-30**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Surfactant; costabilizer to increase mechanical or salt stability in polymer dispersions

*Trade Names:* Imbentin-AG/168S/300 G

**C16-18 pareth-31**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Solubilizer for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, metal treatment, paper processing

*Trade Names:* Imbentin-POA/310 G

**C16-18 pareth-33**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Solubilizer for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, metal treatment, paper processing

*Trade Names:* Imbentin-AG/168S/330 G

**C16-18 pareth-36**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Solubilizer for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, metal treatment, paper processing

*Trade Names:* Imbentin-AG/168S/360 G

**C16-18 pareth-50**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Detergent, wetting, dispersing and emulsifying agent used in chemical industry, for household and industrial detergents; binder; emulsion stabilizer

*Trade Names:* Imbentin-AG/168S/500 G

**C16-18 pareth-60**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Solubilizer for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, metal treatment, paper processing

*Trade Names:* Imbentin-AG/168S/600 G

**C16-18 pareth-80**

*Classification:* Linear alcohol ethoxylate

*Properties:* Nonionic

*Uses:* Wetting and dispersing agents for engineering, industrial, and household cleaners

*Trade Names:* Imbentin-AG/168S/800 G; Imbentin-POA/800 G

**C20-40 pareth-3**

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C20-40 alcohols with avg. 3 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier in cosmetics; vehicle; coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics

*Trade Names:* Unithox® 420

**C20-40 pareth-10**

*Classification:* Linear alcohol ethoxylate

*Definition:* PEG ether of a mixt. of syn. C20-40 alcohols with avg. 10 moles EO

*Properties:* Nonionic

*Uses:* Mold release agent for plastics; metalworking additive; pulp/paper processing; vehicle for colorants, oils, and waxes; film-former; dispersant, compatibilizer for rubbers; o/w emulsifier for cosmetics; surfactant for textiles, metal lubricants/coatings, ceramic binders, fiberglass processing, printing inks

*Trade Names:* Unithox® 450

**C20-40 pareth-40***Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C20-40 alcohols with avg. 40 moles EO*Properties:* Nonionic*Uses:* Emulsifier for cosmetics; vehicle; coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics*Trade Names:* Unithox® 480**C30-50 pareth-3***Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C30-50 alcohols with avg. 3 moles EO*Properties:* Nonionic*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; also for coatings, metalworking fluids, pulp/paper processing, textiles, mold releases*Trade Names:* Unithox® 520**C30-50 pareth-10***Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C30-50 alcohols with avg. 10 moles EO*Properties:* Nonionic*Uses:* Emulsifier in cosmetics; vehicle; coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics*Trade Names:* Unithox® 550**C40-60 pareth-3***Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C40-60 alcohols with avg. 3 moles of EO*Properties:* Nonionic*Uses:* O/w emulsifier for cosmetics; vehicle for inert, difficult-to-disperse colorants, oils, and waxes; provides silky lubricating feel, superior film-forming chars.; also for coatings, metalworking fluids, pulp/paper processing, textiles, mold releases*Trade Names:* Unithox® 720**C40-60 pareth-10***Classification:* Linear alcohol ethoxylate*Definition:* PEG ether of a mixt. of syn. C40-60 alcohols with avg. 10 moles EO*Properties:* Nonionic*Uses:* Emulsifier for cosmetics; vehicle; coatings, metalworking fluids, pulp/paper processing, textiles; mold release for plastics*Trade Names:* Unithox® 750**CR.** See Polychloroprene**Crotonic acid, ethyl ester.** See Ethyl crotonate**Crotonic acid homopolymer***Uses:* In paper/paperboard in contact with dry food*Regulatory:* FDA 21CFR §176.180**Crotonic acid, polymer with vinyl acetate.** See Vinyl acetate/crotonic acid copolymer**Crystalline cellulose.** See Cellulose**Crystal violet.** See Basic violet 3**Crystal carbonate.** See Sodium carbonate**Cube alum.** See Potassium alum dodecahydrate**Cumene hydroperoxide**

CAS 80-15-9; EINECS/ELINCS 201-254-7; UN No. 2116 (DOT)

*Synonyms:* CHP; Cumenyl hydroperoxide; Cumyl hydroperoxide;  $\alpha$ -Cumyl hydroperoxide;  $\alpha$ , $\alpha$ -Dimethylbenzyl hydroperoxide; 7-Hydroperoxykumen; Isopropylbenzene hydroperoxide*Classification:* Organic peroxide*Empirical:* C<sub>9</sub>H<sub>12</sub>O<sub>2</sub>*Formula:* C<sub>9</sub>H<sub>12</sub>C(CH<sub>3</sub>)<sub>2</sub>OOH*Properties:* Colorless to pale yel. liq.; sol. in alcohol, acetone, esters, hydrocarbons, most org. solvs.; sl. sol. in water; m.w. 152.21; dens. 1.030; b.p. 153 C; flash pt. 175 F; ref. index 1.5210*Toxicology:* LD50 (oral, rat) 382 mg/kg, (IP, mouse) 270 mg/kg, (skin, rat) 95 mg/kg; poison by ing. and IP routes; mod. toxic by inhalation and skin

absorption; readily absorbed thru skin; experimental tumorigen; mutagenic data; skin and eye irritant; target organs: liver, kidneys; TSCA listed

*Precaution:* Combustible; corrosive; strong oxidizer; avoid contact with strong min. acids, other oxidizers, reducing agents, accelerators; explosive reactions, violent decomp., and vigorous exothermic reactions possible*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes*Uses:* Prod. of acetone and phenol; polymerization catalyst/initiator/inhibitor; curing/crosslinking agent for unsat. polyester resins; used in gel coats; in food-pkg. adhesives; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods; catalyst in food-contact crosslinked polyesters*Regulatory:* FDA 21CFR §175.105, 176.170, 177.2420*Manuf./Distrib.:* AC Ind.; Aldrich; Aristech; Atofina; Crompton/Witco; Dastech Int'l.; Degussa-Hüls AG; Fluka; JLM Marketing; Monomer-Polymer & Dajac Labs; Sigma**Cumenyl hydroperoxide.** See Cumene hydroperoxide**Cumyl hydroperoxide.** See Cumene hydroperoxide **$\alpha$ -Cumyl hydroperoxide.** See Cumene hydroperoxide**Cupric dinitrate.** See Copper nitrate (ic)**Cupric hydroxide.** See Copper hydroxide (ic)**Cupric-8-hydroxyquinolate.** See Copper 8-quinolinolate**Cupric nitrate.** See Copper nitrate (ic)**Cupric nitrate hexahydrate.** See Copper nitrate (ic)**Cupric nitrate trihydrate.** See Copper nitrate (ic)**Cupric sulfate.** See Cupric sulfate anhydrous**Cupric sulfate anhydrous**

CAS 7758-98-7; EINECS/ELINCS 231-847-6; UN No. NA 9109 (DOT)

*Synonyms:* Basic copper sulfate; Blue copper; Bluestone; Blue vitriol; Copper monosulfate; Copper sulfate; Copper (II) sulfate; Cupric sulfate; Sulfuric acid, copper salt*Classification:* Inorganic copper salt*Definition:* Copper salt of sulfuric acid; avail. commercially as the monohydrate or pentahydrate*Empirical:* CuO<sub>4</sub>S*Formula:* CuSO<sub>4</sub>*Properties:* Blue cryst. or cryst. gran. or powd.; odorless; nauseous metallic taste; sol. in water; insol. in alcohol; m.w. 159.60; dens. 3.6; m.p. dec. @ 560 C*Toxicology:* LD50 (oral, rat) 300 mg/kg; strong irritant; experimental tumorigen; human poison, systemic effects by ingestion: gastritis, diarrhea, nausea, vomiting, hemolysis; eye irritant; no known skin toxicity; mutagen; TSCA listed*Environmental:* Hazardous to the environment*Precaution:* Reacts violently with hydroxylamine, magnesium*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>, HMIS: Health 2; Flammability 0; Reactivity 0*Storage:* Hygroscopic*Uses:* Soil additive; pesticides; germicides; textile mordant; leather; pigments; batteries; electroplated coatings; copper salts; analytical reagent; wood and pulp preservative; process engraving; lithography; ore flotation; mfg. of petroleum, rubber, steel; ore flotation; reagent in analytical chemistry; micronutrient for plants; fungicide; cosmetic additive; treatment for natural asphalt; medicine (antidote to phosphorus); foods (nutrient supplement, processing aid); feed additive*Regulatory:* FDA 21CFR §184.1261, 582.80; FDA approved for orals; SARA reportable; Japan approved (0.6 mg/L as copper in milk)*Manuf./Distrib.:* Adheswara Chems. Pvt. Ltd.; Aldrich; Allan; Allchem Ind.; Farleyway Chem. Ltd; Fluka; Old Bridge; Phelps Dodge Refining; Ruger; Sigma; Spectrum Quality Prods.**Cyamopsis gum.** See Guar (Cyanopsis tetragonoloba) gum**Cyanine green toner.** See Phthalocyanine green**Cyanodithioimidocarbonate, disodium.** See Disodium cyanodithioimidocarbonate**Cyanoethylene.** See Acrylonitrile**Cyanoguanidine.** See Dicyandiamide**N-Cyanoguanidine.** See Dicyandiamide**Cyanopsis tetragonoloba.** See Guar (Cyanopsis tetragonoloba) gum**Cyanopsis tetragonoloba gum.** See Guar (Cyanopsis tetragonoloba) gum

**Cyanuramide.** See Melamine

**Cyanuric triamide.** See Melamine

**Cyanurotriamide.** See Melamine

**Cyanurotriimine.** See Melamine

**Cyclic methylethylene carbonate.** See Propylene carbonate

**Cyclic neopentetetrayl bis (2,4-di-t-butylphenyl) ester phosphorous acid.**

See Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite

**Cyclic neopentetetrayl bis (octadecyl phosphite).** See Distearyl pentaerythritol diphosphite

**Cyclic propylene carbonate.** See Propylene carbonate

**Cyclic 1,2-propylene carbonate.** See Propylene carbonate

### Cyclohexane

CAS 110-82-7; EINECS/ELINCS 203-806-2; UN No. 1145 (DOT)

**Synonyms:** Benzene hexahydride; Hexahydrobenzene; Hexamethylene; Hexanaphthene

**Classification:** Sat. aliphatic hydrocarbon

**Empirical:** C<sub>6</sub>H<sub>12</sub>

**Properties:** Colorless mobile liq., pungent gasoline-like odor; sol. in ether, chlorinated/aromatic solvs.; misc. with ethanol, acetone, benzene, ethyl ether, CCl<sub>4</sub>; insol. in water; m.w. 84.16; dens. 0.779 (20/4 C); f.p. 4.6 C; m.p. 6.5 C; b.p. 80.7 C; flash pt. (CC) -18.3 C; ref. index 1.4264

**Toxicology:** ACGIH TLV/TWA 300 ppm; LD50 (oral, rat) 29,820 mg/kg; LDLo (IV, rabbit) 77 mg/kg; poison by IV; mod. toxic by ingestion, inhalation, skin contact; systemic and skin irritant; overexposure may cause eye and respiratory irritation, drowsiness, dermatitis, narcosis, coma; mutagenic data; TSCA listed

**Precaution:** DOT: Flamm. liq.; dangerous fire hazard exposed to heat or flame; reactive with oxidizers; mod. explosion hazard as vapor exposed to flame; explosive mixed hot with liq. dinitrogen tetraoxide

**Hazardous Decom. Prods.:** Heated to decomp., emits acid smoke, irritating fumes

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area out of direct sunlight

**Uses:** Solvent for cellulose ethers, fats, oils, waxes, inks, lacquers, resins, coatings; paint and varnish remover; extraction solvent for essential oils; glass substitutes; laboratory reagent; chemical intermediate; in fungicidal formulations; mfg. of nylon, adipic acid, benzene, cyclohexanone, etc.; mfg. of solid fuel for camp stoves; solvent in cosmetics; color diluent for foods; in pharmaceutical orals; in food-pkg. adhesives; defoamer in food-contact paper coatings

**Regulatory:** FDA 21CFR §175.105, 176.200; FDA approved for orals; BP compliance

**Manuf./Distrib.:** Aldrich; Ashland; ChevronPhillips; Exxon Europe; Exxon; Fisher Scientific; Fluka; Hukill; Huntsman; Indofine; Koch Chem. Spec.; Romil Ltd; Sigma; Spectrum Quality Prods.; Sunoco; Triple Crown Am.

### Cyclohexane dimethanol diacrylate

**Uses:** Monomer for PC coatings, window films, solder masks, wood/plastic/paper coatings, metalized surf. coating

**Trade Names:** CD-406

### Cyclohexane dimethanol dimethacrylate

**Classification:** Cycloaliphatic methacrylate monomer

**Uses:** Monomer for window films, PC coatings, solder masks, wood/plastic/paper coatings, dry film photo imaging, metalized surf. coating

**Trade Names:** CD-401

### Cyclohexanol

CAS 108-93-0; EINECS/ELINCS 203-630-6

**Synonyms:** 1-Cyclohexanol; Cyclohexyl alcohol; Hexahydrophenol; Hexalin; Hydrophenol; Hydroxycyclohexane

**Classification:** Alicyclic alcohol

**Empirical:** C<sub>6</sub>H<sub>12</sub>O

**Formula:** CH<sub>2</sub>(CH<sub>2</sub>)<sub>4</sub>CHOH

**Properties:** Colorless oily liq. or cryst. (below 25 C); camphor-like odor; sol. in methanol, ethanol, acetone, ether, benzene, most org. solvs.; mod. sol. in water; m.w. 100.09; sp.gr. 0.937 (37.4 C); m.p. 23 C; b.p. 160.9 C; flash pt. 67.7 C; ref. index 1.4656 (20 C)

**Toxicology:** ACGIH TLV/TWA 50 ppm (skin); LD50 (oral, rat) 2.06 g/kg; toxic; poison by IV, mod. toxic by ing., subcut., intramuscular routes; mild skin irritant; lachrymator; mod. to severe eye irritant on direct contact; nose/throat irritant; narcotic-like; high concs. may cause headache, nau-

sea, vomiting, tremors; can be absorbed thru skin; ing. of large doses can probably cause kidney/liver damage, unconsciousness, death; experimental reproductive effects; human mutagenic data; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizing agents (reacts vigorously or explosively generating heat and pressure); ignites on contact with chromium trioxide; violent reaction with HNO<sub>3</sub>

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1; Flammability 2; Reactivity 0

**Storage:** Hygroscopic; store in cool, dry, well-ventilated area

**Uses:** Stabilizer, homogenizer in soap making and detergents to incorporate solvents and phenolic insecticides; solvent for alkyd and phenolic resins, paints, lacquers, shellacs, varnishes, rubber, inks, fats, oils; source of adipic acid for nylon prod., textile finishing; plasticizer prod.; dye solvent and carrier; leather degreasing; polishes; plasticizers; germicides; in food-pkg. adhesives; defoamer in food-contact coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Aldrich; Ashland; BASF AG; BASF; Chemcentral; Fluka; Harcos; Honeywell Perf. Polymers; J.T. Baker; Nipa Labs; Spectrum Quality Prods.; Sunnyside; UCB; Van Waters & Rogers

**1-Cyclohexanol.** See Cyclohexanol

**Cyclohexyl alcohol.** See Cyclohexanol

### Cyclohexyl methacrylate

CAS 101-43-9; EINECS/ELINCS 202-943-5

**Classification:** Monomer

**Empirical:** C<sub>10</sub>H<sub>16</sub>O<sub>2</sub>

**Formula:** H<sub>2</sub>C=C(CH<sub>3</sub>)COOC<sub>6</sub>H<sub>11</sub>

**Properties:** Colorless monomeric liq.; insol. in water; m.w. 168.24; dens. 0.9626 (20/20 C); b.p. 210 C

**Precaution:** Combustible

**Uses:** Acrylic resin comonomer; polymer modifier for optical lens systems, adhesives, floor polishes, vinyl polymerization, anaerobic adhesives, food pkg.; azo or peroxide catalyst; dental resins; encapsulation of electronic assemblies

**Manuf./Distrib.:** Aldrich; CPS; Fluka; Monomer-Polymer & Dajac Labs; Polysciences; Rohm Tech; Sigma

**Trade Names:** Mhoromer® BM 711

**N-Cyclohexyl-4-methylbenzenesulfonamide.** See N-Cyclohexyl-p-toluenesulfonamide

### N-Cyclohexyl-p-toluenesulfonamide

CAS 80-30-8

**Synonyms:** Benzenesulfonamide, N-cyclohexyl-4-methyl-; N-Cyclohexyl-4-methylbenzenesulfonamide; p-Toluenesulfonamide, N-cyclohexyl-

**Empirical:** C<sub>13</sub>H<sub>19</sub>NO<sub>2</sub>S

**Properties:** Ylsh. brn. solid; sol. in oxygenated and aromatic solvs.; insol. in water; m.w. 253.36; dens. 1.13 kg/l; m.p. 86 C; b.p. 350 C

**Toxicology:** LD (oral, rat) > 500 mg/kg; TSCA listed

**Uses:** Plasticizer for polyamide hot-melt adhesives; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180

**Manuf./Distrib.:** Salor

**Cyclopropanecarboxylic acid, 2,2-dimethyl-3-(2-methylpropenyl)-, ester with 4-hydroxy-3-methyl-2-(2,4-pentadienyl)-2-cyclopenten-1-one.** See Pyrethrin I

**Cyclotetramethylene oxide.** See Tetrahydrofuran

**DAC.** See Dimethyl diallyl ammonium chloride

**Dactin.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**DADMAC.** See Dimethyl diallyl ammonium chloride

**pDADMAC.** See Polyquaternium-6

**Dakins sol'n.** See Sodium hypochlorite

**Dalamar yellow.** See Pigment yellow 74

**Damar.** See Dammar

**Damar gum.** See Dammar

**Damar (Shorea robusta).** See Dammar

### Dammar

CAS 9000-16-2; EINECS/ELINCS 232-528-4

**Synonyms:** Damar; Damar gum; Damar (Shorea robusta); Gum Damar; Gum Dammar; Gum, Shorea Robusta; Shorea robusta gum

## Cyanuramide

**Cyanuramide.** See Melamine

**Cyanuric triamide.** See Melamine

**Cyanurotriamide.** See Melamine

**Cyanurotriimine.** See Melamine

**Cyclic methylethylene carbonate.** See Propylene carbonate

**Cyclic neopentetetrayl bis (2,4-di-t-butylphenyl) ester phosphorous acid.**

See Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite

**Cyclic neopentetetrayl bis (octadecyl phosphite).** See Distearyl pentaerythritol diphosphite

**Cyclic propylene carbonate.** See Propylene carbonate

**Cyclic 1,2-propylene carbonate.** See Propylene carbonate

## Cyclohexane

CAS 110-82-7; EINECS/ELINCS 203-806-2; UN No. 1145 (DOT)

*Synonyms:* Benzene hexahydride; Hexahydrobenzene; Hexamethylene; Hexanaphthene

*Classification:* Sat. aliphatic hydrocarbon

*Empirical:* C<sub>6</sub>H<sub>12</sub>

*Properties:* Colorless mobile liq., pungent gasoline-like odor; sol. in ether, chlorinated/aromatic solvs.; misc. with ethanol, acetone, benzene, ethyl ether, CCl<sub>4</sub>; insol. in water; m.w. 84.16; dens. 0.779 (20/4 C); f.p. 4.6 C; m.p. 6.5 C; b.p. 80.7 C; flash pt. (CC) -18.3 C; ref. index 1.4264

*Toxicology:* ACGIH TLV/TWA 300 ppm; LD50 (oral, rat) 29,820 mg/kg; LDLo (IV, rabbit) 77 mg/kg; poison by IV; mod. toxic by ingestion, inhalation, skin contact; systemic and skin irritant; overexposure may cause eye and respiratory irritation, drowsiness, dermatitis, narcosis, coma; mutagenic data; TSCA listed

*Precaution:* DOT: Flamm. liq.; dangerous fire hazard exposed to heat or flame; reactive with oxidizers; mod. explosion hazard as vapor exposed to flame; explosive mixed hot with liq. dinitrogen tetraoxide

*Hazardous Decomp. Prods.:* Heated to decomp., emits acid smoke, irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area out of direct sunlight

*Uses:* Solvent for cellulose ethers, fats, oils, waxes, inks, lacquers, resins, coatings; paint and varnish remover; extraction solvent for essential oils; glass substitutes; laboratory reagent; chemical intermediate; in fungicidal formulations; mfg. of nylon, adipic acid, benzene, cyclohexanone, etc.; mfg. of solid fuel for camp stoves; solvent in cosmetics; color diluent for foods; in pharmaceutical orals; in food-pkg. adhesives; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §175.105, 176.200; FDA approved for orals; BP compliance

*Manuf./Distrib.:* Aldrich; Ashland; ChevronPhillips; Exxon Europe; Exxon; Fisher Scientific; Fluka; Hukill; Huntsman; Indofine; Koch Chem. Spec.; Romil Ltd; Sigma; Spectrum Quality Prods.; Sunoco; Triple Crown Am.

## Cyclohexane dimethanol diacrylate

*Uses:* Monomer for PC coatings, window films, solder masks, wood/plastic/paper coatings, metalized surf. coating

*Trade Names:* CD-406

## Cyclohexane dimethanol dimethacrylate

*Classification:* Cycloaliphatic methacrylate monomer

*Uses:* Monomer for window films, PC coatings, solder masks, wood/plastic/paper coatings, dry film photo imaging, metalized surf. coating

*Trade Names:* CD-401

## Cyclohexanol

CAS 108-93-0; EINECS/ELINCS 203-630-6

*Synonyms:* 1-Cyclohexanol; Cyclohexyl alcohol; Hexahydrophenol; Hexalin; Hydrophenol; Hydrocyclohexane

*Classification:* Alicyclic alcohol

*Empirical:* C<sub>6</sub>H<sub>12</sub>O

*Formula:* CH<sub>2</sub>(CH<sub>2</sub>)<sub>4</sub>CHOH

*Properties:* Colorless oily liq. or cryst. (below 25 C); camphor-like odor; sol. in methanol, ethanol, acetone, ether, benzene, most org. solvs.; mod. sol. in water; m.w. 100.09; sp.gr. 0.937 (37.4 C); m.p. 23 C; b.p. 160.9 C; flash pt. 67.7 C; ref. index 1.4656 (20 C)

*Toxicology:* ACGIH TLV/TWA 50 ppm (skin); LD50 (oral, rat) 2.06 g/kg; toxic; poison by IV, mod. toxic by ing., subcut., intramuscular routes; mild skin irritant; lachrymator; mod. to severe eye irritant on direct contact; nose/throat irritant; narcotic-like; high concs. may cause headache, nau-

sea, vomiting, tremors; can be absorbed thru skin; ing. of large doses can probably cause kidney/liver damage, unconsciousness, death; experimental reproductive effects; human mutagenic data; TSCA listed

*Precaution:* Combustible; incompat. with strong oxidizing agents (reacts vigorously or explosively generating heat and pressure); ignites on contact with chromium trioxide; violent reaction with HNO<sub>3</sub>

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

NFPA: Health 1; Flammability 2; Reactivity 0

*Storage:* Hygroscopic; store in cool, dry, well-ventilated area

*Uses:* Stabilizer, homogenizer in soap making and detergents to incorporate solvents and phenolic insecticides; solvent for alkyd and phenolic resins, paints, lacquers, shellacs, varnishes, rubber, inks, fats, oils; source of adipic acid for nylon prod., textile finishing; plasticizer prod.; dye solvent and carrier; leather degreasing; polishes; plasticizers; germicides; in food-pkg. adhesives; defoamer in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

*Manuf./Distrib.:* Aldrich; Ashland; BASF AG; BASF; Chemcentral; Fluka; Harcross; Honeywell Perf. Polymers; J.T. Baker; Nipa Labs; Spectrum Quality Prods.; Sunnyside; UCB; Van Waters & Rogers

**1-Cyclohexanol.** See Cyclohexanol

**Cyclohexyl alcohol.** See Cyclohexanol

## Cyclohexyl methacrylate

CAS 101-43-9; EINECS/ELINCS 202-943-5

*Classification:* Monomer

*Empirical:* C<sub>10</sub>H<sub>16</sub>O<sub>2</sub>

*Formula:* H<sub>2</sub>C=C(CH<sub>3</sub>)COOC<sub>6</sub>H<sub>11</sub>

*Properties:* Colorless monomeric liq.; insol. in water; m.w. 168.24; dens. 0.9626 (20/20 C); b.p. 210 C

*Precaution:* Combustible

*Uses:* Acrylic resin comonomer; polymer modifier for optical lens systems, adhesives, floor polishes, vinyl polymerization, anaerobic adhesives, food pkg.; azo or peroxide catalyst; dental resins; encapsulation of electronic assemblies

*Manuf./Distrib.:* Aldrich; CPS; Fluka; Monomer-Polymer & Dajac Labs; Polysciences; Rohm Tech; Sigma

*Trade Names:* Mhoromer® BM 711

**N-Cyclohexyl-4-methylbenzenesulfonamide.** See N-Cyclohexyl-p-toluenesulfonamide

## N-Cyclohexyl-p-toluenesulfonamide

CAS 80-30-8

*Synonyms:* Benzenesulfonamide, N-cyclohexyl-4-methyl-; N-Cyclohexyl-4-methylbenzenesulfonamide; p-Toluenesulfonamide, N-cyclohexyl-

*Empirical:* C<sub>13</sub>H<sub>19</sub>NO<sub>2</sub>S

*Properties:* Ylsh. brn. solid; sol. in oxygenated and aromatic solvs.; insol. in water; m.w. 253.36; dens. 1.13 kg/l; m.p. 86 C; b.p. 350 C

*Toxicology:* LD (oral, rat) > 500 mg/kg; TSCA listed

*Uses:* Plasticizer for polyamide hot-melt adhesives; in food-pkg. adhesives; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §175.105, 176.180

*Manuf./Distrib.:* Salor

**Cyclopropanecarboxylic acid, 2,2-dimethyl-3-(2-methylpropenyl)-, ester with 4-hydroxy-3-methyl-2-(2,4-pentadienyl)-2-cyclopenten-1-one.** See Pyrethrin I

**Cyclotetramethylene oxide.** See Tetrahydrofuran

**DAC.** See Dimethyl diallyl ammonium chloride

**Dactin.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**DADMAC.** See Dimethyl diallyl ammonium chloride

**pDADMAC.** See Polyquaternium-6

**Dakins sol'n.** See Sodium hypochlorite

**Dalamar yellow.** See Pigment yellow 74

**Damar.** See Dammar

**Damar gum.** See Dammar

**Damar (Shorea robusta).** See Dammar

## Dammar

CAS 9000-16-2; EINECS/ELINCS 232-528-4

*Synonyms:* Damar; Damar gum; Damar (Shorea robusta); Gum Damar; Gum Dammar; Gum, Shorea Robusta; Shorea robusta gum



**Definition:** Exuded oleoresin from *Shorea* trees

**Properties:** Wh. to dk. brn. solid; sol. in aromatic, hydrocarbon, and chlorinated hydrocarbon solvs. and esters; partly sol. in alcohols; insol. in water; dens. ≈ 1.08 kg/l; m.p. ≈ 110 C; acid no. 20-35

**Uses:** Colorless and overprint varnishes; gloss/adhesion promoter in cellulose nitrate lacquers; alkyl baking enamels; binder in paper varnishes; paper and textile coatings; emulsifier; stabilizer; food applics.; visc. control agent; in food-pkg. adhesives; in food-contact coatings; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.300, 177.1200, 177.1400

**Manuf./Distrib.:** Charkit; Fluka; P.L. Thomas; Pangaea Sciences; Scheel; Sigma

**Danish agar.** See Furcelleran

**DAP.** See Ammonium phosphate, dibasic; Diallyl phthalate

**DAS.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**DASD.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**Dazomet.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione

**DBEBPA.** See Bisphenol A diglycidyl ether

**DBNPA.** See 2,2-Dibromo-3-nitripropionamide

**DBP.** See Dibutyl phthalate

**DBPC.** See BHT

**DBS.** See Dibutyl sebacate

**DCD.** See Dicyandiamide

**DCDMH.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**D&C Green No. 1.** See Acid green 1

**D&C Green No. 4.** See Acid green 5

**D&C Green No. 5.** See Acid green 25

**DCHP.** See Dicyclohexyl phthalate

**D&C Orange No. 3.** See Acid orange 10

**D&C Orange No. 4.** See Acid orange 7

**D&C Orange No. 5.** See Acid orange 11

**D&C Red No. 5.** See Acid red 26

**D&C Red No. 19.** See Basic violet 10

**D&C Red No. 22.** See Acid red 87

**D&C Red No. 35.** See Pigment red 3

**D&C Red No. 36.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**D&C Violet No. 1.** See Acid violet 49

**D&C Yellow No. 1.** See Acid yellow 36

**D&C Yellow No. 5.** See Tartrazine

**D&C Yellow No. 10.** See Acid yellow 3

**DDAO.** See Lauramine oxide

**DDBSA.** See Dodecylbenzenesulfonic acid

**DDDM.** See Dichlorophene

**DDH.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**DDM.** See Dichlorophene

**DDP.** See Didecyl phthalate

**DDS.** See Dodecylsuccinic anhydride

**DDSA.** See Dodecylsuccinic anhydride

**n-DDSA.** See Dodecylsuccinic anhydride

**DEA.** See Diethanolamine

**Deadburned magnesite.** See Magnesium oxide

**DEAE.** See Diethylaminoethanol

**Deanol.** See Dimethylethanolamine

**Decaethoxy oleyl ether.** See Oleth-10

**Decanal dimethyl acetal.** See Decyl alcohol

**Decanamide, N,N-bis(2-hydroxyethyl)-.** See Capramide DEA

**Decane.** See n-Decane

#### n-Decane

CAS 124-18-5; UN No. 2247 (DOT)

**Synonyms:** Decane

**Classification:** Sat. aliphatic hydrocarbon

**Empirical:** C<sub>10</sub>H<sub>22</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>CH<sub>3</sub>

**Properties:** Colorless liq.; gasoline-like odor; sol. in most org. solvs.; insol. in water; m.w. 142.29; sp.gr. 0.734; m.p. -29.6 C; b.p. 174 C; flash pt. 46 C; ref. index 1.4114 (20 C)

**Toxicology:** LC50 (inh., mouse) 2 h) 72,300 mg/m<sup>3</sup>; TDLo (skin, mouse, 52 wks intermittent) 25 g/kg; relatively low oral toxicity unless aspirated into lungs; mod. to severe skin irritant; probably mod. to severe eye irritant; narcotic; simple asphyxiant; conc. vapor may cause nose/throat irritation, headache, drowsiness, nausea, difficulty breathing; ing. may cause nau-

sea, vomiting, swelling of abdomen, headache, depression; questionable carcinogen, tumorigen; TSCA listed

**Precaution:** Combustible; mod. fire risk; incompat. with strong oxidizing agents (increases fire and explosion hazard); mod. explosive as vapor

**Hazardous Decomp. Prods.:** None

**NFPA:** Health 0; Flammability 2; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area out of direct sunlight

**Uses:** Component of gasoline, jet fuel, kerosene, petrol. solvents such as wh. spirit; solvent; standardized hydrocarbon; org. synthesis; paper and rubber industries; constituent of polyolefin mfg. wastes

**Manuf./Distrib.:** Aldrich; ChevronPhillips; Fluka; Sigma; Triple Crown Am.

**Decanedioic acid, dibutyl ester.** See Dibutyl sebacate

**Decanoic acid.** See Capric acid

**n-Decanoic acid.** See Capric acid

**Decanoic acid, 1-methyl-1,2-ethanediy l ester mixed with 1-methyl-1,2-ethanediy l dioctanoate.** See Propylene glycol dicaprylate/dicaprate

**Decanoic acid, mixed diesters with octanoic acid and propylene glycol.** See Propylene glycol dicaprylate/dicaprate

**Decanoic acid, monoester with 1,2,3-propanetriol.** See Glyceryl caprate

**Decanol.** See Decyl alcohol

**1-Decanol.** See Decyl alcohol

**Decan-1-ol.** See Decyl alcohol

**n-Decanol.** See Decyl alcohol

**1-Decanol, 2-octyl.** See 2-Octyl-1-decanol

**3,6,9,12,15,18,21,24,27,30-Decaoxaoctatetracont-39-en-1-ol.** See Oleth-10

#### Decene-1

CAS 872-05-9; EINECS/ELINCS 212-819-2; UN No. 1993

**Synonyms:** 1-Decene; Decylene; Linear C10 alpha olefin

**Empirical:** C<sub>10</sub>H<sub>20</sub>

**Formula:** H<sub>2</sub>C:CH(CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>

**Properties:** Colorless liq., mild hydrocarbon odor; sol. in alcohol, most org. solvs.; sl. sol. in water; m.w. 140.27; dens. 0.741 (20/4 C); f.p. -66.3 C; b.p. 166-171 C; flash pt. (Seta) 114 F; ref. index 1.421 (20 C)

**Toxicology:** LD50 (oral) > 10,000 mg/kg, (dermal) > 10,000 mg/kg; low acute inhalation toxicity; sl. toxic by ingestion

**Precaution:** Flamm. liq.; avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)

**Storage:** Store under nitrogen

**Uses:** Intermediate for surfactants, specially industrial chemicals (flavors, perfumes, pharmaceuticals, dyes, oils, resins); comonomer for certain copolymers; prod. of epoxides, amines, oxo alcohols, syn. lubricants, syn. fatty acids, alkylated aromatics

**Manuf./Distrib.:** Albemarle; Aldrich; Fluka; Monomer-Polymer & Dajac Labs; Shell; Sigma

**Trade Names:** Gulftene® 10

**1-Decene.** See Decene-1

#### 1-Decene, homopolymer, hydrogenated

CAS 68037-01-4

**Classification:** Syn. hydrocarbon base oil

**Properties:** Colorless liq.; odorless; sol. < 0.1% in water; sp.gr. 0.83 (15.6 C); vapor pressure < 1 mm Hg (20 C); pour pt. -60 C max.; flash pt. (PMCC) 238 C

**Toxicology:** Inh. of oil mist or vapors at elevated temps. may cause respiratory irritation; no significant eye or skin irritation expected; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents; avoid temp. sources which induce thermal decomp.

**Hazardous Decomp. Prods.:** Incomplete burning can produce CO, CO<sub>2</sub>, other harmful prods.

**HMIS:** Health 0; Flammability 0; Reactivity 0

**Storage:** Store @ 10-50 C

**Uses:** Food-contact articles; lubricant for incidental food contact in meat/poultry plants

**Regulatory:** FDA 21CFR §178.3620(b); USDA approved; DOT nonregulated; SARA §302/311/312/313 nonreportable

**Trade Names Containing:** Chevron Clarity® Synthetic Paper Machine Oil ISO 100; Chevron Clarity® Synthetic Paper Machine Oil ISO 150; Chevron Clarity® Synthetic Paper Machine Oil ISO 220; Chevron Clarity® Synthetic Paper Machine Oil ISO 320; Chevron Clarity® Synthetic Paper Machine Oil ISO 460

**Deceth-4**

CAS 5703-94-6; 26183-52-8 (generic)

*Synonyms:* PEG-4 decyl ether; PEG 200 decyl ether; POE (4) decyl ether; 3,6,9,12-Tetraoxadocosan-1-ol*Definition:* PEG ether of decyl alcohol*Empirical:* C<sub>18</sub>H<sub>38</sub>O<sub>5</sub>*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4*Properties:* Nonionic*Uses:* Wetting and penetrating agent for textile processing, clay soils, and fire fighting prods.; emulsifier for polyethylene emulsions; detergent*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma*Trade Names:* Oxetal D 104**Deceth-4 phosphate**

CAS 9004-80-2 (generic); 52019-36-0 (generic); 68130-47-2

*Synonyms:* PEG-4 decyl ether phosphate; PEG 200 decyl ether phosphate; POE (4) decyl ether phosphate*Definition:* Complex mixture of phosphoric acid esters of deceth-4*Properties:* Anionic*Toxicology:* TSCA listed*Uses:* Surfactant; detergent, foaming agent, dispersant, wetting agent for household, industrial, textile wet processing; coupling agent used in liq. alkali detergents; lubricant; antistat; corrosion inhibitor; emulsion polymerization; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.210*Trade Names:* Monafax 1214**Dechlorane.** See Perchloropentacyclodecane**Decoic acid.** See Capric acid**n-Decoic acid.** See Capric acid**Decolorizing carbon.** See Carbon, activated**Decyl acrylate homopolymer***Uses:* In paper/paperboard in contact with dry food*Regulatory:* FDA 21CFR §176.180**Decyl alcohol**

CAS 112-30-1; 68526-85-2; EINECS/ELINCS 203-956-9; FEMA 2365

*Synonyms:* Alcohol C-10; C-10 alcohol; Capric alcohol; Caprinic alcohol; Decanal dimethyl acetal; Decanol; 1-Decanol; Decan-1-ol; n-Decanol; Decylic alcohol; n-Decyl alcohol; 1-Hydroxydecane; Noncarbinol; Nonylcarbinol; Primary decyl alcohol*Classification:* Primary aliphatic alcohol*Empirical:* C<sub>10</sub>H<sub>22</sub>O*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>CH<sub>2</sub>OH*Properties:* Colorless to lt. yel. mod. visc. liq., sweet odor; sol. in alcohol, ether, acetone, benzene, chloroform, acetic acid; pract. insol. in water; m.w. 158.32; sp.gr. 0.8297 (20/4 C); m.p. 7 C; b.p. 232.9 C; flash pt. (OC) 82 C; ref. index 1.43587; surf. tens. 28.9 dynes/cm (20 C)*Toxicology:* LD50 (oral, rat) 4720 mg/kg; mod. toxic by skin contact; mildly toxic by ing., inh.; irritating to eyes, skin, respiratory system; inh. may cause nose/throat irritation; high concs. may cause CNS depression, headache, nausea, drowsiness; ing. may cause headache, dizziness, nausea, vomiting, and unconsciousness or coma in severe cases; if aspirated into lungs, may cause severe lung damage and possibly death; possible carcinogen, tumorigen; TSCA listed*Precaution:* Combustible; flamm. when exposed to heat or flame; incompat. with oxidizing agents (increases fire/explosion risk)*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 2; Reactivity 0

*Storage:* Store in cool, dry area*Uses:* In mfg. of plasticizers, syn. lubricants, petroleum additives, herbicides, surfactants, solvents, coatings; emulsion polymerization; antifoaming agent; as solvent; fragrance ingred. in perfumes; in food-contact coatings; syn. flavoring agent in foods and pharmaceuticals; growth retardant; stabilizer with calcium isostearate for calcium stearate disps. for food-contact paper/paperboard coatings; emollient; visc. control agent*Use Level:* 2.1 ppm (nonalcoholic beverages), 4.6 ppm (ice cream, ices), 5.2 ppm (candy), 5.2 ppm (baked goods), 3 ppm (chewing gum)*Regulatory:* FDA 21CFR §172.515, 172.864, 175.300, 176.170, 178.3480, 178.3910; FEMA GRAS; Japan approved as flavoring*Manuf./Distrib.:* Albemarle; Aldrich; Brown; Cognis/Chems. Group; Condea

Vista; Exxon; Fluka; Grau Aromatics; Haarmann &amp; Reimer GmbH; Indofine; Jarchem Ind.; M. Michel; Penta Mfg.; Schweizerhall; Sigma; Universal Preserv-A-Chem

*Trade Names:* Nafol® 10 D**n-Decyl alcohol.** See Decyl alcohol**Decylbenzene sodium sulfonate.** See Sodium decylbenzene sulfonate**Decylbenzenesulfonic acid, sodium salt.** See Sodium decylbenzene sulfonate**N-Decyl-N,N-dimethyl-1-decanaminium chloride.** See Didecylidimonium chloride**Decylene.** See Decene-1**Decylic acid.** See Capric acid**n-Decylic acid.** See Capric acid**Decylic alcohol.** See Decyl alcohol**Decyl octyl alcohol.** See Stearyl alcohol**2-Decyl tetradecanoic acid**

CAS 93778-52-0

*Uses:* In cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles*Manuf./Distrib.:* Jarchem Ind.*Trade Names:* Jaric I-24**Decyltetradecanol.** See 2-Decyl-1-tetradecanol**2-Decyltetradecanol.** See 2-Decyl-1-tetradecanol**2-Decyl-1-tetradecanol**

CAS 58670-89-6; EINECS/ELINCS 216-385-0

*Synonyms:* Decyltetradecanol; 2-Decyltetradecanol; Isolignoceryl alcohol; 1-Tetradecanol, 2-decyl-*Classification:* Aliphatic alcohol*Empirical:* C<sub>24</sub>H<sub>50</sub>O*Properties:* Liq.; insol. in water; m.w. 354.66; dens. 0.84 kg/l (17 C)*Uses:* Emollient; solvent for cosmetics/toiletries; solubilizer; in cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles*Trade Names:* Jarcol™ I-24**DEGBE.** See Butoxydiglycol**DEGEE.** See Ethoxydiglycol**DEHP.** See s-Dioctyl phthalate**Dehydroabietylamine**

CAS 1446-61-3; EINECS/ELINCS 215-899-7

*Synonyms:* 1,4A-Dimethyl-7-isopropyl-1,2,3,4,4A,9,10,10A-octahydro-1-phenanthrene methylamine*Classification:* Aromatic amine*Empirical:* C<sub>20</sub>H<sub>31</sub>N*Properties:* M.w. 285.48; m.p. 43-45 C; ref. index 1.5460*Toxicology:* Primary irritant; TSCA listed*Uses:* Base used for resolution of acids*Manuf./Distrib.:* Aldrich; Fluka*Trade Names:* Amine D®**Deionized water.** See Water**DELA.** See Diethanolamine**Deodorized kerosene**

CAS 8008-20-6; EINECS/ELINCS 232-366-4; UN No. 1223 (DOT)

*Synonyms:* Kerosene, deodorized; Kerosene, odorless; Odorless kerosene*Definition:* Mixt. of petrol.-derived hydrocarbons contg. 10 to 16 carbon atoms*Toxicology:* TSCA listed*Precaution:* DOT: Flamm. liq.

HMIS: Health 1; Flammability 2; Reactivity 1

*Uses:* Solvent for paints/coatings, printing inks, floor polishes; metal degreasing/cleaning solvents; domestic lamp oil; dust control agent; quench oil; pesticide diluent; froth flotation; liq. candles; charcoal lighter fluid; polishes; cleaners; cosmetics and pharmaceuticals; defoamer in food-contact coatings and paper/paperboard*Regulatory:* FDA 21CFR §176.200, 176.210*Manuf./Distrib.:* Ruger*Trade Names:* PD-23**Deodorized winterized cottonseed oil.** See Cottonseed (Gossypium) oil

**DETA.** See Diethylenetriamine

**Detergent enzyme.** See Protease

**DETPMPA.** See Diethylene triamine pentamethylene phosphonic acid

**3,6,9,12,15,18,21,24,27,30-Dexaohexatetracontan-1-ol.** See Ceteth-10

**3,6,9,12,15,18,21,24,27,30-Dexaooctatetracontan-1-ol.** See Steareth-10

**Dextrins.** See Dextrin

#### Dextrin

CAS 9004-53-9; EINECS/ELINCS 232-675-4

*Synonyms:* Artificial gum; British gum; Dextrins; Dextrine; Dextrins; Pyrodextrin; Starch gum; Tapioca; Vegetable gum; White dextrin; Yellow dextrin

*Definition:* Gum produced by incomplete hydrolysis of starch

*Empirical:*  $(C_6H_{10}O_5)_n \cdot xH_2O$

*Properties:* Wh., yel. or brn. powd. or gran.; sol. in water; insol. in alcohol, ether; forms colloids

*Toxicology:* Mildly toxic by IV route

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Hygroscopic

*Uses:* Thickener; adhesives, glues, mucilage; sizing paper and textiles; thickening dye pastes and mordants; substitute for natural gums; printing inks; in penicillin mfg.; fuel in pyrotechnic devices; in matches, explosives; absorbent; binder, colloidal stabilizer, extender, formulation aid, processing aid, surface-finishing agent, thickener for foods; emulsifier, suspending agent, thickener for pharmaceuticals; tablet binder/diluent; as adhesive/stiffener in surgical dressings; visc. control agent

*Use Level:* ADI 0-70 mg/kg (JECFA)

*Regulatory:* FDA 21CFR §184.1277, 186.1275, GRAS; USDA 9CFR §318.7, 381.147; FDA approved for orals, topicals; USP/NF compliance

*Manuf./Distrib.:* A.E. Staley Mfg.; Aldrich; Cerestar USA; Fluka; Grain Processing; Nat'l. Starch & Chem.; Sigma; Spectrum Quality Prods.

**Dextrine.** See Dextrin

**Dextrins.** See Dextrin

**DEZ.** See Diethyl zinc

**DEZn.** See Diethyl zinc

**DGEBA.** See Bisphenol A diglycidyl ether

**DGH.** See Dodecylguanidine hydrochloride

**Diacetone peroxides.** See Acetyl peroxide

#### Diacetylated tallow monoglyceride, tartaric acid ester

*Synonyms:* Diacetyltartaric acid ester of tallow monoglyceride

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Diacetyl peroxide.** See Acetyl peroxide

**Diacetyltartaric acid ester of tallow monoglyceride.** See Diacetylated tallow monoglyceride, tartaric acid ester

#### Dialdehyde guar gum

*Uses:* Wet str. additive in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

#### Dialdehyde locust bean gum

*Uses:* Wet str. additive in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

#### Dialkyl (C16-C18) carbamoyl chloride

*Uses:* Sizing agent in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

#### Dialkyl dimethyl ammonium chloride

CAS 68514-95-4

*Synonyms:* Dimethyl dialkyl ammonium chloride

*Properties:* Cationic

*Toxicology:* TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Softener; surfactant; bactericide; algicide decolorizing agent in clarification of refinery sugar liquors; in cellophane for food pkg.

*Use Level:* Limitation 700 ppm of sugar solids

*Regulatory:* FDA 21CFR §173.400, 177.1200

*Trade Names:* Querton 442P; Querton 442P-11

#### Dialkyl methyl benzyl ammonium chloride

CAS 68391-06-0

*Uses:* Biocide; slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

*Trade Names Containing:* Barquat® 1552

**Diallyl dimethyl ammonium chloride.** See Dimethyl diallyl ammonium chloride

**Diallyldimethyl ammonium chloride with acrylamide.** See Polyquaternium-7

#### Diallyl fumarate homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

#### Diallyl maleate homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

#### Diallyl phthalate

CAS 131-17-9; EINECS/ELINCS 205-016-3

*Synonyms:* DAP; Di-2-propenyl ester, 1,2-benzenedicarboxylic acid; Phthalic acid, diallyl ester; o-Phthalic acid, diallyl ester

*Empirical:*  $C_{14}H_{14}O_4$

*Formula:*  $C_6H_4(COOCH_2CH=CH_2)_2$

*Properties:* Colorless oily liq.; mild odor; sol. in oxygenated and chlorinated solvs.; limited sol. in gasoline, min. oil, glycerol, glycols; insol. in water; m.w. 246.27; dens. 1.120 (20/20 C); b.p. 158-165 (4 mm); f.p. -70 C; flash pt. 165.5 C; ref. index 1.519

*Toxicology:* LD50 (oral, rat) 656 mg/kg, (skin, rabbit) 3400 mg/kg, (IP, mouse) 700 mg/kg; mod. toxic by ing., skin contact, IP, and subcut. routes; primary eye irritant; lachrymator; avoid inh.; suspect carcinogen; tumorigen; mutagen; TSCA listed

*Precaution:* Combustible exposed to heat or flame; can be reactive with oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Store under nitrogen

*Uses:* Primary plasticizer; plasticizer/tackifier for PVC; peroxide crosslinking coactivator; intermediate; catalyst extender; mfg. of paints; reactive diluent in polyester laminating resins; forms low-pressure laminates with fillers such as glass cloth, paper, etc. for elec. insulation

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; BP Chems. Ltd; C.P. Hall; Chemcentral; FMC; Fluka; Lyondell; Monomer-Polymer & Dajac Labs; Occidental; Punda Mercantile; Rogers; Samson; Sigma; Van Waters & Rogers

#### Diallyl phthalate homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Dialuminum dipotassium sulfate.** See Potassium alum anhydrous

**Dialuminum sulfate.** See Aluminum sulfate

**Dialuminum trisulfate.** See Aluminum sulfate

**Diamine blue 2B.** See Direct blue 6

**Diamine brown.** See Direct brown 2

**Diamine dark green.** See Direct green 1

**Diamine deep black EC.** See Direct black 38

**Diamine scarlet 3BA-CF.** See Direct red 39

**Diamine sky blue FF.** See Direct blue 53

**4,4'-Diaminobiphenyl.** See Benzidine

**4,4'-Diamino-1,1'-biphenyl.** See Benzidine

**p,p'-Diaminobiphenyl.** See Benzidine

**4,4'-Diamino-3,3'-biphenyldiol dimethyl ether.** See Dianisidine

**2,2'-Diaminodiethylamine.** See Diethylenetriamine

**4,4'-Diamino-3,3'-dimethoxybiphenyl.** See Dianisidine

**Di-p-aminodi-m-methoxydiphenyl.** See Dianisidine

**3,7'-Diamino-2,8-dimethyl-5-phenylphenazinium chloride.** See Basic red 2

**4,4'-Diaminodiphenyl.** See Benzidine

**p-Diaminodiphenyl.** See Benzidine

**1,2-Diaminoethane.** See Ethylenediamine

## 4,4'-Diaminostilbene-2,2'-disulfonic acid

### 4,4'-Diaminostilbene-2,2'-disulfonic acid

CAS 81-11-8; 65941-98-2

**Synonyms:** DAS; DASD; Amsonic acid; Benzenesulfonic acid, 2,2'-(1,2-ethylenediyl) bis (5-amino)-; CI 40002; CI 40003; 4,4'-Diamino-2,2'-stilbenedisulfonic acid; Direct orange 15; 2,2'-(1,2-Ethylenediyl) bis (5-aminobenzenesulfonic acid); Flavonic acid; 2,2'-Stilbenedisulfonic acid, 4,4'-diamino-

**Empirical:** C<sub>16</sub>H<sub>14</sub>N<sub>2</sub>O<sub>6</sub>S<sub>2</sub>

**Formula:** C<sub>8</sub>H<sub>7</sub>(NH<sub>2</sub>)(SO<sub>3</sub>H)CHCHC<sub>8</sub>H<sub>7</sub>(SO<sub>3</sub>H)(NH<sub>2</sub>)

**Properties:** Yel. microscopic needles; sol. in alcohol, ether, oxygenated solvs.; very sl. sol. in water; m.w. 370.41; m.p. > 325 C

**Toxicology:** LD50 (oral, guinea pig) 47 g/kg; sl. toxic by ingestion; experimental reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub> and SO<sub>x</sub>

**Uses:** Optical brightener; dye for cotton, paper, leather; mfg. of bleaching agents; for household and I&I detergents, textiles

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich; Alfa Aesar; China Nat'l. Chem. Construction; Hickson & Welch Ltd; Lancaster Synthesis; Pfaltz & Bauer; TCI Am.; Wilshire

**4,4'-Diamino-2,2'-stilbenedisulfonic acid.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**Diammonium edetate.** See Diammonium EDTA

### Diammonium EDTA

CAS 20824-56-0; EINECS/ELINCS 244-063-4

**Synonyms:** Diammonium edetate; Diammonium N,N'-1,2-ethanediybis[N-(carboxymethyl)glycine]; Diammonium ethylene diamine tetraacetate; Edetate diammonium

**Classification:** Substituted diamine

**Empirical:** C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>8</sub> · 2H<sub>2</sub>N

**Formula:** NCH<sub>2</sub>CH<sub>2</sub>N(CH<sub>2</sub>COOH)<sub>2</sub>(CH<sub>2</sub>COONH<sub>4</sub>)<sub>2</sub>

**Uses:** Chelating agent; photographic developer; for cosmetics, pharmaceuticals, in water treatment, textiles, soaps/detergents, electroless copper plating, polymer prod., disinfectants, pulp/paper, enhanced oil recovery, metal cleaning/protection

**Manuf./Distrib.:** Fluka

**Trade Names:** Versene Diammonium EDTA

**Diammonium N,N'-1,2-ethanediybis[N-(carboxymethyl)glycine].** See Diammonium EDTA

**Diammonium ethylene diamine tetraacetate.** See Diammonium EDTA

**Diammonium hydrogen orthophosphate.** See Ammonium phosphate, dibasic

**Diammonium hydrogen phosphate.** See Ammonium phosphate, dibasic

**Diammonium peroxodisulfate.** See Ammonium persulfate

**Diammonium phosphate.** See Ammonium phosphate, dibasic

**Diammonium sulfate.** See Ammonium sulfate

**Diammonium thiosulfate.** See Ammonium thiosulfate

**1,2:3,4-Dianhydro-DL-threitol.** See DL-Diepoxybutane

**p,p'-Dianiline.** See Benzidine

**1,4-Dianilinobenzene.** See N,N'-Diphenyl-p-phenylenediamine

### Dianisidine

CAS 119-90-4; EINECS/ELINCS 204-355-4

**Synonyms:** DMOB; Acetamine diazo black RD; Azoic diazo component 48; Benzidine, 3,3'-dimethoxy; Bianisidine; Blue base; CI 37235; CI azoic diazo component 48; CI disperse black 6; 4,4'-Diamino-3,3'-biphenyldiol dimethyl ether; 4,4'-Diamino-3,3'-dimethoxybiphenyl; Di-p-aminodimethoxydiphenyl; o-Dianisidine; o,o'-Dianisidine; 3,3'-Dianisidine; 3,3'-Dimethoxybenzidine; 3,3'-Dimethoxy-1,1'-biphenyl-4,4'-diamine; 3,3'-Dimethoxy-4,4'-diaminobiphenyl; Fast blue

**Classification:** Primary amine

**Empirical:** C<sub>14</sub>H<sub>12</sub>N<sub>2</sub>O<sub>2</sub>

**Formula:** [C<sub>6</sub>H<sub>3</sub>(OCH<sub>3</sub>)NH<sub>2</sub>]<sub>2</sub>

**Properties:** Colorless cryst. or lt. brn. powd.; turns violet on standing; sol. in DMSO, alcohol, ether, benzene, chloroform; probably sol. in most lipids and most org. solvs.; sol. 5-10 mg/ml in acetone; insol. in water; m.w. 244.32; m.p. 137-138 C; flash pt. 206 C

**Toxicology:** LD50 (oral, rat) 1920 mg/kg; LDLo (oral, dog) 600 mg/kg; mod. toxic by ing.; toxic by inh., skin contact; irritating to eyes, skin, respiratory system; can be absorbed thru skin; stannator; may cause headaches,

drowsiness, cyanosis, severe nose irritation, sneezing, bladder cancer; carcinogen; tumorigen; mutagen; target organ: bladder; TSCA listed

**Precaution:** Combustible; weak base; incompat. with strong oxidizing agents; sensitive to heat, air, and prolonged exposure to light

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>, NO<sub>x</sub>; emits toxic fumes under fire conditions

**NFPA:** Flammability 1; Reactivity 0

**Storage:** Store in cool, dry place; store refrigerated; store in tightly closed container under inert atmosphere; protect from light

**Uses:** Chemical intermediate for prod. of azo dyes and o-dianisidine diisocyanate; dye for leather, paper, plastics, rubber, textiles; in detection of metals, thiocyanates, and nitrites

**Regulatory:** SARA §313 reportable

**Manuf./Distrib.:** ABCR; AccuStandard; Acros Org.; Aldrich; Alfa Aesar; Fluka; George Uhe; ICN Biomed. Research Prods.; Lancaster Synthesis; Pfaltz & Bauer; Research Organics; Sigma; Spectrum Quality Prods.; TCI Am.

**3,3'-Dianisidine.** See Dianisidine

**o-Dianisidine.** See Dianisidine

**o,o'-Dianisidine.** See Dianisidine

**Diantimony pentoxide.** See Antimony pentoxide

**Diantimony trioxide.** See Antimony trioxide

### Diaryl iodonium hexafluoroantimonate

**Uses:** Photoinitiator for use in coatings (metal, paper, wood, plastic) and inks; enhances adhesion to metallic substrates; offers fast cure speeds in epoxy, vinyl ether, and other cationically cured resin systems

**Trade Names:** SR-1012

### Diatomaceous earth

CAS 6067-86-0; 7631-86-9; 68855-54-9; EINECS/ELINCS 231-545-4

**Synonyms:** Diatomite; Diatomaceous silica; Fossil flour; Infusorial earth; Kieselguhr; Siliceous earth; Silicon dioxide, diatomaceous

**Definition:** Mineral material consisting chiefly of the siliceous frustules and fragments of various species of diatoms

**Properties:** Wh. to pale buff soft bulky solid; insol. in water, acids except HF, dil. alkalis; sol. in strong alkalis; dens. 1.9-2.35; bulk dens. 8-15 lb/ft<sup>3</sup>; bulking value 0.06 gal/lb; oil absorp. 135-185%; GE brightness 87-90; ref. index 1.42-1.49; hardness (Mohs) 4.5-6.0; 88% silica

**Toxicology:** TLV/TWA 10 mg/m<sup>3</sup> (dust); poison by inhalation and ingestion; dust may cause fibrosis of the lungs; tumorigen

**Precaution:** Noncombustible

**HMS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Filtration, clarifying, decolorizing, disinfection, Fe/Mn removal, taste/odor control in water treatment; insulation absorbent; mild abrasive; catalyst carrier; anticaking agents in fertilizer; conditioning agent for dusts, soil; flattening agent; filler, processing aid for rubber; filler in cosmetics, paper, plastics; filler/extender for paints, thermosets and thermoplastics; mfg. heat insulators; fat refining aid, filter aid (foods); filter aid; sorbent; dentifrice abrasive; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §73.1, 133.146, 160.105, 160.185, 172.230, 172.480, 173.340, 175.300, 176.170, 177.1460, 177.2410, 178.3297, 182.90, 193.135, 561.145, 576.940; USDA 9CFR §318.7; Japan restricted (0.5% max. residual); USP/NF, BP compliance

**Manuf./Distrib.:** Alban Muller; Aldrich; Ashland; CR Mins.; Celite; Coyne; D.N. Lukens; Eagle-Picher; Gelest; Great Western; Kraft Chem.; L.A. Salomon; Landers-Segal Color; Lomas Int'l.; Sal Chem.; Seefast (Europe) Ltd; Seegott; Sigma; Spectrum Quality Prods.; Tamms Ind.; Van Waters & Rogers; Whittaker, Clark & Daniels

**Trade Names:** Celite® 263; Celite® 321; Celite® 388

### Diatomaceous earth, amorphous

CAS 61790-53-2

**Synonyms:** Amorphous silica; Diatomaceous earth, natural; Diatomaceous silica; Diatomite; Infusorial earth; Kieselguhr

**Definition:** Diatomaceous earth contg. < 1% cryst. silica

**Properties:** Wh. to tan solid; sol. in hydrofluoric acid; insol. in water

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); NIOSH REL:TWA 6 mg/m<sup>3</sup>; harmful dust; nuisance dust; may cause fibrosis of the lungs; irritating to eyes, respiratory system; possible carcinogen; tumorigen; TSCA listed



## Dibutyl-1,2-benzene dicarboxylate

*Manuf./Distrib.:* Wall Chem.

**Dibutyl-1,2-benzene dicarboxylate.** See Dibutyl phthalate

**2,5-Di-t-butylbenzene-1,4-diol.** See Di-t-butylhydroquinone

**Dibutyl-o-(o-carboxybenzoyl) glycolate.** See n-Butyl phthalyl-n-butyl glycolate

**Dibutyl-o-carboxybenzoyloxyacetate.** See n-Butyl phthalyl-n-butyl glycolate

**2,6-Di-t-butyl-p-cresol.** See BHT

**Dibutyl decanedioate.** See Dibutyl sebacate

**Dibutyl fumarate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**2,5-Di-t-butyl hydroquinone.** See Di-t-butylhydroquinone

**Di-t-butylhydroquinone**

CAS 88-58-4; EINECS/ELINCS 201-841-8

*Synonyms:* 2,5-Bis (1,1-dimethylethyl)-1,4-benzenediol; 2,5-Di-t-butylbenzene-1,4-diol; 2,5-Di-t-butyl hydroquinone; Hydroquinone, 2,5-di-t-butyl-

*Empirical:* C<sub>14</sub>H<sub>22</sub>O<sub>2</sub>

*Formula:* [C(CH<sub>3</sub>)<sub>2</sub>]<sub>2</sub>C<sub>6</sub>H<sub>2</sub>(OH)<sub>2</sub>

*Properties:* Wh. powd.; sol. in acetone, alcohol, benzene; insol. in water, aq. alkali; m.w. 222.23; m.p. 210-212 C; flash pt. (COC) 216 C

*Toxicology:* LDLo (oral, rat) 800 mg/kg; mod. toxic by ing.; irritant; tumorigen; questionable carcinogen; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Polymerization inhibitor, antioxidant, stabilizer against UV deterioration of rubber; in food-pkg. adhesives; antioxidant for fatty-based coating adjuvants for food-contact paper/paperboard; in paper/paperboard in contact with dry food; defoamer in food-contact paper/paperboard; in lubricants for rayon fiber finishing for food-contact filters; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 176.210, 177.2260, 177.2420, 177.2800

*Manuf./Distrib.:* Aldrich; Eastman; Fluka; Sigma; Skymart Enterprises

**Dibutyl itaconate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Dibutyl maleate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**2,6-Di-t-butyl-4-methylphenol.** See BHT

**Di-t-butyl peroxide**

CAS 110-05-4; EINECS/ELINCS 203-733-6; UN No. 2102 (DOT)

*Synonyms:* DTBP; Bis (1,1-dimethylethyl) peroxide; t-Butyl peroxide; (Tributyl) peroxide

*Classification:* Organic peroxide

*Empirical:* C<sub>8</sub>H<sub>18</sub>O<sub>2</sub>

*Formula:* (CH<sub>3</sub>)<sub>3</sub>COOC(CH<sub>3</sub>)<sub>3</sub>

*Properties:* Clear water-wh. liq.; distinctive odor; sol. in styrene, ketones, ethanol, most resin monomers; most aliphatic and aromatic hydrocarbons; pract. insol. in water; m.w. 146.23; dens. 0.791 (25/25 C); vapor pressure 19.51 mm (20 C); f.p. -40 C; b.p. 111 C; dec. @ 190 C; flash pt. (OC) 18.3 C

*Toxicology:* LD50 (oral, rat) > 25,000 mg/kg, (IP, rat) 3210 mg/kg; mod. toxic by IP route; powerful irritant by ing. and inh.; skin and eye irritant; inh. of high concs. may cause irritation of nose, throat, lungs; questionable carcinogen; experimental tumorigen; TSCA listed

*Precaution:* Flamm.; dangerous fire hazard; strong oxidizer; may ignite org. materials or explode when shocked or in contact with reducing materials

*Hazardous Decom. Prods.:* Combustion prods.: CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and fumes (acetone, ethane)

NFPA: Health 3; Flammability 2; Reactivity 4

*Uses:* Polymerization catalyst/initiator for resins (e.g., olefins, styrene, styrenated alkyds, silicones); crosslinking agent for rubber and resins; curing agent for certain resins; ignition accelerator for diesel fuel; organic synthesis; intermediate; raw material for paints; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods; accelerator for food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §176.170, 177.2600

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Amber Syn.; Atofina; Crompton/Witco; Fluka; Monomer-Polymer & Dajac Labs

**Dibutyl phthalate**

CAS 84-74-2; EINECS/ELINCS 201-557-4; UN No. 9095 (DOT)

*Synonyms:* DBP; 1,2-Benzenedicarboxylic acid, dibutyl ester; o-Benzene-dicarboxylic acid dibutyl ester; Benzene-o-dicarboxylic acid di-n-butyl ester; n-Butyl phthalate; Butyl phthalate; Dibutyl-1,2-benzene dicarboxylate; Di-n-butyl phthalate

*Definition:* Aromatic diester of butyl alcohol and phthalic acid

*Empirical:* C<sub>16</sub>H<sub>22</sub>O<sub>4</sub>

*Formula:* C<sub>8</sub>H<sub>7</sub>(COOC<sub>4</sub>H<sub>9</sub>)<sub>2</sub>

*Properties:* Colorless stable oily liq., odorless; misc. with common org. solvs.; insol. in water; m.w. 278.17; dens. 1.0484 (20/20 C); f.p. -35 C; b.p. 340 C; flash pt. (COC) 340 F; ref. index 1.4920

*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 8000 mg/kg, (IP, rat) 3050 mg/kg; mod. toxic by IP, IV routes; mildly toxic by ing.; irritant; if ingested can cause GI upset, human systemic effects (hallucinations, nausea, vomiting); vapor irritating to eyes and mucous membranes; may cause kidney or bladder changes; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

*Precaution:* Combustible exposed to heat or flame; can react with oxidizers; reacts explosively with chlorine

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Plasticizer-solvent in nitrocellulose lacquers, elastomers, explosives, nail polishes, solid rocket propellants, adhesives, sealants; solvent for resins, perfume oils; perfume fixative; textile lubricating agent; as insect repellent; nonreactive epoxy resin diluent; safety glass; printing inks; paper coatings; in oral pharmaceuticals; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; adjuvant in silicides in food-contact paper/paperboard; in cellophane for food pkg.; solvent for adjuvants in food-contact crosslinked polyesters; plasticizer in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.300, 177.1200, 177.2420, 177.2600; FDA approved for orals; SARA reportable; BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Alfa Chem; Allchem Ind.; Aristech; Ashland; BCH Brühl; BP Chems. Ltd; C.P. Hall; Chisso Am.; Coyne; Eastman; Fluka; Great Western; Houghton Chem.; Indofine; Ruger; Sigma; Spectrum Quality Prods.; Unitek; Universal Preserv-A-Chem

*Trade Names:* Uniplex 150

*Trade Names Containing:* Morflex® 190

**Di-n-butyl phthalate.** See Dibutyl phthalate

**Dibutyl sebacate**

CAS 109-43-3; EINECS/ELINCS 203-672-5; FEMA 2373

*Synonyms:* DBS; Bis (n-butyl) sebacate; Decanedioic acid, dibutyl ester; Dibutyl decanedioate; Di-n-butyl sebacate; Sebacic acid, dibutyl ester

*Definition:* Diester of butyl alcohol and sebacic acid

*Empirical:* C<sub>18</sub>H<sub>34</sub>O<sub>4</sub>

*Formula:* C<sub>8</sub>H<sub>17</sub>OCO(CH<sub>2</sub>)<sub>8</sub>OCOC<sub>8</sub>H<sub>17</sub>

*Properties:* Colorless clear liq., odorless; sol. in alcohol, IPA, min. oil; sl. sol. in propylene glycol; insol. in water; m.w. 314.47; dens. 0.936 (20/20 C); b.p. 349 C (760 mm); f.p. -11 C; acid no. 0.1 max.; sapon. no. 352-357; flash pt. 350 F; ref. index 1.429-1.441

*Toxicology:* LD50 (oral, rat) 16 g/kg; mildly toxic by ingestion; experimental reproductive effects; TSCA listed

*Precaution:* Combustible when exposed to heat or flame; can react with oxidizing materials

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Plasticizer for polyvinyl butyral, food-contact coatings; surf. lubricant in food-contact coatings; rubber softener; dielectric liquid; cosmetics and perfumes; lubricant in metalworking; syn. flavoring agent in foods; plasticizer migrating from food pkg.; plasticizer in food-contact rubber articles for repeated use; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; oral pharmaceuticals; in surf. lubricants for mfg. of food-contact metallic articles

*Use Level:* 1-5 ppm (nonalcoholic beverages), 2-5 ppm (ice cream, ices), 15

ppm (candy), 15 ppm (baked goods)

**Regulatory:** FDA 21CFR §172.515, 175.105, 175.300, 175.320, 176.170, 177.2600, 178.3910, 181.22, 181.27; FEMA GRAS; FDA approved for orals; USP/NF compliance

**Manuf./Distrib.:** C.P. Hall; Dastech Int'l.; Fluka; GNC Group; Haltermann Prods. UK; Harwick; Int'l. Paper; Jarchem Ind.; Morflex; Phoenix; Richman; Sigma; Unitex; Velsicol

**Di-n-butyl sebacate.** See Dibutyl sebacate

**Dicarboxylic acid C<sub>6</sub>.** See Adipic acid

### Di (C7, C9-alkyl) adipate

**Uses:** Plasticizer in food-contact polymers; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170, 178.3740

**Dichlorantin.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**2,2'-((3,3'-Dichloro(1,1'-biphenyl)-4,4'-diyl) bis (azo)) bis (N-(2-methylphenyl)-3-oxobutamide.** See Pigment yellow 14

**8,18-Dichloro-5,15-dihydro-5,15-dihydrodiindolo [3,2-b:3',2'-m] triphenodioxazine.** See Pigment violet 23

**5,5'-Dichloro-2,2'-dihydroxydiphenylmethane.** See Dichlorophene

**Dichlorodimethylhydantoin.** See 1,3-Dichloro-5,5-dimethyl hydantoin

### 1,3-Dichloro-5,5-dimethyl hydantoin

CAS 118-52-5; EINECS/ELINCS 204-258-7

**Synonyms:** DDH; DCDMH; Dactin; Dichlorantin; Dichlorodimethylhydantoin; 1,3-Dichloro-5,5-dimethyl-2,4-imidazolidinedione; 1,3-Dichloro-5,5'-methyl hydantoin; Halane; Hydantoin, 1,3-dichloro-5,5-dimethyl-

**Classification:** Chlorinated hydantoin

**Empirical:** C<sub>4</sub>H<sub>6</sub>Cl<sub>2</sub>N<sub>2</sub>O<sub>2</sub>

**Formula:** CINCONCIO(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Wh. powd., mild chlorine odor; sol. in benzene, chloroform, ethylene dichloride, alcohol, chlorinated and highly polar solvs.; sl. sol. in water; m.w. 185.01; sp.gr. 1.5 (20 C); m.p. 132-134 C; flash pt. (CC) 174 C; pH 4.4 (aq.); subl. @ 100 C; conflagrates @ 212 C

**Toxicology:** ACGIH TLV/TWA 0.2 mg/m<sup>3</sup>; STEL 0.4 mg/m<sup>3</sup>; LD50 (oral, rat) 452 mg/kg; LCLo (inh., rat, 1 h) 20 g/m<sup>3</sup>; toxic by inhalation; mod. toxic by ingestion; severe skin irritant; causes cancer when injected into rats; mutation data reported; TSCA listed

**Precaution:** Combustion with evolution of chlorine; will react with water or steam to produce toxic and corrosive fumes; mixts. with xylene may explode

**Hazardous Decom. Prods.:** Heated to decomp., emits toxic fumes of Cl and NO<sub>x</sub>

**Uses:** Bleaching agent in household laundry bleach, laundry detergents; water treatment; mild chlorinating agent; pharmaceutical intermediate; catalyst

**Manuf./Distrib.:** Aldrich; Alfa Chem; Fluka; Harcos; Morre-Tec Ind.

**Trade Names Containing:** Dantobrom® RW Briquette

**1,3-Dichloro-5,5-dimethyl-2,4-imidazolidinedione.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**1,1-Dichloroethene polymer with chloroethene.** See Vinylidene chloride/vinyl chloride copolymer

**1,1-Dichloroethylene-monochloroethylene polymer.** See Vinylidene chloride/vinyl chloride copolymer

**1,1-Dichloroethylene polymer with chloroethylene.** See Vinylidene chloride/vinyl chloride copolymer

### 1,3-Dichloro-5-ethyl-5-methylhydantoin

CAS 89415-87-2; EINECS/ELINCS 401-570-7

**Synonyms:** 2,4-Imidazolidinedione, 1,3-dichloro-5-ethyl-5-methyl-

**Trade Names Containing:** Dantobrom® RW Briquette

**Di (2-chloroethyl) vinylphosphonate.** See Bis (β-chloroethyl) vinyl phosphonate

**Dichlorofen.** See Dichlorophene

### Dichlorofluoroethane

CAS 1717-00-6

**Synonyms:** HCFC-141b; R 141b; 1,1-Dichloro-1-fluoroethane; Ethane, 1,1-dichloro-1-fluoro-

**Empirical:** C<sub>2</sub>H<sub>3</sub>Cl<sub>2</sub>F

**Formula:** CCl<sub>2</sub>FCH<sub>3</sub>

**Properties:** Colorless liq.; faint ethereal odor; insol. in water; m.w. 116.95; dens. 1.20; vapor pressure 520 mm Hg (70 F); f.p. -103 C; b.p. 32 C; flash pt. none

**Toxicology:** LD50 (oral, rat) > 5000 mg/kg, (inh., rat, 2 h) 240 g/m<sup>3</sup>, (skin, rabbit) > 2000 mg/kg; sl. toxic by inh.; mild eye irritant; repeated/prolonged contact may cause skin irritation and defatting; inh. may cause dizziness, CNS effects, cardiac arrhythmia; can cause asphyxiation; TSCA listed

**Precaution:** No flash pt. but will burn when diluted with air; incompat. with strong oxidizers and active metals; flamm. limits 7.4-15.1%; dec. above 480 F and emits poisonous fumes

**Hazardous Decom. Prods.:** HF, HCl, carbonyl halides, CO, CO<sub>2</sub>; heated to decomp., emits toxic vapors of F and Cl

**Uses:** Blowing agent in rigid board, foam systems, flexible foam; refrigerant gas

**Regulatory:** DOT nonregulated

**Manuf./Distrib.:** LaRoche Ind.; Spectrum Quality Prods.

**Trade Names Containing:** Krytox® DF; MS-122DF

**1,1-Dichloro-1-fluoroethane.** See Dichlorofluoroethane

**Di-(5-chloro-2-hydroxyphenyl) methane.** See Dichlorophene

**4,4'-Dichloro-2,2'-methylenediphenol.** See Dichlorophene

**1,3-Dichloro-5,5'-methyl hydantoin.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**Dichlorophen.** See Dichlorophene

### Dichlorophene

CAS 97-23-4; EINECS/ELINCS 202-567-1

**Synonyms:** DDDM; DDM; Bis (5-chloro-2-hydroxyphenyl) methane; Bis-2-hydroxy-5-chlorophenyl) methane; 5,5'-Dichloro-2,2'-dihydroxydiphenylmethane; Di-(5-chloro-2-hydroxyphenyl) methane; Dichlorofen; 4,4'-Dichloro-2,2'-methylenediphenol; Dichlorophen; Dichlorphen; 2,2'-Dihydroxy-5,5'-dichlorodiphenylmethane; 2,2'-Methylenebis (4-chlorophenol)

**Classification:** Halogenated phenolic compd.

**Empirical:** C<sub>13</sub>H<sub>10</sub>Cl<sub>2</sub>O<sub>2</sub>

**Formula:** (C<sub>6</sub>H<sub>4</sub>ClO)<sub>2</sub>CH<sub>2</sub>

**Properties:** Lt. tan free-flowing cryst. powd., sl. phenolic odor; sol. in acetone, alcohols, oxygenated solvs.; sl. sol. in benzene, toluene, CCl<sub>4</sub>; insol. in water; m.w. 269.12; vapor pressure 10<sup>-4</sup> mm (100 C); m.p. 177 C

**Toxicology:** LD50 (oral, male rat) 1506 mg/kg, IV, rat) 17 mg/kg; poison by IV route; mod. toxic by ing.; skin and severe eye irritant; may cause cramps and diarrhea; mutagenic data; TSCA listed

**Environmental:** Toxic to fish; keep away from drinking water sources

**Hazardous Decom. Prods.:** Heated to decomp., emits toxic fumes of Cl

**Uses:** Fungicide; bactericide, antimicrobial in soaps and toiletries; mildewproofing agent; moss control agent (turf treatment); textile preservative; biostabilizer for textiles, rubber, wood; antimicrobial in cooling water systems, evaporate condensers; slimicide in paper mills; preservative for paints, adhesives, syn. polymer latexes, latex emulsions; antimicrobial for aq. prods., thickeners, slurries; deodorant agent; some dermatological and cosmetic applics.; veterinary medicine; agric.; FDA OTC drug (anthelmintic); in food-pkg. adhesives; preservative for coating formulations for paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 176.170; SARA reportable

**Manuf./Distrib.:** Aceto; Alchemie USA; Aldrich; Aquapharm; Sigma

**Dichlorphen.** See Dichlorophene

**Dichromium trioxide.** See Chromium oxide (ic)

### Dicocamine

CAS 61789-76-2; EINECS/ELINCS 263-086-0

**Synonyms:** Amines, dicoco alkyl; Dicoco alkyl amine

**Definition:** Secondary aliphatic amine derived from coconut acid

**Formula:** R<sub>2</sub>NH, R represents the coconut radical

**Properties:** Solid; m.p. 40-47 C; cationic

**Toxicology:** TSCA listed

**Uses:** Synthesis intermediate, anticaking agent, flotation agent, antistripping for road making, soil stabilization; auxs. for fuel additives, corrosion inhibitor, paint; chemical intermediate for quats., betaines, amine oxides; emulsifier; emollient

**Trade Names:** Armeen® 2C

**Dicoco alkyl amine.** See Dicocamine

**Di (coco alkyl) dimethyl ammonium chloride.** See Dicocodimonium chloride



## Dicoco dimethyl ammonium chloride

**Dicoco dimethyl ammonium chloride.** See Dicocodimonium chloride

### Dicocodimonium chloride

CAS 61789-77-3; EINECS/ELINCS 263-087-6

**Synonyms:** Di (coco alkyl) dimethyl ammonium chloride; Dicoco dimethyl ammonium chloride; Dimethyldicocoammonium chloride; Quaternium-34

**Classification:** Quaternary ammonium salt

**Empirical:** C<sub>26</sub>H<sub>56</sub>ClN

**Formula:** [RN(CH<sub>2</sub>)<sub>2</sub>R]<sup>+</sup>Cl<sup>-</sup> where R rep. the coconut radical

**Properties:** M.w. 418.20; cationic

**Toxicology:** TSCA listed

**Uses:** Emulsifier; corrosion inhibitor; coupling agent; bactericide; biocide in oil field applics.; textile/fabric softener; antistat; asphalt emulsifier; hair conditioner; for car spray waxes; dust control oil; spot removal; petroleum processing; detergent; germicide, sanitizer, slimicide; retardant for acrylics; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §172.710, 177.1200

**Trade Names Containing:** Arquad® 2C-75

### Dicoco nitrite

**Trade Names Containing:** Arquad® 2C-70 Nitrite

### Dicy. See Dicyandiamide

### Dicyandiamide

CAS 461-58-5; EINECS/ELINCS 207-312-8

**Synonyms:** DCD; Cyanoguanidine; N-Cyanoguanidine; Dicy; Dicyandiamin; Dicyanodiamide

**Classification:** Aliphatic organic compd.

**Empirical:** C<sub>2</sub>H<sub>4</sub>N<sub>4</sub>

**Formula:** NH<sub>2</sub>C(NH)(NHCN)

**Properties:** Pure wh. crystals; sol. in liq. ammonia; partly sol. in hot water; sl. sol. in alcohol; m.w. 84.08; dens. 1.4 (25 C); m.p. 207-209 C; stable when dry; nonflamm.

**Toxicology:** LD50 (oral, rat) > 500 mg/kg; TSCA listed

**Precaution:** Mixts. with ammonium nitrate, potassium chlorate, and related compds. are powerful explosives

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of CN<sup>-</sup> and NO<sub>x</sub>

**Uses:** Fertilizers; nitrocellulose stabilizer; org. synthesis, esp. of melamine, barbituric acid, and guanidine salts; explosives; epoxy curing agent, catalyst for epoxy resin, powd. coatings, structural laminates, adhesives, film adhesives; pharmaceuticals; flotation depressant (copper ores); intumescent paint ingred.; electrostatic powd. coating ingred.; fireproofing compds.; stabilizer in detergents; modifier for starch prod.; plasticizer for starch adhesives; thinner for oil-well drilling muds; in food-pkg. adhesives; modifier for amino resins or fluidizing agent in starch/protein coatings for food-contact paper/paperboard; retarder in food-contact rubber articles for repeated use; antioxidant/stabilizer for food-grade polymers

**Regulatory:** FDA 21CFR §175.105, 176.170, 177.2600, 178.2010; BP compliance

**Manuf./Distrib.:** AMC Chems.; Aldrich; Allchem Ind.; Ashland; Austin; BCH Brühl; Benco; Brook-Chem; CP PhibroChem; CPB Int'l.; CVC Spec. Chem.; Chemical; Chemway Int'l.; Dastech Int'l.; Eastech; F.T.L. Int'l.; Fluka; Gulf Chem. Int'l.; Industrial Chem. Trading; Int'l. Resources; Kaltron/Peltibone; Kimson; Maypro Ind.; Miljac; Monomer-Polymer & Dajac Labs; Quaker City; Rochem Int'l.; SKW Chems.; San Yuan; Sigma; Thomas Swan; Total Spec. Chems.; United Min. & Chem.; Wegu Chem. & Min.; Whyte Chems. Ltd

### Dicyandiamin. See Dicyandiamide

**2,2'-Dicyano-2,2'-azopropane.** See 2,2'-Azobisisobutyronitrile

### Dicyanodiamide. See Dicyandiamide

### Dicyclohexyl phthalate

CAS 84-61-7; EINECS/ELINCS 201-545-9

**Synonyms:** DCHP; 1,2-Benzenedicarboxylic acid, dicyclohexyl ester; Phthalic acid, dicyclohexyl ester

**Classification:** Aromatic ester

**Empirical:** C<sub>20</sub>H<sub>26</sub>O<sub>4</sub>

**Formula:** C<sub>6</sub>H<sub>11</sub>(COOC<sub>6</sub>H<sub>11</sub>)<sub>2</sub>

**Properties:** Wh. gran. solid; mildly aromatic odor; sol. in most org. solvs.; insol. in water; m.w. 330.43; dens. 1.20 (25/25 C); m.p. 62-65 C; b.p. 245-246 C (1.3 kPa); flash pt. 405 F; nonvolatile

**Toxicology:** LD50 (oral, rat) 30 g/kg; mildly toxic by ing.; irritant; TSCA listed  
**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Plasticizer for foil lacquers, cellophane lacquers, nitrocellulose, ethylcellulose, chlorinated rubber, PVAc, PVC, food-contact polymers; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 177.1200, 178.3740

**Manuf./Distrib.:** Aldrich; Alfa Chem; Bayer; Morflex; P.A.T. Prods.; Schweizerhall; Unitex

**Trade Names:** Uniplex 250

### Didecyl dimethyl ammonium chloride. See Didecylidimonium chloride

### Didecylidimonium chloride

CAS 7173-51-5; EINECS/ELINCS 230-525-2

**Synonyms:** Ammonium, didecylidimethyl-, chloride; N-Decyl-N,N-dimethyl-1-decanaminium chloride; Didecyl dimethyl ammonium chloride; Dimethyl didecyl ammonium chloride; N,N-Dimethyldidecylammonium chloride; Quaternium-12

**Classification:** Quaternary ammonium chloride

**Empirical:** C<sub>22</sub>H<sub>48</sub>ClN

**Formula:** [CH<sub>3</sub>(CH<sub>2</sub>)<sub>9</sub>N(CH<sub>2</sub>)<sub>2</sub>(CH<sub>2</sub>)<sub>9</sub>CH<sub>3</sub>]<sup>+</sup>Cl<sup>-</sup>

**Properties:** Liq.; sol. in acetone; extremely sol. in benzene; m.w. 362.08; cationic

**Toxicology:** LD50 (oral, rat) 84 mg/kg, (IP, rat) 45 mg/kg; poison by ing. and IP routes; primary irritant; causes eye damage and skin irritation; harmful if swallowed; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NH<sub>3</sub>, and Cl<sup>-</sup>

**Uses:** Biocide for disinfectant and laundry formulations; disinfectant; sanitizer; mildew preventive in commercial laundries; water treatment; wood preservatives; fungicide, bactericide for food processing, breweries; hard-surf. disinfection/sanitization; surfactant; antistat; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §172.712, 177.1200

**Manuf./Distrib.:** Dishman USA; Lonza

**Trade Names Containing:** Arquad® 210-50

### Didecyl phthalate

CAS 84-77-5

**Synonyms:** DDP; Di-n-decyl phthalate; Phthalic acid, didecyl ester

**Empirical:** C<sub>28</sub>H<sub>48</sub>O<sub>4</sub>

**Formula:** C<sub>6</sub>H<sub>4</sub>(COOC<sub>10</sub>H<sub>21</sub>)<sub>2</sub>

**Properties:** Lt. colored liq.; insol. in water; m.w. 446.74; dens. 0.9675 (20/20 C); vapor pressure 0.3 mm Hg (200 C); m.p. 4 C; b.p. 261 C (5 mm); flash pt. 229 C

**Toxicology:** LD50 (skin, rabbit) 16,800 mg/kg; LDLo (IP, mouse) 2233 mg/kg; primary irritant; mild skin irritant; may cause ptosis, somnolence; TSCA listed

**Precaution:** Combustible

**Uses:** Plasticizer, esp. for vinyl resins; plasticizer in food-contact rubber articles for repeated use; adjuvant in slimicides in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.300, 177.2600

**Manuf./Distrib.:** KIC Chems.; Pfaltz & Bauer

### Di-n-decyl phthalate. See Didecyl phthalate

### 4,4'-Di (diethylamino)-4',6'-disulfotriphenylmethanol anhydride, sodium salt. See Acid blue 1

### 1,2:3,4-Diepoxybutane. See DL-Diepoxybutane

### (±)-1,2:3,4-Diepoxybutane. See DL-Diepoxybutane

### DL-Diepoxybutane

CAS 298-18-0; EINECS/ELINCS 215-979-1; UN No. 2929

**Synonyms:** 2,2'-Bioxirane; (R\*,R\*)-(±)-2,2'-Bioxirane; (±)-DL-1,3-Butadiene diepoxide; DL-Butadiene dioxide; Butane, (±)-1,2:3,4-diepoxy-; 1,2:3,4-Dianhydro-DL-threitol; 1,2:3,4-Diepoxybutane; DL-1,2:3,4-Diepoxybutane; (±)-1,2:3,4-Diepoxybutane

**Empirical:** C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>

**Properties:** Colorless to yel. liq.; sol. in water, DMSO, acetone; sol. 5-10 mg/ml in 95% ethanol; m.w. 86.09; sp.gr. 1.1157 (20/4 C); vapor pressure 3.9 mm Hg (20 C); m.p. 4 C; b.p. 144 C; flash pt. 45 C; ref. index

1.4340 (20 C)

**Toxicology:** LD50 (oral, rat) 210 mg/kg, (skin, rabbit) 800 mg/kg; LC50 (inh., rat 4 h) 56 ppm; highly toxic by ing., inh., and skin contact; readily absorbed thru skin and respiratory tract; irritating to eyes, skin, mucous membranes, upper respiratory tract; may cause severe burns, lacrimation, clouding of cornea, labored breathing, lung congestion, etc.; may be fatal by pulmonary edema/shock; experimental carcinogen, equivocal tumorigen, neoplastigen; target organs: liver, pancreas, nerves, cardiovasc.

**Precaution:** Combustible; incompat. with acids, bases, strong oxidizing agents; reacts with 4-(4-nitrobenzyl) pyridine, alcohols, amines, phenols, other reactive substances; slowly hydrolyzed in water; unstable in sol'n.

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

**Storage:** Store refrigerated; keep tightly closed; store away from min. acids and bases

**Uses:** Curing of polymers; crosslinking textile fibers; prevention of microbial spoilage; treating polymers, paper, and textiles; chem. intermediate; prep. of erythritol and other pharmaceuticals; in laboratory as theoretical model in study of carcinogens

**Manuf./Distrib.:** Fluka; Pfaltz & Bauer; Spectrum Quality Prods.

**DL-1,2:3,4-Diepoxybutane.** See DL-Diepoxybutane

### Diethanolamine

CAS 111-42-2; EINECS/ELINCS 203-868-0; UN No. 1760

**Synonyms:** DEA; DELA; Bis (2-hydroxyethyl) amine; N,N-Bis (2-hydroxyethyl) amine; Diethylolamine; 2,2'-Dihydroxydiethylamine; Di (2-hydroxyethyl) amine; Diolamine; 2,2'-Iminobisethanol; 2,2'-Iminodiethanol

**Classification:** Aliphatic amine; alkanolamine

**Empirical:** C<sub>4</sub>H<sub>11</sub>NO<sub>2</sub>

**Formula:** (HOCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>NH

**Properties:** Colorless cryst. or liq., mild ammoniacal odor; very sol. in water and alcohol; misc. with acetone, chloroform, glycerin; insol. in ether, benzene; m.w. 105.09; dens. 1.0881 (30/4 C); m.p. 28 C; b.p. 268 C; flash pt. 300 F; ref. index 1.4770

**Toxicology:** ACGIH TLV/TWA 3 ppm in air; LD50 (oral, rat) 12.76 g/kg, (IP, mouse) 2300 mg/kg, (subcut., mouse) 3553 mg/kg, (skin, rabbit) 12,200 mg/kg; mod. toxic by ing., IP, and subcut. routes; severe eye and skin irritant; mucous membrane irritant; experimental reproductive effects; TSCA listed

**Precaution:** Combustible; DOT: corrosive material; normally stable; slowly oxidized by air; incompat. with oxidizing agents, strong acids, acid anhydrides, nitrosating agents

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>, ammonia

NFPA: Health 1; Flammability 1; Reactivity 0

**Storage:** Hygroscopic, deliq.; light-sensitive; store @ R.T. in cool, dry, well-ventilated area away from heat and ignition sources

**Uses:** Absorbent in gas scrubbing; rubber chemicals intermediate; mfg. of surfactants for textiles, herbicides, petroleum demulsifier; detergent, emulsifier and dispersant in coatings, agric., cosmetics, pharmaceuticals, cutting oils, cleaners, polishes; textile lubricants/processing; humectant; softener; in organic synthesis; crosslinker for flexible PU foam slabstock; hydrogen sulfide extraction solvent in gas processing; solubilizer (metal-working fluids, printing inks, textile aux.); in food-pkg. adhesives; adjunct to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 176.210, 177.2600; FDA approved for injectables (IV), ophthalmics; USP/NF, BP compliance; SARA reportable

**Manuf./Distrib.:** AMRESKO; Akzo Nobel; Aldrich; Allchem Ind.; Ashland; BASF AG; Coyne; Degussa-Hüls AG; Fluka; Great Western; Houghton Chem.; Huntsman; Occidental; Oxiteno; Ruger; Sal Chem.; Sigma; Spectrum Quality Prods.; Union Carbide; Varsal Instruments; Whyte Chems. Ltd

**Diethanolamine coconut fatty acid condensate.** See Cocamide DEA

**Diethanolamine lauric acid amide.** See Lauramide DEA

**Diethanolamine linoleic acid amide.** See Linoleamide DEA

**Diethanolamine oleic acid amide.** See Oleamide DEA

**Diethanolamine palmitic acid amide.** See Palmitamide DEA

**Diethanolamine stearic acid amide.** See Stearamide DEA

**Diethanolamine tall oil acid amide.** See Tallamide DEA

**Diethanolamine tallow acid amide.** See Tallowamide DEA

**N,N-Diethanol lauramide.** See Lauramide DEA

**N,N-Diethanol lauric acid amide.** See Lauramide DEA

**N-[6-(Diethylamino)-9-(2,4-disulfonylphenyl)-3H-xanthen-3-ylidene]-N-ethyl ethanaminium, hydroxide, inner salt, sodium salt.** See Acid red 52

### Diethylaminoethanol

CAS 100-37-8; EINECS/ELINCS 202-845-2; UN No. 2686 (DOT)

**Synonyms:** DEAE; 2-Diethylaminoethanol; β-Diethylaminoethanol; N-Diethylaminoethanol; N,N-Diethyl-2-aminoethanol; β-Diethylaminoethyl alcohol; Diethylethanolamine; N,N-Diethylethanolamine; N,N-Diethyl-N-(β-hydroxyethyl) amine; Ethanol, 2-(diethylamino)-; 2-Hydroxytriethylamine

**Classification:** Aliphatic amino alcohol

**Empirical:** C<sub>6</sub>H<sub>15</sub>NO

**Formula:** (C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>OH

**Properties:** Colorless liq.; strong ammonia-like odor; sol. in water, alcohol, acetone, ether, benzene, petrol. ether; misc. with most org. solvs.; m.w. 117.19; dens. 0.88-0.89 (20/20 C); vapor pressure 1.4 mm Hg (20 C); f.p. -70 C; b.p. 161 C; flash pt. (OC) 140 F; ref. index 1.4389

**Toxicology:** ACGIH TLV/TWA 10 ppm (skin); LD50 (oral, rat) 1300 mg/kg, (IP, rat) 1220 mg/kg, (subcut., mouse) 1561 mg/kg, (IV, mouse) 188 mg/kg; poison by IP, IV routes; mod. toxic by ing., skin contact, subcut. routes; human systemic effects by inh. (nausea, vomiting); skin, severe eye irritant; corrosive; TSCA listed

**Precaution:** DOT: Flamm. liq.; moderate fire risk; reactive with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

NFPA: Health 3; Flammability 2; Reactivity 0

**Storage:** Hygroscopic

**Uses:** Chem. intermediate for prod. of emulsifiers, detergents, solubilizers; water-sol. salts; textile/fabric softeners; cosmetics; pharmaceuticals; emulsifier in acid media; curing agent for resins; surface coatings; pigment dispersant in paints; solvent (gas sweetening); catalyst in PU foams; petrol. and gas processing chems.; boiler water additive for food contact; corrosion inhibitor for boiler water treatment; textile/leather/paper aux.

**Regulatory:** FDA 21CFR §173.310 (15 ppm max. in steam)

**Manuf./Distrib.:** Aldrich; Ashland; Atofina; BASF; Fluka; Spectrum Quality Prods.; Union Carbide

**2-Diethylaminoethanol.** See Diethylaminoethanol

**β-Diethylaminoethanol.** See Diethylaminoethanol

**N-Diethylaminoethanol.** See Diethylaminoethanol

**N,N-Diethyl-2-aminoethanol.** See Diethylaminoethanol

### Diethylaminoethyl acrylate

CAS 2426-54-2

**Synonyms:** Acrylic acid, 2-(diethylamino) ethyl ester; Acrylic acid-N,N-diethylaminoethyl ester; N,N-Diethylaminoethyl acrylate; β-Diethylaminoethyl acrylate; 2-(Diethylamino) ethyl acrylate; 2-Propenoic acid, 2-(diethylamino)ethyl ester

**Classification:** Amine monomer

**Empirical:** C<sub>8</sub>H<sub>17</sub>NO<sub>2</sub>

**Formula:** CH<sub>2</sub>=CHCOOCH<sub>2</sub>CH<sub>2</sub>N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>

**Properties:** M.w. 171.24; dens. 0.925 (20/4 C); b.p. 202 C

**Toxicology:** LD50 (oral, rat) 770 mg/kg, (skin, rabbit) 200 mg/kg; LDLo (IP, mouse) 31 mg/kg; poison by skin contact and IP routes; mod. toxic by ing.; corrosive; severe skin and eye irritant; harmful if swallowed or inhaled; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Uses:** Industrial and automotive coatings; dye and lube oil additives; cationic quat. monomers; intermediate for water treatment chemicals; silane coupling agent; conductive paper coatings; retention aids for paper mfg.; flocculant and coagulant; crosslinking agent; catalyst for epoxy resins; detergent for jet fuels; comonomer for acrylic resins

**Manuf./Distrib.:** Aldrich; CPS; Monomer-Polymer & Dajac Labs; Rhodia

**Trade Names:** Ageflex FA-2

**2-(Diethylamino) ethyl acrylate.** See Diethylaminoethyl acrylate

**β-Diethylaminoethyl acrylate.** See Diethylaminoethyl acrylate

**N,N-Diethylaminoethyl acrylate.** See Diethylaminoethyl acrylate

**Diethylaminoethyl acrylate dimethyl sulfate quat.**

CAS 21810-39-9

## β-Diethylaminoethyl alcohol

*Classification:* Quat. ammonium monomer

*Formula:*  $[\text{CH}_2=\text{CHCOOCH}_2\text{CH}_2\text{N}(\text{C}_2\text{H}_5)_2\text{CH}_3]^+\text{CH}_3\text{OSO}_3^-$

*Properties:* M.w. 297.37

*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant polymers for water treatment, mineral recovery, ion-exchange resins, adhesives, acid dye receptivity; retention aid for paper mfg.; food-contact paper/paperboard

*Trade Names:* Ageflex FA-2Q50DMS

**β-Diethylaminoethyl alcohol.** See Diethylaminoethanol

### Diethylaminoethyl methacrylate

CAS 105-16-8

*Synonyms:* 2-(Diethylamino) ethyl methacrylate; β-(Diethylamino) ethyl methacrylate; 2-(N,N-Diethylamino) ethyl methacrylate; Methacrylic acid, 2-(diethylamino) ethyl ester; 2-Propenoic acid, 2-methyl-, 2-(diethylamino) ethyl ester

*Classification:* Amine monomer

*Empirical:*  $\text{C}_{10}\text{H}_{19}\text{NO}_2$

*Formula:*  $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{N}(\text{C}_2\text{H}_5)_2$

*Properties:* M.w. 185.29

*Toxicology:* LD50 (oral, rat) 4696 mg/kg; LC50 (inh., rat, 4 h) 11 g/m<sup>3</sup>; mildly toxic by ing. and inh.; severe eye and skin irritant; harmful if swallowed; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub>

*Uses:* Industrial and automotive coatings; dye additives; intermediate for water treatment and oil field chemicals; stabilizer for fuel oils; acrylic modifier; intermediate for polymethacrylates and dispersants

*Manuf./Distrib.:* Aldrich; CPS; Monomer-Polymer & Dajac Labs; Polysciences; Rhodia

*Trade Names:* Ageflex FM-2

**2-(Diethylamino) ethyl methacrylate.** See Diethylaminoethyl methacrylate

**2-(N,N-Diethylamino) ethyl methacrylate.** See Diethylaminoethyl methacrylate

**β-(Diethylamino) ethyl methacrylate.** See Diethylaminoethyl methacrylate

**7-(Diethylamino)-4-methyl-2H-1-benzopyran-2-one.** See 7-Diethylamino-4-methylcoumarin

**7-(Diethylamino)-4-methyl-2-benzopyrone.** See 7-Diethylamino-4-methylcoumarin

**Diethylaminomethylcoumarin.** See 7-Diethylamino-4-methylcoumarin

### 7-Diethylamino-4-methylcoumarin

CAS 91-44-1; EINECS/ELINCS 202-068-9

*Synonyms:* MDAC; 2H-1-Benzopyran-2-one, 7-(diethylamino)-4-methyl; Coumarin, 7-diethylamino-4-methyl-; 7-(Diethylamino)-4-methyl-2H-1-benzopyran-2-one; 7-(Diethylamino)-4-methyl-2-benzopyrone; Diethylaminomethylcoumarin; Fluorescent brightener 140; 4-Methyl-7-(diethylamino) coumarin

*Classification:* Lactone

*Empirical:*  $\text{C}_{14}\text{H}_{17}\text{NO}_2$

*Formula:*  $\text{CH}_3\text{C}_9\text{H}_6\text{O}(\text{O})\text{N}(\text{C}_2\text{H}_5)_2$

*Properties:* Lt. tan gran.; sol. in aq. acid sol'ns, resins, varnishes, vinyls and nearly all common org. solvs.; sl. sol. in aliphatic hydrocarbons; m.w. 231.32; m.p. 68-72 C

*Toxicology:* LD50 (oral, rat) 5 g/kg, (IV, mouse) 180 mg/kg; poison by IV route; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>

*Uses:* Fluorescent brightener agent for polyamide, acetate, polyester, paper, detergents; optical brightener/bleach in textile industry, in coatings for paper, labels, book covers, etc.; to lighten plastics, resins, varnishes, and lacquers; invisible marking agent

*Manuf./Distrib.:* Aldrich

**Diethyl-m-aminophenolphthalein hydrochloride.** See Basic violet 10

**N-[4-[[4-(Diethylamino) phenyl] (2,4-disulfo)phenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-ethylethanaminium, hydroxide, inner salt, sodium salt.** See Acid blue 1

**N-[4-[[4-(Diethylamino) phenyl] [4-ethylamino]-1-naphthalenyl] methylene]-2,5-cyclohexadien-1-ylidene]-N-ethylethanaminium chloride.** See Basic blue 7

**Di(2-ethylbutyl) phthalate.** See Dihexyl phthalate

**Diethylene glycol butyl ether.** See Butoxydiglycol

**Diethylene glycol n-butyl ether.** See Butoxydiglycol

### Diethylene glycol dibenzoate

CAS 120-55-8; EINECS/ELINCS 204-407-6

*Synonyms:* Benzoic acid, diester with diethylene glycol; Dibenzoyldiethyleneglycol ester; PEG 100 dibenzoate; PEG-2 dibenzoate; POE (2) dibenzoate

*Classification:* Aromatic ester

*Definition:* PEG diester of benzoic acid

*Empirical:*  $\text{C}_{18}\text{H}_{18}\text{O}_5$

*Formula:*  $\text{C}_6\text{H}_5\text{COO}(\text{CH}_2)_2\text{O}(\text{CH}_2)_2\text{OOC}\text{C}_6\text{H}_5$

*Properties:* High-boiling liq. or solid; mild ester odor; sol. in aliphatic and aromatic solvs.; insol. in water; m.w. 314.36; dens. 1.1765-1.178 (20 C); m.p. 16 C; b.p. 225-227 C (3 mm); flash pt. (PMCC) 232 C; ref. index 1.5424-1.5449 (20 C)

*Toxicology:* LD50 (oral, rat) 2830 mg/kg, (skin, rabbit) 20 g/kg; mod. toxic by ing.; primary skin and eye irritant; TSCA listed

*Precaution:* Combustible; can react with oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Plasticizer for polymers, vinyl acetate resins, adhesives, latex coatings; in food-pkg. adhesives; plasticizer for PVAc coatings for paper/paperboard in contact with aq./fatty foods; plasticizer for polymers for paper/paperboard in contact with dry food; emollient

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Haltermann GmbH; Kalama; Unitex; Velsicol

*Trade Names:* Benzoflex® 2-45

*Trade Names Containing:* Benzoflex® 50

**Diethylene glycol dioleate.** See PEG-2 dioleate

**Diethylene glycol distearate.** See PEG-2 distearate

**Diethylene glycol ethyl ether.** See Ethoxydiglycol

**Diethylene glycol laurate.** See PEG-2 laurate

**Diethylene glycol monobutyl ether.** See Butoxydiglycol

**Diethylene glycol, monoester with stearic acid.** See PEG-2 stearate

**Diethylene glycol monoethyl ether.** See Ethoxydiglycol

**Diethylene glycol monolaurate.** See PEG-2 laurate

**Diethylene glycol monolaurate self-emulsifying.** See PEG-2 laurate SE

**Diethylene glycol monooleate.** See PEG-2 oleate

**Diethylene glycol monooleate self-emulsifying.** See PEG-2 oleate SE

**Diethylene glycol monostearate.** See PEG-2 stearate

**Diethylene glycol monostearate self-emulsifying.** See PEG-2 stearate SE

**Diethylene glycol stearate.** See PEG-2 stearate

**Diethylenimine oxide.** See Morpholine

**Diethylene imidoxide.** See Morpholine

**Diethylene oxide.** See Tetrahydrofuran

**Diethylene oximide.** See Morpholine

### Diethylenetriamine

CAS 111-40-0; EINECS/ELINCS 203-865-4; UN No. 2079 (DOT)

*Synonyms:* DETA; DTA; Aminoethylethandiamine; N-(2-Aminoethyl)-1,2-ethanediamine; N-(2-Aminoethyl) ethylenediamine; 3-Azapentane-1,5-diamine; Bis (2-aminoethyl) amine; Bis (β-aminoethyl) amine; 2,2'-Diaminodiethylamine; 2,2'-Iminobisethylamine; 2,2'-Iminodiethylamine

*Classification:* Aliphatic polyamine

*Empirical:*  $\text{C}_4\text{H}_{13}\text{N}_3$

*Formula:*  $\text{NH}_2\text{C}_2\text{H}_4\text{NHC}_2\text{H}_4\text{NH}_2$

*Properties:* Colorless to yel. visc. liq.; ammoniacal odor; sol. in water and hydrocarbons; misc. with oxygenated and aromatic solvs.; immisc. with aliphatic solvs.; strongly alkaline; m.w. 103.17; dens. 0.9542 (20/20 C); vapor pressure 0.22 mm Hg (20 C); f.p. -39 C; b.p. 206.7 C; flash pt. (TOC) 99 C

*Toxicology:* ACGIH TLV/TWA 1 ppm (skin); LD50 (oral, rat) 1080 mg/kg, (IP, rat) 74 mg/kg, (skin, rabbit) 1090 mg/kg; toxic by IP, ing., inh., and skin absorption; strong irritant to eyes and skin; high conc. of vapors causes respiratory tract irritation, nausea, vomiting; repeated exposure may cause asthma, skin sensitization; TSCA listed

*Precaution:* Combustible exposed to heat or flame; can react with oxidizers; mixt. with nitromethane is a shock-sensitive explosive; ignites on contact with cellulose nitrate; corrosive to copper and its alloys; absorbs CO<sub>2</sub> from air to form carbamate salts

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO,  
NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Solvent for sulfur, acid gases, various resins, dyes; saponification agent for acidic materials; fuel component; epoxy curing agent and hardener; intermediate for textile finishes; curing agent for two-pkg. protective coatings; mfg. of chelating agents, surfactants, softeners, corrosion inhibitors; modifier for amino resins for paper/paperboard in contact with aq./fatty foods; in paper/paperboard in contact with dry food; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Allchem Ind.; Ashland; BASF AG; Charkit; Coyne; Diamines & Chems. Ltd; Fabrichem; Fluka; Houghton Chem.; Lowenstein Dyes & Cosmetics; Rhodia HPCII; Sigma; Tosoh; Union Carbide

*Trade Names:* Ancamine® DETA

**Diethylenetriamine, epichlorohydrin, adipic acid polymer.** *See* Adipic acid/epoxypropyl diethylenetriamine copolymer

**Diethylene triamine pentaacetic acid.** *See* Pentetic acid

**1,1,4,7,7-Diethylenetriaminepentaacetic acid.** *See* Pentetic acid

**Diethylenetriaminepentaacetic acid, pentasodium salt.** *See* Pentasodium pentetate

**Diethylene triamine pentamethylene phosphonic acid**

CAS 15827-60-8

*Synonyms:* DETPMPA; Phosphonic acid, [(phosphonomethyl) imino] bis [2,1-ethanediylnitribis (methylene)] tetrakis-; [(Phosphonomethyl) imino] bis [ethane-2,1-diylnitribis (methylene)] tetrakisphosphonic acid

*Empirical:* C<sub>9</sub>H<sub>26</sub>N<sub>3</sub>O<sub>15</sub>P<sub>5</sub>

*Properties:* Sol. in water; m.w. 573.19; dens. 1.14 kg/l

*Uses:* Peroxide stabilizer in pulp/paper bleaching; scale inhibitor/chelating agent for boilers, cooling towers, oil field treatment; sequestrant for powd. laundry and industrial detergents; deflocculant; dispersant for water treatment, I&I cleaners

*Manuf./Distrib.:* Excel Ind.

*Trade Names:* Aquacid-106 EX; Briquest® 543-45AS; Dequest® 2060; Unihib® 905

**Diethylenetriamine penta (methylene phosphonic acid), pentasodium salt.**

*See* Pentasodium diethylene triamine pentamethylene phosphonate

**Diethylene triamine penta (methylene phosphonic acid) sodium salt.** *See* Sodium diethylenetriamine penta (methylene phosphonate)

**Diethylenimine oxide.** *See* Morpholine

**Diethylethanolamine.** *See* Diethylaminoethanol

**N,N-Diethylethanolamine.** *See* Diethylaminoethanol

**Di (2-ethylhexyl) orthophthalate.** *See* s-Dioctyl phthalate

**Di (2-ethylhexyl) phthalate.** *See* s-Dioctyl phthalate

**N,N-Diethyl-N-(β-hydroxyethyl) amine.** *See* Diethylaminoethanol

**Diethylolamine.** *See* Diethanolamine

**Diethyl zinc**

CAS 557-20-0; EINECS/ELINCS 209-161-3; UN No. 1366 (DOT)

*Synonyms:* DEZ; DEZn; Zinc diethyl; Zinc ethide; Zinc ethyl

*Classification:* Organometallic compd.

*Empirical:* C<sub>4</sub>H<sub>10</sub>Zn

*Formula:* (C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>Zn

*Properties:* Colorless clear liq.; garlic-like odor; misc. with ether, petrol. ether, benzene, other hydrocarbon solvs.; dec. in water; m.w. 123.49; dens. 1.2065 (20/4 C); vapor pressure 20 hPa (20 C); m.p. -28 C; b.p. 118 C; flash pt. (CC) -40 C; ref. index 1.4936

*Toxicology:* Toxic by inh., ing., skin contact; corrosive; causes burns; TSCA listed

*Precaution:* Highly flamm.; ignites spontaneously in air; burns with blue flame, giving off peculiar, garlic-like odor; reacts violently with water; contact with water liberates extremely flamm. gases

*Hazardous Decomp. Prods.:* Air- and moisture-sensitive; handle and store under nitrogen; store in cool, dry, well-ventilated area away from incompat. substances (water)

NFPA: Health 3; Flammability 4; Reactivity 3

*Uses:* Catalyst for Ziegler-Natta polymerization of olefins and dienes; catalyst for epoxidation; in organic synthesis; synthesis of cyclopropanes and ketocarbenes; in preservation of archival papers; reactant in prod. of

transition metal catalysts

*Manuf./Distrib.:* ABCR; Acros Org.; Akzo Nobel; Aldrich; Fluka

**1,1-Difluoroethene homopolymer.** *See* Polyvinylidene fluoride resin

**Diglycidyl bisphenol A ether.** *See* Bisphenol A diglycidyl ether

**Diglycidyl ether of neopentyl glycol.** *See* Neopentyl glycol diglycidyl ether

**Diglycol butyl ether.** *See* Butoxydiglycol

**Diglycol laurate.** *See* PEG-2 laurate

**Diglycol monobutyl ether.** *See* Butoxydiglycol

**Diglycol monoethyl ether.** *See* Ethoxydiglycol

**Diglycol monostearate.** *See* PEG-2 stearate

**Diglycol oleate.** *See* PEG-2 oleate

**Diglycol stearate.** *See* PEG-2 stearate

**Diguanidine hydrogen phosphate.** *See* Guanidine phosphate, dibasic

**Diguanidine phosphate.** *See* Guanidine phosphate, dibasic

**Dihexyl phthalate**

CAS 84-75-3; 68515-50-4; EINECS/ELINCS 201-559-5

*Synonyms:* 1,2-Benzenedicarboxylic acid, dihexyl ester; Di-n-hexyl phthalate; Di(2-ethylbutyl) phthalate; Phthalic acid, dihexyl ester

*Empirical:* C<sub>20</sub>H<sub>30</sub>O<sub>4</sub>

*Formula:* C<sub>6</sub>H<sub>4</sub>(COOC<sub>6</sub>H<sub>13</sub>)<sub>2</sub>

*Properties:* Oily, sl. aromatic liq.; m.w. 334.50; sp.gr. 1.008; b.p. 350 C (735 mm); f.p. -50 C; flash pt. (TCC) 380 F

*Toxicology:* LD50 (oral, rat) 29,600 mg/kg, (skin, rabbit) 20 g/kg; very mildly toxic by ing. and skin contact; eye and skin irritant; experimental reproductive effects

*Precaution:* Combustible; can react with oxidizers

*Uses:* Plasticizer for cellulose ester and vinyl plastics, food-contact polymers; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 178.3740

*Manuf./Distrib.:* Exxon; Frinton Labs; Unitex

*Trade Names:* Jayflex® DHP

**Di-n-hexyl phthalate.** *See* Dihexyl phthalate

**Dihexyl sodiosulfosuccinate.** *See* Dihexyl sodium sulfosuccinate

**Dihexyl sodium sulfosuccinate**

CAS 3006-15-3; 2373-38-8; 6001-97-4; EINECS/ELINCS 221-109-1

*Synonyms:* Bis (1-methylamyl) sodium sulfosuccinate; Butanedioic acid, sulfo-, 1,4-dihexyl ester, sodium salt; Dihexyl sodiosulfosuccinate; Dihexyl sulfosuccinate sodium salt; Sodium dihexyl sulfosuccinate; Sodium di-(2-methylpentyl) sulfosuccinate; Sulfosuccinic acid, sulfo-, 1,4-dihexyl ester, sodium salt

*Definition:* Sodium salt of the diester of 1-methylamyl alcohol and sulfosuccinic acid

*Empirical:* C<sub>16</sub>H<sub>30</sub>NaO<sub>7</sub>S

*Formula:* C<sub>16</sub>H<sub>30</sub>O<sub>7</sub>S · Na

*Properties:* Clear visc. liq. or wh. waxy particles; readily sol. in hot water, slowly in cold water; sol. in benzene, CCl<sub>4</sub>, acetone, glycerol; m.w. 389.51; anionic

*Toxicology:* LD50 (oral, rat) 1750 mg/kg, (oral, mouse) 2315 mg/kg; mod. toxic by ing.; TSCA listed

*Precaution:* Flamm. when exposed to heat, flame, oxidizers; hydrolyzes in alkaline media

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

*Uses:* Emulsifier/dispersant for emulsion polymerization, wax, polish, hand cleaners; ore leaching/electroplating additive; photographic chemical; pigment dispersant; wetting agent/penetrant in glass cleaners, paint strippers, batteries; textile wetting agent; solubilizer; wetting agent/emulsifier for waterborne industrial coatings (PVAc, acrylics), printing inks; emulsifier in food pkg.; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1210, 178.3400

*Manuf./Distrib.:* Finetex; Sigma; Venchem

*Trade Names:* Aerosol® MA-80; DeWET SMA-80

*Trade Names Containing:* Monawet MM-80

**Dihexyl sulfosuccinate sodium salt.** *See* Dihexyl sodium sulfosuccinate

**Dihydroabietyl alcohol.** *See* Hydroabietyl alcohol

**2,2'-(9,10-Dihydro-9,10-dioxo-1,4-anthracenediyl) diimino] bis (5-methylbenzenesulfonic acid) disodium salt.** *See* Acid green 25

**Dihydro-2,5-dioxofuran.** *See* Maleic anhydride

**2,5-Dihydrofuran-2,5-dione.** See Maleic anhydride

**Dihydrogenated tallow amine.** See Hydrogenated ditallowamine

**Dihydrogenated tallow dimethyl ammonium chloride.** See Quaternium-18

**Dihydrogenated tallowdimonium chloride.** See Quaternium-18

**Dihydrogen sulfate.** See Sulfuric acid

**4,5-Dihydro-2-isoheptadecyl-1H-imidazole-1-ethanol.** See Isostearyl hydroxyethyl imidazoline

**1,2-Dihydro-5-nitroacenaphthylene.** See 5-Nitroacenaphthene

**4,5-Dihydro-7-nortall oil-1H-imidazole-1-ethanol.** See Tall oil hydroxyethyl imidazoline

**Dihydro-3-(octadecenyl)-2,5-furandione.** See Octadecenyl succinic anhydride

**Dihydrooxirene.** See Ethylene oxide

**4,5-Dihydro-5-oxo-1-(4-sulfophenyl)-4-[4-sulfophenyl]azo]-1H-pyrazole-3-carboxylic acid trisodium salt.** See Tartrazine

**5,12-Dihydroquino [2,3-b] acridine-7,14-dione.** See Pigment violet 19

**Dihydroxyaluminum monostearate.** See Aluminum stearate

**Dihydroxyaluminum stearate.** See Aluminum stearate

**Dihydroxybenzene.** See Hydroquinone

**1,2-Dihydroxybenzene.** See Pyrocatechol

**1,4-Dihydroxybenzene.** See Hydroquinone

**o-Dihydroxybenzene.** See Pyrocatechol

**p-Dihydroxybenzene.** See Hydroquinone

**2,2'-Dihydroxy-5,5'-dichlorodiphenylmethane.** See Dichlorophene

**2,2'-Dihydroxydiethylamine.** See Diethanolamine

**4,4'-Dihydroxydiphenyldimethylmethane diglycidyl ether.** See Bisphenol A diglycidyl ether

**p,p'-Dihydroxydiphenyldimethylmethane diglycidyl ether.** See Bisphenol A diglycidyl ether

**2,4'-Dihydroxydiphenyl sulfone**  
*Uses:* Developer for heat-sensitive papers  
*Trade Names:* BPS-24; BPS-P

**2,2'-Dihydroxydipropyl ether.** See Dipropylene glycol

**1,2-Dihydroxyethane.** See Glycol

**Di (2-hydroxyethyl) amine.** See Diethanolamine

**Dihydroxyethyl cocamine oxide**  
 CAS 61791-47-7; EINECS/ELINCS 263-180-1  
*Synonyms:* N,N (Bis (2-hydroxyethyl) cocamine oxide; Bis (2-hydroxyethyl) cocoamine oxide; Coco bis-2-hydroxyethylamine oxide; Coco di(hydroxyethyl) amine oxide; N,N-Di-(2-hydroxyethyl) cocoamine oxide; Ethanol, 2,2'-iminobis, N-coke alkyl, N-oxide  
*Classification:* Tertiary amine oxide  
*Empirical:* C<sub>16</sub>H<sub>26</sub>NO<sub>3</sub>  
*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, R represents the coconut radical  
*Properties:* Clear liq.; m.w. 289.47  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; softener, conditioner, emulsifier, wetting agent, visc. builder, stabilizer, antistat for cosmetics; emollient, lubricant, and slip agent for shave creams; for textiles, petrol. additives, paper, plastics, rubber; gel sensitizer for latex; foam booster for bubble baths; hydrotrope/thickener for hypochlorite cleaners; thixotrope for water-based paints; emulsion stabilizer  
*Trade Names:* Aromox® C/12-W  
*Trade Names Containing:* Aromox® C/12

**N,N-Di-(2-hydroxyethyl) cocoamine oxide.** See Dihydroxyethyl cocamine oxide

**N,N-Di (2-hydroxyethyl) oleylamine.** See PEG-2 oleamine

**2,2'-Dihydroxyisopropyl ether.** See Dipropylene glycol

**2,4-Dihydroxy-2-methylpentane.** See Hexylene glycol

**N,N'-Dihydroxymethylurea.** See Dimethylol urea

**1,2-Dihydroxypropane.** See Propylene glycol

**2,3-Dihydroxypropyl octadecanoate.** See Glyceryl stearate

**1-(Diiodomethyl) sulfonyl)-4-methylbenzene.** See Diiodomethyl tolylsulfone

**4-(Diiodomethylsulfonyl) toluene.** See Diiodomethyl tolylsulfone

**Diiodomethyl tolylsulfone**  
 CAS 20018-09-1; EINECS/ELINCS 243-468-3  
*Synonyms:* Benzene, 1-((diiodomethyl) sulfonyl)-4-methyl-; 1-((Diiodomethyl) sulfonyl)-4-methylbenzene; 4-(Diiodomethylsulfonyl) toluene; Diiodomethyl p-tolyl sulfone

*Classification:* Organic compd.

*Empirical:* C<sub>8</sub>H<sub>8</sub>I<sub>2</sub>O<sub>2</sub>S

*Properties:* M.w. 422.02

*Toxicology:* TDLo (oral, rat) 5 g/kg; reproductive effector; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of SO<sub>x</sub> and I<sup>-</sup>

*Uses:* Antimicrobial; mildewcide, fungicide, preservative for adhesives and sealants, paints, and in lumber, construction, home improvement, textile, leather, and automotive industries; antifungal preservative in food-pkg. adhesives; preservative in side seam cements for food-contact containers; antifungal preservative in food-contact sealants and caulking materials for repeated use

*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2600

*Manuf./Distrib.:* ANGUS

*Trade Names:* Amical® 48

**Diiodomethyl p-tolyl sulfone.** See Diiodomethyl tolylsulfone

**Diisobutyl carbinol.** See 2,6-Dimethyl heptanol-4

**Diisobutyl phthalate**

CAS 84-69-5; EINECS/ELINCS 201-553-2

*Synonyms:* DIBP; Phthalic acid, diisobutyl ester

*Classification:* Aromatic ester

*Empirical:* C<sub>16</sub>H<sub>22</sub>O<sub>4</sub>

*Properties:* Colorless liq.; insol. in water; m.w. 278.35; dens. 1.040 (20 C); f.p. -50 C; m.p. -64 C; b.p. 327 C; flash pt. (PMCC) 185 C; ref. index 1.490

*Toxicology:* LD50 (oral, rat) 15 g/kg, (IP, rat) 3749 mg/kg, (skin, guinea pig) 10 g/kg; mod. toxic by IP route; mildly toxic by ing. and skin contact; experimental teratogen, reproductive effects; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Plasticizer-solvent for PVC, PVAc, PVB, PS, cellulosics, paints; as vehicles for pigment dispersions; in food-pkg. adhesives; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 177.1200

*Manuf./Distrib.:* Aldrich; Allchem Ind.; KIC Chems.; Novachem Corp.; Unitex

*Trade Names:* Uniplex 155

**Diisobutyl sodium sulfosuccinate**

CAS 127-39-9; EINECS/ELINCS 204-839-5

*Synonyms:* 1,4-Bis (2-methylpropyl) sulfobutanedioate, sodium salt; Sodium 1,2-diisobutoxycarbonylethanesulfonate; Sodium diisobutyl sulfosuccinate; Sulfosuccinic acid diisobutyl ester, sodium salt

*Definition:* Sodium salt of the diester of isobutyl alcohol and sulfosuccinic acid

*Empirical:* C<sub>12</sub>H<sub>21</sub>NaO<sub>5</sub>S

*Properties:* Wh. powd.; sol. 760 g/l in water (25 C); sol. in glycerol, pine oil, oleic acid; m.w. 332.34; anionic

*Toxicology:* Irritating to eyes, mucous membranes; TSCA listed

*Uses:* Wetting agent for metal leaching, electroplating; penetrant; emulsion polymerization of styrene, butadiene and copolymers; emulsifier in food pkg.; aq. paints; agric.; paper coating; water treatment

*Regulatory:* FDA 21CFR §178.3400

*Trade Names:* Geropon® CYA/DEP; Monawet MB-45

**Diisononyl adipate**

CAS 33703-08-1; EINECS/ELINCS 251-646-7

*Synonyms:* DINA; Diisononyl hexanedioate; Dinonyl adipate; Hexanedioic acid, diisononyl ester

*Definition:* Diester of isononyl alcohol and adipic acid

*Empirical:* C<sub>24</sub>H<sub>46</sub>O<sub>4</sub>

*Formula:* C<sub>9</sub>H<sub>19</sub>OOC(CH<sub>2</sub>)<sub>4</sub>COOC<sub>9</sub>H<sub>19</sub>

*Properties:* Colorless liq.; insol. in water; m.w. 398.63; dens. 0.924; visc. 25 mPa·s (20 C); b.p. 250-260 C; flash pt. (TCC) 390 F

*Precaution:* Combustible

*Uses:* Emollient; plasticizer for PVC, PS, cellulosics, food-contact polymers

*Regulatory:* FDA 21CFR §178.3740

*Manuf./Distrib.:* Aristech; Ashland; Bayer; Exxon; Unitex

*Trade Names:* Jayflex® DINA

**Diisononyl hexanedioate.** See Diisononyl adipate

**Diisononyl phthalate**

CAS 14103-61-8; 28553-12-0; 68515-48-0; EINECS/ELINCS 249-079-5; 271-090-9

**Synonyms:** DINP; 1,2-Benzenedicarboxylic acid, diisononyl ester; Phthalic acid, diisononyl ester

**Classification:** Aromatic ester

**Empirical:** C<sub>26</sub>H<sub>44</sub>O<sub>4</sub>

**Properties:** M.w. 420.64; dens. 0.973; flash pt. (TCC) 415 F; ref. index 1.4850

**Toxicology:** TDLo (oral, rat, 28 days, continuous) 11,256 mg/kg; cancer suspect agent; possible teratogen; reproductive hazard; target organ: liver, blood; TSCA listed

**Uses:** Plasticizer for PVC cable compds., plastisols, PS, cellulose, paints, food-contact polymers; as vehicles for pigment dispersions

**Regulatory:** FDA 21CFR §178.3740

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Aristech; Ashland; BASF; Bencorp Int'l.; C.P. Hall; Chemisphere Ltd; Chisso Am.; Cognis; Exxon; Fluka; Harwick; KIC Chems.; Unitex; Westtec Ind.

**Trade Names:** Jayflex® DINP

**Diisooctyl phthalate**

CAS 27554-26-3; EINECS/ELINCS 248-523-5

**Synonyms:** DIOP; 1,2-Benzenedicarboxylic acid, diisooctyl ester; Bis (6-methyleptyl) ester of phthalic acid; Isooctyl phthalate; Phthalic acid, diisooctyl ester

**Classification:** Aromatic ester

**Empirical:** C<sub>24</sub>H<sub>38</sub>O<sub>4</sub>

**Formula:** (C<sub>8</sub>H<sub>17</sub>COO)<sub>2</sub>C<sub>6</sub>H<sub>4</sub>

**Properties:** Nearly colorless visc. liq., mild odor; insol. in water; m.w. 390.62; dens. 0.980-0.983 (20/20 C); m.p. -50 C; b.p. 370 C; flash pt. 450 F; ref. index 1.4860

**Toxicology:** LD50 (oral, rat) 22 g/kg, (skin, rabbit) 13 g/kg; mod. toxic by ing.; mildly toxic by skin contact; skin irritant; cancer suspect agent; possible teratogen; reproductive hazard; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Plasticizer for PVC, cellulosic, acrylate resins, synthetic rubber, adhesives, sealants, emulsion paints, food pkg.; syn. lubricant basestock; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 175.300, 181.27

**Manuf./Distrib.:** Aldrich; C.P. Hall; Exxon; KIC Chems.; Occidental; Unitex; Velsicol

**Trade Names:** Jayflex® DIOP

**Diisooctyl sodium sulfosuccinate. See Sodium diisooctyl sulfosuccinate****N,N-Diisopropanolamide of tallow fatty acids. See Tallow diisopropanolamide****Diisopropanolamine**

CAS 110-97-4; EINECS/ELINCS 203-820-9

**Synonyms:** DIPA; Bis (2-hydroxypropyl) amine; Bis (2-propanol) amine; Dipropyl-2,2'-dihydroxyamine; 1,1'-Iminobis-2-propanol; 1,1'-Iminobis (propan-2-ol); 1,1'-Iminodi-2-propanol; 1,1'-Iminobis-2-propanol; 1,1'-Iminodi-2-propanol; 1,1'-Iminodipropan-2-ol

**Classification:** Aliphatic amine alcohol compd.

**Empirical:** C<sub>6</sub>H<sub>15</sub>NO<sub>2</sub>

**Formula:** HN(CH<sub>2</sub>CHOHCH<sub>3</sub>)<sub>2</sub>

**Properties:** Wh. cryst. solid; mild ammoniacal odor; very sol. in water; sol. in ethanol, acetone; sl. sol. in diethyl ether; m.w. 133.19; dens. 1.004; m.p. 44.5-45.5 C; b.p. 249-250 C (745 mm); flash pt. 126 C

**Toxicology:** LD50 (oral, rat) 6720 mg/kg, (IP, mouse) 96 mg/kg; poison by IP route; mildly toxic by ing.; skin and severe eye irritant; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO, NFPA: Health 2; Flammability 1; Reactivity 0

**Storage:** Hygroscopic; protect from light

**Uses:** Emulsifier for polishes, textile specialties, leather compounds, insecticides, cutting oils, aq. paints, topical pharmaceuticals; neutralizer for cosmetics and toiletries; solvent in desulfurization and offgas treatment; solubilizer, corrosion inhibitor in metalworking fluids; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR § 175.105, 176.210; FDA approved for topicals;

USP/NF

**Manuf./Distrib.:** Aldrich; Ashland; BASF AG; BASF; Coyne; Dow; Fluka; Ruger; Universal Preserv-A-Chem; Van Waters & Rogers

**Diisopropyl biphenyl. See Bis(methylethyl)-1,1'-biphenyl****Diisopropylene glycol. See Dipropylene glycol****Diisopropyl naphthalene**

CAS 38640-62-9

**Synonyms:** Bis (isopropyl) naphthalene; Bis (1-methylethyl) naphthalene; Naphthalene, bis (1-methylethyl)-; Naphthalene diisopropyl-

**Empirical:** C<sub>16</sub>H<sub>20</sub>

**Properties:** M.w. 212.34

**Uses:** Solvent for carbonless copy paper

**Manuf./Distrib.:** Koch Spec. Chem.

**Diisopropyl percarbonate. See Diisopropyl perdicarbonate****Diisopropyl perdicarbonate**

CAS 105-64-6

**Synonyms:** IPP; Diisopropyl percarbonate; Diisopropyl peroxydicarbonate; Isopropyl percarbonate; Isopropyl peroxydicarbonate; Peroxydicarbonic acid, bis (1-methylethyl) ester

**Empirical:** C<sub>8</sub>H<sub>14</sub>O<sub>6</sub>

**Formula:** (CH<sub>3</sub>)<sub>2</sub>CHO(C(O)OOC(O)OCH(CH<sub>3</sub>)<sub>2</sub>)<sub>2</sub>

**Properties:** Colorless cryst. solid or liq.; misc. with aliphatic, aromatic, and chlorinated hydrocarbons, esters, ethers; pract. insol. in water; m.w. 206.22; dens. 1.080 (15.5/4 C); m.p. 8-10 C; rapid decomp. @ 63 F; ref. index 1.4034 (20 C)

**Toxicology:** LD50 (oral, rat) 2140 mg/kg, (skin, rabbit) 2025 mg/kg; mod. toxic by ing. and skin contact; primary severe eye irritant; TSCA listed

**Precaution:** Dangerous fire risk; unstable above 10 C; impact- and heat-sensitive explosive; spontaneous decomp. @ R.T. releases flamm. and corrosive prods.; explodes on heating; explodes on contact with amines or potassium iodide, possibly organics

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Storage:** Store in open containers @ low temps. with adequate ventilation

**Uses:** Low-temp. polymerization catalyst; initiator for polymerization of unsat. monomers, PVC; in food-pkg. adhesives; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 176.170

**Manuf./Distrib.:** PPG Ind.

**Diisopropyl peroxydicarbonate. See Diisopropyl perdicarbonate****Dilaurin. See Glyceryl dilaurate****Dilinoleic acid**

CAS 6144-28-1

**Synonyms:** Dimer acid; 9,12-Octadecadienoic acid, dimer

**Definition:** 36-Carbon dicarboxylic acid formed by the catalytic dimerization of linoleic acid

**Empirical:** C<sub>36</sub>H<sub>64</sub>O<sub>4</sub>

**Formula:** C<sub>34</sub>H<sub>62</sub>(COOH)<sub>2</sub>

**Properties:** Lt. yel. visc. liq.; sl. odor; dens. 0.921 (100 C); iodine no. 80; ref. index 1.4851

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Lubricant, corrosion inhibitor, mildness additive in household detergents, plastics, and protective coatings; modifier for alkyd and polyamide resins, polyester or metallic soap for petroleum additive; emulsifier; adhesives; shellac substitute; emollient; to upgrade drying oils; as extender and crosslinking agent for high polymeric systems; defoamer in food-contact coatings and paper/paperboard; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §176.200, 176.210, 178.3910

**Manuf./Distrib.:** Allchem Ind.; Arizona; Cognis/Chems. Group; Int'l. Paper; Uniqema N. Am.; Welch, Holme & Clark

**Trade Names:** Empol® 1007; Empol® 1008; Empol® 1016; Empol® 1018; Empol® 1020; Empol® 1022; Empol® 1024; Empol® 1026

**DIMDAC. See Dimethyl diallyl ammonium chloride****Dimelamine phosphate**

CAS 56974-60-8

## Dimer acid

*Empirical:* C<sub>2</sub>H<sub>18</sub>N<sub>12</sub>O<sub>4</sub>P

*Properties:* Wh. powd.; sol. 2 g/l in water; m.w. 350.24; dens. 1.66 kg/l; dec. @ 300 C

*Uses:* Flame retardant for polymers, intumescent coatings and paints, plastics (polyesters, polymethyl methacrylate, polyolefins, PS, PU foams), and paper; intumescent paint/mastic ingred.

*Manuf./Distrib.:* DSM Chem. N. Am.

**Dimer acid.** See Dilinoleic acid

### Dimer acid, hydrogenated

CAS 68783-41-5

*Properties:* Dens. 0.950; flash pt. 235 F; ref. index 1.4770

*Toxicology:* TSCA listed

*Uses:* Polymer building block/modifier; for hot-melt adhesives, surf. coatings; polyamide for thermographic inks

*Manuf./Distrib.:* Aldrich

*Trade Names:* Empol® 1004

### Dimercury dichloride

CAS 10112-91-1; EINECS/ELINCS 233-307-5; UN No. 2025

*Synonyms:* Mercurous chloride; Mercury chloride; Mercury (I) chloride; Mercury subchloride

*Classification:* Halide

*Empirical:* Cl<sub>2</sub>Hg<sub>2</sub>

*Formula:* Hg<sub>2</sub>Cl<sub>2</sub>

*Properties:* Off-wh. heavy powd. or cryst.; odorless; tasteless; pract. insol. in water; insol. in alcohol, ether, cold dil. acids; m.w. 472.08; dens. 7.15; m.p. 302 C; b.p. 384 C; sublimes @ 400-500 C without melting; dec. by sunlight into mercuric chloride and metallic mercury; dec. by alkalis

*Toxicology:* LD50 (oral, rat) 210 mg/kg; TDLo (oral, rat, 12 wks intermittent) 84 mg/kg; toxic; poison by ing.; sensitizer; eyes/skin/respiratory system irritant; excessive doses may cause mercury poisoning; neurologic hazard; readily absorbed thru skin; may cause proteinuria, changes in urine, kidney damage, CNS effects, reproductive and fetal effects; possible mutagen; target organ: kidneys, CNS; TSCA listed

*Precaution:* Incompat. with bromides, iodides, alkali chlorides, sulfates, sulfites, carbonates, hydroxides, lime water, acacia, ammonia, golden antimony sulfide, cyanides, copper salts, hydrogen peroxide, iodine, lead and silver salts, soaps

*Hazardous Decomp. Prods.:* Hydrogen chloride, mercury oxides; heated to decomp., emits toxic vapors of Cl<sup>-</sup> and Hg

*Storage:* Light-sensitive; protect from light

*Uses:* Dk. green Bengal lights; calomel paper; mixed with gold in painting on porcelain; for calomel electrodes; insecticide; soil fungicide; in agric. to control root maggots; pyrotechnics; electrodes; pharmaceuticals; cathartic; diuretic; antiseptic

### Dimethicone

CAS 9006-65-9

*Synonyms:* Dimethicones; Dimethylpolysiloxane; Dimethyl silicone; Dimeticone; Polydimethylsiloxane; Poly (oxy (dimethylsilylene)), α-(trimethylsilyl)-ω-methyl-; α-(Trimethylsilyl)-ω-methylpoly [oxy (dimethylsilylene)]

*Definition:* Silicone oil consisting of a mixt. of fully methylated linear siloxane polymers end-blocked with trimethylsiloxy units

*Empirical:* (C<sub>2</sub>H<sub>6</sub>O<sub>Si</sub>)<sub>x</sub>C<sub>4</sub>H<sub>12</sub>Si

*Properties:* Colorless clear liq.; misc. with chloroform, ether; immisc. with water, alcohol; visc. inc. with degree of polymerization

*Uses:* Oleaginous ointment and topical drug vehicle; skin protectant; antifoam; defoamer for oil processing, water/waste treatment, food applics.; surfactant; release agent; used in cosmetics; adhesives; inks; latexes; soap mfg.; starch mfg.; paint mfg.; emollient; lubricant in polishes, precision bearings; antiadhesion coatings; dielec. fluids; heat transfer agents; textile softener; textile/paper sizing additive; barrier creams; chewing gum base; prosthetic aid (soft tissue); antiflatulent; in food-pkg. adhesives; release agent in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §145.180, 145.181, 146.185, 173.340, 175.105, 175.300, 176.170, 176.200, 176.210, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910, 181.22, 181.28; USDA 9CFR §318.7, 381.147; Europe listed; UK approved; FDA approved for topicals; USP/NF, BP,

Ph.Eur. compliance

*Manuf./Distrib.:* Acros Org.; Aldrich; Ashland; BASF; Biosil Tech.; Costec; Crompton/Witco; Dow Corning; EMCO Chem. Distributors; Fanning; GE Silicones; Goldschmidt; Lanaetex Prods.; Norman, Fox; Rhodia HPCII; Sigma; Wacker Silicones

*Trade Names:* CS-100; Foamkill® 810F; Foamkill® 830F; L-45 Series; Lambent E-2140; Lambent E-2140 35% Food Grade; SWS-101 Dimethyl Fluids

*Trade Names Containing:* Foambreaker; Sag 730

### Dimethicone copolyol

CAS 63148-55-0; 64365-23-7; 67762-96-3

*Synonyms:* Dimethylsiloxane/glycol copolymer; Siloxanes and silicones, dimethyl, hydroxy-terminated, ethoxylated propoxylated

*Definition:* Copolymer of polydimethylsiloxane and polyoxyalkylene ether

*Properties:* Sol. in water and lower alcohols

*Toxicology:* Very low toxicity; TSCA listed

*Uses:* Silicone surfactant; dispersant; emulsifier; antistat; leveling and flow control agent; antifogging agent; lubricant; antiblock; slip additive; for adhesives; agric.; automotive; coatings; printing inks; textiles; household specialties; cutting fluid; emollient; pharmaceuticals; in flexible slabstock PU foam; defoamer in food-contact paper/paperboard

*Regulatory:* FDA approved for injectables (percutaneous)

*Manuf./Distrib.:* Biosil Tech.; C.P. Hall; Costec; Crompton/Witco; Dow Corning; Fanning; GE Silicones; Goldschmidt; Koster Keunen; Lanaetex Prods.; Phoenix; Thornley; Wacker Silicones

*Trade Names:* Silwet® L-720 AP; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7500; TEGO® Foamex 1488; TEGO® Foamex 3062; TEGO® Foamex 7447; TEGO® Glide 100; TEGO® Glide B 1484; TEGO® Glide ZG 400

See also Polysiloxane polyether copolymer

**Dimethicones.** See Dimethicone

### Dimethiconol

CAS 31692-79-2; 70131-67-8

*Synonyms:* Poly[oxy(dimethylsilylene)], α-hydro-ω-hydroxy-; Siloxanes and silicones, dimethyl, hydroxy-terminated

*Definition:* Dimethyl silicone terminated with hydroxyl groups

*Properties:* Anionic

*Toxicology:* TSCA listed

*Uses:* Silicone surfactant, textile softener, etc.; raw material for silicone RTV systems, textile/paper coatings; plasticizer/processing aid for silicone elastomers, in water repellents; antifoam; emollient, spreading agent for cosmetics

*Manuf./Distrib.:* Fluka

*Trade Names:* Masil® SFR 70; Masil® SFR 100; Masil® SFR 750; Masil® SFR 2000; Masil® SFR 3500; Masil® SFR 50,000

**3,3'-Dimethoxybenzidine.** See Dianisidine

**3,3'-Dimethoxy-1,1'-biphenyl-4,4'-diamine.** See Dianisidine

**3,3'-Dimethoxy-4,4'-diaminobiphenyl.** See Dianisidine

### 2,2-Dimethoxy-2-phenylacetophenone

CAS 24650-42-8; EINECS/ELINCS 246-386-6

*Synonyms:* Benzil dimethyl acetal; Benzil α,α-dimethyl acetal; Benzylidimethyl ketal; α,α-Dimethoxy-α-phenylacetophenone; 1,2-Diphenylethane-1,2-dione, dimethyl ketal; Ethanone, 2,2-dimethoxy-1,2-diphenyl-

*Empirical:* C<sub>16</sub>H<sub>16</sub>O<sub>3</sub>

*Formula:* C<sub>6</sub>H<sub>5</sub>COC(OCH<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>5</sub>

*Properties:* Wh. cryst. solid; sol. in acrylates, dichloromethane, DOP; m.w. 256.30; m.p. 63-68 C

*Toxicology:* May cause skin and eye irritation; may be harmful by inhalation, ingestion, or skin absorption; TSCA listed

*Storage:* Light-sensitive

*Uses:* Photoinitiator for UV-curable systems incl. coatings, lacquers, adhesives, inks, printing plates, photopolymers, electronic photoresists, polyester-styrene wood filler composites

*Manuf./Distrib.:* Aceto; Aldrich; Alemark; Amber Syn.; BCH Brühl; ChemFirst; Ciba Spec. Chems./Addit.; Fabricchem; Fluka; Gallard-Schlesinger Ind.; Morre-Tec Ind.

*Trade Names:* Esacure® KB1; Photomer® 51



**$\alpha,\alpha$ -Dimethoxy- $\alpha$ -phenylacetophenone.** See 2,2-Dimethoxy-2-phenylacetophenone

**Dimethoxy polyethylene glycol.** See PEG dimethyl ether

**Dimethyl adipate**

CAS 627-93-0; EINECS/ELINCS 211-020-6

**Synonyms:** Adipic acid dimethyl ester; Dimethyl hexanedioate; Hexanedioic acid, dimethyl ester; Methyl adipate

**Classification:** Dicarboxylic acid ester

**Definition:** Diester of methyl alcohol and adipic acid

**Empirical:**  $C_8H_{14}O_4$

**Formula:**  $CH_3O_2C(CH_2)_4CO_2CH_3$

**Properties:** Colorless liq.; sol. in oxygenated solvs.; insol. in water; m.w. 174.22; dens. 1.062 (20/4 C); m.p. 9-11 C; b.p. 115 C (13 mm); flash pt. 107 C

**Toxicology:** LD50 (IP, rat) 1809 mg/kg; mod. toxic by IP route; suspected teratogen and reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; emollient; specialty chemical intermediate

**Manuf./Distrib.:** Aldrich; Ashland; DuPont; Eastern Chem.; Fluka; Haltermann Prods. UK; Morflex; Sigma; UCB

**Trade Names:** DBE-6

**Trade Names Containing:** DBE; DBE-2, -2SPG; DBE-3; DBE-9

**Dimethylamine/epichlorohydrin copolymer**

CAS 25988-97-0

**Synonyms:** Epichlorohydrin/dimethylamine copolymer; Poly(dimethylamino-co-epichlorohydrin)

**Formula:**  $[N(CH_3)_2(Cl)CH_2CH(OH)CH_2]_n$

**Properties:** Dens. 1.100; visc. 175 cps (50% aq.); ref. index 1.4270

**Toxicology:** Irritant

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Coagulant/flocculant for water treatment, paper processing; as drainage and retention aid; decolorizing agent, flocculant for clarification of refinery sugar liquors and juices; retention aid in mfg. of paper/paperboard in contact with aq./fatty foods

**Use Level:** 150 ppm max. of sugar solids

**Regulatory:** FDA 21CFR §173.60, 176.170

**Manuf./Distrib.:** Aldrich

**Trade Names:** Agefloc A4506; Agefloc A4510; Agefloc B50LV; Agefloc B4508P

**p-Dimethylaminobenzene diazonium chloride, zinc chloride double salt.**

See p-Diazodimethylaniline zinc chloride double salt

**4-Dimethylaminobenzoic acid, ethyl ester.** See Ethyl 4-(dimethylamino) benzoate

**2-Dimethylaminoethanol.** See Dimethylethanolamine

**$\beta$ -Dimethylaminoethanol.** See Dimethylethanolamine

**N,N-Dimethylaminoethanol.** See Dimethylethanolamine

**2-(Dimethylamino) ethanol methacrylate.** See Dimethylaminoethyl methacrylate

**Dimethylaminoethyl acrylate**

CAS 2439-35-2; EINECS/ELINCS 219-460-0

**Synonyms:** Acrylic acid, 2-(dimethylamino) ethyl ester; 2-Dimethylaminoethyl acrylate; 2-Propenoic acid, 2-(dimethylamino) ethyl ester

**Empirical:**  $C_7H_{13}NO_2$

**Formula:**  $CH_2=C(CH_3)COOCH_2CH_2N(CH_3)_2$

**Properties:** Colorless to sl. brn. liq.; sol. in water, alcohol, ethyl acetate, benzene; m.w. 143.19; dens. 0.943; f.p. -75 C; m.p. -55 C; b.p. 64 C (12 mm); flash pt. 58 C; ref. index 1.4380 (20 C)

**Toxicology:** LD50 (oral, rat) 455 mg/kg; LC50 (inh., rat, 4 h) 66 mg/m<sup>3</sup>; highly toxic; poison by inh.; mod. toxic by ing.; corrosive; severe skin and eye irritant; harmful if swallowed or inhaled; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub>

**Uses:** Adhesion promoter in UV and EB cured coatings for metal, plastic, paper, and wood; catalyst; intermediate for water treatment chemicals, acrylamide copolymers, aminated polyacrylate resins, etc.; textile finishing, adhesives

**Manuf./Distrib.:** Aldrich; Atofina; CPS; Monomer-Polymer & Dajac Labs

**Trade Names:** Ageflex FA-1

**2-Dimethylaminoethyl acrylate.** See Dimethylaminoethyl acrylate

**Dimethylaminoethyl acrylate dimethyl sulfate**

CAS 13106-44-0

**Classification:** Quat. ammonium monomer

**Uses:** Antistatic finish for polyester fibers; flocculant and coagulant polymers for water treatment, mineral recovery, ion-exchange resins, adhesives, acid dye receptivity; retention aid for paper mfg.; food-contact paper/paperboard

**Manuf./Distrib.:** Aldrich

**Trade Names:** Ageflex FA-1Q80DMS

**Dimethylaminoethyl acrylate methyl chloride quat.**

CAS 44992-01-0

**Empirical:**  $C_8H_{16}ClNO_2$

**Formula:**  $[CH_2=CHCOOCH_2CH_2N(CH_3)_3]^+Cl^-$

**Properties:** M.w. 193.68

**Uses:** Antistatic finish for polyester fibers; flocculant and coagulant polymers for water treatment, mineral recovery, ion-exchange resins, adhesives, acid dye receptivity; retention aid for paper mfg.; food-contact paper/paperboard

**Trade Names:** Ageflex FA-1Q80MC

**$\beta$ -Dimethylaminoethyl alcohol.** See Dimethylethanolamine

**2-(Dimethylamino) ethyl ester methacrylic acid.** See Dimethylaminoethyl methacrylate

**Dimethylaminoethyl methacrylate**

CAS 2867-47-2; EINECS/ELINCS 220-688-8; UN No. 2522 (DOT)

**Synonyms:** DMAEMA; 2-(Dimethylamino) ethanol methacrylate; 2-(Dimethylamino) ethyl ester methacrylic acid; N,N-Dimethylaminoethyl methacrylate;  $\beta$ -Dimethylaminoethyl methacrylate; 2-(Dimethylamino) ethyl methacrylate; 2-(Dimethylamino) ethyl 2-methyl-2-propenoate

**Classification:** Amine monomer; aliphatic ester amine

**Empirical:**  $C_8H_{15}NO_2$

**Formula:**  $CH_2=C(CH_3)COOCH_2CH_2N(CH_3)_2$

**Properties:** Liq.; sol. in water and org. solvs.; m.w. 157.21; dens. 0.933 (25 C); b.p. 182-190 C; flash pt. (TOC) 73.9 C

**Toxicology:** LD50 (oral, rat) 1751 mg/kg, (IP, mouse) 25 mg/kg; LC50 (inh., rat, 4 h) 620 mg/m<sup>3</sup>; poison by IP route; mod. toxic by inh., ing.; harmful if swallowed; causes severe eye burns, skin and mucous membrane irritation; strong lachrymator; TSCA listed

**Precaution:** Combustible; flamm. exposed to sparks, heat, open flames, or oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Uses:** Visc. index improvers; visc. control agent; automotive and industrial coatings; dye additives; lube oil additives; detergent and sludge dispersant in lubricant oils; flocculant for wastewater treatment; retention aid for paper making; acrylic floor polish; resin and rubber modifier; acid scavenger in PU foams; corrosion inhibitor; binder for coatings; textile chems.; antistats; stabilizer for chlorinated polymers; ion-exchange resins; cationic precipitants; comonomer for thermoset acrylics; food pkg.

**Regulatory:** FDA 21CFR §178.3520

**Manuf./Distrib.:** Aldrich; Atofina; CPS; Ciba Spec. Chems./Water Treatment; Eastech; Fluka; Monomer-Polymer & Dajac Labs; Polysciences; Rhodia; Rohm Tech; San Esters; Sigma; Whyte Chems. Ltd

**Trade Names:** Ageflex FM-1

**2-(Dimethylamino) ethyl methacrylate.** See Dimethylaminoethyl methacrylate

**$\beta$ -Dimethylaminoethyl methacrylate.** See Dimethylaminoethyl methacrylate

**N,N-Dimethylaminoethyl methacrylate.** See Dimethylaminoethyl methacrylate

**Dimethylaminoethyl methacrylate dimethyl sulfate quat.**

CAS 6891-44-7

**Classification:** Quat. ammonium monomer

**Formula:**  $[CH_2=C(CH_3)COOCH_2CH_2N(CH_3)_3]^+CH_3OSO_3^-$

**Properties:** M.w. 283.35

**Uses:** Antistatic finish for polyester fibers; flocculant and coagulant polymers for water treatment, mineral recovery, ion-exchange resins, adhesives, acid dye receptivity; retention aid for paper mfg.; food-contact paper/

## Dimethylaminoethyl methacrylate methyl chloride quat.

paperboard  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Ageflex FM-1Q80DMS

## Dimethylaminoethyl methacrylate methyl chloride quat.

CAS 5039-78-1  
*Synonyms:* TMAEMC; 2-Methacryloxyethyltrimethyl ammonium chloride; Trimethylammoniummethyl methacrylate chloride; 2-Trimethylammoniumethyl methacrylate chloride; 2-Trimethylammoniummethyl methacrylic chloride  
*Classification:* Quat. ammonium monomer  
*Empirical:* C<sub>9</sub>H<sub>18</sub>ClNO<sub>2</sub>  
*Formula:* [CH<sub>2</sub>=C(CH<sub>3</sub>)COOCH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub>]<sup>+</sup>Cl<sup>-</sup>  
*Properties:* M.w. 207.70  
*Uses:* Antistatic finish for polyester fibers; flocculant and coagulant polymers for water treatment, mineral recovery, ion-exchange resins, adhesives, acid dye receptivity; retention aid for paper mfg.; food-contact paper/paperboard; adhesion promoter; prod. of cationic acrylamide copolymers  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Ageflex FM-1Q75MC

**2-(Dimethylamino) ethyl 2-methyl-2-propenoate.** See Dimethylaminoethyl methacrylate

**N-[3-(Dimethylamino) propyl] coco amides-N-oxide.** See Cocamidopropylamine oxide

**2,2'-Dimethyl-2,2'-azodipropionitrile.** See 2,2'-Azobisisobutyronitrile

**Dimethylbenzene.** See Xylene

**1,2-Dimethylbenzene.** See o-Xylene

**o-Dimethylbenzene.** See o-Xylene

**Dimethylbenzene sulfonic acid, sodium salt.** See Sodium xylenesulfonate

**α,α-Dimethylbenzyl hydroperoxide.** See Cumene hydroperoxide

**Dimethylbenzyl octadecyl ammonium chloride.** See Stearalkonium chloride

**6,6'-[(3,3'-Dimethyl [1,1'-biphenyl]-4,4'-diyl) bis (azo)] bis [4-amino-5-hydroxy-1,3-naphthalenedisulfonic acid] tetrasodium salt.** See Direct blue 53

**Dimethyl butanedioate.** See Dimethyl succinate

**Dimethyl carbamodithioic acid, zinc salt.** See Zinc dimethyl dithiocarbamate

**Dimethyl carbinol.** See Isopropyl alcohol

**Dimethylcocoamino betaine.** See Coco-betaine

**Dimethyl cocobenzyl ammonium chloride.** See Cocoalkonium chloride

**Dimethyl dialkyl ammonium chloride.** See Dialkyl dimethyl ammonium chloride

## Dimethyl diallyl ammonium chloride

CAS 7398-69-8; EINECS/ELINCS 230-993-8  
*Synonyms:* DAC; DADMAC; DIMDAC; Diallyl dimethyl ammonium chloride; 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride  
*Classification:* Quat. ammonium monomer  
*Empirical:* C<sub>8</sub>H<sub>16</sub>ClN  
*Formula:* (CH<sub>3</sub>)<sub>2</sub>N(CH<sub>2</sub>CH=CH<sub>2</sub>)<sub>2</sub><sup>+</sup>Cl<sup>-</sup>  
*Properties:* M.w. 161.80  
*Toxicology:* LD50 (oral, rat) > 10 g/kg; TSCA listed  
*Precaution:* Nonhazardous (DOT); protect from oxidizers, strong alkali; mildly corrosive  
*Uses:* Antistatic finish for polyester fibers, flocculant and coagulant polymers for water treatment, min. recovery, ion exchange resins, adhesives, acid dye receptivity, retention aid for paper mfg.; demulsifier for petrol. recovery, elec. conductive paper and coatings, wet and dry str. resins, antistatic additives and coatings  
*Manuf./Distrib.:* Aldrich; CPS; Fluka; Monomer-Polymer & Dajac Labs

**Dimethyldicocoammonium chloride.** See Dicotrimonium chloride

**Dimethyl didecyl ammonium chloride.** See Didecyltrimonium chloride

**N,N-Dimethyldidecyl ammonium chloride.** See Didecyltrimonium chloride

**Dimethyl di (hydrogenated tallow) ammonium chloride.** See Quaternium-18

**Dimethyldioctadecyl ammonium chloride.** See Distearyltrimonium chloride

**1,4-Dimethyl-3,6-dioxo-1-heptanol.** See PPG-2 methyl ether

**Dimethyldithiocarbamate zinc salt.** See Zinc dimethyldithiocarbamate

**Dimethyldithiocarbamic acid sodium salt.** See Sodium dimethyldithiocarbamate

**N,N-Dimethyl-1-dodecanamine-N-oxide.** See Lauramine oxide

**Dimethyldodecylamine-N-oxide.** See Lauramine oxide

**N,N-Dimethyldodecylamine oxide.** See Lauramine oxide

**N,N-Dimethyldodecylamine-N-oxide.** See Lauramine oxide

**Dimethylenediamine.** See Ethylenediamine

**Dimethylene oxide.** See Ethylene oxide

**1,1-Dimethylethanol.** See t-Butyl alcohol

## Dimethylethanolamine

CAS 108-01-0; EINECS/ELINCS 203-542-8; UN No. 2051 (DOT)  
*Synonyms:* DMAE; DMEA; Deanol; 2-Dimethylaminoethanol; β-Dimethylaminoethanol; N,N-Dimethylaminoethanol; β-Dimethylaminoethyl alcohol; N,N-Dimethyl ethanolamine; N,N-Dimethyl-2-hydroxyethylamine; Ethanol, 2-(dimethylamino)-; β-Hydroxyethyl dimethylamine  
*Classification:* Amino alcohol; alkanolamine  
*Empirical:* C<sub>4</sub>H<sub>11</sub>NO  
*Formula:* (CH<sub>3</sub>)<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>OH  
*Properties:* Colorless to pale yel. liq., amine odor; sol. in water, alcohol, ether; misc. with oxygenated and aromatic solvs.; m.w. 89.14; dens. 0.8866 (20/4 C); visc. 3.8 cps (20 C); f.p. -64 C; b.p. 133 C; flash pt. (TCC) 39 C; ref. index 1.430  
*Toxicology:* LD50 (oral, rat) 2 g/kg, (IP, rat) 1080 mg/kg, (subcut., mouse) 961 mg/kg, (skin, rabbit) 1370 mg/kg; mod. toxic by ing., inh., skin contact, IP, subcut. routes; skin and severe eye irritant; CNS stimulant; TSCA listed  
*Precaution:* Flamm.; corrosive; can form explosive mixts. with air ≥ 39 C; incompat. with oxidizing agents, strong acids, acid anhydrides, acid chlorides, nitrates, nitrous acid  
*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>  
NFPA: Health 2; Flammability 2; Reactivity 0  
*Storage:* Hygroscopic; store in cool, dry, well-ventilated area away from heat and ignition sources  
*Uses:* Synthesis of dyestuffs, pharmaceuticals, textile and paper auxiliaries; catalyst for PU foam and slabstock; curing agent for epoxy, PU; polymer aggregation agent; emulsifier in paints and coatings; pH control agent; process solvent (offgas treatment); solubilizer for radiation-cured coatings, inks; corrosion inhibitor for ferrous metals, in boiler water and condensate steam systems; corrosion inhibitor/solubilizer in metalworking fluids; medicine (CNS stimulant; antidepressant drug)  
*Manuf./Distrib.:* Air Prods.; Aldrich; Allchem Ind.; Ashland; Atofina; BASF AG; BASF; Fluka; Great Western; Huntsman; Nippon Nyukazai; Pelron; Sigma; Union Carbide

**N,N-Dimethyl ethanolamine.** See Dimethylethanolamine

**1,1-Dimethylethylhydroperoxide.** See t-Butyl hydroperoxide

**(1,1-Dimethylethyl)-4-methoxyphenol.** See BHA

**Dimethyl formaldehyde.** See Acetone

## Dimethyl formamide

CAS 68-12-2; EINECS/ELINCS 200-679-5; UN No. NA 1693 (DOT), 2265 (DOT)  
*Synonyms:* DMF; DMFA; N,N-Dimethylformamide; N-Formyldimethylamine  
*Classification:* Amide  
*Empirical:* C<sub>3</sub>H<sub>7</sub>NO  
*Formula:* CHCON(CH<sub>3</sub>)<sub>2</sub>  
*Properties:* Water-wh. liq.; fishy unpleasant odor; a dipolar aprotic solv.; sol. in water; misc. with alcohol, ether, acetone, benzene, most org. solvs.; insol. in aliphatic hydrocarbons; m.w. 73.10; sp.gr. 0.953-0.954 (15.6/15.6 C); f.p. -61 C; b.p. 152.8 C; flash pt. 57.7 C; ref. index 1.423-1.431  
*Toxicology:* ACGIH TLV/TWA 10 ppm (skin); LD50 (oral, rat) 2800 mg/kg, (IP, rat) 1400 mg/kg, (IV, rat) 2000 mg/kg; mod. toxic by ing., IV, IP, subcut. routes; mildly toxic by skin contact, inh.; strong irritant to skin and tissue; severe eye irritant; inh. may cause abdominal pains, loss of appetite, nausea, vomiting, constipation, diarrhea, increased blood pressure, liver injury, irritation of mucous membranes of respiratory tract; suspected carcinogen; teratogen; human mutagenic data; TSCA listed  
*Precaution:* Combustible; moderate fire risk; incompat. with strong oxidizers, halogen gases, halogenated compds., 2,4,6-trichloro-1,3,5-triazine; vigorous reactions possible; polymerizes violently on contact with methylene bisphenyl diisocyanate  
*Hazardous Decomp. Prods.:* On decomp., emits toxic fumes of NO<sub>x</sub>  
NFPA: Health 1; Flammability 2; Reactivity 0  
*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight  
*Uses:* Solvent for liqs., gases, in vinyl resins, acetylene, butadiene, acid gases, paints, paint strippers, cleaners, zinc electroplating, acrylic fiber

spinning; mfg. of polyacrylic fibers, butadiene, pharmaceuticals, dyes, petroleum prods.; organic synthesis; carrier for gases; reagent; extraction solvent for aromatics; petroleum anti-icing additive; process solvent; catalyst in carboxylation reactions; in food-pkg. adhesives; adjuvant in silicides in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.300

*Manuf./Distrib.:* AMRESO; Aceto; Air Prods.; Aldrich; Allchem Ind.; Ashland; BASF; Baychem; Brown; Browning; Chemcentral; Coyne; DuPont; Fluka; Great Western; Haltermann Prods. UK; Harcross; Houghton Chem.; J.T. Baker; Kessler; Mallinckrodt Baker; Monomer-Polymer & Dajac Labs; Nissan Chem. Ind.; Romil Ltd; Ruger; Sigma; Spectrum Quality Prods.; UCB; Van Waters & Rogers; Whyte Chems. Ltd

**N,N-Dimethylformamide.** See Dimethyl formamide

**Dimethylformcarbothialdine.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazono-2-thione

#### Dimethyl glutarate

CAS 1119-40-0; EINECS/ELINCS 214-277-2

*Synonyms:* Dimethyl pentanedioate; Pentanedioic acid, dimethyl ester

*Empirical:* C<sub>7</sub>H<sub>12</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>OCO(CH<sub>2</sub>)<sub>3</sub>COOCH<sub>3</sub>

*Properties:* Colorless liq.; sol. in oxygenated solvs.; m.w. 160.17; dens. 1.087 (20/4 C); m.p. -42 C; b.p. 230 C; flash pt. 97 C; ref. index 1.424 (20 C)

*Uses:* Solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins; anti-stat; specialty chemical intermediate

*Manuf./Distrib.:* Aldrich; Ashland; Fluka; Sigma

*Trade Names:* DBE-5

*Trade Names Containing:* DBE; DBE-2, -2SPG; DBE-3; DBE-9

#### 2,6-Dimethyl heptanol-4

CAS 108-82-7; EINECS/ELINCS 203-619-6

*Synonyms:* Diisobutyl carbinol; 2,6-Dimethyl-4-heptanol; 4-Heptanol, 2,6-dimethyl-; s-Nonyl alcohol

*Classification:* Nonaromatic alcohol

*Empirical:* C<sub>9</sub>H<sub>20</sub>O

*Formula:* [(CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</sub>]<sub>2</sub>CH<sub>2</sub>O

*Properties:* Colorless liq.; sol. in alcohol and ether; insol. in water; m.w. 144.29; sp.gr. 0.812; f.p. sets to glass at ≈ -65 C; b.p. 177.2-180 C; flash pt. 66 C; ref. index 1.423 (21 C)

*Toxicology:* LD50 (oral, rat) 3560 mg/kg, (IP, rat) 800 mg/kg, (skin, rabbit) 4600 mg/kg; primary irritant; mild skin/eye irritant; TSCA listed

*Precaution:* Combustible

*Uses:* Surfactants; lubricant additives; rubber chemicals; flotation agents; antifoam; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

*Manuf./Distrib.:* Aldrich; Pfaltz & Bauer

**2,6-Dimethyl-4-heptanol.** See 2,6-Dimethyl heptanol-4

**2,6-Dimethyl-4-heptylphenol (o and p).** See Nonylphenol

**N,N-Dimethyl-N-hexadecylglycine.** See Cetyl betaine

**Dimethyl hexanedioate.** See Dimethyl adipate

**3,5-Dimethyl-1-hexyne-3-ol.** See Dimethyl hexynol

#### Dimethyl hexynol

CAS 107-54-0; EINECS/ELINCS 203-500-9; UN No. 1993 (DOT)

*Synonyms:* 3,5-Dimethyl-1-hexyne-3-ol; 3,5-Dimethyl-1-hexyn-3-ol

*Empirical:* C<sub>8</sub>H<sub>14</sub>O

*Formula:* HC≡CCO(CH<sub>3</sub>)CH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Colorless liq., camphor-like odor; sl. sol. in water; m.w. 126.20; dens. 0.8545 (20/20 C); b.p. 150-151 C; flash pt. 56.6 C; nonionic

*Precaution:* Moderate fire risk

*Uses:* Stabilizer for chlorinated organic compds., surface active agents, intermediate, solvent lubricant; glass cleaner additive; surfactant, wetting agent used for paper coatings, inks, floor polishes, electroplating, glass cleaning; cleaner in silicon wafer industry; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Aldrich

*Trade Names:* Surfynol® 61

**3,5-Dimethyl-1-hexyn-3-ol.** See Dimethyl hexynol

#### Dimethyl hydantoin-formaldehyde polymer

CAS 9065-13-8; 26811-08-5

*Synonyms:* DMHF; Dimethyl hydantoin formaldehyde resin; 5,5-Dimethyl-2,4-imidazolidinedione, polymer with formaldehyde; Formaldehyde, polymer with 5,5-dimethyl-2,4-imidazolidinedione; 2,4-Imidazolidinedione, dimethyl-, polymer with formaldehyde

*Definition:* Resin formed by heating MDM hydantoin

*Empirical:* C<sub>6</sub>H<sub>10</sub>N<sub>2</sub>O<sub>3</sub>

*Formula:* (CH<sub>3</sub>)<sub>2</sub>CN(CH<sub>2</sub>OH)CONHCO

*Properties:* Wh. crystalline solid, odorless; sol. in water, methanol, acetone, MEK, chloroform, methylene chloride, hot glycerol; insol. in hydrocarbons, benzene, xylene, CCl<sub>4</sub>; dens. 1.30; m.p. 110-117 C; soften. pt. 59-80 C

*Uses:* Antimicrobial; film-former; textile and paper finishing; sizing; adhesives; blending agent; aerosol hair sprays; preservative for cosmetics; source of formaldehyde; intermediate

*Manuf./Distrib.:* Lonza

**Dimethyl hydantoin formaldehyde resin.** See Dimethyl hydantoin-formaldehyde polymer

**1,1-Dimethyl-2-hydroxyethylamine.** See Aminomethyl propanol

**N,N-Dimethyl-2-hydroxyethylamine.** See Dimethylethanolamine

**5,5-Dimethyl-2,4-imidazolidinedione, polymer with formaldehyde.** See Dimethyl hydantoin-formaldehyde polymer

#### Dimethyl isophthalate

CAS 1459-93-4; EINECS/ELINCS 215-951-9

*Synonyms:* 1,3-Benzenedicarboxylic acid, dimethyl ester; Isophthalic acid, dimethyl ester

*Empirical:* C<sub>10</sub>H<sub>10</sub>O<sub>4</sub>

*Formula:* C<sub>6</sub>H<sub>4</sub>(COOCH<sub>3</sub>)<sub>2</sub>

*Properties:* Needles; sl. sol. in alcohol; m.w. 194.19; m.p. 66-67 C; b.p. 282 C; flash pt. (COC) 143 C

*Toxicology:* LDLo (IP, mouse) 971 mg/kg; mod. toxic by IP route; primary eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Plasticizer for PVC, PVB, PS, cellulose; chemical intermediate; comonomer for polyarylate resins; perfume fixative

*Manuf./Distrib.:* Aldrich; Fluka; Morflex; Unitex

*Trade Names:* Morflex® 1129

**Dimethylketal.** See Acetone

**Dimethylketone.** See Acetone

**Dimethyl lauramine oxide.** See Lauramine oxide

**Dimethyl laurylamine oxide.** See Lauramine oxide

**Dimethyl myristyl benzylammonium chloride.** See Myristalkonium chloride

**N,N-Dimethyl-N-octadecylbenzenemethanaminium chloride.** See Stearalkonium chloride

**Dimethyloctadecylbenzyl ammonium chloride.** See Stearalkonium chloride

**N,N-Dimethyl-N-octadecyl-1-octadecanaminium chloride.** See Distearyl-dimmonium chloride

#### Dimethylol urea

CAS 140-95-4; EINECS/ELINCS 205-444-0

*Synonyms:* DMU; N,N'-Bis(hydroxymethyl) urea; 1,3-Bishydroxymethyl urea; N,N'-Dihydroxymethylurea; 1,3-Dimethylolurea; Methurol; Oxymethurea

*Empirical:* C<sub>3</sub>H<sub>8</sub>N<sub>2</sub>O<sub>3</sub>

*Formula:* HOCH<sub>2</sub>NHCONHCH<sub>2</sub>OH

*Properties:* Cryst. powd.; sl. formaldehyde odor; very sol. in cold water, hot ethanol, methanol; insol. in ether; m.w. 120.11; m.p. 137-139 C

*Toxicology:* LD50 (oral, rat) 3400 mg/kg; mod. toxic by ing.; irritant to skin; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>

*Uses:* Cotton shrink- and crease-proofing; photographic developers; textile/leather/paper finishes; permanent press fabrics; finishing, drying, sizing; in tanning; pesticide; first stage of urea formaldehyde resins; inc. hardness and fire resist. in plywood; antiseptic; biocide, disinfectant for hospital use; preservative in paints, chain lubricants, polymer and wax dispersions; fungicidal treatment for paper glues, pigment slurries

*Manuf./Distrib.:* Fluka; Sigma

*Trade Names:* Protectol® DMU

## 1,3-Dimethylolurea. See Dimethylol urea

**Dimethyl oxazolidine**

CAS 51200-87-4; EINECS/ELINCS 257-048-2

*Synonyms:* 4,4-Dimethyloxazolidine; Oxazolidine A*Classification:* Heterocyclic compd.*Empirical:* C<sub>5</sub>H<sub>11</sub>NO*Properties:* Sol. in water and oil; m.w. 101.17; dens. 0.942; flash pt. 48 C; ref. index 1.4320*Toxicology:* LD50 (oral, rat) 950 mg/kg, (dermal, rabbit) 1400 mg/kg; irritant; mod. toxic by ing. and skin contact; mildly toxic by inh.; mutagenic data; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>*Uses:* Preservative, biocide, antimicrobial for cosmetics, pharmaceutical topicals, paints and coatings, metalworking fluids, oil field chems., recirculating water systems; emulsifier, corrosion inhibitor, alkaline pH stabilizer for metalworking fluids and aq. systems*Use Level:* 0.05-0.5%*Regulatory:* USA not restricted; Europe listed*Manuf./Distrib.:* Aldrich*Trade Names:* Nuosept® 166

## 4,4-Dimethyloxazolidine. See Dimethyl oxazolidine

**Dimethyl pentanedioate.** See Dimethyl glutarate

## 4-((2,4-Dimethylphenyl) azo)-3-hydroxy-2,7-naphthalenedisulfonic acid, disodium salt. See Acid red 26

**Dimethylpolysiloxane.** See Dimethicone; Polydimethylsiloxane**Dimethylpolysiloxane hydrolyzate.** See Dimethyl siloxane

## 2,2'-((2,2-Dimethyl-1,3-propanediyl) bis (oxymethylene)) bisoxirane. See Neopentyl glycol diglycidyl ether

**N,N-Dimethyl-N-2-propenyl-2-propen-1-aminium chloride, homopolymer.** See Polyquaternium-6**N,N-Dimethyl-N-2-propenyl-2-propen-1-aminium chloride, polymer with 2-propenamides.** See Polyquaternium-7**Dimethyl silicone.** See Dimethicone**Dimethyl siloxane**

CAS 63148-62-9

*Synonyms:* Dimethylpolysiloxane hydrolyzate;  $\alpha$ -Methyl- $\omega$ -methoxypolydimethylsiloxane; Polydimethylsiloxane, methyl end-blocked; Poly (oxy (dimethylsilylene)); Polyoxy (dimethylsilylene),  $\alpha$ -(trimethylsilyl)- $\omega$ -hydroxy; Silicone oil; Silicone oils; Siloxanes and silicones, dimethyl-; Siloxane, dimethyl-;  $\alpha$ -(Trimethylsilyl) poly (oxy (dimethylsilylene))- $\omega$ -methyl;  $\alpha$ -(Trimethylsilyl)- $\omega$ -(trimethylsilyl) oxy*Classification:* Silane*Properties:* Dens. 0.963; b.p. > 140 C (0.002 mm); ref. index 1.4040*Toxicology:* TDLo (subcut., mouse) 120 g/kg; questionable carcinogen; experimental tumorigen; mutagen; TSCA listed*Uses:* Antifoam; release agent in mfg. of medical devices and appliances, food-pkg. materials*Manuf./Distrib.:* Aldrich*Trade Names:* Antifoam FD-62; Antifoam FD-82; Formasil® 45**Dimethylsiloxane/glycol copolymer.** See Dimethicone copolyol**Dimethyl stearyl benzyl ammonium chloride.** See Stearalkonium chloride**Dimethyl succinate**

CAS 106-65-0; EINECS/ELINCS 203-419-9; FEMA 2396

*Synonyms:* Butanedioic acid, dimethyl ester; Dimethyl butanedioate; Methyl succinate; Succinic acid, dimethyl ester*Empirical:* C<sub>8</sub>H<sub>10</sub>O<sub>4</sub>*Formula:* CH<sub>3</sub>OCOCH<sub>2</sub>CH<sub>2</sub>COOCH<sub>3</sub>*Properties:* Colorless liq., ethereal winey odor; sol. 8 g/l in water; m.w. 146.14; dens. 1.119 (20/4 C); m.p. 16-19 C; b.p. 190-193 C; flash pt. 90 C; ref. index 1.419*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; sl. toxic by ing. and skin contact; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors*Uses:* Light and heat stabilizer for polyolefins, ABS polymer systems, flexible PVC, food pkg.; emollient; syn. flavoring agent for foods and pharmaceuticals; solvent for coatings, cleaners, inks, textile lubricants, urethane prod.; plasticizer for flexible thermoset polyester; polymer intermediate for polyester polyols for urethanes, wet-str. paper resins, polyester resins;

specialty chemical intermediate

*Use Level:* 1.0-100 ppm (nonalcoholic beverages), 5.0 ppm (ice cream, ices, chewing gum), 15 ppm (candy, baked goods)*Regulatory:* FDA 21CFR §172.515; FEMA GRAS*Manuf./Distrib.:* Aldrich; Ashland; DSM Chem. N. Am.; DSM Chemie Linz GmbH; DuPont; Fluka; Penta Mfg.; Schweizerhall; Sigma*Trade Names:* DBE-4*Trade Names Containing:* DBE; DBE-2, -2SPG; DBE-3; DBE-9**N,N-Dimethyl-N-tetradecylbenzenemethanaminium chloride.** See Myristalkonium chloride**3,5-Dimethyltetrahydro-1,3,5,2H-thiadiazine-2-thione.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione**3,5-Dimethyl-1,3,5,2H-tetrahydrothiadiazine-2-thione.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione**3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione**

CAS 533-74-4; EINECS/ELINCS 208-576-7

*Synonyms:* DMTT; Carbothaldine; Dazomet; Dimethylformocarbothaldine; 3,5-Dimethyltetrahydro-1,3,5,2H-thiadiazine-2-thione; 3,5-Dimethyl-1,3,5,2H-tetrahydrothiadiazine-2-thione; Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione; Tetrahydro-3,5-dimethyl-1,3,5-thiadiazine-2-thione; 2H-1,3,5-Thiadiazine-2-thione, tetrahydro-3,5-dimethyl-; 2-Thio-3,5-dimethyltetrahydro-1,3,5-thiadiazine*Classification:* Organosulfur compd.*Empirical:* C<sub>5</sub>H<sub>10</sub>N<sub>2</sub>S<sub>2</sub>*Properties:* Wh. to gray cryst. solid, weakly pungent odor; sl. sol. in water, alcohol; sol. in acetone; m.w. 162.29; m.p. 100 C*Toxicology:* LD50 (oral, rat) 363 mg/kg, (skin, rat) 2260 mg/kg, (IP, rat) 87 mg/kg; TLV 10 mg/m<sup>3</sup>; toxic by ingestion, inhalation, IP routes; skin and severe eye irritant; TSCA listed*Environmental:* LC50 (trout) 0.16 mg/l; LD50 (bobwhite quail) 415 mg/kg; nontoxic to bees; dec. in moist soil to yield fumigant gas*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub> and SO<sub>x</sub>*Uses:* Fungicide, bactericide, slimicide, microbicide for paint, adhesives, agric., latex, mineral slurries, inks, metalworking fluids, leather, glue casein, starch, paper, water treatment, soil treatment, other industries; soil fumigant; preservative in pigment slurries, food-pkg. adhesives and food-contact paper/paperboard; slimicide in food-contact paper/paperboard; preservative in food-contact animal glues*Regulatory:* FDA 21CFR §175.105, 176.230, 176.300, 178.3120; SARA reportable*Manuf./Distrib.:* Aldrich; BASF*Trade Names:* Amerstat® 233; Busan® 1058; Busan® 1059; Busan® 1059-W; Metasol® RB-20; Nuosept® 120; Nuosept® S; Protectol® TOE; Protectol® TOE Granules; Troysan® 142**Dimeticone.** See Dimethicone**DINA.** See Diisononyl adipate**Dinonyl adipate.** See Diisononyl adipate**Dinonylphenol ethoxylate.** See Nonyl nonoxynol**DINP.** See Diisononyl phthalate**Diocetadecyl dimethyl ammonium chloride.** See Distearaldimonium chloride**O,O'-Diocetadecylpentaerythritol bis (phosphite).** See Distearyl pentaerythrityl diphosphite**Diocetyl ammonium sulfosuccinate***Synonyms:* Ammonium di (2-ethylhexyl) sulfosuccinate*Properties:* Anionic*Uses:* Wetting agent, emulsifier, demulsifier, stabilizer in water treatment and petrol. processing*Manuf./Distrib.:* Venchem*Trade Names:* Octowet 70A**Diocetyl fumarate homopolymer***Uses:* In paper/paperboard in contact with dry food*Regulatory:* FDA 21CFR §176.180**Diocetyl maleate**

CAS 2915-53-9

*Synonyms:* DOM; Bis (1-octyl) maleate; 2-Butenedioic acid, (Z)-, dioctyl ester; Di-N-octyl maleate*Empirical:* C<sub>20</sub>H<sub>36</sub>O<sub>4</sub>

**Properties:** M.w. 340.56

**Toxicology:** LD50 (oral, rat) 14,200 mg/kg, (skin, rabbit) 14 g/kg; mildly toxic by ing.; TSCA listed

**Precaution:** Combustible

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Intermediate; emollient, fragrance coupler, solubilizer for benzophenone-3, antitackifier in antiperspirants, conditioner for hair prods.; in copolymerization of PVC and vinyl acetates; modifier, plasticizer for vinyl resins; also in latex paints; surface-active agent; cleanser and wax solvent

**Manuf./Distrib.:** Allchem Ind.; Aristech; BASF; Celanese; DSM Chemie Linz GmbH; Finetex; Monomer-Polymer & Dajac Labs; NOF; Unitek; Velsicol; Whyte Chems. Ltd

**Trade Names:** Octomer DOM

**Di-N-octyl maleate.** *See* Dioctyl maleate

### Dioctyl maleate homopolymer

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Dioctyl phthalate.** *See* s-Dioctyl phthalate

### s-Dioctyl phthalate

CAS 117-81-7

**Synonyms:** BEHP; DEHP; 1,2-Benzenedicarboxylic acid, bis (2-ethylhexyl) ester; Bis (2-ethylhexyl)-1,2-benzenedicarboxylate; Bis (2-ethylhexyl) phthalate; Di (2-ethylhexyl) orthophthalate; Di (2-ethylhexyl) phthalate; Dioctyl phthalate; Di-s-octyl phthalate; Ethylhexyl phthalate; 2-Ethylhexyl phthalate; Phthalic acid, bis (2-ethylhexyl) ester; Phthalic acid, dioctyl ester

**Definition:** Diester of 2-ethylhexyl alcohol and phthalic acid

**Empirical:** C<sub>24</sub>H<sub>38</sub>O<sub>4</sub>

**Formula:** C<sub>8</sub>H<sub>17</sub>[COOCH<sub>2</sub>CH(C<sub>2</sub>H<sub>5</sub>)C<sub>4</sub>H<sub>9</sub>]<sub>2</sub>

**Properties:** Lt. colored liq.; odorless; misc. with min. oil; insol. in water; m.w. 390.56; dens. 0.985 (20/4 C); vapor pressure 1.32 mm Hg (20 C); pour pt. -46 C; b.p. 231 C (5 mm); flash pt. 199 C; ref. index 1.486 (20 C)

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; STEL 10 mg/m<sup>3</sup>; LD50 (oral, rat) 30 g/kg, (IP, rat) 30,700 mg/kg, (IV, rat) 250 mg/kg, (skin, rabbit) 25 g/kg; poison by IV route; GI effects on ing.; primary irritant; may cause irritation of eyes and mucous membranes on overexposure; experimental teratogen; tumorigen, mutagen, reproductive effector; confirmed carcinogen; TSCA listed

**Precaution:** Combustible

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Uses:** Plasticizer for resins, elastomers, flexible vinyl prods., adhesives, PVA emulsion paints, lacquers, food-contact coatings; replacement for PCBs in dielec. fluids for electrical capacitors; nonreactive epoxy resin diluent; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; flow promoter in acrylic food pkg.; in cellophane for food pkg.; surf. lubricant in mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.380, 175.390, 176.170, 176.210, 177.1010, 177.1200, 177.1210, 177.1400, 177.2600, 178.3120, 178.3910, 181.22, 181.27; FDA approved for ophthalmics, injectables

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Ashland; Chisso Am.; Eastman; Fluka; Spectrum Quality Prods.

**Di-s-octyl phthalate.** *See* s-Dioctyl phthalate

### Dioctyl sodium sulfosuccinate

CAS 577-11-7; 1369-66-3; EINECS/ELINCS 209-406-4

**Synonyms:** DSS; NaDOSS; Bis (2-ethylhexyl) sodium sulfosuccinate; 1,4-Bis (2-ethylhexyl) sulfolbutanedioic acid sodium salt; Dioctyl sulfosodiumsuccinate; Dioctyl sulfosuccinate sodium salt; Docusate sodium; 2-Ethylhexyl sulfosuccinate sodium; Sodium bis (2-ethylhexyl) sulfosuccinate; Sodium 1,4-bis(2-ethylhexyl) sulfosuccinate; Sodium di(2-ethylhexyl) sulfosuccinate; Sodium dioctyl sulfosuccinate; Sulfolbutanedioic acid 1,4-bis(2-ethylhexyl) ester sodium salt; Sulfosuccinic acid 1,4-bis(2-ethylhexyl) ester sodium salt

**Definition:** Sodium salt of the diester of 2-ethylhexyl alcohol and sulfosuccinic acid

**Empirical:** C<sub>20</sub>H<sub>37</sub>NaO<sub>5</sub>S

**Formula:** C<sub>8</sub>H<sub>17</sub>OOCCH<sub>2</sub>CH(SO<sub>3</sub>Na)COOC<sub>8</sub>H<sub>17</sub>

**Properties:** Wh. wax-like solid, char. octyl alcohol odor; slowly sol. in water; freely sol. in alcohol, glycerol, CCl<sub>4</sub>, acetone, xylene, hexane; m.w. 445.63; m.p. 173-179 C; anionic

**Toxicology:** LD50 (oral, rat) 1900 mg/kg, (IP, rat) 590 mg/kg, (IV, mouse) 60 mg/kg; mod. toxic by ing., IP routes; poison by IV route; skin, severe eye irritant; TSCA listed

**Hazardous Decom. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

**HMS:** Health 2; Flammability 1; Reactivity 0

**Storage:** Hygroscopic

**Uses:** Food additive; emulsifier, processing aid in sugar industry; stabilizer for hydrophilic colloids; wetting agent, dispersant, emulsifier in cosmetic, pharmaceutical, food, emulsion polymerization, and industrial applics.; adjuvant in tableting; emulsifier wax for polish, firefighting, germicide, metal cleaner, mold release agent; dispersant in paints, inks, paper, photography; solubilizer (foods); processing aid; rust preventative; soldering flux; wallpaper removal; water treatment; surfactant in food-contact coatings; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; emulsifier in food pkg.

**Use Level:** Limitation 9 ppm (finished food), 75 ppm (cocoa beverage), 15 ppm (gelatin dessert), 10 ppm (beverage/fruit drinks), 25 ppm (molasses), 0.5% (gums)

**Regulatory:** FDA 21CFR §73.1, with cocoa, 131.130, 131.132, 133.124, 133.133, 133.134, 133.162, 133.178, 133.179, 163.114, 163.117, 169.115, 169.150, 172.520, 172.808, 172.810, 175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.2800, 178.1010, 178.3400; USDA 9 CFR §318.7, 381.147; FDA approved for injectables (IM), orals, topicals; USP/NF, BP compliance

**Manuf./Distrib.:** Alco; Aldrich; Ashland; Atlas Refinery; Brotherton Ltd; Burlington Chem.; Chemax; Cognis/Chems. Group; Cytec Ind.; DeForest Enterprises; EM Ind.; Eastern Color & Chem.; Finetex; Fluka; Hart Prods.; Independent Chem.; Lambert Tech.; McIntyre; Norman, Fox; Rhodia HPCII; Ruger; Scher; Sigma; Spectrum Quality Prods.; Thornley; Uniqema; Universal Preserv-A-Chem; Venchem

**Trade Names:** Aerosol® OT-75%; Aerosol® OT-100%; Aerosol® OT-S; Drewfax® 0007; Geroxon® DOS; Geroxon® SDS; Octowet 40; Octowet 55; Octowet 60; Octowet 60-I; Octowet 65; Octowet 70; Octowet 70BC; Octowet 70PG; Octowet 75; Octowet 75E; Pentex® 99; Rapisol B-30, B-80, B-90, C-70; Rewopol® SBDO 70; Serwet® WH 170; Surfonic® DOS-70MS

**Trade Names Containing:** Aerosol® OT-70 PG; Aerosol® OT-75-PG; Aerosol® OT-B; Ancowet S-60; Ancowet S-70PG; DeWET SDO-70PG; DeWET SDO-75E; Disponil® SUS IC 865; Disponil® SUS IC 875; Geroxon® 99; Geroxon® SS-O-70PG; Geroxon® WT-27; Monawet MO-70; Monawet MO-70E; Monawet MO-70R; Monawet MO-70S; Monawet MO-75E; Monawet MO-84R2W; Monawet MO-85P; Octowet 70D; Pentasol DO-70PG; SER-AD® FA 620

**Dioctyl sulfosodiumsuccinate.** *See* Dioctyl sodium sulfosuccinate  
**Dioctyl sulfosuccinate sodium salt.** *See* Dioctyl sodium sulfosuccinate

**Diolamine.** *See* Diethanolamine

**N,N'-Dioleolethylenediamine.** *See* Ethylene dioleamide

**DIOP.** *See* Diisooctyl phthalate

**Dioxazine violet RL.** *See* Pigment violet 23

**9,10-Dioxoanthracene.** *See* Anthraquinone

**1,3-Dioxolan-2-one, 4-methyl.** *See* Propylene carbonate

**o-Dioxybenzene.** *See* Pyrocatechol

**DIPA.** *See* Diisopropanolamine

### Dipentaerythrityl pentaacrylate

**Uses:** Highly reactive monomer exhibiting exc. chem. and abrasion resist.; curing agent; for pigmented systems to improve cure and wetting characteristics

**Manuf./Distrib.:** Monomer-Polymer & Dajac Labs

**Trade Names:** SR 399

**o-Diphenol.** *See* Pyrocatechol

### Diphenylamine

CAS 122-39-4; EINECS/ELINCS 204-539-4

**Synonyms:** DPA; Anilinobenzene; CI 10355; N,N-Diphenylamine; N-

## N,N-Diphenylamine

Phenylaniline; N-Phenylbenzeneamine

*Classification:* Aromatic sec. amine

*Empirical:* C<sub>12</sub>H<sub>11</sub>N

*Formula:* C<sub>6</sub>H<sub>5</sub>NHC<sub>6</sub>H<sub>5</sub>

*Properties:* Very pale tan-amber to brn. cryst. solid; discolors in light; floral odor; very sol. in ethanol, propanol, CCl<sub>4</sub>; sol. in benzene, ether, glacial acetic acid, CS<sub>2</sub>, oxygenated and aromatic solvs.; pract. insol. in water; m.w. 169.24; dens. 1.159 (20°C); vapor pressure 1 mm Hg (108.3°C); m.p. 52.9°C; b.p. 302°C; flash pt. (CC) 153°C

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup>; OSHA PEL-TWA 10 mg/m<sup>3</sup>; LD50 (oral, rat) 2000 mg/kg; toxic by ing.; may be fatal if inhaled, absorbed thru skin, or swallowed; experimental teratogen; TSCA listed

*Precaution:* Combustible exposed to heat or flame; may form explosive dust-air mixts.; can react violently with hexachloromelamine, trichloromelamine; incompat. with strong oxidizers, strong acids; avoid light, high dust concs., static discharge

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>; heated to decomp., emits highly toxic fumes of NO<sub>x</sub>

NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* Light-sensitive; store in cool, dry, well-ventilated area out of direct sunlight, away from heat and ignition sources, in tightly closed, labeled containers

*Uses:* Insecticide; antioxidant, stabilizer for plastics and solid rocket propellants; antioxidant for lubricants; rubber antioxidant and accelerator; mfg. of pharmaceuticals, pesticides, explosives, and dyes; veterinary medicine; storage preservation of apples; stabilizer for nitrocellulose; analytical chemistry; antioxidant for fatty-based coating adjuvants in paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §176.170, 176.180

*Manuf./Distrib.:* Aceto; Aristech; Bencorp Int'l.; GFS; Kessler; Mitsui & Co. USA; Rambach; Spectrum Quality Prods.; Uniroyal; Wall Chem.

**N,N-Diphenylamine.** See Diphenylamine

**N,N-Diphenyl-1,4-benzenediamine.** See N,N'-Diphenyl-p-phenylenediamine

**Diphenyl blue 2B.** See Direct blue 6

**Diphenyl brown.** See Direct brown 2

**Diphenyl t-butylphenyl phosphate.** See t-Butylphenyl diphenyl phosphate

**Diphenyl dark green.** See Direct green 1

### Diphenyldimethoxysilane

CAS 6843-66-9

*Empirical:* C<sub>14</sub>H<sub>16</sub>O<sub>2</sub>Si

*Formula:* (C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>Si(OCH<sub>3</sub>)<sub>2</sub>

*Properties:* Liq.; sol. in acetone, benzene, methanol; m.w. 244.4; dens. 1.080 (25°C); b.p. 191 (53 mm); flash pt. 120°C; ref. index 1.5404

*Toxicology:* TSCA listed

*Precaution:* Combustible

HMS: Health 3; Flammability 1; Reactivity 1

*Uses:* Treatment of powders, glass, paper, and fabrics; coupling agent, chem. intermediate, blocking agent, release agent, lubricant, primer, reducing agent; treatment of powders, glass, paper, and fabrics

*Manuf./Distrib.:* Fluka; Gelest

**4,4'-Diphenylenediamine.** See Benzidine

**1,2-Diphenylethane-1,2-dione, dimethyl ketal.** See 2,2-Dimethoxy-2-phenylacetophenone

### Diphenylguanidine

CAS 102-06-7; EINECS/ELINCS 203-002-1

*Synonyms:* DPG; N,N'-Diphenylguanidine; 1,3-Diphenylguanidine; sym-Diphenylguanidine; Melaniline

*Empirical:* C<sub>13</sub>H<sub>13</sub>N<sub>3</sub>

*Formula:* HN:C(NHC<sub>6</sub>H<sub>5</sub>)<sub>2</sub>

*Properties:* Wh. powd., bitter taste, sl. odor; sol. in ethanol, CCl<sub>4</sub>, chloroform, hot benzene, hot toluene, oxygenated and chlorinated solvs.; very sl. sol. in water; m.w. 211.29; dens. 1.13; m.p. 147°C; dec. > 170°C

*Toxicology:* LD50 (oral, rat) 375 mg/kg, (IP, rat) 75 mg/kg; toxic; poison by ing., IP and other routes; eye irritant; possible sensitizer; experimental teratogen and reproductive effects; tumorigen; mutagenic data; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>

*Uses:* Basic rubber accelerator; accelerator for food-contact rubber articles for repeated use; primary standard for acids

*Regulatory:* FDA 21CFR §177.2600

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Chemapol Usa; Cytec Ind.; Fabriche; Fluka; GP Chems.; Howard Hall; K3; Monsanto

*Trade Names:* DPG; Perkacit® DPG

**1,3-Diphenylguanidine.** See Diphenylguanidine

**N,N'-Diphenylguanidine.** See Diphenylguanidine

**sym-Diphenylguanidine.** See Diphenylguanidine

**Diphenyl ketone.** See Benzophenone

**Diphenyl methanone.** See Benzophenone

**o-Diphenylol.** See o-Phenylphenol

### N,N'-Diphenyl-p-phenylenediamine

CAS 74-31-7; EINECS/ELINCS 200-806-4

*Synonyms:* DPPD; 1,4-Bis(phenylamino)benzene; N,N-Diphenyl-1,4-benzenediamine; 1,4-Dianilinobenzene

*Classification:* Aromatic organic compd.; alkylated p-phenylenediamine

*Empirical:* C<sub>18</sub>H<sub>16</sub>N<sub>2</sub>

*Formula:* (C<sub>6</sub>H<sub>5</sub>NH)<sub>2</sub>C<sub>6</sub>H<sub>4</sub>

*Properties:* Gray powd.; insol. in water; sol. in acetone, benzene, monochlorobenzene, isopropyl acetate, DMF, ether, chloroform, ethyl acetate, glacial acetic acid; m.w. 260.36; dens. 1.28; m.p. 145-152°C; b.p. 220-225°C (0.5 mm)

*Toxicology:* LD50 (oral, rat) 2370 mg/kg, (IP, mouse) 300 mg/kg; poison by intravenous, intraperitoneal routes; moderately toxic by ingestion; eye irritant; weak allergen; suspected carcinogen; TSCA listed

*Precaution:* Combustible; incompat. with oxidizing materials; emits toxic fumes of NO<sub>x</sub>

*Uses:* Flex-resistant antioxidant/antiozonant in rubbers, polyolefins; antioxidant/antiozonant in lubricants; stabilizer; polymerization inhibitor; retards copper degradation; intermediate for dyes, drugs, plastics, detergents; in food-pkg. adhesives; polymerization inhibitor in sodium 2-sulfoethyl methacrylate for food pkg.; antioxidant/antiozonant in food-contact rubber articles for repeated use; in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.2600

*Manuf./Distrib.:* Aldrich; Fluka; R. T. Vanderbilt; Skymart Enterprises; Sumitomo Chem.; Uniroyal

**4-Diphenylphenyl ketone.** See p-Phenylbenzophenone

**Diphenyl red 3BS.** See Direct red 39

**Diphenyl scarlet 3BS.** See Direct red 39

**Diphosphoric acid tetrapotassium salt.** See Tetrapotassium pyrophosphate

**Diphosphoric acid tetrasodium salt.** See Tetrasodium pyrophosphate

### Dipotassium ethylenebis dithiocarbamate

*Uses:* Sulficide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**Dipotassium hydrogen orthophosphate.** See Potassium phosphate dibasic

**Dipotassium hydrogen phosphate.** See Potassium phosphate dibasic

**Dipotassium monophosphate.** See Potassium phosphate dibasic

**Dipotassium orthophosphate.** See Potassium phosphate dibasic

**Dipotassium persulfate.** See Potassium persulfate

**Dipotassium phosphate.** See Potassium phosphate dibasic

**Dipping acid.** See Sulfuric acid

**Dipropanediol dibenzoate.** See Dipropylene glycol dibenzoate

**Di-2-propenyl ester, 1,2-benzenedicarboxylic acid.** See Diallyl phthalate

**Dipropyl-2,2'-dihydroxyamine.** See Diisopropanolamine

**Dipropylene carbonate.** See Propylene carbonate

### Dipropylene glycol

CAS 110-98-5; EINECS/ELINCS 203-821-4

*Synonyms:* DPG; Bis (hydroxypropyl) ether; Bis (2-hydroxypropyl) ether; 2,2'-Dihydroxydipropyl ether; 2,2'-Dihydroxyisopropyl ether; Diisopropylene glycol; Di-1,2-propylene glycol; Methyl-2(methyl-2)oxybispropanol; 1,1'-Oxybis-2-propanol; 1,1'-Oxydi-2-propanol; 1,1'-Oxydiopropan-2-ol; 2-Propanol, 1,1'-oxydi-

*Classification:* Nonaromatic ether; glycol

*Empirical:* C<sub>6</sub>H<sub>14</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>CHOHCH<sub>2</sub>OCH<sub>2</sub>CHOHCH<sub>3</sub>

*Properties:* Colorless sl. visc. liq., nearly odorless; very sol. in diethyl ether; sol. in ethanol, toluene, water; misc. with oxygenated solvs.; m.w. 134.18; dens. 1.023; vapor pressure 1 mm (73.8°C); b.p. 233°C; flash pt. (OC) 124°C; ref. index 1.4410

*Toxicology:* LD50 (oral, rat) 14,850 mg/kg, (IP, mouse) 10 g/kg, (IV, rat) 5800

mg/kg, (skin, rabbit) > 20 ml/kg; mildly toxic by ing.; primary skin and eye irritant; may cause somnolence, tremors, kidney/ureter/bladder changes; mutagenic data; TSCA listed

**Precaution:** Combustible when exposed to heat and flame; can react vigorously with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 1; Reactivity 0

**Storage:** Hygroscopic

**Uses:** Solvent in hydraulic brake fluids, cutting oils, textile lubricants, printing inks; aromatics extraction solvent; comonomer in unsat. polyester and alkyd resins; reinforced plastics; plasticizers; in paints; cosmetics; in food-pkg. adhesives; fragrance fixative/diluent; petroleum anti-icing additive; PU chain extender; surfactant for unsat. polyester resins, paints; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.200, 178.3910

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich; Alfa Aesar; Allchem Ind.; Arch Chems./Perf. Urethanes; Ashland; Bayer; Berje; Brown; C.P. Hall; Chemcentral; Coyne; Dow; Eastman; Fluka; G.J. Chem.; Great Western; Houghton Chem.; Huntsman; Lyondell; PMC Spec.; Penta Mfg.; Pharmco Prods.; Ruger; Samson; Sunnyside; TCI Am.; Union Carbide; Van Waters & Rogers; Whyte Chems. Ltd

**Trade Names Containing:** Proxel® DL; Proxel® GXL; Surfynol® DF-110D

**Di-1,2-propylene glycol.** See Dipropylene glycol

### Dipropylene glycol dibenzoate

CAS 94-51-9; 27138-31-4; EINECS/ELINCS 202-340-7; 248-258-5

**Synonyms:** Benzoic acid diester with dipropylene glycol; Benzoic acid-n-dipropylene glycol diester; Dibenzoyl dipropylene glycol ester; Dipropanediol dibenzoate; 3,3'-Oxydi-1-propanol dibenzoate; 3,3'-Oxydi-1-propanol dibenzoate; Oxydipropyl dibenzoate; POP (2) dibenzoate; PPG-2 dibenzoate; PPG (2) dibenzoate

**Definition:** Polyoxypropylene glycol diester of benzoic acid

**Empirical:** C<sub>20</sub>H<sub>22</sub>O<sub>5</sub>

**Properties:** Lt.-colored liq.; mild ester odor; sol. in aliphatic and aromatic solvs.; insol. in water; m.w. 342.42; dens. 1.1271 (20/20 C); pour pt. -19 C; m.p. 200 C; b.p. 250 C (10 mm)

**Toxicology:** LD50 (oral, rat) 9800 mg/kg; mildly toxic by ingestion

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Plasticizer for cellulose, PVC, plastisols, PS, PVB, PVAc adhesives, VCA, castable PU; latex and lacquer coating applics.; enhances film formation and surf. wetting in PVAc homopolymer emulsion adhesives; emollient; plasticizer for PVAc coatings for food-contact paper/paperboard; plasticizer for polymers in paper/paperboard in contact with dry food; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 176.170

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Ashland; Haltermann GmbH; Kalama; Unitex; Velsicol

**Trade Names:** Benzoflex® 9-88

**Trade Names Containing:** Benzoflex® 50

**Dipropylene glycol methyl ether.** See PPG-2 methyl ether

**Dipropylene glycol monomethyl ether.** See PPG-2 methyl ether

**Dipropylene glycol monooleate.** See PPG-2 oleate

**Dipropylene glycol monostearate.** See PPG-2 stearate

**Dipropyl methane.** See Heptane

### Direct black 38

CAS 1937-37-7; EINECS/ELINCS 217-710-3

**Synonyms:** 4-Amino-3-((4'-((2,4-diaminophenyl) azo) (1,1'-biphenyl)-4-yl) azo)-5-hydroxy-6-(phenylazo)-2,7-naphthalenedisulfonic acid, disodium salt; Brilliant chrome leather black H; Chloramine black C; Chloramine carbon black S; Chlorazol black E; Chlorazole black E; Chrome leather black E; CI 30235; CI direct black 38; CI direct black 38, disodium salt; Columbia black EP; Diamine deep black EC; Diazine black E; Direct black A; Meta black; 2,7-Naphthalenedisulfonic acid, 4-amino-3-((4'-((2,4-diaminophenyl) azo) (1,1'-biphenyl)-4-yl) azo)-5-hydroxy-6-(phenylazo)-, disodium salt; Paper black T

**Empirical:** C<sub>34</sub>H<sub>28</sub>N<sub>6</sub>O<sub>7</sub>S<sub>2</sub> • 2Na

**Properties:** Gray-blk. to blk. microcryst. powd.; mod. sol. in Cellosolve, ethylene glycol monoethyl ether; sol. 1-5 mg/ml in water, DMSO; sol. < 1 mg/ml in 95% ethanol, methanol, acetone, toluene; insol. in other org. solvs.; m.w. 781.78; m.p. dec.; b.p. dec.

**Toxicology:** LD50 (oral, rat) 7600 mg/kg; may be absorbed thru skin; irritating to eyes; may cause skin irritation; may be harmful by inh., ing., or skin absorp.; may cause urine changes, bladder tumors, wt. loss, etc.; experimental tumorigen, carcinogen; mutagenic data; target organ: liver; TSCA listed

**Precaution:** Probably combustible; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of CO, CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, disodium oxide

**Storage:** Store under ambient temps.; keep away from oxidizing materials

**Uses:** Dye for fabric, leather, cotton, cellulosic materials, paper, wool, silk, hog's hair, plastics, vegetable-ivory buttons, wood flour used as a resin filler, acetate, and nylon; stain for wood and biological materials; colorant in aq. inks, artists' colors; reportedly as colorant in hair dye

**Regulatory:** SARA §313 reportable

**Manuf./Distrib.:** Acros Org.; Alfa Aesar; Fluka; ICN Biomed. Research Prods.; Pfaltz & Bauer; Sigma; TCI Am.

### Direct black 80

CAS 8003-69-8

**Synonyms:** 6-((7-Amino-1-hydroxy-3-sulfo-2-naphthalenyl) azo)-3-(((4-amino-6 (or 7)-sulfo-1-naphthalenyl) azo) phenyl) azo)-4-hydroxy-2-naphthalenesulfonic acid, trisodium salt; CI 31600; CI direct black 80; Diazophenyl black BW; 2-Naphthalenesulfonic acid, 6-((7-amino-1-hydroxy-3-sulfo-2-naphthalenyl) azo)-3-(((4-amino-6 (or 7)-sulfo-1-naphthalenyl) azo) phenyl) azo)-4-hydroxy-, trisodium salt; Phenazo black OB

**Empirical:** C<sub>36</sub>H<sub>26</sub>N<sub>6</sub>O<sub>11</sub>S<sub>3</sub> • 3Na

**Properties:** Bluish-blk. to blk. powd.; odorless; sol. 1-10 mg/ml in water; sol. < 1 mg/ml in DMSO, 95% ethanol, acetone; m.w. 911.81; m.p. > 300 C

**Precaution:** Probably combustible; incompat. with oxidizing agents, reducing agents

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO, SO<sub>x</sub>

**Storage:** Store under ambient temps.

**Uses:** In leather dyeing; in beater dyeing on paper

**Direct black A.** See Direct black 38

**Direct black green.** See Direct green 1

### Direct blue 6

CAS 2502-46-2

**Synonyms:** 3,3'-((4,4'-Biphenylene) bis (azo)) bis (5-amino-4-hydroxy)-2,7-naphthalenedisulfonic acid, tetrasodium salt; Blue 2B; Chloramien blue 2B; Chrome leather blue 2B; CI 22610; CI direct blue 6; CI direct blue 6, tetrasodium salt; Diamine blue 2B; Diazine blue 2B; Diazol blue 2B; Diphenyl blue 2B; Direct blue A; Indigo blue 2B; Phenamine blue 2B; Sodium diphenyl-4,4'-bis-azo-2''-8''-amino-1''-naphthol-3'',6''-disulfonate

**Empirical:** C<sub>32</sub>H<sub>20</sub>N<sub>6</sub>O<sub>14</sub>S<sub>4</sub> • 4Na

**Properties:** Dk. blue microcryst. powd.; sol. 5-10 mg/ml in water; sol. 1-5 mg/ml in DMSO; sol. < 1 mg/ml in 95% ethanol, acetone; sl. sol. in ethanol, Cellosolve; insol. in other org. solvs.; m.w. 932.78; m.p. dec.; b.p. dec.

**Toxicology:** Absorbed thru skin; experimental carcinogen, neoplastigen, tumorigen, teratogen; suspected human carcinogen; other experimental reproductive effects; mutagenic data

**Precaution:** Probably combustible; incompat. with strong oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NaO<sub>x</sub>, SO<sub>x</sub>

**Storage:** Store under ambient temps.; keep away from oxidizing materials

**Uses:** Dye for fabric, leather, cotton, cellulosic materials, paper, silk, wool and nylon fibers; biological stain; prod. of aq. printing inks; reportedly used in hair dyes

**Regulatory:** Not presently used in cosmetic industry

**Manuf./Distrib.:** Pfaltz & Bauer; TCI Am.

### Direct blue 53

CAS 314-13-6; EINECS/ELINCS 206-242-5

**Synonyms:** Azovan blue; 4,4'-Bis [7-(1-amino-8-hydroxy-2,4-disulfo) naphthylazo]-3,3'-bitolyl, tetrasodium salt; 4,4'-Bis (1-amino-8-hydroxy-2,4-disulfo-7-naphthylazo)-3,3'-bitolyl, tetrasodium salt; CI 23860; CI di-



## Direct blue A

rect blue 53; CI direct blue 53, tetrasodium salt; Diamine sky blue FF; 6,6'-[(3,3'-Dimethyl [1,1'-biphenyl]-4,4'-diyl) bis (azo)] bis [4-amino-5-hydroxy-1,3-naphthalenedisulfonic acid] tetrasodium salt; Dye Evans blue; Evans blue; Evans blue dye; 1,3-Naphthalenedisulfonic acid, 6,6'-[(3,3'-dimethyl-4,4'-biphenylene) bis (azo)] bis (4-amino-5-hydroxy-, tetrasodium salt

*Empirical:*  $C_{24}H_{24}N_6O_{14}S_4 \cdot 4Na$

*Properties:* Bluish cryst. with grnsh.-bronze luster or blk. powd.; m.w. 960.83; sol. in acids, alkalis; sol. 10-50 mg/ml in water; sol. 1-10 mg/ml in DMSO; sol. < 1 mg/ml in 95% ethanol, acetone; insol. in  $CCl_4$ , chloroform, ether, benzene

*Toxicology:* LD50 (IP, mouse) 340 mg/kg; LDLo (IV, rat) 5 g/kg; poison by IP route; mod. toxic by IV route; harmful by inh., ing., skin contact; may cause irritation; may cause liver tumors, leukemia; experimental carcinogen, teratogen, reproductive effector; equivocal tumorigen; mutation data; target organ: liver; TSCA listed

*Precaution:* Probably combustible; can react with strong reducing and oxidizing agents

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of CO,  $CO_2$ ,  $SO_x$ ,  $Na_2O$ ,  $NO_x$ ; emits toxic fumes under fire conditions

*Storage:* Store refrigerated; keep tightly closed; keep away from oxidizers

*Uses:* Diagnostic aid for measurement of blood volume; indicator changing color at pH 10; dyeing textiles, leather, and paper; useful in a simple double-labeling procedure for studying axonal branching

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Alfa Aesar; Dudley; Fisher Scientific; Fluka; ICN Biomed. Research Prods.; J.T. Baker; Pfaltz & Bauer; Sigma; Spectrum Quality Prods.; TCI Am.

**Direct blue A.** See Direct blue 6

## Direct brown 2

CAS 2429-82-5

*Synonyms:* 5-[[4'-[(7-Amino-1-hydroxy-3-sulfo-2-naphthyl) azo] [1,1'-biphenyl]-4-yl] azo]-2-hydroxybenzoic acid, disodium salt; Benzoic acid, 5-((4'-[(7-amino-1-hydroxy-3-sulfo-2-naphthalenyl) azo] (1,1'-biphenyl)-4-yl) azo)-2-hydroxy-, disodium salt; Brown M; Chloramine brown M; Chrome leather brow M; CI 22311; CI direct brown 2, disodium salt; Diamine brown; Diazine brown; Diphenyl brown; Direct fast brown; Phenamine brown MB

*Empirical:*  $C_{29}H_{19}N_5O_7S \cdot 2Na$

*Properties:* Reddish-brn. to dk. brn. powd.; sol. 1-10 mg/ml in water, DMSO; sol. < 1 mg/ml in 95% ethanol, acetone; insol. in most org. solvs.; m.w. 627.54

*Precaution:* Probably combustible

*Storage:* Store refrigerated

*Uses:* Dye for paper and leather

*Manuf./Distrib.:* TCI Am.

**Direct dark green.** See Direct green 1

**Direct fast brown.** See Direct brown 2

## Direct green 1

CAS 3626-28-6

*Synonyms:* Benzo dark green; Chrome leather dark green; CI 30280; CI direct green 1; CI direct green 1, disodium salt; Diamine dark green; Diazine dark green; Diphenyl dark green; Direct black green; Direct dark green; 2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-3-((4'-((4-hydroxyphenyl) azo) (1,1'-biphenyl)-4-yl) azo)-6-(phenylazo)-, disodium salt; Naphthamine dark green B; Pontamine green S

*Empirical:*  $C_{24}H_{23}N_7O_8S_2 \cdot 2Na$

*Properties:* Dull grn. to blk. powd.; sol. 10-50 mg/ml in water; sol. 1-10 mg/ml in DMSO, 95% ethanol; sol. < 1 mg/ml in acetone; m.w. 767.71

*Precaution:* Probably combustible

*Storage:* Store refrigerated

*Uses:* Dye for leather, paper, aq. inks; regenerated cellulose film

**Direct orange 15.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

## Direct red 39

CAS 6358-29-8

*Synonyms:* Benzyl scarlet 3BS; Chloramine red 3B; Chrome leather scarlet 3BS; CI 23630; CI direct red 39; Diamine scarlet 3BA-CF; Diphenyl red 3BS; Diphenyl scarlet 3BS; Direct scarlet 3BS; 8-((4'-((4-Ethoxyphenyl) azo)-3,3'-dimethyl (1,1'-biphenyl)-4-yl) azo)-7-hydroxy-1,3-naphthalene-

disulfonic acid, disodium salt; Phenamine scarlet 3B; Triazol fast scarlet 3B

*Empirical:*  $C_{32}H_{26}N_4O_8S_2 \cdot 2Na$

*Properties:* Dk. red powd.; sol. in conc. sulfuric acid; sol. < 1 mg/ml in water, DMSO, 95% ethanol, methanol, acetone, toluene; m.w. 704.71; m.p. 285 C (dec.)

*Toxicology:* TSCA listed

*Precaution:* Probably combustible

*Storage:* Store at ambient temps.

*Uses:* Dye for wool, silk, acetate, nylon, cotton, leather, paper

*Manuf./Distrib.:* TCI Am.

**Direct scarlet 3BS.** See Direct red 39

**Disodium acid phosphate.** See Sodium phosphate dibasic anhydrous

**Disodium calcium ethylenediaminetetraacetate.** See Calcium disodium EDTA

**Disodium carbonate.** See Sodium carbonate

## Disodium cyanodithioimidocarbamate

*Toxicology:* Harmful if swallowed; may cause skin and eye irritation

*Uses:* In food-contact paper/paperboard

*Regulatory:* FDA 21CFR §181.30; SARA reportable

*Manuf./Distrib.:* Buckman Labs

## Disodium cyanodithioimidocarbonate

CAS 138-93-2

*Synonyms:* Carbamodithioic acid, cyano-, disodium salt; Cyanodithioimidocarbonate, disodium; Imidocarbonic acid, cyanodithio-, disodium salt

*Empirical:*  $C_2N_2Na_2S_2$

*Properties:* Orangish powd.; m.w. 162.1

*Uses:* Antimicrobial for use in cane-sugar and beet-sugar mills; in food-pkg. adhesives; slimeicide in food-contact paper/paperboard; preservative in food-contact animal glues

*Regulatory:* FDA 21CFR §173.320, 175.105, 176.300, 178.3120

## Disodium 1,4-dihydro-9,10-dihydroxyanthracene

CAS 73347-80-5

*Synonyms:* 9,10-Anthracenediol, 1,4-dihydro-, disodium salt

*Empirical:*  $C_{14}H_{10}Na_2O_2$

*Properties:* M.w. 256.21

*Uses:* Catalyst in the alkaline pulping of lignocellulosic materials for paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Disodium dihydrogen ethylenediaminetetraacetate.** See Disodium EDTA

**Disodium (2,4-dimethylphenylazo)-2-hydroxynaphthalene-3,6-disulfonate.** See Acid red 26

**Disodium dioxide.** See Sodium peroxide

**Disodium disulfite.** See Sodium metabisulfite

**Disodium dithionate.** See Sodium hydrosulfite

**Disodium dithionite.** See Sodium hydrosulfite

**Disodium edetate.** See Disodium EDTA

## Disodium EDTA

CAS 139-33-3 (anhyd.); 6381-92-6 (dihydrate); EINECS/ELINCS 205-358-3

*Synonyms:* Disodium edetate; Disodium ethylenediamine tetraacetate; Disodium dihydrogen ethylenediaminetetraacetate; Edetate disodium; Ethylenediaminetetraacetic acid, disodium salt; (Ethylenedinitrilo) tetraacetic acid, sodium salt; Glycine, N,N'-1,2-ethanediybis[N-(carboxymethyl)-, disodium salt dihydrate

*Classification:* Substituted diamine

*Empirical:*  $C_{10}H_{14}N_2Na_2O_8$

*Formula:*  $(OOCCH_2)_2NCH_2CH_2N(CH_2COO^-)_2 \cdot 2H^+ \cdot 2Na^+$

*Properties:* Wh. cryst. powd.; odorless; freely sol. in water; m.w. 336.24 (anhyd.), 372.24 (dihydrate); m.p. 252 (dec.); pH 4-6

*Toxicology:* LD50 (oral, rat) 2 g/kg, (IV, mouse) 56 mg/kg, (IP, mouse) 260 mg/kg; poison by IP and IV route; mod. toxic by ing.; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $NO_x$  and  $Na_2O$

HMS: Health 2; Flammability 1; Reactivity 0

*Storage:* Store @ R.T.

*Uses:* Chelant in cosmetics, pharmaceuticals, water treatment, textiles, soaps/detergents, electroless copper plating, polymer prod., disinfectants, pulp/

paper, enhanced oil recovery, metal cleaning/protection; scale inhibitor (boiler water treatment); textile/leather processing aux.; antioxidant for cosmetics; prevents metal-catalyzed oxidative breakdown; food preservative, stabilizer, chelant, sequestrant; hog scald agent; anticoagulant; pharmaceutical aid; visc. control agent; chelating agent in food-contact paper/paperboard mfg.; in cellophane for food pkg.; chelating agent/sequestrant in lubricants for incidental food-contact use; in food-pkg. adhesives

*Use Level:* 0.1-0.5%; to 145 ppm (canned black eye peas), to 165 ppm (canned kidney beans, as preservative), to 500 ppm (canned strawberry pie filling), to 75 ppm (dressings, mayonnaise), to 100 ppm (sandwich spread), to 150 ppm (aq. multivitamins)

*Regulatory:* FDA 21CFR §155.200, 169.115, 169.140, 169.150, 172.135, 175.105, 176.150, 176.170, 177.1200, 177.2800, 178.3570, 178.3910, 573.360; USDA 9CFR §318.7; Japan approved (0.25 g/kg max. as calcium disodium EDTA); FDA approved for injectables, inhalants, IV, ophthalmics, orals, otics, rectals, topicals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* AMRESCO; Aldrich; Fluka; Hampshire; Int'l. Sourcing; Jarchem Ind.; R.W. Greeff; Ruger; Sigma; Spectrum Quality Prods.

*Trade Names:* Versene NA

**Disodium 1,2-ethanebis (carbamodithioate).** See Nabam

**Disodium 2,2'-(1,2-ethenediyl) bis [5-[4-[bis (2-hydroxyethyl) amino]-6-(phenylamino)-1,3,5-triazin-2-yl] amino] benzenesulfonate**  
CAS 4193-55-9

*Synonyms:* 4,4'-Bis ((4-anilino-6-bis (2-hydroxyethyl) amino-w-triazin-2-yl) amino)-2,2'-stilbenedisulfonic acid disodium salt; 2,2'-Stilbenedisulfonic acid, 4,4'-bis ((4-anilino-6-bis (2-hydroxyethyl) amino-s-triazinyl) amino)-, disodium salt

*Empirical:* C<sub>40</sub>H<sub>40</sub>N<sub>12</sub>O<sub>10</sub>S<sub>2</sub> • 2Na

*Properties:* M.w. 959.02

*Toxicology:* LD50 (oral, rat) 14,530 mg/kg, (IP, rat) 350 mg/kg, (subcut., mouse) 1000 mg/kg; poison by ing., IP routes; mod. toxic by subcut. route; primary eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, Na<sub>2</sub>O, and SO<sub>x</sub>

*Uses:* Optical brightener

*Trade Names Containing:* Optiblanc® NL

**Disodium ethylene bisdithiocarbamate.** See Nabam

**Disodium ethylene-1,2-bisdithiocarbamate.** See Nabam

**Disodium ethylenediamine tetraacetate.** See Disodium EDTA

**Disodium hydrogen orthophosphate.** See Sodium phosphate dibasic anhydrous

**Disodium hydrogen phosphate.** See Sodium phosphate dibasic anhydrous

**Disodium metasilicate.** See Sodium metasilicate

**Disodium 4-[1-methyl-2-[(1-oxooctadec-9-enyl) amino] ethyl] 2-sulfonatosuccinate.** See Disodium oleamido MIPA-sulfosuccinate

**Disodium monohydrogen orthophosphate.** See Sodium phosphate dibasic anhydrous

**Disodium monohydrogen phosphate.** See Sodium phosphate dibasic anhydrous

**Disodium monooleamido MIPA-sulfosuccinate.** See Disodium oleamido MIPA-sulfosuccinate

**Disodium monosilicate.** See Sodium metasilicate

**Disodium octadecyl sulfosuccinamate.** See Disodium stearyl sulfosuccinamate

**Disodium oleamido MIPA-sulfosuccinate**

CAS 43154-85-4; 67815-88-7; EINECS/ELINCS 256-120-0; 267-199-6

*Synonyms:* Butanedioic acid, sulfo-, 1-[1-methyl-2-[(1-oxo-9-octadecenyl) amino] ethyl] ester, disodium salt; Butanedioic acid, sulfo-, 4-[1-methyl-2-[(1-oxo-9-octadecenyl) amino] ethyl] ester, disodium salt; Disodium 4-[1-methyl-2-[(1-oxooctadec-9-enyl) amino] ethyl] 2-sulfonatosuccinate; Disodium monooleamido MIPA-sulfosuccinate; Disodium oleic monoisopropanolamide sulfosuccinate; Disodium oleoyl isopropanolamide sulfosuccinate; Oleoyl monoisopropanolamide disodium sulfosuccinate; Sulfbutanedioic acid, 4-[1-methyl-2-[(1-oxo-9-octadecenyl) amino] ethyl] ester, disodium salt

*Definition:* Disodium salt of a substituted isopropanolamide half ester of sulfosuccinic acid

*Empirical:* C<sub>25</sub>H<sub>43</sub>Na<sub>2</sub>NO<sub>6</sub>S

*Properties:* Amber liq.; m.w. 549.65; anionic

*Toxicology:* TSCA listed

*Uses:* Mild high-foaming surfactant, dispersant, wetting agent, foaming agent, detergent, conditioner, and emulsifier for bubble bath, shampoos, cleansers for cosmetics and toiletries; emulsion polymerization; flotation frother; antistat; in food-pkg. adhesives; in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170

**Disodium oleic monoisopropanolamide sulfosuccinate.** See Disodium oleamido MIPA-sulfosuccinate

**Disodium oleoyl isopropanolamide sulfosuccinate.** See Disodium oleamido MIPA-sulfosuccinate

**Disodium orthophosphate.** See Sodium phosphate dibasic anhydrous

**Disodium peroxide.** See Sodium peroxide

**Disodium phosphate.** See Sodium phosphate dibasic anhydrous

**Disodium phosphoric acid.** See Sodium phosphate dibasic anhydrous

**Disodium pyrosulfite.** See Sodium metabisulfite

**Disodium stearyl sulfosuccinamate**

CAS 14481-60-8; EINECS/ELINCS 238-479-5

*Synonyms:* Disodium octadecyl sulfosuccinamate; Disodium N-stearyl sulfosuccinamate; 4-(Octadecylamino)-4-oxo-2-sulfbutanedioic acid, disodium salt; Sulfbutanedioic acid, monoctadecyl ester, disodium salt

*Definition:* Disodium salt of a stearyl amide of sulfosuccinic acid

*Empirical:* C<sub>22</sub>H<sub>41</sub>NO<sub>6</sub>S • 2Na

*Properties:* Liq.; m.w. 493.61; anionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, dispersant, foamer, detergent, solubilizer for soaps and surfactants, alkaline cleaner formulations, brick and tile cleaners; emulsion polymerization of vinyl chloride and SBR; foaming agent for rubber/carpet-backing latexes; textile softener; emulsifier in resin latex coatings for paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §176.170, 176.180

*Trade Names:* Aerosol® 18

**Disodium N-stearyl sulfosuccinamate.** See Disodium stearyl sulfosuccinamate

**Disodium sulfate.** See Sodium sulfate

**Disodium sulfite.** See Sodium sulfite

**Disodium 9-(sulfonatoxy) octadecanoate.** See Sodium oleic sulfate

**Disodium 2-(2,4,5,7-tetrabromo-6-oxido-3-oxoxanthen-9-yl) benzoate.** See Acid red 87

**Disodium thiosulfate.** See Sodium thiosulfate anhydrous

**Disodium tin trioxide.** See Sodium stannate

**Disproportionated rosin.** See Rosin

**Disproportionated tall oil fatty acid.** See Tall oil acid

**N,N'-Distearoylethylenediamine.** See Ethylene distearamide

**Distearyl dimethyl ammonium chloride.** See Distearyldimonium chloride

**Distearyldimonium chloride**

CAS 107-64-2; EINECS/ELINCS 203-508-2

*Synonyms:* Ammonium, dimethyldioctadecyl-, chloride; Dimethyldioctadecylammonium chloride; N,N-Dimethyl-N-octadecyl-1-octadecanaminium chloride; Dioctadecyl dimethyl ammonium chloride; Distearyl dimethyl ammonium chloride; Octadecanaminium, N,N-dimethyl-N-octadecyl-, chloride; Quaternium-5

*Classification:* Quaternary ammonium salt

*Empirical:* C<sub>38</sub>H<sub>80</sub>N • Cl

*Properties:* Paste; m.w. 586.52; m.p. 36-44 C; cationic

*Toxicology:* LD50 (oral, rat) 11,300 mg/kg; mildly toxic by ing.; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub> and Cl

*Uses:* Detergent, fabric softener, conditioner, antistat for commercial and institutional laundries; conditioner, antistat for hair prods.; foam and visc. builder in personal care prods.; dispersant for coatings, cosmetics, pigments, inks, textiles; agric.; wastewater treatment; antistatic coating for ABS, acrylic, cellulose, nylon, polyacetal, PP, PS, PVC; visc. builder in pharmaceuticals; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §172.712, 177.1200

*Manuf./Distrib.:* Fluka

*Trade Names Containing:* Arquad® 218-75

**Distearyl pentaerythrityl diphosphite**

CAS 3806-34-6; EINECS/ELINCS 223-276-6

**Synonyms:** 3,9-Bis (octadecyloxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro (5.5) undecane; Cyclic neopentane tetraethyl bis (octadecyl phosphite); O,O'-Dioctadecylpentaerythritol bis (phosphite); 2,4,8,10-Tetraoxa-3,9-diphosphaspiro (5.5) undecane, 3,9-bis (octadecyloxy)-

**Empirical:** C<sub>41</sub>H<sub>82</sub>O<sub>6</sub>P<sub>2</sub>

**Properties:** Solid; m.w. 733.05; dens. 0.920-0.935; m.p. 44-47 C; ref. index 1.4560-1.4590; flash pt. (PMCC) 185 C

**Toxicology:** May be harmful by inh., ing., or skin absorption; may cause skin/eye/mucous membrane/upper respiratory tract irritation; ing. can cause GI disturbances; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents, acids, stearyl alcohol; readily hydrolyzed

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, phosphine, pentaerythritol, phosphorous acid; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in cool, dry place

**Uses:** Color and m.w. stabilizer, antioxidant, melt flow aid for polymer processing (polyolefins, polyesters, elastomers, styrenics, engineering thermoplastics), adhesives, coatings; antioxidant, UV stabilizer for polyolefins, food-grade polymers

**Regulatory:** FDA 21CFR §178.2010

**Manuf./Distrib.:** Aldrich; GE Spec.

**Trade Names:** Weston® 618

**Distillates (petroleum), hydrotreated (mild) light naphthenic.** See Naphthenic oil

**Distilled fatty acids, cottonseed oil.** See Cottonseed acid

**Distilled spirits.** See Alcohol

**Distilled water.** See Water

**Disulfurous acid disodium salt.** See Sodium metabisulfite

**Dithionous acid disodium salt.** See Sodium hydrosulfite

**Dithionous acid, zinc salt (1:1).** See Zinc hydrosulfite

#### Ditridecyl sodium sulfosuccinate

CAS 2673-22-5; EINECS/ELINCS 220-219-7

**Synonyms:** Sodium 1,2-bis (tridecylloxycarbonyl) ethanesulfonate; Sodium bis(tridecyl sulfosuccinate); Sodium ditridecyl sulfosuccinate; Sulfobutanedioic acid, 1,4-ditridecyl ester, sodium salt

**Definition:** Sodium salt of the diester of tridecyl alcohol and sulfosuccinic acid

**Empirical:** C<sub>30</sub>H<sub>57</sub>NaO<sub>5</sub>S

**Properties:** M.w. 584.83; anionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier; surfactant; detergent; foam modifier; wetting agent; dispersant; visc. depressant, stabilizer, emulsifier for emulsion polymerization; dispersant, processing aid for resins, pigments, polymers, paints, and dyes; base for rust inhibitors; emulsifier in food pkg.; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180, 178.3400

**Trade Names:** Aerosol® TR-70; DeWET SDTD-70; Geropon® BIS/SODICO-2

**Trade Names Containing:** Monawet MT-70; Monawet MT-80H2W

#### Di/tri-isopropylbiphenyl

**Uses:** Carbonless paper; coatings; resins

**Trade Names:** Sure Sol®-300

**Trade Names Containing:** Sure Sol®-333

**Diuretic salt.** See Potassium acetate

#### Divinylbenzene homopolymer

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Manuf./Distrib.:** Monomer-Polymer & Dajac Labs

**DKP.** See Potassium phosphate dibasic

**DMAE.** See Dimethylethanolamine

**DMAEMA.** See Dimethylaminoethyl methacrylate

**DMEA.** See Dimethylethanolamine

**DMF.** See Dimethyl formamide

**DMFA.** See Dimethyl formamide

**DMHF.** See Dimethyl hydantoin-formaldehyde polymer

**DMK.** See Acetone

**DMOB.** See Dianisidine

**DMTT.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazole-2-thione

**DMU.** See Dimethylol urea

**1-Docosanaminium, N,N,N-trimethyl-, chloride.** See Behentrimonium chloride

**Docosanoic acid.** See Behenic acid

**1-Docosanol.** See Behenyl alcohol

**Docosenamide.** See Erucamide

**13-Docosenamide.** See Erucamide

**cis 13-Docosenamide.** See Erucamide

**(Z)-Docos-13-enamide.** See Erucamide

**3-(Docosenyl) dihydro-2,5-furandione.** See Docosenylsuccinic anhydride

#### Docosenylsuccinic anhydride

CAS 58598-42-8

**Synonyms:** 3-(Docosenyl) dihydro-2,5-furandione; 3-Docosenylsuccinic anhydride; 2,5-Furandione, 3-(docosenyl) dihydro

**Empirical:** C<sub>26</sub>H<sub>46</sub>O<sub>3</sub>

**Properties:** M.w. 406.65

**Trade Names Containing:** Accosize® 100 Synthetic Size

**3-Docosenylsuccinic anhydride.** See Docosenylsuccinic anhydride

**Docusate sodium.** See Dioctyl sodium sulfosuccinate

**1,1a,2,2,3,3a,4,5,5a,5b,6-Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta (cd) pentalene.** See Perchloropentacyclodecane

**Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta (c,d) pentalene.** See Perchloropentacyclodecane

**Dodecachlorooctahydro-1,3,4-metheno-2H-cyclobuta (c,d) pentalene.** See Perchloropentacyclodecane

**Dodecachloropentacyclodecane.** See Perchloropentacyclodecane

**Dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenemethanol.** See Hydroabietyl alcohol

**Dodecanoic acid.** See Lauric acid

**n-Dodecanoic acid.** See Lauric acid

**Dodecanoic acid, 2,2-bis [[(1-oxododecyl) oxy] methyl]-1,3-propanediyl ester.** See Pentaerythrityl tetralaurate

**Dodecanoic acid, diester with 1,2,3-propanetriol.** See Glyceryl dilaurate

**Dodecanoic acid, 2,3-dihydroxypropyl ester.** See Glyceryl laurate

**Dodecanoic acid, ester with 1,2-ethanediol.** See Glycol laurate SE

**Dodecanoic acid 1,2-ethanediyl ester.** See Glycol dilaurate

**Dodecanoic acid 2-(2-hydroxyethoxy) ethyl ester.** See PEG-2 laurate

**Dodecanoic acid, 2-hydroxypropyl ester.** See Propylene glycol laurate

**Dodecanoic acid methyl ester.** See Methyl laurate

**Dodecanoic acid, 1-methyl-1,2-ethanediyl ester.** See Propylene glycol dilaurate

**Dodecanoic acid, 1-methylethyl ester.** See Isopropyl laurate

**Dodecanoic acid, monoester with 1,2-propanediol.** See Propylene glycol laurate

**Dodecanoic acid, monoester with 1,2,3-propanetriol.** See Glyceryl laurate

**Dodecanoic acid, potassium salt.** See Potassium laurate

**Dodecanoic acid sodium salt.** See Sodium laurate

**Dodecanoic acid, zinc salt.** See Zinc laurate

**1-Dodecanol, 2-octyl-.** See Octyldodecanol

**3,6,9,12,15,18,21,24,27,30,33,36-Dodecaoxapentacontan-1-ol.** See Ceteth-12

#### Dodecene-1

CAS 112-41-4; EINECS/ELINCS 203-968-4; UN No. NA 1933

**Synonyms:** C12 alpha olefin; 1-Dodecene; Dodec-1-ene; n-Dodec-1-ene; α-Dodecene; α-Dodecylene; Tetrapropylene

**Empirical:** C<sub>12</sub>H<sub>24</sub>

**Formula:** H<sub>2</sub>C=CH(CH<sub>2</sub>)<sub>9</sub>CH<sub>3</sub>

**Properties:** Colorless liq.; insol. in water; sol. in alcohol, acetone, ether, petrol., coal tar solvs.; m.w. 168.32; dens. 0.764; m.p. -31.5 C; b.p. 213-215 C; flash pt. (Seta) 168 F; ref. index 1.430

**Toxicology:** LD50 (oral, rat) > 5 g/kg; low acute inhalation toxicity; sl. toxic by ingestion; narcotic in high concs.; irritating to eyes, skin, respiratory system; TSCA listed

**Precaution:** Combustible liq.; avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)

**Storage:** Store under nitrogen

**Uses:** Intermediate for surfactants and specialty industrial chemicals (polyethylene and other polymers; plasticizers; syn. lubricants; gasoline additives; paper sizing; PVC lubricants); flavors; perfumes; medicine; oils; dyes; resins

**Manuf./Distrib.:** ABCR; Acros Org.; Albemarle; Aldrich; Fluka; Shell; Sigma; Supelco

*Trade Names:* Gultfene® 12

**1-Dodecene.** See Dodecene-1

**Dodec-1-ene.** See Dodecene-1

**α-Dodecene.** See Dodecene-1

**n-Dodec-1-ene.** See Dodecene-1

**3-(Dodeceny)l dihydro-2,5-furandione.** See Dodeceny succinic anhydride

### Dodeceny succinic anhydride

CAS 25377-73-5; EINECS/ELINCS 246-917-1

*Synonyms:* ASA; DDS; DDSA; n-DDSA; Alkenyl (C<sub>10</sub>-C<sub>14</sub>) succinic anhydride; 3-(Dodeceny)l dihydro-2,5-furandione; 2,5-Furandione, 3-(dodeceny)l dihydro-

*Empirical:* C<sub>16</sub>H<sub>26</sub>O<sub>3</sub>

*Properties:* Lt. yel. clear visc. oily liq.; m.w. 266.38; dens. 1.003-1.008 (60 F); b.p. 150 C (3 mm); flash pt. 343-347 F; anionic

*Toxicology:* LD50 (IP, mouse) 320 mg/kg; LCLo (inh., rat, 4 h) 1220 mg/m<sup>3</sup>; toxic by inh., skin contact; poison by IP route; irritant and sensitizer; TSCA listed

*Precaution:* Combustible when exposed to open flame; can react with oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Epoxy curing agent; corrosion inhibitor for nonaq. lubricating oils; intermediate for prep. of alkyl or unsat. polyester resins, plasticizers, paints; intermediate in chem. reactions; wetting agent for bituminous compds., vulcanizable prods.; detergent raw material; paper sizing ingred.

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Anhydrides & Chems.; Buffalo Color; Cambridge Ind. Co. of Am.; Dixie; Electron Microscopy Sciences; Fluka; Haltermann GmbH; Humphrey; Lonza; Lubrizol; Milliken; ProSciTech

**Dodecoic acid.** See Lauric acid

**Dodecyl alcohol, hydrogen sulfate, sodium salt.** See Sodium lauryl sulfate

**Dodecyl ammonium sulfate.** See Ammonium lauryl sulfate

**Dodecylbenzene sodium sulfonate.** See Sodium dodecylbenzenesulfonate

**Dodecylbenzenesulfonate, sodium salt.** See Sodium dodecylbenzenesulfonate

### Dodecylbenzenesulfonic acid

CAS 27176-87-0; 68411-32-5; 68584-22-5; 68608-88-8; 85117-49-3; 85536-14-7; EINECS/ELINCS 248-289-4; 271-807-5

*Synonyms:* ABS; DBBSA; Alkylbenzenesulfonic acid; Benzenesulfonic acid, dodecyl-; n-Dodecylbenzenesulfonic acid; Laurylbenzenesulfonic acid

*Classification:* Substituted aromatic acid

*Empirical:* C<sub>18</sub>H<sub>30</sub>O<sub>3</sub>S

*Properties:* Wh. to lt. yel. flakes, granules, and powd.; m.w. 326.54; anionic

*Toxicology:* LD50 (oral, rat) 650 mg/kg; mod. toxic by ing.; TSCA listed

*Environmental:* Biodeg.

*Precaution:* DOT: Corrosive

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of SO<sub>2</sub>

*Uses:* Surfactant, detergent raw material in heavy and lt. duty detergents, hand cleaning gels, machine degreasers, tank cleaners; emulsifier for metalworking fluids, pesticides, emulsion polymerization; in paints and coatings; catalyst in acid catalyzed reactions; defoamer in food-contact paper/paperboard; emulsifier in food pkg.

*Regulatory:* FDA 21CFR §176.210, 178.1010, 178.3400

*Manuf./Distrib.:* Albright & Wilson Am.; Allchem Ind.; Ashland; Biddle Sawyer; Browning; Chem. Distribution; Expo Chem.; Harcross; Pilot; Rhodia HPCI; Rutgers Org.; Spectrum Quality Prods.; Stepan; Tradig; Tulstar Prods.; Van Waters & Rogers

*Trade Names:* BIO-SOFT® S-120; Calimulse EM-99; Calsoft® LAS-99; POLYSTEP® A-13; POLYSTEP® A-17; SULFONIC 100

**n-Dodecylbenzenesulfonic acid.** See Dodecylbenzenesulfonic acid

**Dodecylbenzenesulfonic acid, compd. with 1-amino-2-propanol (1:1).** See MIPA-dodecylbenzenesulfonate

**Dodecylbenzenesulfonic acid, compd. with isopropylamine (1:1).** See Isopropylamine dodecylbenzenesulfonate

**Dodecylbenzenesulfonic acid, compd. with 2-propanamine (1:1).** See Isopropylamine dodecylbenzenesulfonate

**Dodecylbenzenesulfonic acid, potassium salt.** See Potassium dodecylbenzenesulfonate

**Dodecylbenzenesulfonic acid sodium salt.** See Sodium dodecylbenzenesulfonate

**Dodecyl dimethylamine oxide.** See Lauramine oxide

**N-Dodecyl dimethylamine oxide.** See Lauramine oxide

**α-Dodecylene.** See Dodecene-1

**1-Dodecylguanidine acetate.** See Dodine

**N-Dodecylguanidine acetate.** See Dodine

### Dodecylguanidine hydrochloride

CAS 13590-97-1

*Synonyms:* DGH; Guanidine, dodecyl-, monohydrochloride

*Empirical:* C<sub>13</sub>H<sub>29</sub>N<sub>3</sub> · ClH

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>NHCNH<sub>2</sub><sup>+</sup>NH<sub>2</sub>Cl<sup>-</sup>

*Properties:* M.w. 263.91

*Toxicology:* LDLo (unknown route of entry, mouse) 13 mg/kg; poison by unspecified route; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of HCl and NO<sub>x</sub>

*Uses:* Biocide in water treatment systems, pulp/paper prods.; antimicrobial in paper/paperboard in contact with nonalcoholic/dry foods; slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170, 176.300

*Trade Names:* Metasol® 350

**Dodecylguanidine monoacetate.** See Dodine

**1-Dodecylguanidinium acetate.** See Dodine

### Dodecylhexadecanol

CAS 72388-18-2; EINECS/ELINCS 276-627-0

*Synonyms:* 2-Dodecylhexadecanol

*Classification:* Branched alcohol

*Empirical:* C<sub>28</sub>H<sub>58</sub>O

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>13</sub>C(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>HCH<sub>2</sub>OH

*Uses:* Wax substitute; skin softener in stick formulations, e.g., deodorant sticks, lip salves; in cosmetics, pharmaceuticals, detergents, lubricants, emulsifiers, solvs., rubber, plastics, polymers, metal processing, paper coating, and textiles

*Manuf./Distrib.:* Jarchem Ind.

*Trade Names:* Jarcol™ I-28

**2-Dodecylhexadecanol.** See Dodecylhexadecanol

**Dodecyl methacrylate.** See Lauryl methacrylate

**n-Dodecyl methacrylate.** See Lauryl methacrylate

**Dodecyl 2-methyl-2-propenoate.** See Lauryl methacrylate

**2-[2-(Dodecyloxy) ethoxy] ethoxy ethanol.** See Laureth-3

### Dodecyl phthalate

*Uses:* Adjuvant in slimicides in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**Dodecyl sodium sulfate.** See Sodium lauryl sulfate

**Dodecylsulfate sodium salt.** See Sodium lauryl sulfate

**Dodecyl trimethyl ammonium chloride.** See Laurtrimonium chloride

### Dodine

CAS 2439-10-3; 96923-04-5

*Synonyms:* N-Dodecylguanidine acetate; 1-Dodecylguanidine acetate; Dodecylguanidine monoacetate; 1-Dodecylguanidinium acetate; Dodine acetate; Lauryl guanidine acetate

*Empirical:* C<sub>15</sub>H<sub>33</sub>N<sub>3</sub>O<sub>2</sub>

*Formula:* C<sub>12</sub>H<sub>25</sub>NHC(NH)NH<sub>2</sub> · CH<sub>3</sub>COOH

*Properties:* Crystals; sol. in hot water, alcohol; sl. sol. in other solvs.; m.w. 287.51

*Toxicology:* LD50 (oral, rat) 566 mg/kg, (dermal, rabbit) > 1500 mg/kg; LC50 (inh., mouse, 2 h) 129 mg/m<sup>3</sup>; poison by ing. and inh.; mod. toxic by skin contact; strong irritant to eyes and skin at > 50% conc.; questionable carcinogen; tumorigen; mutagen; TSCA listed

*Environmental:* Toxic to fish

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub>

*Uses:* Fungicide; pesticide; antimicrobial in paper/paperboard in contact with nonalcoholic/dry foods

*Regulatory:* FDA 21CFR §176.170; SARA reportable

**Dodine acetate.** See Dodine

### Dodoxynol-4

CAS 9014-92-0 (generic); 26401-47-8 (generic)

## Dodoxynol-5

*Synonyms:* PEG-4 dodecyl phenyl ether; POE (4) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 4$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Low-foaming surfactant, w/o emulsifier, wetting agent for paper industry, dry cleaner formulations; emulsifier for agric. oils; degreasers  
*Trade Names:* Surfonic® DDP-40

## Dodoxynol-5

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-5 dodecyl phenyl ether; POE (5) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{28}H_{50}O_6$   
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 5$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, coemulsifier, wetter, surfactant for agric., pesticide, industrial cleaners, dry cleaning, formulation of concs. for metal lubricants, cutting, milling and grinding aids, textile processing aid and mineral drilling lubricants; in food-pkg. adhesives; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400  
*Trade Names:* Surfonic® DDP-50

## Dodoxynol-6

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-6 dodecyl phenyl ether; POE (6) dodecyl phenyl ether; PEG 300 dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{30}H_{54}O_7$   
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 6$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; emulsifier for solvent and emulsion cleaners; rewetting agent, emulsifier for paper, textiles; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400  
*Trade Names:* Igepal® RC-520

## Dodoxynol-7

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-7 dodecyl phenyl ether; POE (7) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{32}H_{58}O_8$   
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 7$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier; surfactant for solvents; solvent and emulsion cleaning; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400

## Dodoxynol-9

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-9 dodecyl phenyl ether; POE (9) dodecyl phenyl ether; PEG 450 dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{36}H_{66}O_{10}$   
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 9$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; emulsifier, detergent, wetting agent for emulsion cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400

## Dodoxynol-10

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-10 dodecyl phenyl ether; POE (10) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 10$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Detergent, wetting agent, emulsifier, dispersant, penetrant, stabilizer, coemulsifier for agric., household/industrial cleaners; dedusting agent; paint

pigment dispersant; emulsifier; surfactant for solvs.; low-foaming detergent for paper, textiles; emulsifier in mfg. of food-contact articles  
*Trade Names:* T-Det® DD-10

## Dodoxynol-12

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-12 dodecyl phenyl ether; POE (12) dodecyl phenyl ether; PEG 600 dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $C_{12}H_{25}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 12$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; detergent, wetting agent, emulsifier, dispersant for household/industrial cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400

## Dolomite

CAS 16389-88-1  
*Classification:* Natural mineral  
*Definition:* A carbonate of calcium and magnesium  
*Empirical:*  $C_2CaMgO_6$   
*Formula:*  $CaCO_3 \cdot MgCO_3$   
*Properties:* Gray, pink, or wh. color with vitreous luster; dens. 2.85; hardness (Mohs) 3.5-4.0; noncombustible  
*Uses:* Filler/extender in plastics, sealants, and coatings; raw material for sulfite pulp process in papermaking; water treatment chemical; prod. of calcined dolomite; refractory for furnaces; mfg. of magnesium compds. and magnesium metals; as building material; in fertilizers; removal of sulfur dioxide from stack gases; min. wool  
*Manuf./Distrib.:* Maypro Ind.; Stauber Perf. Ingreds.  
*See also* Calcium carbonate

**DOM.** See Dioctyl maleate

**DPA.** See Diphenylamine

**DPG.** See Diphenylguanidine; Dipropylene glycol

**DPGME.** See PPG-2 methyl ether

**DPM.** See PPG-2 methyl ether

**DPMG.** See PPG-2 methyl ether

**DPPD.** See N,N'-Diphenyl-p-phenylenediamine

**Dried calcium sulfate.** See Calcium sulfate hemihydrate

**Dried egg white.** See Albumen

**Dried gypsum.** See Calcium sulfate hemihydrate

**Drop chalk.** See Whiting

**Dry ice.** See Carbon dioxide

**DSE.** See Nabam

**DSP.** See Sodium phosphate dibasic anhydrous

**DSP-O.** See Sodium phosphate dibasic anhydrous

**DSS.** See Dioctyl sodium sulfosuccinate

**DTA.** See Diethylenetriamine

**DTBP.** See Di-t-butyl peroxide

**DTPA.** See Pentetic acid

**DTPAN.** See Pentasodium pentetate

**DTPANa5.** See Pentasodium pentetate

**Duodecyllic acid.** See Lauric acid

**Dye Evans blue.** See Direct blue 53

**Dye quinoline yellow.** See Acid yellow 3

**EAA.** See Ethylene/acrylic acid copolymer

**Earthnut oil.** See Peanut (Arachis hypogaea) oil

**Earth wax.** See Ceresin

**ECH.** See Epichlorohydrin

**ECN.** See Epoxy cresol novolac

**EDA.** See Ethylenediamine

**Edathamil.** See Edetic acid

**Edathanil tetrasodium.** See Tetrasodium EDTA

**Edetate.** See Edetic acid

**Edetate calcium disodium.** See Calcium disodium EDTA

**Edetate diammonium.** See Diammonium EDTA

**Edetate disodium.** See Disodium EDTA

**Edetate sodium.** See Tetrasodium EDTA

**Edetate trisodium.** See Trisodium EDTA

## Dodoxynol-5

*Synonyms:* PEG-4 dodecyl phenyl ether; POE (4) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Low-foaming surfactant, w/o emulsifier, wetting agent for paper industry, dry cleaner formulations; emulsifier for agric. oils; degreasers  
*Trade Names:* Surfonic® DDP-40

## Dodoxynol-5

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-5 dodecyl phenyl ether; POE (5) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:* C<sub>28</sub>H<sub>50</sub>O<sub>6</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 5  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, coemulsifier, wetter, surfactant for agric., pesticide, industrial cleaners, dry cleaning, formulation of concs. for metal lubricants, cutting, milling and grinding aids, textile processing aid and mineral drilling lubricants; in food-pkg. adhesives; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400  
*Trade Names:* Surfonic® DDP-50

## Dodoxynol-6

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-6 dodecyl phenyl ether; POE (6) dodecyl phenyl ether; PEG 300 dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:* C<sub>30</sub>H<sub>54</sub>O<sub>7</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; emulsifier for solvent and emulsion cleaners; rewetting agent, emulsifier for paper, textiles; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400  
*Trade Names:* Igepal® RC-520

## Dodoxynol-7

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-7 dodecyl phenyl ether; POE (7) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:* C<sub>32</sub>H<sub>58</sub>O<sub>8</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 7  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier; surfactant for solvents; solvent and emulsion cleaning; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400

## Dodoxynol-9

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-9 dodecyl phenyl ether; POE (9) dodecyl phenyl ether; PEG 450 dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:* C<sub>36</sub>H<sub>66</sub>O<sub>10</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 9  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; emulsifier, detergent, wetting agent for emulsion cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400

## Dodoxynol-10

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-10 dodecyl phenyl ether; POE (10) dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Detergent, wetting agent, emulsifier, dispersant, penetrant, stabilizer, coemulsifier for agric., household/industrial cleaners; dedusting agent; paint

pigment dispersant; emulsifier; surfactant for solvs.; low-foaming detergent for paper, textiles; emulsifier in mfg. of food-contact articles  
*Trade Names:* T-Det® DD-10

## Dodoxynol-12

CAS 9014-92-0 (generic); 26401-47-8 (generic)  
*Synonyms:* PEG-12 dodecyl phenyl ether; POE (12) dodecyl phenyl ether; PEG 600 dodecyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>12</sub>H<sub>25</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; detergent, wetting agent, emulsifier, dispersant for household/industrial cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210, 178.3400

## Dolomite

CAS 16389-88-1  
*Classification:* Natural mineral  
*Definition:* A carbonate of calcium and magnesium  
*Empirical:* C<sub>2</sub>CaMgO<sub>6</sub>  
*Formula:* CaCO<sub>3</sub> • MgCO<sub>3</sub>  
*Properties:* Gray, pink, or wh. color with vitreous luster; dens. 2.85; hardness (Mohs) 3.5-4.0; noncombustible  
*Uses:* Filler/extender in plastics, sealants, and coatings; raw material for sulfite pulp process in papermaking; water treatment chemical; prod. of calcined dolomite; refractory for furnaces; mfg. of magnesium compds. and magnesium metals; as building material; in fertilizers; removal of sulfur dioxide from stack gases; min. wool  
*Manuf./Distrib.:* Maypro Ind.; Stauber Perf. Ingreds.  
 See also Calcium carbonate

**DOM.** See Dioctyl maleate

**DPA.** See Diphenylamine

**DPG.** See Diphenylguanidine; Dipropylene glycol

**DPGME.** See PPG-2 methyl ether

**DPM.** See PPG-2 methyl ether

**DPMG.** See PPG-2 methyl ether

**DPPD.** See N,N'-Diphenyl-p-phenylenediamine

**Dried calcium sulfate.** See Calcium sulfate hemihydrate

**Dried egg white.** See Albumen

**Dried gypsum.** See Calcium sulfate hemihydrate

**Drop chalk.** See Whiting

**Dry ice.** See Carbon dioxide

**DSE.** See Nabam

**DSP.** See Sodium phosphate dibasic anhydrous

**DSP-O.** See Sodium phosphate dibasic anhydrous

**DSS.** See Dioctyl sodium sulfosuccinate

**DTA.** See Diethylenetriamine

**DTBP.** See Di-t-butyl peroxide

**DTPA.** See Pentetic acid

**DTPAN.** See Pentasodium pentetate

**DTPANa5.** See Pentasodium pentetate

**Duodecyllic acid.** See Lauric acid

**Dye Evans blue.** See Direct blue 53

**Dye quinoline yellow.** See Acid yellow 3

**EAA.** See Ethylene/acrylic acid copolymer

**Earthnut oil.** See Peanut (Arachis hypogaea) oil

**Earth wax.** See Ceresin

**ECH.** See Epichlorohydrin

**ECN.** See Epoxy cresol novolac

**EDA.** See Ethylenediamine

**Edathamil.** See Edetic acid

**Edathanil tetrasodium.** See Tetrasodium EDTA

**Edetate.** See Edetic acid

**Edetate calcium disodium.** See Calcium disodium EDTA

**Edetate diammonium.** See Diammonium EDTA

**Edetate disodium.** See Disodium EDTA

**Edetate sodium.** See Tetrasodium EDTA

**Edetate trisodium.** See Trisodium EDTA

**Edetic acid**

CAS 60-00-4; EINECS/ELINCS 200-449-4; UN No. 9117

**Synonyms:** EDTA; 3,6-Bis (carboxymethyl)-3,5-diazooctanedioic acid; Edathamil; Edetate; EDTA acid; N,N'-1,2-Ethanediylbis[N-(carboxymethyl)glycine]; Ethylenediaminetetraacetic acid; (Ethylenedinitrilo) tetraacetic acid**Classification:** Substituted diamine**Empirical:** C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>8</sub>**Formula:** (HOOCCH<sub>2</sub>)<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>N(CH<sub>2</sub>COOH)<sub>2</sub>**Properties:** Colorless or wh. cryst. powd.; sol. in alkali hydroxide sol'ns.; pract insol. in water; insol. in common org. solvs.; m.w. 292.28; m.p. dec. @ 240 C**Toxicology:** LD50 (oral, mouse) 30 mg/kg, (IP, rat) 397 mg/kg; irritant; poison by IP route; mutagenic data; experimental teratogenic and reproductive effects; TSCA listed**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub>**Storage:** Store @ R.T.**Uses:** Chelant for detergents, disinfectants, rare earth separation; antioxidant, preservative in cosmetics, foods; stabilizer for cosmetics, pharmaceuticals, in water treatment, textiles, soaps/detergents, shampoos; electroless copper plating; metal cleaning; radioactive decontamination; metal deactivator (lubricants); blood anticoagulant; textile dyeing aid; clarification of liqs.; analytical chemistry; spectrophotometric titration; medicine (to treat lead poisoning); pharmaceutical excipient; in paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §175.105, 176.170; FDA approved for otics, rectals, topicals; USP/NF compliance**Manuf./Distrib.:** AMRESCO; Akzo Nobel; Aldrich; Allchem Ind.; Am. Int'l.; Ashland; BASF; Charkit; Chempex Chems.; Ciba Spec. Chems. Switzerland; Ciba Spec. Chems./Water Treatment; Dow; Fluka; Hampshire; Harcros; Independent Chem.; Int'l. Sourcing; Jarchem Ind.; Kraft Chem.; Lowenstein Dyes & Cosmetics; O.C. Lugo; Penta Mfg.; Rhodia HPCII; Ruger; Showa Denko; Sigma; Spectrum Quality Prods.; Surfactants Inc; Synthron SA; Universal Preserv-A-Chem**Trade Names:** Versene AC**Edetic acid calcium disodium salt.** See Calcium disodium EDTA**Edetic acid tetrasodium salt.** See Tetrasodium EDTA**Editempa acid.** See Ethylenediaminetetra (methylene phosphonic acid)**EDMA.** See Ethylene glycol dimethacrylate**EDTA.** See Edetic acid**EDTA acid.** See Edetic acid**EDTA calcium disodium salt.** See Calcium disodium EDTA**EDTA Na<sub>4</sub>.** See Tetrasodium EDTA**EDTA sodium salt.** See Tetrasodium EDTA**EDTA tetrasodium salt.** See Tetrasodium EDTA**EDTA trisodium.** See Trisodium EDTA**EDTA trisodium salt.** See Trisodium EDTA**EDTMPA.** See Ethylenediaminetetra (methylene phosphonic acid)**EDTPO.** See Ethylenediaminetetra (methylene phosphonic acid)**EG.** See Glycol**EGDS.** See Glycol distearate**Egg albumin.** See Albumen**EGMS.** See Glycol stearate**2-EH.** See 2-Ethylhexanol**EHA.** See Octyl acrylate**2-EHMA.** See 2-Ethylhexyl methacrylate**Eicosanoic acid.** See Arachidic acid**Eicosanol.** See Arachidyl alcohol**1-Eicosanol.** See Arachidyl alcohol**1-Eicosanol, 2-hexadecyl-.** See Cetyl arachidol**1-Eicosanol, 2-tetradecyl-.** See Tetradecyleicosanol**3-(Eicosenyl) dihydro-2,5-furandione.** See Eicosenyl succinic anhydride**Eicosenyl succinic anhydride**

CAS 53520-67-5

**Synonyms:** 3-(Eicosenyl) dihydro-2,5-furandione; 2,5-Furandione, 3-(eicosenyl) dihydro; 3-Icosenylsuccinic anhydride**Empirical:** C<sub>24</sub>H<sub>42</sub>O<sub>3</sub>**Properties:** M.w. 378.60**Trade Names Containing:** Accosize® 100 Synthetic Size**Elaeis guineensis.** See Palm (Elaeis guineensis) kernel oil; Palm (Elaeis

guineensis) oil

**Elaeis guineensis oil.** See Palm (Elaeis guineensis) oil**Elaeis guineensis seed oil.** See Palm (Elaeis guineensis) kernel oil**Elaic acid.** See Oleic acid**Electrolyte acid.** See Sulfuric acid**Elemi.** See Elemi gum**Elemi absolute.** See Elemi gum**Elemi anhydrol.** See Elemi gum**Elemi gum**

CAS 8023-89-0; FEMA 2407

**Synonyms:** Canarium indicum resinoid; Elemi; Elemi absolute; Elemi anhydrol; Elemi oil; Elemi resin; Elemi resinoid; Gum elemi; Manila elemi copal; Resins, Manila elemi**Definition:** A soft, balsam-like resin obtained from a tree in the Philippines**Properties:** Pale yel. to yel. visc. liq. or solid; peppery lemony woody balsam odor; sol. in coal tar hydrocarbons, alcohols; insol. in petrol. solvs., ketones, water; ref. index 1.5100-1.5300 (20 C)**Toxicology:** LD50 (oral, rat) 3370 mg/kg, (skin, rabbit) 5 g/kg; primary irritant; TSCA listed**Uses:** Plasticizer; film-former; adhesion of lacquers to metals; cements; adhesives; wax compositions; printing inks; textile and paper coatings; perfumery; waterproofing; engraving; paints; varnishes; lacquers; linoleum; in food-pkg. adhesives; in food-contact coatings**Regulatory:** FDA 21CFR §175.105, 175.300**Manuf./Distrib.:** Charkit; P.L. Thomas; Penta Mfg.; Polarome Int'l.**Elemi oil.** See Elemi gum**Elemi resin.** See Elemi gum**Elemi resinoid.** See Elemi gum**EMA.** See Ethylene/MA copolymer; Ethyl methacrylate**EMAA.** See Ethylene/methacrylic acid copolymer**Enamel white.** See Barium sulfate**English white.** See Whiting**Entsufon.** See Sodium octoxynol-2 ethane sulfonate**Entsufon sodium.** See Sodium octoxynol-2 ethane sulfonate**Enzactin.** See Triacetin**EO.** See Ethylene oxide**EOEOEA.** See 2-(2-Ethoxyethoxy) ethyl acrylate**EO/PO block polymer or copolymer**

CAS 9003-11-6 (generic); 106392-12-5

**Synonyms:** Ethylene glycol/propylene glycol block copolymer; POE/POP copolymer; Polyoxyethylene/polyoxypropylene copolymer; Polyoxypropylene/polyoxyethylene block polymer; Polyoxypropylene/polyoxyethylene copolymer; POP/POE copolymer**Formula:** (C<sub>3</sub>H<sub>6</sub>O · C<sub>3</sub>H<sub>4</sub>O)<sub>n</sub>**Properties:** Liq., powd., or flake; 10-80% EO content; m.w. 1100-10,000; HLB 9.5-18.7; nonionic**Toxicology:** LD50 (IV, mouse) 129 mg/kg; TSCA listed**Uses:** Defoamer (metal cleaners, antifreeze, cutting fluids, water treatment, paper, textiles, rinse aids); demulsifier for drilling muds/crude oil processing; emulsifier/dispersant for pesticides, paint, emulsion polymerization; leather tanning aux.; wetting agent for pesticides, foundry resins, paper additives, rinse aids; wetting agent, defoamer for bottle washing detergents; surfactant; detergent; gellant; solubilizer; lubricant base for medical/pharmaceutical applics.; agric. adjuvant; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.**Regulatory:** FDA 21CFR §176.170, 177.1200**Trade Names:** Adekanol 25R-1; Adekanol 25R-2; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; Adekanol TR-701; Adekanol TR-702; Adekanol TR-704; Adekanol TR-913; Crisanol FA-260; Crisanol FA-660; Etopol 31-L; Etopol 61-L; Etopol 62-L; Etopol 62LF-L; Etopol 63-L; Etopol 81-L; Etopol 101-L; Imbentin-PAP/6100; Imbentin-PAP/6200; Imbentin-PAP/10200; Nonionic 1025-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; Nonionic 8017R; Nonionic 8025R; Pluronic® L10; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-20B; Poly-Tergent® E-25B; Poly-Tergent® P-32A; Surfonic® POA-25R2; Surfonic® POA-L42; Surfonic® POA-L44; Surfonic® POA-L61; Surfonic® POA-L62; Surfonic® POA-L62LF; Surfonic®



POA-L64; Surfonic® POA-L81; Surfonic® POA-L101; Surfonic® POA-LF1; Surfonic® POA-LF2; Surfonic® POA-LF5; Surfonic® POA-S38; Synperonic PE/L62LF; T-Det® EPO-61; T-Det® EPO-62L; T-Det® EPO-64L; T-Det® EPO-104; Ucon® 75-H-9500; Ukanil 3500; Ukanil 3501

**EO/PO ethylenediamine block copolymer**

CAS 26314-40-5; 107397-59-1

*Synonyms:* Ethylenediamine propoxylate/ethoxylate

*Definition:* Block copolymer with PO blocks adjacent to the amine group; prods. with EO block in this position are also avail.

*Properties:* Liq. or flakes; nonionic

*Uses:* Demulsifier for crude oil; low-foaming surfactant for domestic/industrial cleaners; dispersant/thickener for paints, printing inks, cosmetics, rubber; solubilizer/wetting agent for textile/paper auxs.

*Trade Names:* Tetronic® 90R4; Tetronic® 150R1

**Eosin disodium.** See Acid red 87

**Eosine.** See Acid red 87

**Eosine G.** See Acid red 87

**Eosinic acid.** See Acid orange 11

**Eosin Y.** See Acid red 87

**Eosin YS.** See Acid red 87

**Epichlorohydrin**

CAS 106-89-8; EINECS/ELINCS 203-439-8; UN No. 2023 (DOT)

*Synonyms:* ECH; 1-Chloro-2,3-epoxypropane; 3-Chloro-1,2-epoxypropane; (Chloromethyl) ethylene oxide; Chloromethyloxirane; 2-(Chloromethyl) oxirane; Chloropropylene oxide;  $\gamma$ -Chloropropylene oxide; 3-Chloro-1,2-propylene oxide;  $\alpha$ -Epichlorohydrin; 1,2-Epoxy-3-chloropropane; 2,3-Epoxypropyl chloride; Glycerol epichlorohydrin

*Classification:* Chlorinated epoxide

*Empirical:* C<sub>3</sub>H<sub>5</sub>ClO

*Properties:* Colorless, highly volatile unstable liq., chloroform-like odor; sol. in ethanol, diethyl ether, chloroform, trichloroethylene, CCl<sub>4</sub>; misc. with oxygenated solvs.; sl. sol. in water; m.w. 92.53; dens. 1.17 kg/l; f.p. -25 C; b.p. 115.2 C; flash pt. 33.9 C; ref. index 1.4358

*Toxicology:* ACGIH TLV/TWA 2 ppm (skin); LD50 (oral, rat) 90 mg/kg, (IP, rat) 13 mg/kg, (subcut., rat) 150 mg/kg, (IV, rat) 154 mg/kg; poison by ing., skin contact, IV, and IP routes; mod. toxic by inh.; readily absorbed thru skin; corrosive; sensitizer; primary skin and eye irritant; human systemic effects by inh.; confirmed carcinogen; tumorigen; mutagen; experimental teratogen; human mutagenic data; TSCA listed

*Precaution:* Flamm.; mod. fire risk; explosive reaction with aniline; violent reaction with sulfuric acid or isopropylamine; exothermic polymerization with strong acids, caustic alkalis, aluminum, zinc, etc.; heating may cause polymerization

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrogen chloride gas, phosgene gas; heated to decomp., emits toxic fumes of Cl

NFPA: Health 3; Flammability 3; Reactivity 2

*Uses:* Intermediate for paints; major raw material for epoxy and phenoxy resins; mfg. of glycerol; solvent for cellulose esters and ethers; high wet-str. resins for paper industry; starch crosslinking agent

*Regulatory:* SARA reportable

*Manuf./Distrib.:* Aldrich; BASF; Fluka; ICC Chem.; Jarchem Ind.; Kessler; Rit-Chem; Sigma; United Min. & Chem.

**$\alpha$ -Epichlorohydrin.** See Epichlorohydrin

**Epichlorohydrin, adipic acid, diethylenetriamine polymer.** See Adipic acid/epoxypropyl diethylenetriamine copolymer

**Epichlorohydrin/dimethylamine copolymer.** See Dimethylamine/epichlorohydrin copolymer

**Epichlorohydrin/ethylene oxide copolymer**

*Classification:* Epichlorohydrin elastomer

*Definition:* Vulcanizate characterized by good solvent resist. and reasonable low temp. flexibility

*Formula:* (CHCH<sub>2</sub>ClCH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>

*Uses:* Elastomer used for fuel pump diaphragms, pipe gaskets, hose for fuel, oil, and gas, vibration isolators, motor mounts, rolls, adhesives, sponge goods, boots, seals, o-rings, bladders; paper/printing/copier roller coverings; vehicle seals, hoses, and membranes

**Epoxides, polymers, epoxy resins.** See Epoxy resin

**Epoxydized soybean oil acrylate**

*Uses:* Offers good flexibility, pigment wetting; for use in UV and EB curing compositions incl. overprint varnishes, lithographic inks

*Trade Names:* CN 111

**Epoxy acrylate**

*Synonyms:* Bisphenol A epoxy acrylate; Epoxy-acrylate resins

*Definition:* Acrylate oligomonomer

*Empirical:* C<sub>6</sub>H<sub>6</sub>O<sub>3</sub>

*Formula:* CH<sub>2</sub>CHCOOCH<sub>2</sub>CHOCH<sub>2</sub>

*Uses:* Curing agent for paper clear coatings, wood top coatings, screen inks, litho inks, polyethylene coatings, metal decorative coatings, adhesive papers, wood fillers, solder masks and photoresists; binder for radiation-cured printing inks, paper-foil lacquers; UV-reactive inks and varnishes

*Manuf./Distrib.:* Monomer-Polymer & Dajac Labs

*Trade Names:* CN 104; CN 117; CN 118; CN 120; CN 124; Ebecryl® 3500; Ebecryl® 3701; Ebecryl® 3702; Epotuf® 3000; Epotuf® 3020-20 HDDA; Epotuf® 3020-25 TPGDA; Epotuf® 3210; Epotuf® 3230

*Trade Names Containing:* CN 104 A80; CN 104 B80; CN 120 A75; CN 120 B60; CN 120 B80; CN 120 C60; CN 120 C80; CN 120 D80; CN 120 E50; CN 120 M50; Ebecryl® 3701-20T; Photomer® 3016-20T; Photomer® 3016-40R; Photomer® 3016-40T; Photomer® 3038

**Epoxy-acrylate resins.** See Epoxy acrylate

**Epoxy, bisphenol A**

*Synonyms:* Bisphenol A epoxy resin; Epoxy bisphenol A resin

*Toxicology:* TSCA listed

*Uses:* Heat stabilizer for PVC; exc. halogen capture for flame retardant resins; vehicle or binder in surf. coatings; food-contact coatings; laminating, potting, encapsulation, casting, tooling, coatings, and flooring applics.

*Manuf./Distrib.:* Archway Sales; Ashland; Baychem; Cardolite; Ciba Spec. Chems./Addit.; GCA; Lenape Ind.; Lomas Int'l.; Reichhold; Samson; Shell; United Min. & Chem.

*Trade Names:* EPON® Resin 825; EPON® Resin 826; EPON® Resin 828; EPON® Resin 1001F; EPON® Resin 1004F; EPON® Resin 1007F; EPON® Resin 1009F

*Trade Names Containing:* Araldite® PY 302-2; EPON® Resin 2002-FC-10

**Epoxy bisphenol A resin.** See Epoxy, bisphenol A

**Epoxy, bisphenol F**

*Synonyms:* Epoxy-bisphenol F resin

*Uses:* Resin modifier; visc. modifier for epoxy novolacs; for adhesives; tank linings; flooring; filament winding; casting; pultrusion; RTM; surf. coating applics; food-contact coatings

*Manuf./Distrib.:* Eastech; K&S Ind.; Seegott; Vantico AG

*Trade Names:* Araldite® 93-100

*Trade Names Containing:* Araldite® PY 302-2

**Epoxy-bisphenol F resin.** See Epoxy, bisphenol F

**1,4-Epoxybutane.** See Tetrahydrofuran

**1,2-Epoxy-3-chloropropane.** See Epichlorohydrin

**Epoxy compds.** See Epoxy resin

**Epoxy cresol novolac**

CAS 29690-82-2

*Synonyms:* ECN; Epoxy-cresol-novolac resin; Poly ((o-cresyl glycidyl ether)-co-formaldehyde)

*Classification:* Polymer

*Properties:* Dens. 1.120; m.p. 85-95 C

*Toxicology:* Irritating to eyes, skin, respiratory system; possible sensitizer; TSCA listed

*Uses:* Epoxy resin for high-temp. adhesives, coatings, food-contact coatings, electrical and laminating product areas; modifier for powd. coatings; hardener in adhesives, fiber sizing, textiles, paper treatment

*Manuf./Distrib.:* Aldrich; Chugai Boyeki Am.; GCA; K&S Ind.; Vantico AG

*Trade Names:* Araldite® 94-105; Araldite® ECN 1400; Araldite® PY 323; Araldite® PZ 3917; Araldite® XU 3900; Araldite® XU 3903

*Trade Names Containing:* Araldite® PZ 3901

**Epoxy-cresol-novolac resin.** See Epoxy cresol novolac

**Epoxyethane.** See Ethylene oxide

**1,2-Epoxyethane.** See Ethylene oxide

**Epoxy novolac acrylate**

*Uses:* Provides heat and solvent resist. to solder resists, marking inks, adhesion on metalized substrates, low shrinkage coatings, heat-resist. applics.

*Trade Names Containing:* CN 112 C60

**2,3-Epoxy-1-propanol, methacrylate.** See Glycidyl methacrylate**2,3-Epoxypropyl chloride.** See Epichlorohydrin**2,3-Epoxypropyl methacrylate.** See Glycidyl methacrylate**Epoxy resin**

CAS 25928-94-3

*Synonyms:* Condensation prods., epoxy; Epoxides, polymers, epoxy resins; Epoxy compds.; Ethers, cyclic, epoxides, polymers; Plastics, epoxy; Polyethers, epoxy resins

*Classification:* Polymer

*Definition:* A thermosetting resin based on the reactivity of the epoxide group

*Toxicology:* LD50 (oral, rat) 2200 mg/kg; strong skin irritant in uncured state; poison by inhalation; moderately toxic by ingestion; little or no toxicity in cured state

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Cl

*Uses:* Plasticizer for surface coatings; adhesive for composites, metals, glass, ceramics; casting metal-forming tools and dies; encapsulation of elec. parts; cements and mortars; rigid foams; stabilizer, modifier for other resins; biomaterial for pharmaceutical topicals, slow-release, and microencapsulation prods.; diluent; in food-contact coatings; in food-contact polysulfide polymer/polyeoxy resins

*Regulatory:* FDA 21CFR §175.300, 177.1390, 177.1650

*Manuf./Distrib.:* Abatron; Archway Sales; Ashland; Cardolite; Celanese; Chemcentral; Cognis; Conap; Crompton/Witco; Dow Plastics; Elementis Spec. Perf. Polymers; Emerson & Cuming; Ferro/Bedford; GCA; ICC Chem.; Key Polymer; Miljac; Monomer-Polymer & Dajac Labs; Monsanto; Morton Int'l.; Reichhold; Samson; Sartomer; Seegott; U.S. Chems.; Union Carbide; United Min. & Chem.; Vantico AG; Whyte Chems. Ltd

*Trade Names:* Adeka Optomer KR Series

**Epsom salts.** See Magnesium sulfate anhydrous; Magnesium sulfate heptahydrate**Erucamide**

CAS 112-84-5; EINECS/ELINCS 204-009-2

*Synonyms:* Docosenamide; 13-Docosenamide; cis 13-Docosenamide; (Z)-Docos-13-enamide; Erucic acid amide; Erucylamide

*Classification:* Aliphatic amide

*Empirical:* C<sub>22</sub>H<sub>43</sub>NO

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>11</sub>CONH<sub>2</sub>

*Properties:* Wh. waxy beads; sol. in IPA; sl. sol. in alcohol, acetone, oxygenated solvs.; insol. in water; dens. 0.888; m.p. 75-80 C; iodine no. 72-80

*Precaution:* Combustible

*Uses:* Foam stabilizer; solvent for waxes and resins, emulsions; slip/antiblock agent for polyethylene; lubricant, mold release for rubber and plastics; slip improvement additive in printing inks; opacifier; visc. control agent; lamination of polyethylene to cellophane and in polyethylene extrusion coatings; release agent in food-contact polymers and petroleum wax; in food-pkg. adhesives; in paper/paperboard in contact with dry food; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1200, 177.1210, 178.3860

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Allchem Ind.; Century Multech; Chemax; Croda Universal Ltd; Dama Chems.; Eastech; Fallek; Ferro; Lutianhua; Sigma; Uniqema N. Am.; Vilax

*Trade Names:* Struktol® TR 131

**Erucic acid amide.** See Erucamide**Erucylamide.** See Erucamide**Ethal.** See Cetyl alcohol**Ethanaminium, N-(4-(bis(4-(diethylamino) phenyl) methylene)-2,5-cyclohexadien-1-ylidene)-N-ethyl-, chloride.** See Basic violet 4**Ethanaminium, N-[6-(diethylamino)-9-(2,4-disulfophenyl)-3H-xanthen-3-ylidene]-N-ethyl-, hydroxide, inner salt, sodium salt.** See Acid red 52**Ethanaminium, N-4-[[4-(diethylamino) phenyl] (2,4-disulfophenyl) methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-, hydroxide, inner salt, sodium salt.** See Acid blue 1**Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl) oxy]-, methyl sulfate, polymer with 2-propenamide.** See Polyquaternium-5**Ethanedial.** See Glyoxal**1,2-Ethanedial.** See Glyoxal**1,2-Ethanediamine.** See Ethylenediamine**1,2-Ethanediamine, N-(2-aminoethyl)-N'-(2-((2-aminoethyl) amino) ethyl)-.** See Tetraethylenepentamine**Ethane, 1,1-dichloro-1-fluoro-.** See Dichlorofluoroethane**1,2-Ethandiol.** See Glycol**Ethane-1,2-diol.** See Glycol**1,2-Ethandiol dimethacrylate.** See Ethylene glycol dimethacrylate**1,1-Ethandiol, 2,2,2-trichloro-.** See Chloral hydrate**1,2-Ethanediybiscarbamodithioic acid disodium salt.** See Nabam**N,N'-1,2-Ethanediybis[N-(carboxymethyl) glycine].** See Edetic acid**N,N'-1,2-Ethanediybis (N-(carboxymethyl) glycine) tetrasodium salt.** See Tetrasodium EDTA**N,N'-1,2-Ethanediybis [N-(carboxymethyl) glycine], trisodium salt.** See Trisodium EDTA**(1,2-Ethanediybis (nitrilobis (methylene))) tetrakisphosphonic acid.** See Ethylenediaminetetra (methylene phosphonic acid)**N,N'-1,2-Ethanediybisoctadecanamide.** See Ethylene distearamide**N,N'-1,2-Ethanediybis-9-octadecanamide.** See Ethylene dioleamide**1,2-Ethanediybis (oxy) bismethanol**

*Uses:* Biocide

*Trade Names:* Nipacide® FC

**1,2-Ethanediy bromoacetate.** See 1,2-Bis (bromoacetoxyl) ethane**Ethane-1-hydroxy-1,1-diphosphonate.** See Etidronic acid**Ethane-1-hydroxy-1,1-diphosphonic acid, tetrasodium salt.** See Tetrasodium etidronate**Ethaneperoxic acid.** See Peracetic acid**1,1,1-Ethanetriol diphosphonate.** See Etidronic acid**Ethanoic acid.** See Acetic acid**Ethanoic acid, ethenyl ester.** See Vinyl acetate**Ethanol.** See Alcohol**Ethanolamine**

CAS 141-43-5; EINECS/ELINCS 205-483-3; UN No. 2491 (DOT)

*Synonyms:* MEA; MELA; 2-Aminoethanol; 2-Aminoethyl alcohol; β-Aminoethyl alcohol; β-Ethanolamine; Ethylolamine; Glycinol; β-Hydroxyethylamine; 2-Hydroxyethylamine; Monoethanolamine

*Classification:* Aliphatic amino alcohol; alkanolamine

*Empirical:* C<sub>2</sub>H<sub>7</sub>NO

*Formula:* NH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH

*Properties:* Colorless clear mod. visc. liq., ammoniacal odor; misc. with water, alcohol, acetone, glycerin; sol. in chloroform; sl. sol. in benzene; m.w. 61.10; dens. 1.012; m.p. 10.5 C; b.p. 170 C; flash pt. 93 C; ref. index 1.4540

*Toxicology:* ACGIH TLV/TWA 3 ppm; LD50 (oral, rat) 2140 mg/kg, (skin, rat) 1500 mg/kg; poison by IP route; mod. toxic by ingestion, skin contact, subcut., IV routes; corrosive irritant to eyes, skin, mucous membranes; TSCA listed

*Precaution:* DOT: Corrosive material; flamm. exposed to heat or flame; powerful reactive base

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>, NFPA: Health 3; Flammability 2; Reactivity 0

*Storage:* Hygroscopic; store in cool, dry well-ventilated area away from heat and ignition sources

*Uses:* Scrubbing acid gases, esp. in synthesis of ammonia; nonionic detergents for dry-cleaning wool treatment, emulsion paints, polishes, agricultural sprays; chemical intermediate; emulsifier for pharmaceuticals; corrosion inhibitor; chem. intermediate for mfg. rubber, vulcanization accelerators; flume wash water additive for food processing; dispersant for agric. chems., polishes, cleansers, paints, cosmetics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; adjuvant in silicides in food-contact paper/paperboard; in food-contact animal glues; buffering agent

*Use Level:* Limitation 0.3 ppm (in wash water)

*Regulatory:* FDA 21CFR §173.315, 175.105, 176.210, 176.300, 178.3120; not permitted for use in foods intended for babies and young infants in UK; USP/NF, BP compliance

*Manuf./Distrib.:* Aldrich; Allchem Ind.; BP Chems. Ltd; Degussa-Hüls AG; Fluka; Houghton Chem.; Huntsman; Int'l. Chem. Inc; Occidental; Oxiteno;

Research Organics; Romil Ltd; Ruger; Sal Chem.; Sigma; Spectrum Quality Prods.; Union Carbide; Varsal Instruments; Whyte Chems. Ltd  
*Trade Names:* MEA Commercial Grade; MEA Low Freeze Grade; MEA Low Iron Grade; MEA Low Iron-Low Freeze Grade; MEA NF Grade

**β-Ethanolamine.** See Ethanolamine

**Ethanol, 2,2'-((3-aminopropyl)imino)bis-**. See N-(3-Aminopropyl) diethanolamine

**Ethanol, 2-butoxy-, phosphate (3:1).** See Tributxyethyl phosphate

**Ethanol, 2-(diethylamino)-.** See Diethylaminoethanol

**Ethanol, 2-(dimethylamino)-.** See Dimethylethanolamine

**Ethanol, 2-(2-ethoxyethoxy).** See Ethoxydiglycol

**Ethanol, 2-(ethylphenylamino)-.** See Phenylethylethanolamine

**Ethanol, 2-(N-ethyl-m-toluidino)-.** See N-Ethyl-N-hydroxyethyl-m-toluidine

**Ethanol, 2,2'-iminobis, N-coco alkyl, N-oxide.** See Dihydroxyethyl cocaine oxide

**Ethanol, 2-(N-methylphenylamino).** See 2-(N-Methylanilino) ethanol

**Ethanol, 2-propoxy.** See Ethylene glycol propyl ether

**Ethanol, undenatured.** See Alcohol

**Ethanone, 2,2-dimethoxy-1,2-diphenyl-**. See 2,2-Dimethoxy-2-phenylacetophenone

**Ethene, chloro-, homopolymer.** See Polyvinyl chloride

**trans-1,2-Ethenedicarboxylic acid.** See Fumaric acid

**Ethene, 1,1-dichloro-, homopolymer.** See Polyvinylidene chloride

**Ethene, 1,1-dichloro-, polymer with chloroethene.** See Vinylidene chloride/vinyl chloride copolymer

**2,2'-(1,2-Ethenediyl) bis (5-aminobenzenesulfonic acid).** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**Ethene, homopolymer.** See Polyethylene

**Ethene, homopolymer, oxidized.** See Polyethylene, oxidized

**Ethene oxide.** See Ethylene oxide

**Ethene polymer.** See Polyethylene

**Ethenol homopolymer.** See Polyvinyl alcohol

**Ethenyl acetate.** See Vinyl acetate

**Ethenyl acetate, homopolymer.** See Polyvinyl acetate

**Ethenyl acetate, polymer with 2-butenic acid.** See VA/crotonates copolymer

**Ethenylbenzene homopolymer.** See Polystyrene

**Ethenylbenzene polymer with 1,3-butadiene.** See Styrene/butadiene polymer

**Ethenyl ethanoate.** See Vinyl acetate

**1-Ethenyl-2-pyrrolidinone homopolymer.** See PVP

**1-Ethenyl-2-pyrrolidinone, polymer with ethenylbenzene.** See Styrene/PVP copolymer

**1-Ethenyl-2-pyrrolidinone polymers.** See PVP

**Ethers, cyclic, epoxides, polymers.** See Epoxy resin

**Ethiops iron.** See Iron oxide black

**3-Ethochloride of 9-o-carboxyphenyl-6-diethylamino-3-ethylimino-3-isoxanthene.** See Basic violet 10

**Ethol.** See Cetyl alcohol

**Ethoxycarbonylethylene.** See Ethyl acrylate

**9-(2-Ethoxycarbonyl) phenyl-3,6-bis (ethylamino)-2,7-dimethylxanthylumolybdatetungstatephosphate.** See Pigment red 81

**Ethoxydiglycol**

CAS 111-90-0; EINECS/ELINCS 203-919-7

*Synonyms:* DEGEE; Carbitol; Diethylene glycol ethyl ether; Diethylene glycol monoethyl ether; Diglycol monoethyl ether; Ethanol, 2-(2-ethoxyethoxy); 2-(2-Ethoxyethoxy) ethanol; Ethyl diethylene glycol; Ethylene diglycol monoethyl ether

*Classification:* Aliphatic ether alcohol

*Empirical:* C<sub>6</sub>H<sub>14</sub>O<sub>3</sub>

*Formula:* CH<sub>2</sub>OHCH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>OC<sub>2</sub>H<sub>5</sub>

*Properties:* Colorless liq., mild pleasant odor; sol. in water and org. solvs., e.g., acetone, benzene, chloroform, ethanol, ether; m.w. 134.20; dens. 0.990 (20 C); m.p. -76 C; b.p. 195-202 C; flash pt. (OC) 96.1 C; ref. index 1.425 (25 C)

*Toxicology:* LD50 (oral, rat) 5500 mg/kg, (IP, rat) 6310 mg/kg, (IV, rat) 2200 mg/kg, (skin, rat) 6000 mg/kg; mod. toxic by ing., IP, IV, and other routes; mildly toxic by skin contact; skin and eye irritant; can be absorbed thru skin, but health effects unlikely; ing. may cause CNS depression, respiratory depression, sl. kidney injury, thirst, metabolic acidosis and cyanosis; high/repeated exposure may affect kidney; experimental reproductive

effects; mutation data; TSCA listed

*Precaution:* Combustible liq. and vapor; peroxide former; can react with oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 1; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight; very hygroscopic

*Uses:* Solvent for dyes, nitrocellulose, resins, paints, inks, textile printing, lacquers, quick-dry varnishes, enamels, wood stains, thinners, cosmetics; mutual solvent for mineral oil-soap and mineral oil-sulfonated oil mixts.; humectant; soaps; organic synthesis; brake fluid diluent; mfg. of plasticizers; solvent, thinner in nail enamels; solvent, solubilizer, cosurfactant for pharmaceuticals; in food-pkg. adhesives; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §175.105, 176.180

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Eastman; Fluka; Great Western; M.M.P.; Occidental; Oxiteno; Ruger; Sigma; Spectrum Quality Prods.; Union Carbide

*Trade Names Containing:* FC-520

**2-(2-Ethoxyethoxy) ethanol.** See Ethoxydiglycol

**Ethoxyethoxyethyl acrylate.** See 2-(2-Ethoxyethoxy) ethyl acrylate

**2-(2-Ethoxyethoxy) ethyl acrylate**

*Synonyms:* EEOEOA; Ethoxyethoxyethyl acrylate

*Uses:* Monomer, reactive diluent for radiation-curable ink and coating formulations

*Manuf./Distrib.:* Monomer-Polymer & Dajac Labs; Morton Int'l.

*Trade Names Containing:* CN 970 H75; CN 973 H85

**Ethoxylated fatty alcohols (C16-18).** See Ceteareth

**Ethoxylated tridecyl alcohol.** See Trideceth

**8-((4'-((4-Ethoxyphenyl) azo)-3,3'-dimethyl (1,1'-biphenyl)-4-yl) azo)-7-hydroxy-1,3-naphthalenedisulfonic acid, disodium salt.** See Direct red 39

**Ethyl acetate**

CAS 141-78-6; EINECS/ELINCS 205-500-4; UN No. 1173 (DOT); FEMA 2414

*Synonyms:* Acetic acid, ethyl ester; Acetic ester; Acetic ether; Acetoxyethane; Ethyl acetic ester; Ethyl ethanoate; Vinegar naphtha

*Classification:* Sat. aliphatic carboxylic acid ester

*Definition:* Ester of ethyl alcohol and acetic acid

*Empirical:* C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>COOC<sub>2</sub>H<sub>5</sub>

*Properties:* Colorless liq., fragrant fruity odor, acetous burning taste; sol. in chloroform, alcohol, ether, acetone, benzene, fixed and volatile oils; sl. sol. in water; m.w. 88.12; dens. 0.902 (20/4 C); bulk dens. 0.8945 g/ml; f.p. -83.6 C; b.p. 77 C; flash pt. -4.4 C; ref. index 1.3723; surf. tens. 24 dynes/cm (20 C)

*Toxicology:* ACGIH TLV/TWA 400 ppm; LD50 (oral, rat) 5620 mg/kg, (IP, mouse) 709 mg/kg; LC50 (inh., rat, 8 h) 1600 ppm; poison by inh.; mod. toxic by IP and subcut. routes; mildly toxic by ing.; irritant to eyes, skin, mucous membranes; human systemic effects by inh.; mildly narcotic; CNS depressant; can cause dermatitis; high concs. can cause liver/kidney congestion; mutagenic data; TSCA listed

*Precaution:* DOT: Flamm. liq.; very dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizers; incompat. with strong oxidizers, strong acids, bases, potassium t-butoxide

*Hazardous Decomp. Prods.:* Ethanol, acetic acid; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources

*Uses:* General solvent in automotive paints, coatings, plastics, lacquers, printing inks, adhesives, organic synthesis, smokeless powders, artificial leather, photographic films and plates, pharmaceuticals; vehicle in cosmetics; synthetic fruit essences; flavoring agent in foods/pharmaceuticals; fragrance ingred.; spotting solvent (dry cleaning); cleaning textiles; nail polish removers; color diluent, extraction solvent for food use; reagent; adjuvant in resinous/polymeric food-contact coatings; in cellophane for food pkg.

*Use Level:* 67 ppm (nonalcoholic beverages), 50-65 ppm (alcoholic bever-

ages), 99 ppm (ice cream, ices), 170 ppm (candy), 170 ppm (baked goods), 200 ppm (gelatins, puddings), 1400 ppm (chewing gum); ADI 0-25 mg/kg (FAO/WHO)

*Regulatory:* FDA 21CFR § 73.1, 172.560, 173.228, 175.320, 177.1200, 182.60, GRAS; 27CFR § 21.106; FEMA GRAS; Japan approved with restrictions; FDA approved for ophthalmics, orals, topicals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Alfrebro; Allchem Ind.; Ashland; BP Amoco; BP Chems. Ltd; Baychem; Berje; Brown; Celanese; Chemcentral; Chisso Am.; Degussa-Hüls AG; Eastman; Fisher Scientific; Fluka; Harcross; Houghton Chem.; Hukill; J.T. Baker; Lonza Ltd; Mallinckrodt Baker; Monsanto; Penta Mfg.; Punda Mercantile; Romil Ltd; Ruger; Sal Chem.; Samson; Sigma; Spectrum Quality Prods.; Sunnyside; Union Carbide; Van Waters & Rogers

*Trade Names Containing:* Metalure® L-55350

**Ethyl acetic ester.** See Ethyl acetate

### Ethyl acrylate

CAS 140-88-5; EINECS/ELINCS 205-438-8; UN No. 1917 (DOT); FEMA 2418

*Synonyms:* Acrylic acid, ethyl ester; Ethoxycarbonylethylene; Ethyl propenoate; Ethyl 2-propenoate; 2-Propenoic acid, ethyl ester

*Definition:* Esterification of acrylic acid

*Empirical:* C<sub>5</sub>H<sub>8</sub>O<sub>2</sub>

*Formula:* CH<sub>2</sub>:CHCOOC<sub>2</sub>H<sub>5</sub>

*Properties:* Colorless liq., penetrating and persistent odor; sol. in alcohol, ether, oxygenated solvs.; sl. sol. in water; m.w. 100.12; sp.gr. 0.918; m.p. -71 to -75 C; f.p. 60 F; b.p. 99-100 C; ref. index 1.4068

*Toxicology:* ACGIH TLV/TWA 5 ppm; STEL 15 ppm; LD50 (oral, rat) 800 mg/kg, (IP, rat) 450 mg/kg; LC50 (inh., mouse) 16,200 mg/m<sup>3</sup>; poison by ing. and inh.; mod. toxic by skin contact and IP routes; skin and eye irritant; human systemic effects by inh.; pulmonary changes; can severely irritate gastroenteric tract; may cause dyspnea, cyanosis, convulsions; migrates to food from pkg.; delisted as human carcinogen; TSCA listed

*Precaution:* Flamm. liq.; very dangerous fire hazard exposed to heat/flame; can react vigorously with oxidizers; readily polymerized; violent reaction with chlorosulfonic acid

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Acrylic resin comonomer for paints, adhesives, textiles, leather, paper coatings; nitrile rubber comonomer; synthetic flavoring agent in foods and pharmaceuticals; nonwoven binder; modifier for oils/alkyds in food-contact coatings

*Use Level:* 0.13-0.26 ppm (nonalcoholic beverages), 0.06-1 ppm (ice cream, ices), 1.1 ppm (candy), 1.1 ppm (baked goods), 0.1 ppm (chewing gum)

*Regulatory:* FDA 21CFR § 172.515, 175.300; FEMA GRAS; SARA reportable; BP compliance

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Bencorp Int'l.; Celanese; Filo; Fluka; G.J. Chem.; LG Chem. Am.; Union Carbide; Whyte Chems. Ltd

*Trade Names:* Rohamere® 84116

*Trade Names Containing:* Rohamere® 21; Rohamere® 61; Rohamere® 132; Rohamere® 568; Rohamere® 977; Rohamere® 1900-D; Rohamere® 1960-D; Rohamere® 3045; Rohamere® 8437; Rohamere® 8464; Rohamere® 8478; Rohamere® 8596; Rohamere® 8662; Rohamere® 9158; Rohamere® 84124; Rohamere® 87219

### Ethyl acrylate/2-ethylhexylacrylate copolymer

CAS 26376-86-3

*Uses:* Defoamer, deaerator in lubricating oil dispersions

*Trade Names:* Modaflow® 2100; Modaflow® Resin

*Trade Names Containing:* Modaflow® Powder 2000; Modaflow® Powder III; Multiflow® Resin

**Ethyl acrylate latex.** See Polyethylacrylate

**Ethyl acrylate resin.** See Polyethylacrylate

**Ethyl acrylate resin polymer.** See Polyethylacrylate

**Ethyl alcohol.** See Alcohol

**Ethyl alcohol, undenatured.** See Alcohol

**2-((6-Ethylamino)-3-ethylimino-2,7-dimethyl-3H-xanthene-9-yl) benzoic acid, ethyl ester with molybdenum tungsten hydroxide oxide phosphate.** See Pigment red 81

**2-(N-Ethylanilino) ethanol.** See Phenylethylethanolamine

**Ethyl trans-2-butenate.** See Ethyl crotonate

**Ethyl carbinol.** See Propyl alcohol

**Ethyl citrate.** See Triethyl citrate

### Ethyl crotonate

CAS 623-70-1; 10544-63-5; EINECS/ELINCS 210-808-7; UN No. 1862 (DOT); FEMA 3486

*Synonyms:* 2-Butenoic acid, ethyl ester; trans-2-Butenoic acid ethyl ester; Crotonic acid, ethyl ester; Ethyl trans-2-butenate; Ethyl α-crotonate; Ethyl β-methylacrylate

*Definition:* Obtained by esterification of crotonic acid with ethyl alcohol in presence of conc. H<sub>2</sub>O<sub>4</sub>

*Empirical:* C<sub>8</sub>H<sub>10</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>CH:CHCOOC<sub>2</sub>H<sub>5</sub>

*Properties:* Water-wh. solid or liq., char. pungent persistent odor; sol. in alcohol, ether, oxygenated solvs.; insol. in water; m.w. 114.15; dens. 0.916 (20/4 C); m.p. 45 C; b.p. 126 C (cis), 145 C (trans); flash pt. 2 C; ref. index 1.425 (20 C)

*Toxicology:* LD50 (oral, rat) 3 g/kg; corrosive; sl. toxic by ing.; lachrymator; strong irritant to eyes, skin, respiratory system; TSCA listed

*Precaution:* Highly flamm.; dangerous fire risk

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Keep away from ignition sources

*Uses:* Solvent; softening agent; lacquers; organic synthesis; fragrance ingred.; synthetic flavoring agent for foods and pharmaceuticals; mfg. of copolymers with vinyl acetate used in lacquers and paper sizing; mfg. of DL-threonine, vitamin A

*Regulatory:* FDA 21CFR § 172.515; FEMA GRAS

*Manuf./Distrib.:* Aldrich; Fluka; Grau Aromatics

**Ethyl α-crotonate.** See Ethyl crotonate

**Ethyl diethylene glycol.** See Ethoxydiglycol

### Ethyl 4-(dimethylamino) benzoate

CAS 10287-53-3; EINECS/ELINCS 233-634-3

*Synonyms:* 4-Dimethylaminobenzoic acid, ethyl ester; Ethyl-p-(dimethylamino) benzoate

*Classification:* Amine

*Empirical:* C<sub>11</sub>H<sub>15</sub>NO<sub>2</sub>

*Properties:* Sol. in acrylates; m.w. 193.25; m.p. 61-64 C

*Toxicology:* TSCA listed

*Uses:* UV photoinitiator, photoactivator, synergist for UV-cured coatings, lacquers, printing inks

*Manuf./Distrib.:* Aldrich; ChemFirst; Fluka; Hampford Research; Nordic Synthesis AB

*Trade Names:* Esacure® EDB

**Ethyl-p-(dimethylamino) benzoate.** See Ethyl 4-(dimethylamino) benzoate  
**N-Ethyl-N,N-dimethyl-3-[(1-oxoisooctadecyl) amino]-1-propanaminium ethyl sulfate.** See Isostearamidopropyl ethyldimonium ethosulfate

**Ethyldimethyl [3-[(1-oxoisooctadecyl) amino] propyl] ammonium ethyl sulfate.** See Isostearamidopropyl ethyldimonium ethosulfate

### Ethylene/acrylic acid copolymer

CAS 9010-77-9

*Synonyms:* EAA; Poly (ethylene-co-acrylic acid); 2-Propenoic acid with ethene; 2-Propenoic acid, polymer with ethene

*Definition:* Copolymer of ethylene and acrylic acid monomers

*Formula:* (CH<sub>2</sub>CH<sub>2</sub>)<sub>x</sub>[CH<sub>2</sub>CH(CO<sub>2</sub>H)]<sub>y</sub>

*Properties:* Solid; dens. 0.960

*Toxicology:* Irritant; TSCA listed

*Uses:* Binder for nonwoven fibers; lubricant and processing aid for plastics; pigment dispersant; gellant for cosmetic oils; anticorrosion agent; flattening/antisetling agent in paints; emulsion stabilizer; film-former; adhesive film (carpet underlay); laminating adhesives (aluminum/plastic film); mold release; in polishes; coatings; in food pkg.; in paper/paperboard in contact with aq./fatty foods; food-contact surfaces

*Regulatory:* FDA 21CFR § 176.170, 177.1310, 178.1005

*Manuf./Distrib.:* Aldrich

*Trade Names:* A-C® 540; A-C® 540A; A-C® 580; A-C® 5120; A-C® 5180; Nucrel® 3990

**Ethylene/acrylic acid/VA copolymer.** See Ethylene/acrylic acid/vinyl acetate copolymer

**Ethylene/acrylic acid/vinyl acetate copolymer**

CAS 26713-18-8

*Synonyms:* Ethylene/acrylic acid/VA copolymer; 2-Propenoic acid, polymer with ethene and ethenyl acetate

*Definition:* Copolymer of ethylene, acrylic acid, and vinyl acetate monomers

*Uses:* Film-former for adhesives, floor finishes, general coatings; emulsions; food-pkg. adhesives; in paper/paperboard in contact with dry food

*Trade Names:* ACTer® 1450

**Ethylene alcohol.** See Glycol

**Ethylene aldehyde.** See Acrolein

**Ethylene bis (bromoacetate).** See 1,2-Bis (bromoacetoxy) ethane

**Ethylenebis (dithiocarbamate) disodium salt.** See Nabam

**Ethylenebis (dithiocarbamic acid) disodium salt.** See Nabam

**Ethylenebis (iminodiacetic acid) tetrasodium salt.** See Tetrasodium EDTA

**N,N'-Ethylenebisoleamide.** See Ethylene dioleamide

**Ethylene bis (stearamide).** See Ethylene distearamide

**N,N'-Ethylene bisstearamide.** See Ethylene distearamide

**Ethylenebisstearamide.** See Ethylene distearamide

**Ethylenebis (stearylamide).** See Ethylene distearamide

**Ethylene bromoacetate.** See 1,2-Bis (bromoacetoxy) ethane

**Ethylene/butyl acrylate copolymer**

CAS 25750-84-9

*Synonyms:* Poly (ethylene-co-butyl acrylate)

*Classification:* Acrylic polymer

*Definition:* Copolymer of ethylene and butyl acrylate monomers

*Formula:*  $(\text{CH}_2\text{CH}_2)_x[\text{CH}_2\text{CH}[\text{CO}_2(\text{CH}_2)_3\text{CH}_3]]_y$

*Properties:* Pellets; melt index 35-45 g/10 min (35% butyl acrylate); sp.gr. 0.930

*Toxicology:* May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; may irritate mucous membranes and upper respiratory tract; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents, acids; capable of creating a dust explosion in powd. form

*Hazardous Decomp. Prods.:* Toxic fumes of CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

*Storage:* Store in cool, dry place; keep tightly closed

*Uses:* For extrusion coating, adhesives, food-pkg. adhesives; for coatings and laminations with oriented PP, PET, papers, clay-coated board and nylon substrates for specialty pkg.

*Manuf./Distrib.:* Aldrich

*Trade Names:* Enathene® EA 720-009

**Ethylenecarboxamide.** See Acrylamide

**Ethylene carboxylic acid.** See Acrylic acid

**Ethylene, chloro-, polymer.** See Polyvinyl chloride

**Ethylene, chlorotrifluoro-, polymers.** See Chlorotrifluoroethylene polymer

**Ethylenediamine**

CAS 107-15-3 (anhyd.); 6780-13-8 (monohydrate); EINECS/ELINCS 203-468-6; UN No. 1604 (DOT)

*Synonyms:* EDA; 1,2-Diaminoethane; Dimethylenediamine; 1,2-Ethanediamine

*Classification:* Aliphatic organic compd.; aliphatic polyamine

*Empirical:* C<sub>2</sub>H<sub>6</sub>N<sub>2</sub>

*Formula:* NH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>

*Properties:* Colorless to sl. yel. clear volatile liq., ammonia-like odor; sol. in acetone, ethanol, dimethylsulfoxide, benzene, water; sl. sol. in diethyl ether, heptane; misc. with water, alcohol, oxygenated and aromatic solvs.; m.w. 60.12; dens. 0.8994 (20/4 C); m.p. 8.5 C; b.p. 117.2 C; flash pt. (CC) 42 C; ref. index 1.4565

*Toxicology:* TLV/TWA 10 ppm; LD50 (oral, rat) 500 mg/kg; human irritant poison by inh.; mod. toxic by ingestion, skin contact; corrosive; severe skin and eye irritant; lachrymator; allergen, sensitizer; mutagenic data; TSCA listed

*Precaution:* DOT: Corrosive material; flamm. exposed to heat, flame, oxidizers; can react violently with acetic acid, acetic anhydride, acrylic acid, epichlorohydrin, many others; absorbs CO<sub>2</sub> from air to form the carbamate salt

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrogen cyanide, volatile amines;

heated to decomp., emits toxic fumes of NO<sub>x</sub> and NH<sub>3</sub>

NFPA: Health 3; Flammability 2; Reactivity 0

*Storage:* Hygroscopic; air-sensitive

*Uses:* Chemical intermediate in mfg. of fungicides, chelating agents, polyamide resins, corrosion inhibitors, rubber chems., dimethylolethylene-urea resins, syn. waxes, fuel additives; solvent; emulsifier; textile lubricants; antifreeze inhibitor; agric.; ion-exchange resins; epoxy curing agent; thermoplastics lubricants; stabilizer for dyes; solvent for shellac; flume wash water additive for food processing; antimicrobial for cane-sugar/beet-sugar mills; stabilizer, buffer for pharmaceuticals; in food-pkg. adhesives; adjuvant in slimicides in food-contact paper/paperboard; in food-contact animal glues

*Use Level:* Limitation 0.1 ppm (in wash water), zero tolerance (milk)

*Regulatory:* FDA 21CFR §173.315, 173.320 (1 ppm max.), 175.105, 176.300, 178.3120, 556.270, 181.30; FDA approved for IV, injectables, orals, rectals, topicals; USP, BP, Ph.Eur., JP compliance

*Manuf./Distrib.:* Aldrich; Allchem Ind.; BASF AG; BASF; Coyne; Diamines & Chems. Ltd; Dow; Fluka; Houghton Chem.; Nova Molecular Tech.; Sigma; Spectrum Quality Prods.; Tosoh; Union Carbide

**Ethylenediamine acetic acid trisodium salt.** See Trisodium EDTA

**Ethylenediamine bisstearamide.** See Ethylene distearamide

**N,N'-Ethylenediaminediacetic acid tetrasodium salt.** See Tetrasodium EDTA

**Ethylenediamine propoxylate/ethoxylate.** See EO/PO ethylenediamine block copolymer

**Ethylenediamine steardiamide.** See Ethylene distearamide

**Ethylenediaminetetraacetic acid.** See Edetic acid

**Ethylenediaminetetraacetic acid, calcium disodium salt.** See Calcium disodium EDTA

**Ethylenediaminetetraacetic acid, disodium salt.** See Disodium EDTA

**Ethylenediaminetetraacetic acid, sodium salt.** See Tetrasodium EDTA

**Ethylenediaminetetraacetic acid, tetrasodium salt.** See Tetrasodium EDTA

**Ethylenediaminetetraacetic acid, trisodium salt.** See Trisodium EDTA

**Ethylenediaminetetra (methylene phosphonic acid)**

CAS 1429-50-1

*Synonyms:* EDTMPA; EDTPO; Editempa acid; (1,2-Ethanediybis (nitriolobis (methylene))) tetrakisphosphonic acid; N,N,N',N'-Ethylenediamine tetra (methylene)phosphonic acid; (Ethylenedinitriolo)-tetramethylenephosphonic acid; Phosphonic acid, (1,2-ethanediybis (nitriolobis (methylene))) tetrakis-

*Empirical:* C<sub>4</sub>H<sub>20</sub>N<sub>2</sub>O<sub>12</sub>P<sub>4</sub>

*Properties:* Wh. cryst. solid; m.w. 436.13

*Uses:* Electroplating bath additive; scale inhibitor/chelating agent for boilers, cooling towers, oil field water systems; sequestant in laundry and industrial detergents; sequestant, dispersant, scale inhibitor for I&I cleaning, detergents, metal cleaning, pulp and paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Trade Names:* Aquacid-109 EX; Dequest® 2041

**N,N,N',N'-Ethylenediamine tetra (methylene phosphonic acid).** See Ethylenediaminetetra (methylene phosphonic acid)

**Ethylene diamine tetra (methylene phosphonic acid), pentasodium salt.**

See Pentasodium ethylene diamine tetramethylene phosphonate

**1,2-Ethylenedicarboxylic acid.** See Fumaric acid

**trans-1,2-Ethylenedicarboxylic acid.** See Fumaric acid

**Ethylene, 1,1-dichloro-, polymer with chloroethylene.** See Vinylidene chloride/vinyl chloride copolymer

**Ethylene diglycol monoethyl ether.** See Ethoxydiglycol

**Ethylene dihydrate.** See Glycol

**Ethylene dimethacrylate.** See Ethylene glycol dimethacrylate

**(Ethylenedinitriolo) tetraacetic acid.** See Edetic acid

**(Ethylenedinitriolo) tetraacetic acid, sodium salt.** See Disodium EDTA

**(Ethylenedinitriolo)-tetramethylenephosphonic acid.** See Ethylenediaminetetra (methylene phosphonic acid)

**Ethylene dioleamide**

CAS 110-31-6; EINECS/ELINCS 203-756-1

*Synonyms:* N,N'-Dioleoylethylenediamine; N,N'-1,2-Ethanediybis-9-octadecenamamide; N,N'-Ethylenbisoleamide; 9-Octadecenamamide, N,N'-1,2-ethanediybis-

*Classification:* Diamide

*Empirical:* C<sub>38</sub>H<sub>72</sub>N<sub>2</sub>O<sub>2</sub>

**Toxicology:** TSCA listed

**Uses:** Syn. wax used as plastics processing lubricant and release agent, antistat, antiblock, slip agent, m.p. modifier for waxes, industrial asphalts and tar, pigment dispersant for resin systems; polyamide-paraffin coupling agent; visc. control agent; in adhesive tapes; coatings; food-pkg. materials; release agent in food-contact coatings, PVC films; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.300, 175.320, 176.170, 177.1200, 178.3860

**Manuf./Distrib.:** Aldrich

**Trade Names:** Advawax® 240; Kemamide® W-20

#### Ethylene distearamide

CAS 110-30-5; 68955-45-3; EINECS/ELINCS 203-755-6; 273-277-0

**Synonyms:** 1,2-Bis (octadecanamido) ethane; 1,2-Bis (stearoylamino) ethane; N,N-Bis-stearoylthylenediamide; N,N'-Distearoylthylenediamine; N,N'-1,2-Ethanediybisoctadecanamide; Ethylene bis (stearamide); N,N'-Ethylene bisstearamide; Ethylenebisstearoamide; Ethylenebis (stearylamide); Ethylenediamine bisstearamide; Ethylenediamine steardiamide; N,N'-Ethylenedistearamide; N,N'-Ethylene distearylamine; Octadecanamide, N,N'-1,2-ethanediybis-; Octadecanamide, N,N'-ethylenebis-; Stearic acid, ethylenediamine diamide

**Classification:** Diamide

**Empirical:** C<sub>38</sub>H<sub>76</sub>N<sub>2</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CONH(CH<sub>2</sub>)<sub>2</sub>NHCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>

**Properties:** Solid; insol. in water; m.w. 593.04; bulk dens. 0.6 g/ml; m.p. 143 C; flash pt. (COC) 290 C; nonionic

**Toxicology:** TSCA listed

**Uses:** Lubricant, processing aid for PVC, PS, ABS, nylon; mold release agent for plastics; peptizing agent and dispersant for tech. NR articles; paint raw material; defoamer for pulp/paper, water treatment; visc. control agent; release agent in food-contact coatings; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 177.1200

**Manuf./Distrib.:** Aldrich; Am. Int'l.; Chemax; Eastech; Fabrichem; H & C Ind.; Hexagon Enterprises; Lipo; Lonza; Mercator; Rhodia HPCII; SCI Int'l. USA; Shen Enterprise; Thornley; Uniqema N. Am.; Venus Ethoxyethers

**Trade Names:** Acrawax® C; Advawax® 280; Advawax® 290; Alkamide® STEDA; Glycowax® 765; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Lipowax C; Ross Wax #140

**N,N'-Ethylenedistearamide.** See Ethylene distearamide

**N,N'-Ethylene distearylamine.** See Ethylene distearamide

**Ethylene glycol.** See Glycol

**Ethylene glycol, acrylate.** See 2-Hydroxyethyl acrylate

**Ethylene glycol, bis (bromoacetate).** See 1,2-Bis (bromoacetoxy) ethane

**Ethylene glycol butyl ether.** See Butoxyethanol

**Ethylene glycol n-butyl ether.** See Butoxyethanol

**Ethylene glycol dilaurate.** See Glycol dilaurate

#### Ethylene glycol dimethacrylate

CAS 97-90-5; EINECS/ELINCS 202-617-2

**Synonyms:** EDMA; 1,2-Bis (methacryloyloxy) ethane; 1,2-Ethandiol dimethacrylate; Ethylene dimethacrylate

**Empirical:** C<sub>10</sub>H<sub>14</sub>O<sub>4</sub>

**Formula:** CH<sub>2</sub>:C(CH<sub>3</sub>)COOCH<sub>2</sub>CH<sub>2</sub>OCOC(CH<sub>3</sub>):CH<sub>2</sub>

**Properties:** Pale yel. liq.; insol. in water; m.w. 198.22; dens. 1.053 (20/4 C); b.p. 66-68 C; flash pt. (COC) 113 C; ref. index 1.545 (20 C)

**Toxicology:** LD50 (oral, rat) 3300 mg/kg, (oral, mouse) 2 g/kg; moderately toxic by ingestion, intraperitoneal routes; irritating to eyes, respiratory system; lachrymator; mutagen; TSCA listed

**Storage:** Photosensitive; refrigerate

**Uses:** Crosslinker and modifier for ABS, acrylic sheet and rods, PVC; peroxide crosslinking agent (rubber); rubber modifier; comonomer for cross-linked acrylic/vinyl resins; ion exchange resins; glaze coatings; dental polymers; paper processing aids; adhesives; optical polymers; leather finishing; moisture barrier films

**Manuf./Distrib.:** Akzo Nobel; Aldrich; CPS; Fluka; Hampford Research; Monomer-Polymer & Dajac Labs; Rohm Tech; Sartomer; Sigma

**Trade Names:** Bisoimer EGDMA

**Trade Names Containing:** Ageflex EGDMA

**Ethylene glycol dioleate.** See Glycol dioleate

**Ethylene glycol distearate.** See Glycol distearate

**Ethylene glycol methacrylate.** See 2-Hydroxyethyl methacrylate

**Ethylene glycol monoacrylate.** See 2-Hydroxyethyl acrylate

**Ethylene glycol monobutyl ether.** See Butoxyethanol

**Ethylene glycol mono-n-butyl ether.** See Butoxyethanol

**Ethylene glycol monolaurate.** See Glycol laurate

**Ethylene glycol monomethacrylate.** See 2-Hydroxyethyl methacrylate

**Ethylene glycol monooleate.** See Glycol oleate

**Ethylene glycol monopalmitate.** See Glycol palmitate

**Ethylene glycol monopropyl ether.** See Ethylene glycol propyl ether

**Ethylene glycol mono-n-propyl ether.** See Ethylene glycol propyl ether

**Ethylene glycol monoricinoleate.** See Glycol ricinoleate

**Ethylene glycol monostearate.** See Glycol stearate

**Ethylene glycol monostearate SE.** See Glycol stearate SE

**Ethylene glycol nonyl phenyl ether.** See Nonoxynol-1

**Ethylene glycol octyl phenyl ether.** See Octoxynol-1

**Ethylene glycol/propylene glycol block copolymer.** See EO/PO block polymer or copolymer

#### Ethylene glycol propyl ether

CAS 2807-30-9; EINECS/ELINCS 220-548-6

**Synonyms:** Ethanol, 2-propoxy; Ethylene glycol monopropyl ether; Ethylene glycol mono-n-propyl ether; Monopropyl ether of ethylene glycol; 2-Propoxyethanol; Propyl<sup>1</sup>Cellosolve<sup>1</sup>

**Empirical:** C<sub>5</sub>H<sub>12</sub>O<sub>2</sub>

**Formula:** CH<sub>2</sub>OHCH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>

**Properties:** Liq.; sol. in water; m.w. 104.17; dens. 0.913 (20/20 C); f.p. -90 C; b.p. 149.5 C; flash pt. (TCC) 49 C

**Toxicology:** LD50 (oral, rat) 3089 mg/kg, (skin, rabbit) 960 mg/kg; LC50 (inh., mouse, 7 h) 1530 ppm; mod. toxic by ing. and skin contact; mild toxicity by inh.; skin and severe eye irritant; experimental teratogen, reproductive effector; TSCA listed

**Precaution:** Combustible; can react with oxidizers

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Solvent for coatings, cosmetics, resins; coupling solvent for resin/water systems

**Manuf./Distrib.:** Aldrich; Ashland; Eastman; Sal Chem.

**Trade Names Containing:** Araldite® PZ 3901

**Ethylene glycol stearate.** See Glycol stearate

**Ethylene homopolymer.** See Polyethylene

**Ethyleneimine, homopolymer.** See Polyethylenimine

**Ethyleneimine polymer.** See Polyethylenimine

**Ethyleneimine resin.** See Polyethylenimine

**Ethylene latex.** See Polyethylene

#### Ethylene/MA copolymer

CAS 9006-26-2

**Synonyms:** EMA; Ethylene/maleic anhydride copolymer; 2,5-Furandione, polymer with ethene; Maleic anhydride/polyethylene copolymer

**Definition:** Polymer of ethylene and maleic anhydride monomers

**Formula:** [CH<sub>2</sub>CH<sub>2</sub>]<sub>x</sub>[CHCOOHCHCOOH]<sub>y</sub>

**Properties:** Fine powd.; water-sol.

**Precaution:** Reacts readily with alcohols and amines

**Uses:** Binder; film-former; dispersant for detergents, oil-well drilling muds; thickener in textile printing pastes, cosmetics; textile sizes; printing inks; stabilizer, thickener in liq. detergents, cosmetics, paints; water-sol. films for pharmaceutical capsules; bonding/compatibilizing agent for substrates, polymers, and polymer blends for paper coatings, wood prods., adhesives/sealants, plastics (olefin blends and filled olefins); suspending agent; ceramic binders; food pkg.; closure-sealing gaskets for food containers

**Regulatory:** FDA 21CFR §175.105, 177.1210, 177.1520

**Manuf./Distrib.:** Aldrich; Sigma

**Ethylene/maleic anhydride copolymer.** See Ethylene/MA copolymer

#### Ethylene/methacrylic acid copolymer

CAS 25053-53-6

**Synonyms:** EMAA; Poly (ethylene-co-methacrylic acid)

**Classification:** Acrylic polymer

**Formula:** (CH<sub>2</sub>CH<sub>2</sub>)<sub>x</sub>[CH<sub>2</sub>C(CH<sub>3</sub>)(CO<sub>2</sub>H)]<sub>y</sub>

**Properties:** Pellets; dens. 0.970; m.p. 76-83 C; tens. str. 21.4-25 MPa

## Ethylene/methyl acrylate/acrylic acid terpolymer

**Toxicology:** May be harmful by inh., ing., or skin absorption; may cause eye/skin irritation; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO<sub>2</sub>, acids, aldehydes, alcohols; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place; keep tightly closed

**Uses:** Copolymer for extrusion into sheet, film, and coatings; inj. molding; blow molding; thermoforming; hot-melt adhesives; sealants; food pkg.

**Manuf./Distrib.:** Aldrich

**Trade Names:** Nucrel® 0407; Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214

## Ethylene/methyl acrylate/acrylic acid terpolymer

CAS 41525-41-1

**Synonyms:** Poly (ethylene-co-methyl acrylate-co-acrylic acid)

**Classification:** Olefin; acrylic

**Formula:** (CH<sub>2</sub>CH<sub>2</sub>)<sub>x</sub>[CH<sub>2</sub>CH(CO<sub>2</sub>CH<sub>3</sub>)<sub>y</sub>][CH<sub>2</sub>CH(CO<sub>2</sub>H)]<sub>z</sub>

**Properties:** Pellets; dens. 0.942; m.p. 65 C; acid no. 45

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> (nuisance particulates); may be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, respiratory system

**Precaution:** In powd. form, capable of creating a dust explosion; static charge buildup can be a potential fire hazard when used in presence of volatile/flamm. mixts.; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in cool dry place

**Uses:** Impact modifier for engineering thermoplastics; adhesion modifier for rubber compds., TPOs, adhesives; food-pkg. adhesives, paper/paperboard; adhesive for biaxially oriented nylon and PC films

**Manuf./Distrib.:** Aldrich

**Trade Names:** Escor® AT-310; Escor® AT-320; Escor® AT-325

## Ethylene oxide

CAS 75-21-8; EINECS/ELINCS 200-849-9; UN No. 1040 (DOT); FEMA 2433

**Synonyms:** EO; ETO; Dihydrooxirene; Dimethylene oxide; Epoxyethane; 1,2-Epoxyethane; Ethene oxide; Oxacyclopropane; Oxane; Oxidoethane; α,β-Oxidoethane; Oxirane

**Empirical:** C<sub>2</sub>H<sub>4</sub>O

**Properties:** Colorless gas or liq.; very sol. in ether; sol. in org. solvs.; misc. with water, alcohol, oxygenated solvs.; m.w. 44.06; dens. 0.8711 (20/20 C); m.p. -111.3 C; b.p. 10.73 C; flash pt. 0 F

**Toxicology:** ACGIH TLV/TWA 1 ppm; LD50 (oral, rat) 72 mg/kg; poison by ing., IP, subcut., IV routes; mod. toxic by inh.; irritating to eyes, skin, respiratory tract; human systemic effects by inh. (convulsions, nausea, vomiting, pulmonary changes); suspected human carcinogen; experimental tumorigen, neoplastigen, teratogen; mutagenic data; TSCA listed

**Precaution:** Flamm.; severe explosion hazard exposed to flame; violent polymerization on contact with ammonia, alkali hydroxides, amines, acids, etc.

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Mfg. of ethylene glycol and higher glycols, surfactants, acrylonitrile, ethanolamines, ethoxylates; petroleum demulsifier; rocket propellant; industrial sterilant (medical plastic tubing); fungicide; fumigant in sizing for paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180; FEMA GRAS; FDA approved for ophthalmics, topicals; SARA reportable; BP compliance

**Manuf./Distrib.:** Aldrich; BASF; BP Amoco; Celanese; Cognis/Chems. Group; Degussa-Hüls AG; Dow; Eastman; Equistar; Honeywell Perf. Polymers; Huntsman; MG Ind.; Occidental; Rhodia HPCII; Shell; Sunoco; Total Spec. Chems.; Union Carbide

**Ethylene oxide adduct of 2,4,7,9-tetramethyl-5-decyn-4,7-diol.** See PEG tetramethyl decynediol

**Ethylene polymer.** See Polyethylene

**Ethylene polymers.** See Polyethylene

**Ethylene resin.** See Polyethylene

## Ethylene/VA copolymer

CAS 24937-78-8

**Synonyms:** EVA; EVM; VAE; Acetic acid, ethenyl ester, polymer with

ethene; Ethylene vinyl acetate; Ethylene/vinyl acetate copolymer; EVA copolymer; Poly (ethylene-co-vinyl acetate); VA/ethylene copolymer; Vinyl acetate/ethylene copolymer

**Classification:** Elastomer

**Definition:** Thermoplastic copolymer of ethylene and vinyl acetate monomers

**Formula:** (CH<sub>2</sub>CH<sub>2</sub>)<sub>x</sub>[CH<sub>2</sub>CH(O<sub>2</sub>CCH<sub>3</sub>)<sub>y</sub>]

**Properties:** Dens. 0.930; m.p. 99 C

**Toxicology:** Suspected cancer agent, mutagen

**Uses:** Syn. rubber for tech. moldings and extrudates, lamp seals, cable sheathings and insulations, cellular rubber goods, footwear soles, water-proof sheeting, hot-melt and pressure-sensitive hot-melt adhesives, coatings, inks, lacquers, sealants; impact modifier for PVC; coating binder and saturant for paper/paperboard, nonwovens, medical/surgical applics., fiber laminates; in thermoplastics; in pharmaceutical ophthalmics, otics, topicals, slow-release, microencapsulation; emulsion stabilizer; film-former; flattening and antisetting agent in paints/coatings; dispersant and color enhancer in color concs.; in food-contact coatings and surfaces; in closure-sealing gaskets for food containers; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.300, 177.1200, 177.1210, 177.1350, 178.1005; FDA approved for ophthalmics, otics

**Manuf./Distrib.:** Air Prods.; Aldrich; Allchem Ind.; Ashland; Bayer; Chemcentral; Dow; Equistar; Focus; Honeywell Perf. Polymers; Kingsfield; Marco Polo Int'l.; Monomer-Polymer & Dajac Labs; Nat'l. Casein; Nat'l. Starch & Chem.; Tamms Ind.; Union Carbide

**Trade Names:** A-C® 400; A-C® 400A; A-C® 405(M); A-C® 405(S); A-C® 405(T); A-C® 430; Airflex® 100 HS; Airflex® 105; Airflex® 108; Airflex® 110; Airflex® 124; Airflex® 144; Airflex® 300; Airflex® 320; Airflex® 323; Airflex® 400; Airflex® 426; Airflex® 440; Airflex® 440H; Airflex® 465; Airflex® 7200; Dur-O-Set® E-623; Dur-O-Set® E-646; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33; Elvace® 731; Elvace® 733; Elvace® 734; Elvace® 735; Elvace® 736; Elvace® 739; Elvace® 40713-00; Elvace® 40722-00; Elvace® 40724-00; Elvace® 97955-00; Elvax® 310; Elvax® 350; Elvax® 360; Elvax® 550, 560; Hoechst Wax PE 890; Microthene® FE 532-00; Ultrathene® UE 631-04; Ultrathene® UE 634-04; Ultrathene® UE 634-67; Ultrathene® UE 639-67; Ultrathene® UE 649-04; Ultrathene® UE 653-67; Ultrathene® UE 654-67

**Ethylene vinyl acetate.** See Ethylene/VA copolymer

**Ethylene/vinyl acetate copolymer.** See Ethylene/VA copolymer

## Ethylene/vinyl chloride copolymer

**Uses:** Crosslinkable flexible binder and saturant for paper/paperboard applics.; food-contact paper/paperboard; nonwoven binder for fiberfill and high loft stock requiring flame retardancy; imparts flexibility and water resist. to caulks, mastics, barrier coats in building applics; high build flexible coatings; low MVTR coatings

**Trade Names:** Airflex® 4500; Airflex® 4514; Airflex® 4530; Vancryl® 600; Vancryl® 605; Vancryl® 610

**Ethylenimine, polymers.** See Polyethylenimine

**Ethyl ethanoate.** See Ethyl acetate

**Ethyl o-(6-(ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthen-9-yl) benzoate monohydrochloride.** See Basic red 1

**Ethylethylene.** See 1-Butene

**N-Ethyl-N-[4-[[4-[ethyl[(3-sulfophenyl) methyl] amino] phenyl] (4-sulfophenyl) methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfobenzene-methanaminium inner salt, disodium salt.** See Acid green 5

**4-Ethyl-2-(8-heptadecenyl)-4,5-dihydro-4-oxazolemethanol.** See Ethyl hydroxymethyl oleyl oxazoline

**4-Ethyl-2-(8-heptadecenyl)-2-oxazoline-4-methanol.** See Ethyl hydroxymethyl oleyl oxazoline

## 2-Ethylhexanol

CAS 104-76-7; EINECS/ELINCS 203-234-3; FEMA 3151

**Synonyms:** 2-EH; Alcohol C<sub>8</sub>; 2-Ethyl-1-hexanol; 2-Ethylhexan-1-ol; 2-Ethylhexyl alcohol; 1-Hexanol, 2-ethyl

**Classification:** Alcohol

**Empirical:** C<sub>8</sub>H<sub>18</sub>O

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>3</sub>CHC<sub>2</sub>H<sub>5</sub>CH<sub>2</sub>OH

**Properties:** Colorless clear liq., mild oily sweet sl. rose fragrance; sol. in ethanol, ether, diethyl ether, DMSO, acetone, benzene, chloroform; misc. with most org. solvs.; sl. sol. in water; m.w. 130.26; dens. 0.83 (20 C); vapor pressure 0.05 mm Hg (20 C); f.p. -76 C; b.p. 183.5 C; flash pt. 81.1



C; ref. index 1.4300 (20 C); surf. tens. 27.6 dynes/cm (20 C)  
**Toxicology:** LD50 (oral, rat) 2049 mg/kg, (IP, rat) 500 mg/kg, (subcut., rat) 650 mg/kg, (skin, rabbit) 1970 mg/kg; mod. toxic by ing., skin contact, IP, subcut., parenteral routes; severe eye irritant; moderate skin irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed  
**Precaution:** Combustible; dangerous fire hazard exposed to heat or flame; can react vigorously with oxidizing materials; incompat. with strong oxidizing agents and strong acids  
**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and fumes  
**NFPA:** Health 2; Flammability 2; Reactivity 0  
**Storage:** Store under ambient temps. away from oxidizing materials and acids  
**Uses:** Plasticizer for PVC resins; defoamer; wetting agent; organic synthesis; solvent for nitrocellulose, paints, waterborne coatings, dyes, resins, oils, antifoaming agents; penetrant for plasticizing inks, etc.; disinfectant; flotation frothing agent; in mercerizing textiles; in textile finishing compds.; in paint lacquers, baking finishes, inks, rubber, paper, lubricants, photography, dry cleaning; in food-pkg. adhesives; syn. flavoring agent for foods and pharmaceuticals; defoamer in food-contact paper/paperboard; in cellophane for food pkg.  
**Regulatory:** FDA 21CFR §175.105, 176.210, 177.1200, 178.3480; FEMA GRAS  
**Manuf./Distrib.:** ABCR; Aldrich; Allchem Ind.; Aristech; Ashland; BASF; BP Chems. Ltd; Bencorp Int'l.; Celanese; Chisso Am.; Coyne; Eastman; Expo Chem.; Fluka; GNC Group; Houghton Chem.; Irvanhoe Ind.; KIC Chems.; Penta Mfg.; Rhodia HPCII; Shell; Total Spec. Chems.; Union Carbide; Van Waters & Rogers  
**Trade Names Containing:** Foambreaker; Surfynol® 104A  
**2-Ethyl-1-hexanol.** See 2-Ethylhexanol  
**2-Ethylhexan-1-ol.** See 2-Ethylhexanol  
**2-Ethyl-1-hexanol, hydrogen sulfate, sodium salt.** See Sodium 2-ethylhexyl sulfate  
**2-Ethylhexanol phosphate.** See Trioctyl phosphate  
**2-Ethyl-1-hexanol phosphate.** See Trioctyl phosphate  
**2-Ethylhexanol, phosphate triester.** See Trioctyl phosphate  
**2-Ethyl-1-hexanol sulfate sodium salt.** See Sodium 2-ethylhexyl sulfate  
**2-Ethylhexyl acrylate.** See Octyl acrylate  
**2-Ethylhexyl acrylate homopolymer**  
**Uses:** In paper/paperboard in contact with dry food  
**Regulatory:** FDA 21CFR §176.180  
**2-Ethylhexyl alcohol.** See 2-Ethylhexanol  
**2-Ethylhexyl hydrogenated tallowalkyl methosulfate**  
**Properties:** Cationic  
**Uses:** Surfactant, dispersant for protective coatings, pigments, inks, textiles, agric., acid pickling baths, marine applics, metalworking, electroplating, fuel treatment, emulsion/plastic mfg., wastewater treatment, min. processing, paper  
**Regulatory:** EPA listed  
**Trade Names:** Arquad® HTL8(W) MS-85  
**2-Ethylhexyl methacrylate**  
CAS 688-84-6; EINECS/ELINCS 211-708-6  
**Synonyms:** 2-EHMA; 2-Ethyl-1-hexyl methacrylate; Octyl methacrylate  
**Empirical:** C<sub>12</sub>H<sub>22</sub>O<sub>2</sub>  
**Properties:** M.w. 198.34  
**Toxicology:** LD50 (IP, mouse) 2614 mg/kg; mod. toxic by intraperitoneal route; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Uses:** Comonomer for acrylic resins; dispersant; additive for lubricating oil; modifier for fibers; coating agent for paper; in paints, inks, adhesives; plasticizer for adhesives, resins, coatings  
**Manuf./Distrib.:** Allchem Ind.; Ashland; BASF; Celanese; Monomer-Polymer & Dajac Labs; Rohm Tech; Union Carbide  
**Trade Names:** Blemmer EHMA; Mhoromer® BM 713  
**2-Ethyl-1-hexyl methacrylate.** See 2-Ethylhexyl methacrylate  
**2-Ethylhexyl octadecanoate.** See Octyl stearate

**2-Ethylhexyl phosphate**  
CAS 12645-31-7  
**Synonyms:** Octyl acid phosphate  
**Properties:** Anionic  
**Uses:** Detergent in dry-cleaning, emulsifier in formulation of metal cleaners, paints in emulsion polymerization; pesticide and cosmetic preparations; catalyst  
**Trade Names:** DePHOS HP-739; Servoxy® VPTZ 100  
**Ethylhexyl phthalate.** See s-Dioctyl phthalate  
**2-Ethylhexyl phthalate.** See s-Dioctyl phthalate  
**2-Ethylhexyl propenoate.** See Octyl acrylate  
**2-Ethylhexyl 2-propenoate.** See Octyl acrylate  
**2-Ethylhexyl sodium sulfate.** See Sodium 2-ethylhexyl sulfate  
**2-Ethylhexyl stearate.** See Octyl stearate  
**2-Ethylhexyl sulfosuccinate sodium.** See Dioctyl sodium sulfosuccinate  
**Ethyl hydrate.** See Alcohol  
**Ethyl hydroxide.** See Alcohol  
**Ethyl (β-hydroxyethyl) aniline.** See Phenylethylethanolamine  
**N-Ethyl-N-(2-hydroxyethyl) aniline.** See Phenylethylethanolamine  
**N-Ethyl-N-(2-hydroxyethyl)-m-toluidine.** See N-Ethyl-N-hydroxyethyl-m-toluidine  
**N-Ethyl-N-hydroxyethyl-m-toluidine**  
CAS 91-88-3; EINECS/ELINCS 202-105-9  
**Synonyms:** Ethanol, 2-(N-ethyl-m-toluidino)-; N-Ethyl-N-(2-hydroxyethyl)-m-toluidine; 2-(N-Ethyl-m-toluidino) ethanol; N-Hydroxyethyl-N-ethyl-m-toluidine  
**Classification:** Aromatic amine  
**Empirical:** C<sub>11</sub>H<sub>17</sub>NO  
**Formula:** CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>N(C<sub>2</sub>H<sub>5</sub>)CH<sub>2</sub>CH<sub>2</sub>OH  
**Properties:** Solid or liq.; m.w. 179.26; dens. 1.019; m.p. 23 C; b.p. 237 C; flash pt. > 110 C; ref. index 1.5550 (20 C)  
**Toxicology:** LD50 (oral, rat) 1370 mg/kg; mod. toxic by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub>  
**Uses:** Coupling agent for disperse dyes for syn. fibers; photosensitive chemical for paper coatings; accelerator for polyester resins; dye intermediate  
**Manuf./Distrib.:** Aldrich; ChemFirst  
**Ethyl hydroxymethyl oleyl oxazoline**  
CAS 68140-98-7; 88543-32-2; EINECS/ELINCS 268-820-3  
**Synonyms:** 4-Ethyl-2-(8-heptadecenyl)-4,5-dihydro-4-oxazolmethanol; 4-Ethyl-2-(8-heptadecenyl)-2-oxazoline-4-methanol  
**Classification:** Substituted heterocyclic compd.  
**Empirical:** C<sub>23</sub>H<sub>43</sub>NO<sub>2</sub>  
**Properties:** Yel. clear liq.; sol. in most org. solvs. and oils; pract. insol. in water; m.w. 365.60; dens. 0.93 kg/l; f.p. -31 C; amphoteric  
**Uses:** Emulsifier, corrosion inhibitor in sol. cutting oils; antifoam for antibiotic prod.; pigment grinding aid and dispersant; wetting agent for paper, textiles, metal cleaners; detergent; antioxidant; emulsion stabilizer; acid acceptor; in salts, soaps; antistat  
**Trade Names:** Alkaterge®-E  
**2-Ethyl-2-(hydroxymethyl)-1,3-propanediol triacrylate.** See 1,1,1-Trimethylolpropane triacrylate  
**Ethyllic acid.** See Acetic acid  
**Ethyl methacrylate**  
CAS 97-63-2; EINECS/ELINCS 202-597-5; UN No. 2277 (DOT)  
**Synonyms:** EMA; Ethyl-α-methyl acrylate; Ethyl-2-methylacrylate; Ethyl 2-methyl-2-propenoate; Methacrylic acid, ethyl ester; 2-Methyl-2-propenoic acid, ethyl ester; 2-Propenoic acid, 2-methyl-, ethyl ester  
**Definition:** Ester of ethyl alcohol and methacrylic acid  
**Empirical:** C<sub>6</sub>H<sub>9</sub>O<sub>2</sub>  
**Formula:** H<sub>2</sub>C=C(CH<sub>3</sub>)COOC<sub>2</sub>H<sub>5</sub>  
**Properties:** Colorless liq.; sol. in oxygenated solvs.; insol. in water; m.w. 114.16; dens. 0.911; m.p. -75 C; b.p. 119 C; flash pt. (TOC) 21.1 C; ref. index 1.4116  
**Toxicology:** LD50 (oral, rat) 14,800 mg/kg, (IP, rat) 1223 mg/kg; LC50 (inh., rat, 4 h) 8300 ppm; LDLo (subcut., rat) 25 g/kg; mod. toxic by ing., IP routes; mildly toxic by inh.; lachrymator; skin irritant; mutagen; experimental teratogen, reproductive effects; TSCA listed  
**Precaution:** Flamm. liq.; explosive; explosive limits 1.8% to saturation; can react with oxidizers

## Ethyl-2-methylacrylate

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Heat-sensitive; refrigerate; protect from light

**Uses:** Visc. control agent; polymers; chemical intermediates; acrylic acid comonomer; food pkg.

**Manuf./Distrib.:** AccuStandard; Acros Org.; Aldrich; Alfa Aesar; Fluka; Lancaster Synthesis; Pfaltz & Bauer; Rohm & Haas; TCI Am.; Whyte Chems. Ltd

**Trade Names:** Mhoromer® AM 101

**Ethyl-2-methylacrylate.** See Ethyl methacrylate

**Ethyl-α-methyl acrylate.** See Ethyl methacrylate

**Ethyl β-methylacrylate.** See Ethyl crotonate

**N-Ethyl-p-methylbenzene sulfonamide.** See Ethyl toluenesulfonamide

**Ethylmethyl carbinol.** See 2-Butanol

**Ethyl methyl ketone.** See Methyl ethyl ketone

**Ethyl 2-methyl-2-propenoate.** See Ethyl methacrylate

**Ethylolamine.** See Ethanolamine

### 2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate

**Synonyms:** 2-(N-Ethylperfluorooctylsulfonamido) ethyl acrylate

**Empirical:** C<sub>15</sub>H<sub>17</sub>F<sub>17</sub>NO<sub>2</sub>S

**Formula:** CH<sub>2</sub>CHCOOCH<sub>2</sub>CH<sub>2</sub>NC<sub>2</sub>H<sub>5</sub>SO<sub>2</sub>(CF<sub>2</sub>)<sub>7</sub>CF<sub>3</sub>

**Properties:** M.w. 625.30

**Uses:** Acrylic resin comonomer for textile finishes; comonomer for water-resist. paper coatings; mfg. of paper sizes, surfactants, inert fluids; monomer for polymerization reactions; provides oil/water repellency, lubricity, and release

**Trade Names:** Fluorad® FX-13

**2-(N-Ethylperfluorooctylsulfonamido) ethyl acrylate.** See 2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate

**2-(Ethylphenylamino) ethanol.** See Phenylethylethanolamine

**Ethyl phenyl ethanolamine.** See Phenylethylethanolamine

**N,N-Ethylphenylethanolamine.** See Phenylethylethanolamine

**N-Ethyl-N-phenylethanolamine.** See Phenylethylethanolamine

**Ethyl propenoate.** See Ethyl acrylate

**Ethyl 2-propenoate.** See Ethyl acrylate

**Ethyl purple 6B.** See Basic violet 4

### Ethyl toluenesulfonamide

**CAS** 80-39-7; 1077-56-1; **EINECS/ELINCS** 201-275-1; 214-073-3

**Synonyms:** N-Ethyl-p-methylbenzene sulfonamide; Ethyl p-toluenesulfonamide; N-Ethyltoluene-2-sulfonamide; Ethyl tosylamide; p-Toluene ethylsulfonamide; N-Tosyl ethylamine

**Classification:** Mixture of isomers of aromatic amides

**Empirical:** C<sub>9</sub>H<sub>13</sub>NO<sub>2</sub>S

**Formula:** C<sub>2</sub>H<sub>5</sub>NHSO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>CH<sub>3</sub>

**Properties:** Colorless cryst.; sol. in alcohol; m.w. 199.27; dens. 1.190; m.p. 64 C; flash pt. 126 C; ref. index 1.540

**Toxicology:** Irritant

**Precaution:** Combustible

**Uses:** Plasticizer for cellulosics, resins, adhesives, coatings, inks, PS, PVAc, PVB, polyamide hot-melt adhesives, electroplating sol'n's, thermoplastics and thermosets, nitrocellulose lacquers, shellac; film-former; in food-pkg. adhesives; in side seam cements for food-contact containers

**Regulatory:** FDA 21CFR §175.105, 175.300

**Manuf./Distrib.:** Akzo Nobel; Aldrich; BASF; Charkit; F.T.L. Int'l.; Monsanto; Rit-Chem; Rutgers Org.; Seal Sands Chems. Ltd; Spectrum Quality Prods.; Unitex

**Trade Names:** Uniplex 108

**N-Ethyltoluene-2-sulfonamide.** See Ethyl toluenesulfonamide

**Ethyl p-toluenesulfonamide.** See Ethyl toluenesulfonamide

**2-(N-Ethyl-m-toluidino) ethanol.** See N-Ethyl-N-hydroxyethyl-m-toluidine

**Ethyl tosylamide.** See Ethyl toluenesulfonamide

**Ethyl violet.** See Basic violet 4

### Etidronic acid

**CAS** 2809-21-4; **EINECS/ELINCS** 220-552-8; **UN No.** 1760

**Synonyms:** ADPA; HEDP; HEDPA; Acetodiphosphonic acid; Ethane-1-hydroxy-1,1-diphosphonate; 1,1,1-Ethanetriol diphosphonate; 1-Hydroxy-1,1-diphosphonoethane; Hydroxyethanediphosphonic acid; (1-Hydroxyethylidene) bisphosphonic acid; (1-Hydroxyethylidene) diphosphonic acid;

1-Hydroxyethylidene-1,1-diphosphonic acid; Oxyethylidenediphosphonic acid

**Classification:** Organic diphosphonic acid

**Empirical:** C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>P<sub>2</sub>

**Formula:** CH<sub>3</sub>C(OH)(PO<sub>3</sub>H<sub>2</sub>)<sub>2</sub>

**Properties:** M.w. 206.03; heated above 200 C, dec. violently emitting toxic fumes

**Toxicology:** LD50 (oral, mouse) 1800 mg/kg; mod. toxic by ingestion; TSCA listed

**Precaution:** DOT: Corrosive; strong acid

**Hazardous Decomp. Prods.:** Heated above 200 C, dec. violently to produce toxic fumes of phosphine, phosphoric acid, and PO<sub>x</sub>

**Uses:** Chelating agent for heavy metal ions; corrosion inhibitor, scale inhibitor, and sequestrant for water treatment (cooling towers, water floods, boiler water); oil-drilling muds; dispersant in laundry detergents; photography; stabilizer, antioxidant for cosmetic/pharmaceutical hair/skin preps.; sequestrant for radioactive pharmaceuticals

**Regulatory:** FDA 21CFR §173.310; SARA immediate health hazard

**Manuf./Distrib.:** ABCR; Albright & Wilson UK; Biddle Sawyer; Charkit; China Nat'l. Chem. Construction; Excel Ind.; Fluka; Sigma; Strem Chems.; TCI Am.

**Trade Names:** Aquacid-105 EX; Briquest® ADPA-60AW; Dequest® 2010

**ETO.** See Ethylene oxide

**EtOH.** See Alcohol

**Euphorbia cerifera wax.** See Candelilla (*Euphorbia cerifera*) wax

**EVA.** See Ethylene/VA copolymer

**EVA copolymer.** See Ethylene/VA copolymer

**Evans blue.** See Direct blue 53

**Evans blue dye.** See Direct blue 53

**EVM.** See Ethylene/VA copolymer

**Expanded polyvinyl chloride.** See Polyvinyl chloride

**Exsiccated alum.** See Potassium alum anhydrous

**Exsiccated ammonium alum.** See Ammonium alum

**Exsiccated sodium phosphate.** See Sodium phosphate dibasic anhydrous

**Exsiccated sodium sulfite.** See Sodium sulfite

**Ext. D&C Green No. 1.** See Acid green 1

**Ext. D&C Red No. 8.** See Acid red 88

**Ext. D&C Yellow No. 1.** See Acid yellow 36

**Fast blue.** See Dianisidine

**Fast corinth base B.** See Benzidine

**Fast red A.** See Acid red 88; Pigment red 3

**Fats and glyceridic oils, vegetable, hydrogenated.** See Hydrogenated vegetable oil

**Fatty acids, castor oil, potassium salts.** See Potassium castorate

**Fatty acids, coco.** See Coconut acid

**Fatty acids, coco, ester with propylene glycol.** See Propylene glycol dicooate

**Fatty acids, coco, hydrogenated.** See Hydrogenated coconut acid

**Fatty acids, coco, magnesium salt.** See Magnesium cocoate

**Fatty acids, coco, methyl esters.** See Methyl cocoate

**Fatty acids, coco, 1-methyl-1,2-ethanediyl esters.** See Propylene glycol dicooate

**Fatty acids, coconut oil, magnesium salt.** See Magnesium cocoate

**Fatty acids, coconut oil, potassium salts.** See Potassium cocoate

**Fatty acids, coconut oil, sodium salts.** See Sodium cocoate

**Fatty acids, coconut oil, triethanolamine salts.** See TEA cocoate

**Fatty acids, coco, potassium salts.** See Potassium cocoate

**Fatty acids, coco, sodium salts.** See Sodium cocoate

**Fatty acids, corn oil.** See Corn acid

**Fatty acids, corn oil, potassium salts.** See Potassium cornate

**Fatty acids, cottonseed oil.** See Cottonseed acid

**Fatty acids, C18, unsaturated, trimers.** See Trilinoleic acid

**Fatty acids, linseed oil.** See Linseed acid

**Fatty acids, menhaden oil, hydrogenated.** See Hydrogenated menhaden acid

**Fatty acids, montan wax.** See Montan acid wax

**Fatty acids, montan wax, 1-methyl-1,3-propanediyl esters.** See Butylene glycol montanate

**Fatty acids, soya, esters with propylene glycol.** See Propylene glycol soyate

**Fatty acids, tall oil.** See Tall oil acid

**Fatty acids, tall oil, ammonium salts.** See Ammonium tallate



**Fatty acids, tall oil, butyl esters, sulfated.** See Sulfated butyl tallate

**Fatty acids, tall oil, potassium salts.** See Potassium tallate

**Fatty acids, tall oil, sulfated, potassium salts.** See Sulfated tall oil, potassium salt

**Fatty acids, tall oil, sulfated, sodium salts.** See Sulfated tall oil, sodium salt

**Fatty acids, tallow.** See Tallow acid

**Fatty acids, tallow, hydrogenated.** See Hydrogenated tallow acid

**Fatty acids, tallow, isobutyl esters.** See Isobutyl tallowate

**Fatty acids, tallow, isopropyl esters.** See Isopropyl tallowate

**Fatty acids, tallow, magnesium salt.** See Magnesium tallowate

**Fatty acids, tallow, potassium salts.** See Potassium tallowate

#### FD&C Blue No. 1 aluminum lake

CAS 15792-67-3; 53026-57-6; 68921-42-6; EINECS/ELINCS 272-939-6

*Synonyms:* Acid blue 9 aluminum lake; Blue no. 3; Blue no. 1; CI 42090:2

*Definition:* Aluminum salt of FD&C Blue No. 1 extended on an alumina substrate

*Empirical:* C<sub>37</sub>H<sub>36</sub>N<sub>2</sub>O<sub>9</sub>S<sub>3</sub> · xAl

*Properties:* Water-insol.

*Uses:* Colorant for pharmaceuticals; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §81.1, 82.50, 82.51, 82.101, 176.180

*Manuf./Distrib.:* Costec; Crompton & Knowles; Warner-Jenkinson

#### FD&C Green No. 2. See Acid green 5

#### FD&C Green No. 2 aluminum lake. See Acid green 5

#### FD&C Red No. 19. See Basic violet 10

#### FD&C Violet No. 1. See Acid violet 49

#### FD&C Yellow No. 5. See Tartrazine

#### FD&C Yellow No. 10. See Acid yellow 3

#### FD&C Yellow No. 5 Aluminum Lake

CAS 12225-21-7; 12227-69-9; 53026-63-4; EINECS/ELINCS 235-428-9

*Synonyms:* CI 19140:1

*Definition:* Insoluble pigment composed of the aluminum salt of FD&C Yellow No. 5 extended on an alumina substrate; noncertified batch known as Acid yellow 23 aluminum lake (INCI)

*Uses:* Pigment in resinous/polymeric food-contact coatings, paper/paperboard in contact with dry food, molded food-contact melamine-formaldehyde resins

*Regulatory:* FDA 21CFR §81.1, 82.51, 175.300, 176.180, 177.1460

*Manuf./Distrib.:* Costec; Warner-Jenkinson

#### Ferrate(3-), hexacyano-, tripotassium. See Potassium ferricyanide

#### Ferrate(4-), hexakis(cyano-C)-, iron(3+) (3:4). See Ferric ferrocyanide

#### Ferrate(3-), tris [5,6-dihydro-5-(hydroxymino)-6-oxo-2-naphthalenesulfonato(2-)-N<sup>-</sup>,O<sup>2-</sup>]-, trisodium. See Acid green 1

#### Ferric chloride

CAS 7705-08-0; EINECS/ELINCS 231-729-4; UN No. 1773 (DOT), 2582 (DOT)

*Synonyms:* Ferric trichloride; Iron chloride; Iron (III) chloride; Iron chlorides; Iron trichloride

*Classification:* Inorganic salt

*Empirical:* Cl<sub>3</sub>Fe

*Properties:* Black-brown solid; sol. in water, alcohol, glycerol, methanol, ether, acetone; sl. sol. in CS<sub>2</sub>; readily absorbs water in air to form hexahydrate; m.w. 162.21; dens. 2.898; vapor pressure 1 mm (194 C); m.p. 292 C; b.p. 319 C

*Toxicology:* ACGIH TLV/TWA 1 mg (Fe)/m<sup>3</sup>; LD50 (oral, rat) 450 mg/kg, (IV, mouse) 58 mg/kg; poison by ing., IV routes; corrosive to skin, eyes, mucous membranes; reproductive effector; mutagen; TSCA listed

*Precaution:* DOT: Corrosive; catalyzes potentially explosive polymerization of ethylene oxide, chlorine + monomers; violent reaction with allyl chloride; reacts with water to form toxic and corrosive fumes

*Hazardous Decomp. Prods.:* Heated to decomp., emits highly toxic fumes of HCl

*Storage:* Deliq.; very hygroscopic; keep well closed

*Uses:* Coagulant for treatment of water, sewage, industrial wastes; phosphate removal; sludge conditioning and dewatering; trace metal removal; odor control; precipitation and removal of sol. arsenic and selenium ions in mineral industry; mfg. of Fe salts; chlorination of Ag and Cu ores; etching agent; mordant; disinfectant; pigments; ink; oxidizing agent in dye mfg.; feed additive; catalyst in org. reactions; in photoengraving; photography;

foods (flavoring agent; dietary supplement (Japan)); in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170, 184.1297, GRAS; Japan approved

*Manuf./Distrib.:* AMRESKO; Aldrich; Am. Biorganics; Asahi Denka Kogyo; BASF; Coyne; DuPont; Eaglebrook; Eka Chems. AB; Fluka; Gulbrandsen; Lohmann; Mallinckrodt Baker; P.B. & S.; PVS; Penta Mfg.; Rasa Ind.; Sal Chem.; Sigma; Spectrum Quality Prods.; U.S. Petrochem. Ind.

#### Ferric citrate

CAS 3522-50-7 (anhyd.); 2338-05-8 (monohydrate); EINECS/ELINCS 219-045-4

*Synonyms:* Iron (III) citrate; Iron citrate

*Empirical:* C<sub>6</sub>H<sub>5</sub>FeO<sub>7</sub> (anhyd.); C<sub>6</sub>H<sub>5</sub>FeO<sub>7</sub> · H<sub>2</sub>O (monohydrate)

*Properties:* Garnet-red transparent scales or pale brn. powd., odorless, sl. ferruginous taste; slowly but completely sol. in cold water, readily sol. in hot water; pract. insol. in alcohol; m.w. 244.95 (anhyd.), 262.97 (monohydrate)

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Blueprint paper; nutrient supplement; may be used in infant formulas

*Regulatory:* FDA 21CFR §184.1298, GRAS; Japan approved

*Manuf./Distrib.:* Fluka; Lohmann; Sigma

#### Ferric ferrocyanide

CAS 14038-43-8; EINECS/ELINCS 237-875-5

*Synonyms:* Bronze blue; Chinese blue; CI 77510; CI 77520; Ferrate(4-), hexakis(cyano-C)-, iron(3+) (3:4); Iron blue; Iron ferrocyanide; Milori blue; Non-bronze blue; Pigment blue 27; Potash blue; Prussian blue

*Classification:* Inorganic salt

*Empirical:* C<sub>6</sub>FeN<sub>6</sub> · 4/3Fe

*Properties:* M.w. 286.38

*Toxicology:* TSCA listed

*Uses:* Pigment in printing inks, paints, paper coatings; zinc green pigment component; blue pigment for cosmetics and toiletries; colorant for external pharmaceuticals

*Regulatory:* FDA 21CFR §73.1299, 73.2299; permanently listed

*Manuf./Distrib.:* Aldrich

*See also* CI 77510

#### Ferric ferrous oxide. See Iron oxide black

#### Ferric oxide

CAS 1309-37-1 (anhyd.); EINECS/ELINCS 215-168-2

*Synonyms:* Anhydrous iron oxide; CI 77491; Colloidal ferric oxide; Ferric oxide red; Ferrosoferric oxide; Iron (III) oxide; Iron oxide red; Iron sesquioxide; Natural iron oxides; Natural red oxide; Pigment brown 6; Pigment brown 7; Pigment red 101; Pigment red 102; Red iron oxide; Red iron trioxide; Yellow ferric oxide

*Classification:* Inorganic color; syn. iron oxide

*Empirical:* Fe<sub>2</sub>O<sub>3</sub>

*Properties:* Red-brn. to blk. cryst.; sol. in acids; insol. in water, alcohol, ether; m.w. 159.69; dens. 5.240; m.p. 1538 C (dec.)

*Toxicology:* ACGIH TLV/TWA 5 mg (Fe)/m<sup>3</sup> (vapor, dust); LD50 (IP, rat) 5500 mg/kg; LDLo (subcut., dog) 30 mg/kg; irritant; poison by subcut. route; avoid inhalation; suspected human carcinogen; experimental tumorigen; TSCA listed

*Precaution:* Catalyzes the potentially explosive polymerization of ethylene oxide; explosive and violent reactions possible

HMS: Health 1; Flammability 0; Reactivity 1

*Uses:* Metallurgy; gas purification; in thermite; polishing compounds; mordant; laboratory reagent; catalyst; electronic pigments for TV; permanent magnets; memory cores for computers; magnetic tapes; polishing agent for glass, diamonds; pigment in paints/coatings, rubber, latexes, paper, linoleum, ceramics, glass, fabric coatings, cements/concrete; paint for ship hulls; colorant in cosmetics, food, feed, ingested pharmaceuticals; colloidal sol'ns. as stain for polysaccharides; colorant in food-grade polymers; in food pkg.; strong anti-ozone chars.

*Regulatory:* FDA 21CFR §73.200 (limitation 0.25%), 186.1300, 186.1374, GRAS as indirect food additive; FDA approved for orals; USP/NF compliance

*Manuf./Distrib.:* ABCR; Acros Org.; Advance Research Chems.; Aldrich;

## Ferric oxide red

Atlantic Equip. Engrs.; BASF; Bayer/Fiber, Addits., Rubber; Crompton & Knowles; Fisher Scientific; Fluka; Kerr-McGee; Pentad Group; Ruger; Spectrum Quality Prods.

*Trade Names:* Octotint 825

**Ferric oxide red.** See Ferric oxide

**Ferric trichloride.** See Ferric chloride

**Ferrite yellow.** See Iron oxide yellow

**Ferrosulfate.** See Ferric oxide; Iron oxide black

## Ferrous ammonium sulfate

CAS 10045-89-3

*Synonyms:* Mohr's salt; Salt of Mohr; Iron ammonium sulfate

*Empirical:*  $\text{FeH}_8\text{N}_2\text{O}_6\text{S}_2$

*Formula:*  $\text{Fe}(\text{SO}_4) \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$  (hexahydrate)

*Properties:* Lt. green crust.; sol. in water; insol. in alcohol; m.w. 284.07; dec. @ 100-110 C

*Toxicology:* LD50 (oral, rat) 3.25 g/kg; TSCA listed

*Storage:* Affected by light; keep well closed and protected from light

*Uses:* Analytical standard in photography; polymerization catalyst; in dosimeters; metallurgy; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1200

*Manuf./Distrib.:* Aithaca; Allpro; Am. Int'l.; Barker Ind.; Crown Tech.; GFS; Lohmann; Ruger; Spectrum Quality Prods.

**Ferrous ferrite.** See Iron oxide red

**Fiberglass.** See Glass

**Fibrous glass.** See Glass

**Fibrous grunerite.** See Asbestos

**Fischer-Tropsch wax.** See Synthetic wax

**Fischer-Tropsch wax, oxidized.** See Synthetic wax

**Fish oil, hydrogenated.** See Hydrogenated fish oil

## Fish oil triglycerides

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Flaming red.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**Flavonic acid.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**Flaxseed oil.** See Linseed (*Linum usitatissimum*) oil

**Fleshing grease, sulfated sodium salt.** See Sodium tallow sulfate

**Flexible collodion.** See Nitrocellulose

**Flour sulfur.** See Sulfur

**Flowers of antimony.** See Antimony trioxide

**Flowers of sulfur.** See Sulfur

**Flowers of zinc.** See Zinc oxide

**Fluorescein, 4',5'-dibromo-.** See Acid orange 11

**Fluorescent brightener 140.** See 7-Diethylamino-4-methylcoumarin

**Fluorothene.** See Chlorotrifluoroethylene polymer

**Fluxing lime.** See Calcium oxide

**Food blue 3.** See Acid blue 1

**Food green 2.** See Acid green 5

**Food orange 4.** See Acid orange 10

**Food red 5.** See Acid red 26

**Food red 15.** See Basic violet 10

**Food red 106.** See Acid red 52

**Food violet 1.** See Acid violet 17

**Food violet 2.** See Acid violet 49

**Food yellow 3.** See Acid yellow 3

**Food yellow 4.** See Tartrazine

**Food yellow 13.** See Acid yellow 3

## Formaldehyde

CAS 50-00-0; EINECS/ELINCS 200-001-8; UN No. 1198 (DOT), 2209 (DOT)

*Synonyms:* Aldehyde C-1; Formalin; Formic aldehyde; Formol; HOCH; Methanal; Methyl aldehyde; Methylene glycol; Methylene oxide; Oxy-methylene; Paraform; Polyoxymethylene glycols

*Empirical:*  $\text{CH}_2\text{O}$

*Formula:*  $\text{HCHO}$

*Properties:* Colorless gas, strong pungent odor; avail. commercially as aq. sol'ns. (37-50% in methanol); sol. in water, alcohol; m.w. 30.03; dens. 1.083; b.p. -19 C; f.p. -118 C; flash pt. 56 C; ref. index 1.3765

*Toxicology:* ACGIH TLV/TWA 1 ppm; LD50 (oral, rat) 800 mg/kg, (subcut., rat) 420 mg/kg, (IV, rat) 87 mg/kg; LC50 (inh., rat) 590 mg/m<sup>3</sup>; poison by ing., skin contact, inh., IV, IP, subcut. routes; human poison by ing., systemic effects, skin/eye irritant; vapor intensely irritating to mucous membranes; if ingested, causes violent vomiting and diarrhea and possible collapse; suspected human carcinogen; experimental tumorigen, teratogen; mutagenic data; common air contaminant; TSCA listed

*Precaution:* Combustible when exposed to heat, or flame; mod. fire risk; mod. explosion hazard; explosive limits 7-73%; can react vigorously with oxidizers; violent reactions possible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

HMIS: Health 3; Flammability 2; Reactivity 1

*Uses:* Urea/melamine resins; polyacetal resins; phenolic resins; fertilizers; preservative for hides/skins; reducing agent; corrosive inhibitor; intermediate for paints; antimicrobial preservative for pharmaceuticals; nickel plating brightener; disinfectant; crosslinker (paper waterproofing); latex coagulant; textile finishing agent; embalming fluids; methylation/chloromethylation reagent; preservative in food processing defoamers; animal glue adjuvant; sterilizer for kidney dialyzer membranes; in food-pkg. adhesives; preservative for coatings for paper/paperboard in contact with aq./fatty/dry foods; preservative for defoamers in food-contact coatings; defoamer in food-contact paper/paperboard; preservative in food-contact textiles

*Regulatory:* FDA 21CFR §173.340 (1% of dimethicone content), 175.105, 175.210, 176.170, 176.180, 176.200, 176.210, 177.2410, 177.2800, 178.3120, 573.460; FDA approved for topicals; BP compliance (sol'n.); SARA reportable

*Manuf./Distrib.:* Ashland; Borden; C.P. Hall; Celanese; Degussa-Hüls; DuPont; Farleyway Chem. Ltd; Fluka; Georgia-Pacific Resins; Hercules/Aqualon; Houghton Chem.; ISP; J.T. Baker; Mallinckrodt Baker; Miljac; Monomer-Polymer & Dajac Labs; Monsanto; Perstorp Polyols; Praxair; Ruger; Sigma; Solutia; Spectrum Quality Prods.; U.S. Chems.; Van Waters & Rogers; Veckridge; Wright

*Trade Names:* Hercules® 37M6-8

**p-Formaldehyde.** See Paraformaldehyde

**Formaldehyde copolymer with urea.** See Urea/formaldehyde resin

**Formaldehyde hydrosulfite.** See Sodium formaldehyde sulfoxylate

**Formaldehyde, polymer with 5,5-dimethyl-2,4-imidazolidinedione.** See Dimethyl hydantoin-formaldehyde polymer

**Formaldehyde sodium bisulfite adduct.** See Sodium formaldehyde sulfoxylate

**Formaldehyde sodium sulfoxylate.** See Sodium formaldehyde sulfoxylate

**Formaldehyde/urea condensate.** See Urea/formaldehyde resin

**Formaldehyde/urea copolymer.** See Urea/formaldehyde resin

**Formaldehyde/urea polymer.** See Urea/formaldehyde resin

**Formaldehyde/urea precondensate.** See Urea/formaldehyde resin

**Formaldehyde/urea prepolymer.** See Urea/formaldehyde resin

**Formaldehyde/urea resin.** See Urea/formaldehyde resin

**Formalin.** See Formaldehyde

**Formalin/urea copolymer.** See Urea/formaldehyde resin

**Formamidine sulfinic acid.** See Thiourea dioxide

## Formic acid

CAS 64-18-6; EINECS/ELINCS 200-579-1; UN No. 1779 (DOT); FEMA 2487

*Synonyms:* Aminic acid; Formylic acid; Hydrogen carboxylic acid; Methanoic acid

*Classification:* Organic acid

*Empirical:*  $\text{CH}_2\text{O}_2$

*Formula:*  $\text{HCOOH}$

*Properties:* Colorless fuming liq., penetrating odor; sol. in water, alcohol, ether; m.w. 46.03; dens. 1.22 (20/4 C); m.p. 8.3 C; b.p. 100.8 C; flash pt. (OC) 69 C; ref. index 1.3714

*Toxicology:* ACGIH TLV/TWA 5 ppm; STEL 10 ppm; LD50 (oral, rat) 1100 mg/kg, (IP, mouse) 940 mg/kg; LC50 (inh., rat, 15 min) 15 g/m<sup>3</sup>; poison by inh., IV, IP routes; mod. toxic by ing.; corrosive; skin and severe eye irritant; migrates to food from pkg.; mutagenic data; TSCA listed

*Precaution:* Flamm.; DOT: corrosive material; can react vigorously with oxidizers; explosive with furfuryl alcohol, nitromethane, etc.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 3; Flammability 2; Reactivity 0

**Uses:** Reducing agent/pH control in dyeing, electroplating, pickling baths; dyeing and finishing of textiles; leather treatment; chemicals; mfg. of fumigants, insecticides, refrigerants; solvent for perfumes, lacquers; silvering glass; preservative; ore flotation; reagent; paper mfg. aid; latex coagulant; antibacterial preservative for foods; disinfectant; syn. flavoring adjunct for foods and pharmaceuticals; fragrance; in food pkg. paper/paperboard; silage fermentation additive

**Use Level:** 1 ppm (nonalcoholic beverages), 5 ppm (ice cream, ices), 5-18 ppm (candy), 5-6.1 ppm (baked goods); ADI 0-3 mg/kg (EU)

**Regulatory:** FDA 21CFR §172.515, 186.1316, GRAS as indirect additive, 573.480; FEMA GRAS; Europe listed; prohibited in UK

**Manuf./Distrib.:** Aldrich; Alfa Chem; Alfrebro; Ashland; BASF AG; BASF; BCH Brühl; BP Chems. Ltd; Celanese; Coyne; Fisher Scientific; Fluka; Grau Aromatics; Harcros; Houghton Chem.; Independent Chem.; Mallinckrodt Baker; Norsk Hydro AS; Rochem Int'l.; Romil Ltd; Sal Chem.; Sigma; Spectrum Quality Prods.; Varsal Instruments

Miljac; Monomer-Polymer & Dajac Labs; Monsanto; NOF; Penta Mfg.; Ruger; Schweizerhall; Sigma; Spectrum Quality Prods.; U.S. Chems.; United Min. & Chem.; V.L. Clark; Van Waters & Rogers; Varsal Instruments; Whyte Chems. Ltd

**Formic acid, aluminum salt.** See Aluminum formate

**Formic aldehyde.** See Formaldehyde

**Formol.** See Formaldehyde

**N-Formyldimethylamine.** See Dimethyl formamide

**Formylic acid.** See Formic acid

**Fossil flour.** See Diatomaceous earth; Silica, fumed

**Fossil wax.** See Ozokerite

**Franklin.** See Calcium carbonate

**French chalk.** See Talc

**β-D-Fructofuranosyl-α-D-glucopyranoside benzoate.** See Sucrose benzoate

#### Fumaric acid

CAS 110-17-8; EINECS/ELINCS 203-743-0; UN No. 9126 (DOT); FEMA 2488

**Synonyms:** Allomaleic acid; Boletic acid; 2-Butenedioic acid; trans-Butenedioic acid; (E)-Butenedioic acid; trans-1,2-Ethenedicarboxylic acid; trans-1,2-Ethylenedicarboxylic acid; 1,2-Ethylenedicarboxylic acid; Lichenic acid

**Classification:** Unsat. aliphatic dicarboxylic acid

**Empirical:** C<sub>4</sub>H<sub>4</sub>O<sub>4</sub>

**Formula:** HOOCCH:CHCOOH

**Properties:** Wh. cryst. solid; odorless; acidic taste; mod. sol. in ethanol and acetone @ 30 C; sl. sol. in water, ether, oxygenated solvs.; ; very sl. sol. in chloroform; m.w. 116.08; dens. 1.635 (20/4 C); vapor pressure 1.7 mm Hg; m.p. 287 C; b.p. 290 C; flash pt. 230 C

**Toxicology:** LD50 (oral, male rat) 10,700 mg/kg, (IP, mouse) 587 mg/kg, (dermal, rabbit) > 20,000 mg/kg; poison by IP route; mildly toxic by ing. and skin contact; skin and eye irritant; mutagenic data; TSCA listed

**Precaution:** Combustible exposed to heat or flame; can react vigorously with oxidizers; incompat. with bases, amines, reducing agents; can form explosive dust-air mixts.; sol'ns. react with metals (Al, Fe, Zn) releasing flamm. hydrogen gas

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Store in a cool, dry, well-ventilated area away from heat and ignition sources

**Uses:** Modifier for polyester, alkyd and phenolic resins; paper sizing resins; rosin esters and adducts; alkyd resin coatings; upgrading natural drying oils; mordant in dyeing; organic synthesis; printing inks; chem. intermediate for plasticizers; comonomer for alkyd and unsat. polyester resins; food additive (acidulant, flavoring agent, leavening agent, antioxidant, preservative); pharmaceuticals (acidulant, antidandruff ingred.; cleaning agent for dentures); in food-pkg. adhesives; in cellophane for food pkg.

**Use Level:** 50 ppm (nonalcoholic beverages), 1300 ppm (baked goods), 3600 ppm (gelatins, puddings); ADI 0-6 mg/kg (EU)

**Regulatory:** FDA 21CFR §172.350, 175.105, 177.1200; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, limitation 25 lb/1000 gal wine; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF, BP compliance

**Manuf./Distrib.:** ADA Int'l.; Aceto; Aldrich; Alfa Chem; Allchem Ind.; Am. Biorganics; Ashland; BCH Brühl; Balchem; Bartek Ingreds.; Bayer/Fiber, Addits., Rubber; Browning; Chemical; DSM Chemie Linz UK; Fluka; Gadot Biochem.; Haarmann & Reimer; Jungbunzlauer; Lonza;

#### Fumaric acid homopolymer

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Fumaric resin.** See Maleic resin

**Fumed silica.** See Silica, fumed

**Fumed silicon dioxide.** See Silica, fumed

**2,5-Furandione.** See Maleic anhydride

**2,5-Furandione, dihydro-3-(octadecenyl)-.** See Octadecenyl succinic anhydride

**2,5-Furandione, 3-(docosenyl) dihydro.** See Docosenylsuccinic anhydride

**2,5-Furandione, 3-(dodecenyl) dihydro-.** See Dodecenylsuccinic anhydride

**2,5-Furandione, 3-(eicosenyl) dihydro.** See Eicosenyl succinic anhydride

**2,5-Furandione, 3-(hexadecenyl) dihydro-.** See Hexadecenyl succinic anhydride

**2,5-Furandione, homopolymer.** See Maleic anhydride homopolymer

**2,5-Furandione, polymer with ethene.** See Ethylene/MA copolymer

**2,5-Furandione, polymer with ethenylbenzene.** See Styrene/MA copolymer

**2,5-Furandione, polymer with methoxyethene.** See PVM/MA copolymer

**2,5-Furandione, polymer with methoxyethylene.** See PVM/MA copolymer

**2,5-Furandione, polymer with 2-methyl-1-propene.** See Isobutylene/MA copolymer

**Furanidine.** See Tetrahydrofuran

**Furan, tetrahydro-.** See Tetrahydrofuran

#### Furcelleran

CAS 9000-21-9; EINECS/ELINCS 232-531-0

**Synonyms:** Danish agar; Furcelleran gum

**Definition:** Refined hydrocolloid obtained by aq. extraction of *Furcellaria fastigiata* of the class of red seaweed, *Rhodophyceae*

**Properties:** Wh. powd., odorless; sol. in warm water

**Toxicology:** LD50 (oral, rat) 5000 mg/kg, (oral, mouse) 6 mg/kg; mod. toxic by ingestion; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Emulsifier, gellant, stabilizer, thickener in foods, toothpaste; bacterial culture media; pharmaceuticals; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §172.655, 176.170; Japan approved

**Manuf./Distrib.:** P.L. Thomas

**Furcelleran gum.** See Furcelleran

**Furnace black.** See Carbon black

**Gadidae oil.** See Cod liver oil

**Gadi lecur.** See Cod liver oil

**Galactasol.** See Guar (Cyanopsis tetragonoloba) gum

#### Gallic acid

CAS 149-91-7; 5995-86-8 (monohydrate); EINECS/ELINCS 205-749-9

**Synonyms:** 3,4,5-Trihydroxybenzoic acid

**Empirical:** C<sub>7</sub>H<sub>6</sub>O<sub>5</sub> (anhyd.); C<sub>7</sub>H<sub>6</sub>O<sub>5</sub> • H<sub>2</sub>O (monohydrate)

**Formula:** C<sub>6</sub>H<sub>2</sub>(OH)<sub>3</sub>CO<sub>2</sub>H (anhyd.) or C<sub>6</sub>H<sub>2</sub>(OH)<sub>3</sub>CO<sub>2</sub>H • H<sub>2</sub>O (monohydrate)

**Properties:** Wh. to pale fawn-colored cryst. or need.; odorless; sol. (1 g/ml): 87 ml water, 6 ml alcohol, 100 ml ether, 10 ml glycerin, 5 ml acetone; pract. insol. in benzene, chloroform, petroleum ether; m.w. 170.12 (anhyd.), 188.14 (monohydrate); dens. 1.694; m.p. 258-265 C (dec.)

**Toxicology:** LD50 (oral, rabbit) 5 g/kg, (IP, mouse) 4300 mg/kg, (IV, mouse) 320 mg/kg; poison by IV route; mod. toxic by IP route; irritant; mutagenic data; experimental reproductive effector; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Hygroscopic; protect from light

**Uses:** Additive; photography; writing ink; dyeing; mfg. of pyrogallol, tannins, paper; tanning agent; pharmaceuticals (astringent, antioxidant); engraving; lithography; analytical reagent; food additive; food antioxidant (Japan)

**Regulatory:** Japan approved; BP compliance

**Manuf./Distrib.:** Aceto; Aldrich; Alfa Chem; BCH Brühl; Fluka; Fuji Chem.

NFPA: Health 3; Flammability 2; Reactivity 0

*Uses:* Reducing agent/pH control in dyeing, electroplating, pickling baths; dyeing and finishing of textiles; leather treatment; chemicals; mfg. of fumigants, insecticides, refrigerants; solvent for perfumes, lacquers; silvering glass; preservative; ore flotation; reagent; paper mfg. aid; latex coagulant; antibacterial preservative for foods; disinfectant; syn. flavoring adjunct for foods and pharmaceuticals; fragrance; in food pkg. paper/paperboard; silage fermentation additive

*Use Level:* 1 ppm (nonalcoholic beverages), 5 ppm (ice cream, ices), 5-18 ppm (candy), 5-6.1 ppm (baked goods); ADI 0-3 mg/kg (EU)

*Regulatory:* FDA 21CFR §172.515, 186.1316, GRAS as indirect additive, 573.480; FEMA GRAS; Europe listed; prohibited in UK

*Manuf./Distrib.:* Aldrich; Alfa Chem; Alfrebro; Ashland; BASF AG; BASF; BCH Brühl; BP Chems. Ltd; Celanese; Coyne; Fisher Scientific; Fluka; Grau Aromatics; Harcros; Houghton Chem.; Independent Chem.; Mallinckrodt Baker; Norsk Hydro AS; Rochem Int'l.; Romil Ltd; Sal Chem.; Sigma; Spectrum Quality Prods.; Varsal Instruments

Miljac; Monomer-Polymer & Dajac Labs; Monsanto; NOF; Penta Mfg.; Ruger; Schweizerhall; Sigma; Spectrum Quality Prods.; U.S. Chems.; United Min. & Chem.; V.L. Clark; Van Waters & Rogers; Varsal Instruments; Whyte Chems. Ltd

**Formic acid, aluminum salt.** See Aluminum formate

**Formic aldehyde.** See Formaldehyde

**Formol.** See Formaldehyde

**N-Formyl dimethylamine.** See Dimethyl formamide

**Formylic acid.** See Formic acid

**Fossil flour.** See Diatomaceous earth; Silica, fumed

**Fossil wax.** See Ozokerite

**Franklin.** See Calcium carbonate

**French chalk.** See Talc

**β-D-Fructofuranosyl-α-D-glucopyranoside benzoate.** See Sucrose benzoate

### Fumaric acid

CAS 110-17-8; EINECS/ELINCS 203-743-0; UN No. 9126 (DOT); FEMA 2488

*Synonyms:* Allomaleic acid; Boletic acid; 2-Butenedioic acid; trans-Butenedioic acid; (E)-Butenedioic acid; trans-1,2-Ethenedicarboxylic acid; trans-1,2-Ethylenedicarboxylic acid; 1,2-Ethylenedicarboxylic acid; Lichenic acid

*Classification:* Unsat. aliphatic dicarboxylic acid

*Empirical:* C<sub>4</sub>H<sub>4</sub>O<sub>4</sub>

*Formula:* HOOCCH:CHCOOH

*Properties:* Wh. cryst. solid; odorless; acidic taste; mod. sol. in ethanol and acetone @ 30 C; sl. sol. in water, ether, oxygenated solvs.; ; very sl. sol. in chloroform; m.w. 116.08; dens. 1.635 (20/4 C); vapor pressure 1.7 mm Hg; m.p. 287 C; b.p. 290 C; flash pt. 230 C

*Toxicology:* LD<sub>50</sub> (oral, male rat) 10,700 mg/kg, (IP, mouse) 587 mg/kg, (dermal, rabbit) > 20,000 mg/kg; poison by IP route; mildly toxic by ing. and skin contact; skin and eye irritant; mutagenic data; TSCA listed

*Precaution:* Combustible exposed to heat or flame; can react vigorously with oxidizers; incompat. with bases, amines, reducing agents; can form explosive dust-air mixts.; sol'ns. react with metals (Al, Fe, Zn) releasing flamm. hydrogen gas

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store in a cool, dry, well-ventilated area away from heat and ignition sources

*Uses:* Modifier for polyester, alkyd and phenolic resins; paper sizing resins; rosin esters and adducts; alkyd resin coatings; upgrading natural drying oils; mordant in dyeing; organic synthesis; printing inks; chem. intermediate for plasticizers; comonomer for alkyd and unsat. polyester resins; food additive (acidulant, flavoring agent, leavening agent, antioxidant, preservative); pharmaceuticals (acidulant, antidandruff ingred.; cleaning agent for dentures); in food-pkg. adhesives; in cellophane for food pkg.

*Use Level:* 50 ppm (nonalcoholic beverages), 1300 ppm (baked goods), 3600 ppm (gelatins, puddings); ADI 0-6 mg/kg (EU)

*Regulatory:* FDA 21CFR §172.350, 175.105, 177.1200; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, limitation 25 lb/1000 gal wine; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF, BP compliance

*Manuf./Distrib.:* ADA Int'l.; Aceto; Aldrich; Alfa Chem; Allchem Ind.; Am. Biorganics; Ashland; BCH Brühl; Balchem; Bartek Ingreds.; Bayer/Fiber, Addits., Rubber; Browning; Chemical; DSM Chemie Linz UK; Fluka; Gadot Blochem.; Haarmann & Reimer; Jungbunzlauer; Lonza;

### Fumaric acid homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Fumaric resin.** See Maleic resin

**Fumed silica.** See Silica, fumed

**Fumed silicon dioxide.** See Silica, fumed

**2,5-Furandione.** See Maleic anhydride

**2,5-Furandione, dihydro-3-(octadecenyl)-.** See Octadecenyl succinic anhydride

**2,5-Furandione, 3-(docosenyl) dihydro.** See Docosenylsuccinic anhydride

**2,5-Furandione, 3-(dodecenyl) dihydro-.** See Dodecenylysuccinic anhydride

**2,5-Furandione, 3-(eicosenyl) dihydro.** See Eicosenyl succinic anhydride

**2,5-Furandione, 3-(hexadecenyl) dihydro-.** See Hexadecenyl succinic anhydride

**2,5-Furandione, homopolymer.** See Maleic anhydride homopolymer

**2,5-Furandione, polymer with ethene.** See Ethylene/MA copolymer

**2,5-Furandione, polymer with ethenylbenzene.** See Styrene/MA copolymer

**2,5-Furandione, polymer with methoxyethene.** See PVM/MA copolymer

**2,5-Furandione, polymer with methoxyethylene.** See PVM/MA copolymer

**2,5-Furandione, polymer with 2-methyl-1-propene.** See Isobutylene/MA copolymer

**Furanidine.** See Tetrahydrofuran

**Furan, tetrahydro-.** See Tetrahydrofuran

### Furcelleran

CAS 9000-21-9; EINECS/ELINCS 232-531-0

*Synonyms:* Danish agar; Furcelleran gum

*Definition:* Refined hydrocolloid obtained by aq. extraction of *Furcellaria fastigiata* of the class of red seaweed, *Rhodophyceae*

*Properties:* Wh. powd., odorless; sol. in warm water

*Toxicology:* LD<sub>50</sub> (oral, rat) 5000 mg/kg, (oral, mouse) 6 mg/kg; mod. toxic by ingestion; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Emulsifier, gellant, stabilizer, thickener in foods, toothpaste; bacterial culture media; pharmaceuticals; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §172.655, 176.170; Japan approved

*Manuf./Distrib.:* P.L. Thomas

**Furcelleran gum.** See Furcelleran

**Furnace black.** See Carbon black

**Gadidae oil.** See Cod liver oil

**Gadi lecur.** See Cod liver oil

**Galactasol.** See Guar (Cyanopsis tetragonoloba) gum

### Gallic acid

CAS 149-91-7; 5995-86-8 (monohydrate); EINECS/ELINCS 205-749-9

*Synonyms:* 3,4,5-Trihydroxybenzoic acid

*Empirical:* C<sub>7</sub>H<sub>6</sub>O<sub>5</sub> (anhyd.); C<sub>7</sub>H<sub>6</sub>O<sub>5</sub> · H<sub>2</sub>O (monohydrate)

*Formula:* C<sub>6</sub>H<sub>2</sub>(OH)<sub>3</sub>CO<sub>2</sub>H (anhyd.) or C<sub>6</sub>H<sub>2</sub>(OH)<sub>3</sub>CO<sub>2</sub>H · H<sub>2</sub>O (monohydrate)

*Properties:* Wh. to pale fawn-colored cryst. or need.; odorless; sol. (1 g/ml): 87 ml water, 6 ml alcohol, 100 ml ether, 10 ml glycerin, 5 ml acetone; pract. insol. in benzene, chloroform, petroleum ether; m.w. 170.12 (anhyd.), 188.14 (monohydrate); dens. 1.694; m.p. 258-265 C (dec.)

*Toxicology:* LD<sub>50</sub> (oral, rabbit) 5 g/kg, (IP, mouse) 4300 mg/kg, (IV, mouse) 320 mg/kg; poison by IV route; mod. toxic by IP route; irritant; mutagenic data; experimental reproductive effector; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic; protect from light

*Uses:* Additive; photography; writing ink; dyeing; mfg. of pyrogallol, tannins, paper; tanning agent; pharmaceuticals (astringent, antioxidant); engraving; lithography; analytical reagent; food additive; food antioxidant (Japan)

*Regulatory:* Japan approved; BP compliance

*Manuf./Distrib.:* Aceto; Aldrich; Alfa Chem; BCH Brühl; Fluka; Fuji Chem.



## Gallotannic acid

Ind.; Integra; Lowenstein Dyes & Cosmetics; Mallinckrodt Baker; Nipa Labs; Penta Mfg.; Rochem Int'l.; Ruger; Sigma; Spectrum Quality Prods.; Triple Crown Am.; U.S. Biochemical

**Gallotannic acid.** See Tannic acid

**Gallotannin.** See Tannic acid

**Garnet lac.** See Shellac

**GDO.** See Glyceryl dioleate

## Gelatin

CAS 9000-70-8; EINECS/ELINCS 232-554-6

*Synonyms:* Gelatine; Gelatins; White gelatin

*Definition:* Complex combination of proteins obtained from partial hydrolysis of collagen derived from animal skin, connective tissues, and bones; Type A is derived from acid-treated precursor, Type B from alkali-treated precursor

*Properties:* Faint yel. or amber flake or powd., sl. char. bouillon-like odor in sol'n., tasteless; sol. in warm water, glycerol, acetic acid; insol. in org. solvs., alcohol, chloroform, ether, fixed and volatile oils; amphoteric

*Toxicology:* LD50 (oral, rat) 5 g/kg; may cause anaphylactoid reactions; experimental teratogen, reproductive effector; TSCA listed

*Precaution:* Stable in air when dry, but subject to microbial decomp. when moist or in sol'n.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Visc. control agent; photographic film; sizing; textile and paper adhesives; cements; capsules for medications; matches; clarifying agent; protective colloid in ice cream; stabilizer, thickener, texturizer in food; dietary supplements; chewing gum base; extender; raw material in paints; pharmaceuticals (emulsifier, vehicle, binder, suspending agent, tablet binder/coating, wound/burn healing, surgical sponges)

*Use Level:* ADI not specified (FAO/WHO)

*Regulatory:* FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 182.70; GRAS; Japan approved; FDA approved for dentals, inhalants, intramuscular injectables, intravenous, IV (infusion), orals, topicals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Am. Gelatin; Ashland; Atlantic Gelatin; Browning; Croda Oleochems.; DynaGel; GMI Prods.; Hormel Foods; Int'l. Chem. Inc.; Norland Prods.; Ruger; Sigma; Spectrum Quality Prods.; Triple Crown Am.; Vyse Gelatin; Whyte Chems. Ltd

**Gelatine.** See Gelatin

**Gelatins.** See Gelatin

**Gentian violet.** See Basic violet 3

**Ghatti gum.** See Gum ghatti

**Gingelly oil.** See Sesame (*Sesamum indicum*) oil

**Gingilli oil.** See Sesame (*Sesamum indicum*) oil

## Glass

CAS 65997-17-3

*Synonyms:* Fiberglass; Fibrous glass; Glass fiber; Glass fibers

*Definition:* Ceramic material containing silica (sand) (75%), soda ash (20%), and lime (5%), often combined with metallic oxides; the blend is heated to fusion temps., then annealed to a rigid, friable state

*Properties:* Plate, sheet, fiber, flakes, filament, fabric, rods, tubing, pipe, powd., beads, flakes, or hollow spheres; sp.gr. 2.5; hardness (Mohs) 5.5; high str., dimensional stability, heat and chem. resist.

*Toxicology:* Fibrous glass: ACGIH TLV 10 mg/m<sup>3</sup> of air (fibers or dust); TDL0 (IP, rat) 50 mg/kg; tumorigen; mutagen

*Uses:* Windows; structural building blocks; chem. reaction equip.; pumps; piping; vacuum tubes; light bulbs; yarns; fabrics; containers; glass spheres with partial vacuum interior and treated exterior in compounding resins, potting compds., other composites; fibers as fillers for thermoplastics and thermosets, in thermal/acoustic/elec. insulation, fabrics, carpet backing, reinforcement for cement, tire cord, filter medium, reinforcement in food-contact crosslinked polyesters

*Regulatory:* FDA 21CFR §177.2420

*Manuf./Distrib.:* Cataphote; Ferro/Elec. & Spec. Glass; General Color & Chem.

*Trade Names:* A-Series Glass Beads

**Glass fiber.** See Glass

**Glass fibers.** See Glass

**Glassy sodium.** See Sodium hexametaphosphate

**Glauber's salt.** See Sodium sulfate

**1,4-D-Glucan glucanohydrolase.** See Amylase

**Glucaptate, sodium.** See Sodium glucoheptonate

**Glucitol.** See Sorbitol

**D-Glucitol.** See Sorbitol

**Glucuheptonic acid, sodium salt.** See Sodium glucoheptonate

**D-Gluconic acid, compd. with n-[3-(dimethylamine) propyl] soyamide.**

See Soyamidopropyl dimethylamino gluconate

**D-Gluconic acid monosodium salt.** See Sodium gluconate

**Gluconic acid sodium salt.** See Sodium gluconate

**Glue, animal.** See Animal glue

## Glutaral

CAS 111-30-8; EINECS/ELINCS 203-856-5

*Synonyms:* Glutaraldehyde; Glutaric dialdehyde; Pentanedial; 1,5-Pentanedial;

Pentane-1,5-dial; 1,5-Pentanedione

*Classification:* Aliphatic dialdehyde

*Empirical:* C<sub>5</sub>H<sub>8</sub>O<sub>2</sub>

*Formula:* OHC(CH<sub>2</sub>)<sub>3</sub>CHO

*Properties:* Colorless oily liq.; pungent aldehyde odor; sol. in water, alcohol, benzene; m.w. 100.12; dens. 0.72; b.p. 188 C (dec.); f.p. -14 C; flash pt. none

*Toxicology:* ACGIH TLV/CL 0.2 ppm; LD50 (oral, rat) 468 mg/kg, (IP, rat) 17,900 µg/kg, (subcut., rat) 2390 mg/kg, (dermal, rabbit) 795 mg/kg; poison by ing., IV, IP routes; mod. toxic by inh., skin contact, subcut. routes; severe eye and human skin irritant; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

*Precaution:* Corrosive

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Preservative, antimicrobial for cosmetic, toiletry, metalworking fluids, and chemical specialty prods.; biocide in water cooling towers, oil field applics.; intermediate; fixative for tissues; for crosslinking protein and polyhydroxy materials; tanning of soft leathers; gelatin hardener; in microcapsules that contain flavoring agents; antimicrobial in beet-sugar mills; fixing agent in immobilization of enzyme preps.; sterilant in medical/dental equip., fiberoptic endoscopes; in food-pkg. adhesives; antimicrobial in pigment and filler slurries for mfg. of paper/paperboard in contact with aq./fatty foods; slimicide in food-contact paper/paperboard

*Use Level:* 0.02-0.2% (50%)

*Regulatory:* FDA 21CFR §172.230 (250 ppm max.), 173.357, 175.105, 176.170, 176.180, 176.300; EPA reg. 10352-39; Japan MITI; Europe provisional list 0.1% max.; BP compliance (sol'n.)

*Manuf./Distrib.:* AMRESCO; Aldrich; Allchem Ind.; BASF; Charkit; Fabricchem; Fluka; Sigma; Spectrum Quality Prods.; Transol Chems. UK Ltd; Triple Crown Am.; Union Carbide

*Trade Names:* Metasol® 550; Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Protectol® GDA

**Glutaraldehyde.** See Glutaral

**Glutaric dialdehyde.** See Glutaral

**Glutaronitrile, 2-bromo-2-(bromomethyl).** See Methyl dibromo glutaronitrile

**Glycerides, coconut oil mono-.** See Glyceryl cocoate

**Glycerides, hydrogenated lard mono-.** See Hydrogenated lard glyceride

**Glycerides, hydrogenated tallow mono-.** See Hydrogenated tallow glyceride

**Glycerides, hydrogenated vegetable mono-.** See Hydrogenated vegetable glyceride

**Glycerides, lard mono-, di- and tri-, hydrogenated.** See Hydrogenated lard glycerides

**Glycerides, lard mono-, hydrogenated.** See Hydrogenated lard glyceride

**Glycerides, palm oil mono-, hydrogenated.** See Hydrogenated palm glyceride

**Glycerides, soya mono-, di- and tri-, hydrogenated.** See Hydrogenated soy glycerides

**Glycerides, soya mono-, hydrogenated.** See Hydrogenated soy glyceride

**Glycerides, soybean oil, hydrogenated, mono.** See Hydrogenated soy glyceride

**Glycerides, tall oil mono-, di- and tri-.** See Tall oil glycerides

**Glycerides, tallow, hydrogenated.** See Hydrogenated tallow glycerides

**Glycerides, tallow mono-.** See Tallow glyceride

**Glycerides, tallow mono-, di- and tri-.** See Tallow glycerides

**Glycerides, tallow mono-, di- and tri-, hydrogenated.** See Hydrogenated

tallow glycerides

**Glycerides, tallow mono-, hydrogenated.** See Hydrogenated tallow glyceride

**Glycerides, vegetable mono-, di-, and tri, hydrogenated.** See Hydrogenated vegetable glycerides

**Glycerides, vegetable mono-, hydrogenated.** See Hydrogenated vegetable glyceride

**Glycerides, vegetable oil, hydrogenated.** See Hydrogenated vegetable glycerides

**Glycerine triacetate.** See Triacetin

**Glycerin monoleate.** See Glyceryl oleate

**Glycerin monostearate.** See Glyceryl stearate

**Glycerite.** See Tannic acid

**D-Glycero-D-gulo-heptonic acid, monosodium salt.** See Sodium glucoheptonate

**Glycerol dioleate.** See Glyceryl dioleate

**Glycerol epichlorohydrin.** See Epichlorohydrin

**Glycerol mono coconut oil.** See Glyceryl cocoate

**Glycerol monolaurate.** See Glyceryl laurate

**Glycerol monoleate.** See Glyceryl oleate

**Glycerol monomethacrylate.** See Glyceryl methacrylate

**Glycerol monooleate.** See Glyceryl oleate

**Glycerol monoricinoleate.** See Glyceryl ricinoleate

**Glycerol 1-monoricinoleate.** See Glyceryl ricinoleate

**Glycerol monostearate.** See Glyceryl stearate

**Glycerol oleate.** See Glyceryl oleate

**Glycerol ricinoleate.** See Glyceryl ricinoleate

**Glycerol stearate.** See Glyceryl stearate

**Glycerol triacetate.** See Triacetin

**Glycerol trioleate.** See Triolein

**Glyceryl butyl ricinoleate**

*Synonyms:* Glyceryl monobutyl ricinoleate

*Uses:* In food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170

**Glyceryl caprate**

CAS 26402-22-2; EINECS/ELINCS 247-667-6

*Synonyms:* Glyceryl monocaprate; Decanoic acid, monoester with 1,2,3-propanetriol

*Definition:* Monoester of glycerin and capric acid

*Empirical:* C<sub>13</sub>H<sub>26</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>COOCH<sub>2</sub>COHHCH<sub>2</sub>OH

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Food emulsifier; solubilizer; absorption promoter; antimicrobial agent; moisturizer; emollient; refatting agent; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180, 176.210, 177.2800

*Manuf./Distrib.:* Sigma

**Glyceryl caprylate**

CAS 26402-26-6; EINECS/ELINCS 247-668-1

*Synonyms:* Glyceryl monocaprylate; Octanoic acid, monoester with 1,2,3-propanetriol; Monoctanoin

*Definition:* Monoester of glycerin and caprylic acid

*Empirical:* C<sub>11</sub>H<sub>22</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>6</sub>COOCH<sub>2</sub>COHHCH<sub>2</sub>OH

*Properties:* Crystals; m.p. 39.5-40.5 C; nonionic

*Toxicology:* TSCA listed

*Uses:* Solubilizer, emulsifier for pharmaceutical drugs, cosmetics; carrier/vehicle for drugs in capsules; antistat for syn. materials; solvent, solubilizer for active ingreds.; softener for chewing gum base; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

**Glyceryl caprylate/caprate**

*Definition:* Mixture of monoglycerides of caprylic and capric acids

*Properties:* Nonionic

*Uses:* Cosolvent and coupler for org. compds.; w/o emulsifier; antistat and lubricant for syn. materials; emulsifier for cosmetics, foods, pharmaceuticals; solvent, dispersant, solubilizer, vehicle, penetrant for pharmaceuticals;

defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

**Glyceryl cocoate**

CAS 61789-05-7; EINECS/ELINCS 263-027-9

*Synonyms:* Glycerides, coconut oil mono-; Glycerol mono coconut oil; Glyceryl cocoate

*Definition:* Monoester of glycerin and coconut fatty acids

*Formula:* RCO-OCH<sub>2</sub>COHHCH<sub>2</sub>OH, RCO- represents the fatty acids derived from coconut oil

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Food emulsifier; surfactant for pharmaceutical formulations; solubilizer; plasticizer; lubricant; refatting agent; penetrant; carrier; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800

**Glyceryl coconate.** See Glyceryl cocoate

**Glyceryl dilaurate**

CAS 27638-00-2; EINECS/ELINCS 248-586-9

*Synonyms:* Dilaurin; Dodecanoic acid, diester with 1,2,3-propanetriol

*Definition:* Diester of glycerin and lauric acid

*Empirical:* C<sub>27</sub>H<sub>52</sub>O<sub>5</sub>

*Formula:* C<sub>11</sub>H<sub>23</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OHOCOC<sub>11</sub>H<sub>23</sub>

*Properties:* Wh. to off-wh. solid; sol. in min. oil, 95% ethanol, IPM, oleyl alcohol, castor oil; insol. in water, glycerin, propylene glycol; sapon. no. 219-229; ref. index 1.4520-1.4560 (35 C); nonionic

*Toxicology:* LD50 (oral, rat) > 5 g/kg; nonirritating to eyes and skin; TSCA listed

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emollient lipid; coupling agent; plasticizer; emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants, cosmetics, pharmaceuticals; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 1876.210

*Manuf./Distrib.:* Ruger; Sigma

**Glyceryl dilaurate SE**

EINECS/ELINCS 248-586-9

*Properties:* Anionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants, cosmetics, pharmaceuticals

**Glyceryl dioleate**

CAS 25637-84-7; EINECS/ELINCS 247-144-2

*Synonyms:* GDO; Glycerol dioleate; 9-Octadecenoic acid, diester with 1,2,3-propanetriol

*Definition:* Diester of glycerin and oleic acid

*Empirical:* C<sub>39</sub>H<sub>72</sub>O<sub>5</sub>

*Properties:* Pale yel. liq.; HLB 1.8; nonionic

*Toxicology:* TSCA listed

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Surfactant for cosmetics, foods, pharmaceuticals, industrial applics.; emulsifier; thickener; stabilizer; emollient; lubricant for pharmaceuticals; internal processing lubricant for PVC; antifog for PVC film; solvent for dyes and pigments; defoamer for paints; emulsifier, lubricant for textile spin finishes, metalworking fluids; superfatting agent for soaps, hand cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800

*Manuf./Distrib.:* A.P.; Ruger; Sigma; Universal Preserv-A-Chem

**Glyceryl distearate**

CAS 1323-83-7; EINECS/ELINCS 215-359-0

*Synonyms:* Octadecanoic acid, diester with 1,2,3-propanetriol

*Definition:* Diester of glycerin and stearic acid

*Empirical:* C<sub>39</sub>H<sub>76</sub>O<sub>5</sub>

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, coemulsifier, stabilizer, wetting agent, lubricant, and antistat used in cosmetic, pharmaceutical, industrial, food applics.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact

textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800; Europe listed; FDA approved for orals

*Manuf./Distrib.:* Sigma

### Glycerol hydrogenated rosin

*Synonyms:* Rosin, hydrogenated, glycerol ester

*Definition:* Monoester of glycerin and hydrogenated mixed long chain acids derived from rosin

*Uses:* Thermoplastic syn. resin; as softener/plasticizer for the masticatory agent in chewing gum bases; as resin modifier for film-formers, elastomers, and waxes in adhesive and protective coating compositions; as tackifier in adhesives, coatings; in food-pkg. and -processing operations

*Trade Names:* Staybelite® Ester 10

### Glycerol hydroxystearate

CAS 1323-42-8; EINECS/ELINCS 215-355-9

*Synonyms:* Glycerol 12-hydroxystearate; Glycerol mono-hydroxy stearate; Glycerol mono-12-hydroxystearate; Hydroxystearic acid, monoester with glycerol

*Definition:* Monoester of glycerin and hydroxystearic acid

*Empirical:*  $C_{21}H_{40}O_5$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, emollient, opacifier, bodying agent, thickener for cosmetics, pharmaceuticals, household prods.; beeswax substitute; pigment wetting in paints, inks; paper industry; lubricant and mold release in plastics; textile and leather processing; detergency and cleaning prods.; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings; in closure-sealing gaskets for food containers; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 177.1210, 177.2800

**Glycerol 12-hydroxystearate.** See Glycerol hydroxystearate

**Glycerol lactostearate.** See Glycerol stearate lactate

### Glycerol laurate

CAS 142-18-7; EINECS/ELINCS 205-526-6

*Synonyms:* Dodecanoic acid, 2,3-dihydroxypropyl ester; Dodecanoic acid, monoester with 1,2,3-propanetriol; Glycerol monolaurate; Glycerol monolaurate; 1-Monolaurin

*Definition:* Monoester of glycerin and lauric acid

*Empirical:*  $C_{15}H_{30}O_4$

*Formula:*  $CH_3(CH_2)_{10}COOCH_2COHHCH_2OH$

*Properties:* Cream-colored paste, faint odor; disp. in water; sol. in methanol, ethanol, toluene, naphtha, min. oil; dens. 0.98; m.p. 23-27°C; HLB 5.2; pH 8-8.6; nonionic

*Toxicology:* LD50 (oral, rat) 53 g/kg; mildly toxic by ing.; TSCA listed

*Precaution:* Combustible

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emulsifier, dispersant for food prods., oils, waxes, solvents; antifoaming agent; dry-cleaning soap base; plasticizer for PVC, PS, cellulose; stabilizer/thickener/opacifier for skin creams/lotions, shampoos; emulsifier, stabilizer, solubilizer, carrier in pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Use Level:* 0.1-1.0%

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800, GRAS; Japan approved; Europe listed

*Manuf./Distrib.:* ABITEC; Cognis/Chems. Group; Danisco Ingreds.; Degussa-Hüls AG; Goldschmidt; Heterene; Inolex; Lanaetex Prods.; Lonza; PPG Ind.; Protameen; Ruger; Stepan; Thornley; Uniqema N. Am.; Van Waters & Rogers; Velsicol

### Glycerol methacrylate

CAS 5919-74-4

*Synonyms:* Glycerol monomethacrylate

*Uses:* Acrylic resin for paint, adhesive, soft contact lens, medical applics.; photosensitive resin; modifier for fiber and paper

*Trade Names:* Blemmer GLM

**Glycerol monobutyl ricinoleate.** See Glycerol butyl ricinoleate

**Glycerol monocaprate.** See Glycerol caprate

**Glycerol monocaprylate.** See Glycerol caprylate

**Glycerol 1-mono-12-hydroxy-cis-9-octadecenoate.** See Glycerol ricinoleate

**Glycerol monohydroxy stearate.** See Glycerol hydroxystearate

**Glycerol mono-12-hydroxystearate.** See Glycerol hydroxystearate

**Glycerol monolaurate.** See Glycerol laurate

**Glycerol monomyristate.** See Glycerol myristate

**Glycerol monooleate.** See Glycerol oleate

**Glycerol monoricinoleate.** See Glycerol ricinoleate

**Glycerol 1-monoricinoleate.** See Glycerol ricinoleate

**Glycerol monorosinate.** See Glycerol rosin

**Glycerol monostearate.** See Glycerol stearate

**Glycerol monostearate SE.** See Glycerol stearate SE

**Glycerol monotristearate.** See Tristearin

### Glycerol myristate

CAS 589-68-4; 27214-38-6; EINECS/ELINCS 248-329-0

*Synonyms:* Glycerol monomyristate; Monomyristin; Tetradecanoic acid, monoester with 1,2,3-propanetriol

*Definition:* Monoester of glycerin and myristic acid

*Empirical:*  $C_{17}H_{34}O_4$

*Formula:*  $CH_3(CH_2)_{12}COOCH_2COHHCH_2OH$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Component in w/o and o/w creams; lubricant, antistat, antifogging agent in plastics; coemulsifier, solubilizer, carrier for lipophilic drugs; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800

### Glycerol oleate

CAS 111-03-5; 25496-72-4 (generic); 37220-82-9; 68424-61-3 (generic); EINECS/ELINCS 203-827-7; 247-038-6; 253-407-2; FEMA 2526

*Synonyms:* Glycerin monooleate; Glycerol monooleate; Glycerol monooleate; Glycerol oleate; Glycerol monooleate; Monoglycerol oleate; Monoolein; Monooleoylglycerol; 9-Octadecenoic acid, monoester with 1,2,3-propanetriol; Oleic acid glycerol monoester; Oleic acid monoglyceride; Oleoylglycerol; Oleyl monoglyceride

*Definition:* Monoester of glycerin and oleic acid

*Empirical:*  $C_{21}H_{40}O_4$

*Formula:*  $CH_3(CH_2)CH=CH(CH_2)CHOHOOCCH_2CCH_2OH$

*Properties:* Yel. oil or soft solid; insol. in water; somewhat sol. in alcohol, most org. solvs.; m.w. 356.55; dens. 0.940-0.960; m.p. 149-19°C; HLB 3.4; acid no. 3 max.; iodine no. 65-80; sapon. no. 166-174; nonionic

*Toxicology:* Skin and eye irritant; TSCA listed

*Precaution:* Combustible

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emulsifier (hydrocarbon oils, textile spin finishes); coemulsifier; wetting agent; antistat; emollient/thickener/opacifier (cosmetics); mold release agent/processing lubricant in plastics; internal antistat for PE, PP, PVC; antifog/cling agent/lubricant for PVC film; visc. stabilizer (paints); rust-preventive oils; softener in textile finishes; flavor adjuvant/solvent/vehicle/defoamer/dispersant/emulsifier/plasticizer for foods, food pkg.; pharmaceutical excipient; plasticizer in food-contact coatings; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.210, 177.2800, 181.22, 181.27, 182.4505, 184.1323, GRAS; FEMA GRAS; FDA approved for orals

*Manuf./Distrib.:* A.P.; ABITEC; Am. Ingreds.; Cognis/Chems. Group; Croda Oleochems.; Danisco Ingreds.; Fallek; Ferro/Keil; Fluka; Inolex; Lambent Tech.; Lonza; Ruger; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Stepan; Uniqema N. Am.; Uniqema/ICI Surf. Am.; Uniqema; Venus Ethoxyethers

*Trade Names:* Lumulse™ GMO

### Glycerol palmitate/stearate

*Synonyms:* Glycerol stearate palmitate

*Classification:* Triester

*Definition:* Monoester of glycerin and a blend of palmitic and stearic acids

*Empirical:*  $C_{63}H_{116}O_{12}$

*Properties:* Nonionic

*Uses:* Stabilizer, emulsifier, dispersant for cosmetics; food emulsifier; starch

complexer; lubricant and binder in pharmaceuticals; suspending agent; thickener; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §176.210, 177.2800

### Glyceryl ricinoleate

CAS 141-08-2; EINECS/ELINCS 205-455-0

**Synonyms:** GMRO; Glycerol monoricinoleate; Glycerol 1-monoricinoleate; Glycerol ricinoleate; Glyceryl 1-mono-12-hydroxy-cis-9-octadecenoate; Glyceryl monoricinoleate; Glyceryl 1-monoricinoleate; 12-Hydroxy-9-octadecenoic acid 2,3-dihydroxypropyl ester; 12-Hydroxy-9-octadecenoic acid, monoester with 1,2,3-propanetriol; Monoricinolein;  $\alpha$ -Monoricinolein

**Classification:** Fatty acid ester

**Definition:** Monoester of glycerin and ricinoleic acid

**Empirical:**  $C_{21}H_{40}O_5$

**Formula:**  $C_3H_5(OOCC_{18}H_{32}OH)_3$

**Properties:** Lt. yel. oily liq.; sol. in ethanol, ether, acetone, benzene, cottonseed oil, ethyl acetate; sl. sol. in methanol; insol. in water, min. oil, aliphatic hydrocarbons; m.w. 372.55; dens. 1.028 (20 °C); m.p. < -5 °C; cloud pt. -10 °C; HLB 2.1; flash pt. (COC) 265 °C; ref. index 1.470; nonionic

**Toxicology:** LD50 (oral, mouse) > 25 ml/kg; low oral toxicity; ing. of lg. amts. may cause nausea, vomiting, cramps, diarrhea; unlikely to cause skin irritation; inh. may cause sl. nose/throat irritation; exposure to vapors unlikely to occur; TSCA listed

**Precaution:** Avoid generating mist; incompat. with acids and bases; decomp. (hydrolysis) can occur

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>

**Storage:** Store away from heat and ignition sources in suitable containers, protected from damage

**Uses:** Emulsifier; plasticizer for PVB, cellulotics; emulsifier, solubilizer for cosmetic, pharmaceutical, household prods., coatings, and printing inks; antifoaming agent; antifogging agent for food pkg.; solvent; leather processing; lubricant for plastics processing; freeze-thaw stabilizer (latex paint); food emulsifier, stabilizer, wetting agent; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.210, 178.3130; FDA approved for orals, topicals

**Manuf./Distrib.:** AC Ind.; CasChem; Lambent Tech.; Lonza

### Glyceryl rosinat

CAS 8050-31-5; EINECS/ELINCS 232-482-5

**Synonyms:** Glyceryl monorosinate; Rosin, glyceryl ester

**Definition:** Monoester of glycerin and mixed long chain acids derived from rosin

**Properties:** Drop soften. pt. 88-96 °C

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Thermoplastic resin gum; clouding agent in beverages; in chewing gums; inks; tackifier, softener, plasticizer, modifier for adhesives, coatings; processing aid for rubber; in food-contact articles and coatings

**Regulatory:** FDA 21CFR §172.615, 172.735, limitation 100 ppm in finished beverage, 175.105, 175.300, 178.3120, 178.3800, 178.3870

**Trade Names:** Aquatac® 6085

### Glyceryl stearate

CAS 123-94-4 (pure grade); 11099-07-3 (crude grade); 31566-31-1 (generic); 85666-92-8 (generic); 85251-77-0; EINECS/ELINCS 204-664-4; 234-325-6; 250-705-4; 286-490-9; FEMA 2527

**Synonyms:** GMS; 2,3-Dihydroxypropyl octadecanoate; Glycerin monostearate; Glycerol monostearate; Glycerol stearate; Glyceryl monostearate; Monostearin; Octadecanoic acid, monoester with 1,2,3-propanetriol; 1,2,3-Propanetriol octadecanoate; Stearic acid, monoester with glycerol; Stearic monoglyceride

**Classification:** Aliphatic carboxylic acid ester

**Definition:** Monoester of glycerin and stearic acid

**Empirical:**  $C_{21}H_{42}O_4$

**Formula:**  $CH_3(CH_2)_{16}COOCH_2COHHCH_2OH$

**Properties:** Wh. to cream wax-like flakes, sl. fatty odor and taste; sol. in hot org. solvs.; insol. in water, ethanol, glycerin, propylene glycol; disp. in min. oil; m.w. 358.57; sp. gr. 0.97; m.p. 56-59 °C; b.p. 238-240 °C; HLB 3.8; acid no. 6 max.; iodine no. 3 max.; sapon. no. 162-175; hyd. no. 300-330; flash pt. (OC) 230 °C; pH 9.3 (3%); nonionic

**Toxicology:** ACGIH TLV/TWA 10 mg<sup>h</sup> (stearates); LD50 (IP, mouse) 200 mg/kg; poison by IP route; TSCA listed

**Precaution:** Combustible dust; incompat. with oxidizing materials (increased risk of fire and explosion)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Store in a cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources; light-sensitive

**Uses:** Emulsifier for cosmetics, toiletries, food, pharmaceuticals, oils, waxes, solvents; thickener, visc. builder for emulsions; plasticizer for cellulose nitrate; antistat, antifog, lubricant, processing aid for plastics; detackifier; stabilizer/thickener/opacifier (cosmetics); oil-well drilling mud lubricant; protective coating for hygroscopic powds.; softener (textile finishes); food additive (thickener, emulsifier, antisticking, antistalant, solvent); pharmaceutical excipient; surf. lubricant in food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §139.110, 139.115, 139.117, 139.120, 139.121, 139.122, 139.125, 139.135, 139.138, 139.140, 139.150, 139.155, 139.160, 139.165, 139.180, 175.105, 175.210, 175.300, 176.200, 176.210, 177.2800, 184.1324, GRAS; FEMA GRAS; Europe listed; FDA approved for orals, ophthalmics, otics, rectals, topicals; USP/NF, BP, Ph. Eur. compliance

**Manuf./Distrib.:** A.P.; ABITEC; Allan; Am. Ingreds./Patco; Atul Org. Pvt. Ltd.; Cognis/Chems. Group; Croda Oleochems.; Danisco Ingreds.; Eastman; Falck; Goldschmidt; Hart Prods.; ISP Van Dyk; Inolex; Jarchem Ind.; Koster Keunen; Lambent Tech.; Lanaetex Prods.; Lipo; Lonza; Protameen; Rhodia HPCII; Ruger; Seabrook Ind.; Spectrum Quality Prods.; Stepan; Uniqema/ICI Surf. Am.; Venus Ethoxyethers

**Trade Names:** Aldo® MS LG FG; Kemester® 5500; Petrac® GMS

### Glyceryl stearate lactate

**Synonyms:** Glyceryl lactostearate

**Definition:** Lactic acid ester of glyceryl stearate

**Empirical:**  $C_{24}H_{46}O_6$

**Properties:** Nonionic

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Food emulsifier; starch gelling agent in industrial processes; (improves aeration and foam stabilization; emulsion stabilizer; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170; USDA 9CFR §318.7, 381.147

### Glyceryl stearate palmitate. See Glyceryl palmitate/stearate

### Glyceryl stearate SE

CAS 31566-31-1 (generic); 11099-07-3; 85666-92-8 (generic); 977053-96-5; EINECS/ELINCS 234-325-6; 286-490-9

**Synonyms:** GMS-SE; Glyceryl monostearate SE

**Definition:** Self-emulsifying grade of glyceryl stearate contg. some sodium and/or potassium stearate

**Empirical:**  $C_{21}H_{42}O_4$

**Properties:** Wh. to cream flakes; sol. in oyley alcohol; partly sol. in water, veg. oil, ethanol, propylene glycol; m.w. 358.63; m.p. 57-59 °C; HLB 11.0; sapon. no. 150-160; anionic

**Toxicology:** LD50 (IP, mouse) 200 mg/kg; TSCA listed

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Aux. emulsifier for soap o/w emulsions; emulsifier for polymers; lubricant, antistat, antifog for plastics prod.; thickener, emulsifier, stabilizer, wetting agent, flavoring in foods; aux. emulsifier in pharmaceutical topicals

**Regulatory:** FDA approved for topicals

**Manuf./Distrib.:** Atul Org. Pvt. Ltd; Ruger

**Trade Names:** Kemester® 6000SE

### Glyceryl triacetate. See Triacetin

### Glyceryl tribenzoate

CAS 614-33-5; EINECS/ELINCS 210-379-6; FEMA 3398

**Synonyms:** GTB; 1,2,3-Propanetriol tribenzoate; Tribenzoin

**Definition:** Benzoic acid triester with glycerin

**Empirical:**  $C_{24}H_{20}O_6$

**Properties:** Colorless liq.; insol. in water; sol. in alcohol, ether; m.w. 404.44; dens. 1.032; m.p. < -75 °C; b.p. 305-309 °C

**Toxicology:** LD50 (oral, rat) 11,700 mg/kg; mildly toxic by ingestion; TSCA listed

## Glycerol trioleate

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Processing aid, modifier for thermoplastics, hot-melt adhesives, lacquers; plasticizer in vinyl and acrylic systems; in food-pkg. adhesives; flavoring agent in pharmaceuticals; plasticizer in polymeric coatings for paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180; FEMA GRAS

**Manuf./Distrib.:** Aldrich; Unitex; Velsicol

**Trade Names:** Uniplex 260

**Glycerol trioleate.** See Triolein

**Glycerol tristearate.** See Tristearin

## Glycidyl methacrylate

CAS 106-91-2; EINECS/ELINCS 203-441-9; UN No. 2810 (DOT)

**Synonyms:** GMA; 2,3-Epoxy-1-propanol, methacrylate; 2,3-Epoxypropyl methacrylate; Glycidyl  $\alpha$ -methyl acrylate; Methacrylic acid 2,3-epoxypropyl ester; 2-Methyl-2-propenoic acid, oxiranylmethyl ester

**Empirical:**  $C_7H_{10}O_3$

**Properties:** Colorless liq.; fruity odor; sol. in ethanol, acetone, diethyl ether, benzene; mod. sol. in water; m.w. 142.15; dens. 1.042; m.p. 79 C; b.p. 189 C; flash pt. 76 C; ref. index 1.450 (20 C)

**Toxicology:** LD50 (oral, rat) 597 mg/kg, (skin, rabbit) 469 mg/kg; mod. toxic by skin contact and IP route; poison by ingestion; skin and eye irritant; readily absorbed thru skin; possible sensitizer; cancer suspect agent; mutagen; target organ: nerves; TSCA listed

**Precaution:** Nonhazardous polymerization occurs when heated, on exposure to light, or in presence of peroxides or strong bases; usually contains an inhibitor

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and fumes

**Uses:** Polyfunctional monomer; adhesion promoting/crosslinking comonomer for acrylic and vinyl resins; reactive diluent; modifier for paints, adhesives, and fibers; in hydrogels for contact lenses and membranes, molding and casting compds., impregnating paper, concrete, wood, coatings, printing inks, adhesives, sealants, elastomers, paints

**Manuf./Distrib.:** Aceto; Aldrich; Estron; Fluka; Monomer-Polymer & Dajac Labs; Polysciences; Richman; San Esters; Sartomer; Sigma; Spectrum Quality Prods.

**Trade Names:** SR 379

## Glycidyl methacrylate homopolymer

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

## Glycidyl $\alpha$ -methyl acrylate. See Glycidyl methacrylate

**Glycine, N,N-bis(carboxymethyl)-.** See Nitrilotriacetic acid

**Glycine, N,N-bis(carboxymethyl)-, trisodium salt.** See Trisodium NTA

**Glycine, N,N'-1,2-ethanediyldis[N-(carboxymethyl)-, disodium salt dihydrate.** See Disodium EDTA

**Glycine soja.** See Soybean (Glycine soja) oil

**Glycine soja oil.** See Soybean (Glycine soja) oil

**Glycinol.** See Ethanolamine

**Glycogenase.** See Amylase

## Glycol

CAS 107-21-1; EINECS/ELINCS 203-473-3

**Synonyms:** EG; MEG; 1,2-Dihydroxyethane; 1,2-Ethandiol; Ethane-1,2-diol; Ethylene alcohol; Ethylene dihydrate; Ethylene glycol; Glycol alcohol; Monoethylene glycol

**Classification:** Aliphatic dihydric alcohol

**Empirical:**  $C_2H_6O_2$

**Formula:** HOCH<sub>2</sub>CH<sub>2</sub>OH

**Properties:** Colorless clear liq., sweet taste (poisonous); sol. in water, lower aliphatic alcohols, glycerol, glycol ethers, acetone, most org. solvs.; poor sol. in toluene, benzene, chloroform; m.w. 62.07; sp.gr. 1.1135 (20/4 C); visc. 17.3 cps; m.p. -13 C; b.p. 197.6 C; flash pt. (OC) 115 C; ref. index 1.43063

**Toxicology:** ACGIH TLV/CL 50 ppm (vapor); LD50 (oral, rat) 4700 mg/kg; toxic by inh.; mod. toxic by ing., subcut., IV, IM routes; human poison by ing.; vapor can cause nose/throat irritation and burning; irritating to eyes, skin, mucous membranes; may be absorbed thru skin; human systemic effects by ing./inh. (lacrimation, anesthesia, headache, cough, nausea, vomiting, pulmonary/kidney/liver changes); lethal dose for humans 100

ml; experimental teratogen; human mutagenic data; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidizing agents, perchloric acid, strong bases, phosphorus (V) sulfide, strong acids, silvered copper wires carrying dc current; mod. explosion hazard; violent reactions possible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 1; Reactivity 0

**Storage:** Very hygroscopic; store in cool, dry, well-ventilated area

**Uses:** Antifreeze (cooling/heating systems); in hydraulic brake fluids; humectant (starch adhesives); solvent in paints, plastics, printing inks; softener for cellophane; stabilizer; in explosives; alkyd resins; elastomers; waxes; asphalt; PU chain extender; wood stains; raw material for prod. of syn. polyester fibers, latex paints, polyester/alkyd resins; plasticizer (regenerated cellulose film); heat transfer agent; low-pressure laminates; textile processing; foam stabilizer; pharmaceutical solvent; in food-pkg. adhesives; adjuvant in slimicides in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.300; FDA approved for topicals; BP compliance

**Manuf./Distrib.:** AMRESKO; Aldrich; Arch Chems.; Ashland; BASF; Baychem; C.P. Hall; CasChem; Celanese; Chemcentral; Cognis/Chems. Group; Coyne; Degussa-Hüls AG; Dow; Eastman; Equistar; Fluka; Haltermann Prods. UK; Harcos; Houghton Chem.; Hukill; Huntsman; J.T. Baker; Lanaetex Prods.; Laporte Perf. Chems.; Mobil; Occidental; Oxiteno; Reliance Ind. Ltd; Rhodia; Robeco; Ruger; Sal Chem.; Shell; Sigma; Spectrum Quality Prods.; Sunnyside; Union Carbide; Uniqema/ICI Surf. Am.; Van Waters & Rogers

**Trade Names Containing:** Advantage® DF 110; Metasol® TK-100 Disp. W; Octowet 70D; Surfynol® 104E; Surfynol® 104H; Surfynol® TG

**Glycol alcohol.** See Glycol

## Glycol/butylene glycol montanate

CAS 73138-45-1

**Definition:** Mixt. of diesters of montan acid wax with ethylene glycol and butylene glycol

**Uses:** Lubricant for plastics compounding; release agent; antiblocking agent; wax for polishes, emulsions, citrus fruit coating

**Trade Names:** Hoechst Wax E; Hoechst Wax KSL

**Glycol butyl ether.** See Butoxyethanol

## Glycol dilaurate

CAS 624-04-4; EINECS/ELINCS 210-827-0

**Synonyms:** Ethylene glycol dilaurate; Lauric acid, 1,2-ethanediy ester; Dodecanoic acid 1,2-ethanediy ester

**Definition:** Diester of ethylene glycol and lauric acid

**Empirical:**  $C_{26}H_{50}O_4$

**Formula:**  $CH_3(CH_2)_{10}COOCH_2CH_2OCO(CH_2)_{10}CH_3$

**Properties:** Colorless amorphous mass; insol. in alcohol, ether; m.w. 426.66; m.p. 50-52 C; b.p. 188 C (20 mm); nonionic

**Uses:** Plasticizer in lacquers and varnishes; emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; emollient in cosmetics/pharmaceuticals

## Glycol dilaurate SE

**Properties:** Anionic

**Uses:** Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

## Glycol dioleate

CAS 928-24-5

**Synonyms:** Ethylene glycol dioleate; 9-Octadecenoic acid, 1,2-ethanediy ester

**Definition:** Diester of ethylene glycol and oleic acid

**Empirical:**  $C_{38}H_{70}O_4$

**Properties:** Sp.gr. 0.950; m.p. 0 C; flash pt. (COC) 296 C; ref. index 1.461; nonionic

**Uses:** Emulsifier, dispersant, spreading agent, oil-phase ingred. for cosmetics; plasticizer for PVC, some cellulosics; emulsifier, dispersant, antistat for textile, paper processing, polishes, latexes, lubricants

**Manuf./Distrib.:** A.P.

## Glycol dioleate SE

**Properties:** Anionic

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**Glycol distearate**

CAS 627-83-8; 91031-31-1; EINECS/ELINCS 211-014-3

Synonyms: EGDS; Ethylene glycol distearate; Octadecanoic acid, 1,2-ethanediyl ester

Definition: Diester of ethylene glycol and stearic acid

Empirical:  $C_{38}H_{74}O_4$

Formula:  $CH_3(CH_2)_{16}COOCH_2CH_2OCO(CH_2)_{16}CH_3$

Properties: Wh. to yel. powd.; m.w. 595.00; dens. 0.97; m.p. 60 C; HLB 1.6; flash pt. (COC) 171 C; nonionic

Toxicology: TSCA listed

Uses: Pearlescent; opacifier; thickener; intermediate; lubricant; emulsifier; emollient; for emulsion shampoos and foam baths; plasticizer, lubricant, antistat for plastics and rubber; surfactant in paints; pharmaceutical surfactant; specialized solvent; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §73.1, 176.210

Manuf./Distrib.: A.P.; Ashland; Cedar Concepts; Inolex; Lonza; PPG Ind.; Rhodia HPCII; Ruger

Trade Names: Cithrol EGDS N/E; Lumulse™ EGDS; Mackester™ EGDS; Polypax EGDS

**Glycol distearate SE**

Properties: Anionic

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**Glycol laurate**

CAS 4219-48-1; EINECS/ELINCS 253-458-0

Synonyms: Ethylene glycol monolaurate

Definition: Ester of ethylene glycol and lauric acid

Properties: Nonionic

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**Glycol laurate SE**

EINECS/ELINCS 237-725-9

Synonyms: Dodecanoic acid, ester with 1,2-ethanediol

Properties: Anionic

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**Glycol methacrylate.** See 2-Hydroxyethyl methacrylate

**Glycol monobutyl ether.** See Butoxyethanol

**Glycol monomethacrylate.** See 2-Hydroxyethyl methacrylate

**Glycol monooleate.** See Glycol oleate

**Glycol monopalmitate.** See Glycol palmitate

**Glycol monoricinoleate.** See Glycol ricinoleate

**Glycol monostearate.** See Glycol stearate

**Glycol oleate**

CAS 4500-01-0; EINECS/ELINCS 224-806-9

Synonyms: Ethylene glycol monooleate; Glycol monooleate; 2-Hydroxyethyl 9-octadecanoate

Definition: Ester of ethylene glycol and oleic acid

Empirical:  $C_{20}H_{38}O_3$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7COOCH_2CH_2OH$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

Manuf./Distrib.: A.P.; AC Ind.

**Glycol oleate SE**

Properties: Anionic

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**Glycol palmitate**

CAS 4219-49-2; EINECS/ELINCS 224-160-8

Synonyms: Ethylene glycol monopalmitate; Glycol monopalmitate; 2-Hydroxyethyl hexadecanoate

Definition: Ester of ethylene glycol and palmitic acid

Empirical:  $C_{18}H_{36}O_3$

Formula:  $CH_3(CH_2)_{14}COOCH_2CH_2OH$

Properties: M.w. 300.54; nonionic

Toxicology: LD50 (IP, mouse) 3 g/kg

Uses: Emulsifier; cosmetic thickener and gellant; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

**Glycol ricinoleate**

CAS 106-17-2; EINECS/ELINCS 203-369-8

Synonyms: Ethylene glycol monoricinoleate; Glycol monoricinoleate; 2-Hydroxyethyl 12-hydroxy-9-octadecanoate

Definition: Ester of ethylene glycol and ricinoleic acid

Empirical:  $C_{20}H_{38}O_4$

Formula:  $C_{17}H_{32}(OH)COO(CH_2)_2OH$

Properties: Clear, moderately visc. pale-yel. liq., mild odor; misc. with most org. solvs.; insol. in water; dens. 0.965 (25/25 C); nonionic

Uses: Plasticizer, wetting agent, dispersant, emulsifier, antistat for textiles, paper processing, greases, polishes, latexes; urethane polymers; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

**Glycol ricinoleate SE**

Properties: Anionic

Uses: Emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**Glycols, polyethylene, dimethyl ether.** See PEG dimethyl ether

**Glycols, polyethylene, mono (nonylphenyl) ether.** See Nonoxynol

**Glycols, polyethylene, monostearate.** See PEG stearate

**Glycols, polyethylene, mono (p-(1,1,3,3-tetramethylbutyl) phenyl) ether.** See Octoxynol

**Glycol stearate**

CAS 111-60-4; 9004-99-3 (generic); 97281-23-7; EINECS/ELINCS 203-886-9; 306-522-8

Synonyms: EGMS; Ethylene glycol monostearate; Ethylene glycol stearate; Glycol monostearate; 2-Hydroxyethyl ester stearic acid; 2-Hydroxyethyl octadecanoate; PEG-1 stearate; POE (1) stearic acid; Stearic acid, monoester with ethylene glycol

Definition: Ester of ethylene glycol and stearic acid

Empirical:  $C_{20}H_{40}O_3$

Formula:  $CH_3(CH_2)_{16}COOCH_2CH_2OH$

Properties: Wh. to yel. waxy solid; sol. in alcohol, hot ether, acetone; insol. in water; m.w. 328.60; dens. 0.96 (25 C); m.p. 57-60 C; HLB 2.9; nonionic

Toxicology: LD50 (IP, mouse) 200 mg/kg; poison by IP route; primary skin irritant; TSCA listed

Precaution: Combustible

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 1; Flammability 0; Reactivity 0

Uses: Opacifier/pearlescent/emulsifier/visc. modifier for cosmetics; plasticizer for cellulose nitrate; lubricant for plasticized PVC; surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives, water treatment; specialized solvent; pharmaceutical excipient; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210; FDA approved for topicals

Manuf./Distrib.: A.P.; Alzo; Ashland; C.P. Hall; Costec; Fanning; Goldschmidt; ISP Van Dyk; Inolex; Lanaetex Prods.; Lipo; McIntyre; Norman; Fox; PPG Ind.; Phoenix; Protameen; R.I.T.A.; Rhodia HPCII; Ruger; Scher; Stepan; Thornley; Uniqema N. Am.

Trade Names: Cithrol EGMS N/E; Mackester™ EGMS; Polypax EGMS Trade Names Containing: Mackester™ IP; Mackester™ SP

**Glycol stearate SE**

CAS 86418-55-5

Synonyms: Ethylene glycol monostearate SE

Definition: Self-emulsifying grade of glycol stearate contg. some sodium and/or potassium stearate

Properties: Wh. to cream flakes; disp. in water, peanut oil, oleyl alcohol; insol. in min. oil, ethanol, glycerin, propylene glycol, IPM; m.p. 57-60 C;

sapon. no. 181-191; anionic  
*Uses:* Emulsifier for o/w creams and lotions; visc. builder, opacifier; base in topical pharmaceuticals  
*Trade Names:* Cithrol EGMS S/E

**Glyco stearin.** See PEG-2 stearate

#### Glyoxal

CAS 107-22-2; EINECS/ELINCS 203-474-9  
*Synonyms:* Biformyl; Ethanediol; 1,2-Ethanediol; Oxalaldehyde  
*Classification:* Aliphatic dialdehyde  
*Empirical:* C<sub>2</sub>H<sub>2</sub>O<sub>2</sub>  
*Formula:* O=HCCH=O  
*Properties:* Yel. crystals or lt. yel. liq., mild odor; sol. in anhyd. solvs.; m.w. 58.04; dens. 1.14 (20/20 C); m.p. 15 C; b.p. 51 C; ref. index 1.3826 (20 C)  
*Toxicology:* LD50 (oral, rat) 7070 mg/kg, (skin, rabbit) 10 g/kg; low toxicity by ing., skin contact; skin irritant; TSCA listed  
*Precaution:* Powerful reducing agent; mixts. with air may explode; violent polymerization in contact with water; violent reactions with chlorosulfonic acid, ethylene imine, NaOH, etc.; can explode during mfg.  
*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
*Storage:* May spontaneously polymerize and ignite during storage  
*Uses:* Insolubilizing agent; embalming fluids; reducing agent (textiles); organic synthesis; glues; biocides; leather tanning; wet resist. additive in paper coatings; in food-pkg. adhesives; crosslinking agent for vinyl acetate/acrylic resins; disinfectant; gelatin hardener; textile finishing agent (permanent-press fabrics); insolubilizer in starch- and protein-based food-contact coatings; curing system additive for bisphenol A-epichlorohydrin epoxies for food contact  
*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.2280  
*Manuf./Distrib.:* AMRESCO; Aldrich; BFGoodrich/Textile; Chisso Am.; Clariant; Fluka; Sigma; Whyte Chems. Ltd  
*Trade Names:* Protectol® GL 40

#### Glyoxal/urea/formaldehyde condensate

CAS 27013-01-0  
*Uses:* Starch insolubilizer in coatings for paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180

#### Glyoxal/urea polymer

CAS 53037-34-6  
*Uses:* Starch insolubilizer for paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180

**GMA.** See Glycidyl methacrylate; 2-Hydroxyethyl methacrylate

**GMRO.** See Glycerol ricinoleate

**GMS.** See Glycerol stearate

**GMS-SE.** See Glycerol stearate SE

**Golden yellow.** See Vat yellow 4

**Gomenoleo oil.** See Olive (*Olea europaea*) oil

**Gossypimine.** See Basic red 2

**Gossypium.** See Cottonseed (Gossypium) oil

**Grain alcohol.** See Alcohol

**Graphite.** See Carbon, activated

**Green chrome oxide.** See Chromium oxide (ic)

**Green chromic oxide.** See Chromium oxide (ic)

**Green cinnabar.** See Chromium oxide (ic)

**Green rouge.** See Chromium oxide (ic)

**Griffith's zinc white.** See Lithopone

**Groundnut oil.** See Peanut (*Arachis hypogaea*) oil

**GTB.** See Glycerol tribenzoate

**p-Guaiacol.** See Hydroquinone monomethyl ether

**Guanidine, dodecyl-, monohydrochloride.** See Dodecylguanidine hydrochloride

**Guanidine hydrogen phosphate.** See Guanidine phosphate, dibasic

#### Guanidine phosphate, dibasic

CAS 5423-23-4; EINECS/ELINCS 226-552-4  
*Synonyms:* Diguandine phosphate; Diguandine hydrogen phosphate; Guanidine hydrogen phosphate  
*Empirical:* C<sub>2</sub>H<sub>13</sub>N<sub>3</sub>O<sub>4</sub>P

*Formula:* [NH<sub>2</sub>C(=NH)NH<sub>2</sub>]<sub>2</sub> · H<sub>3</sub>PO<sub>4</sub>

*Properties:* Colorless solid; sol. in water; m.w. 216.13; dens. 1.48 kg/l; m.p. 246 C

*Toxicology:* Harmful by ing., inh.; skin/eye irritant

*Uses:* Fire retardant for wood, paper, and textiles

*Manuf./Distrib.:* Aldrich; Fluka

#### Guanidine stearate

*Empirical:* C<sub>19</sub>H<sub>41</sub>N<sub>3</sub>O<sub>2</sub>

*Properties:* M.w. 343.56

*Uses:* Emulsifier and wetting agent for surface coatings, paper prod.

*Manuf./Distrib.:* SKW Chems.

#### Guanidine sulfamate

*Empirical:* CH<sub>8</sub>N<sub>4</sub>O<sub>3</sub>S

*Properties:* M.w. 156.16

*Uses:* Fire retardant for Japanese paper screens

*Manuf./Distrib.:* Austin; Chisso Am.; SKW Chems.

**Guar.** See Guar (*Cyanopsis tetragonoloba*) gum

**Guaran.** See Guar (*Cyanopsis tetragonoloba*) gum

#### Guar (*Cyanopsis tetragonoloba*) gum

CAS 9000-30-0; EINECS/ELINCS 232-536-8; FEMA 2537

*Synonyms:* Cyamopsis gum; *Cyanopsis tetragonoloba*; *Cyanopsis tetragonoloba* gum; Galactasol; Guar; Guaran; Guar flour; Gum cyanopsis; Gum guar; Jaguar gum

*Classification:* Nonaromatic alcohol

*Definition:* Natural material derived from the ground endosperms of *Cyamopsis tetragonoloba*; consists of high m.w. hydrocolloidal polysaccharide composed of galactomannan units

*Properties:* Ylsh.-wh. free-flowing powd.; aq. sol'ns. tasteless, odorless; sol. in hot or cold water; insol. in oil, greases, hydrocarbons, ketones, esters; m.w. ≈ 220,000

*Toxicology:* LD50 (oral, rat) 8100 mg/kg; mildly toxic by ing.; may cause contact dermatitis; tumorigen; mutagen; experimental reproductive effects; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Paper coating/sizing/dry str. additive; filter aid/flocculant in mining industry; coagulant in water treatment; viscosifier (oil-well fluids, slurry explosives); protective colloid/stabilizer/thickener/emulsifier for foods/pharmaceuticals/cosmetics; binder, emulsion stabilizer, film-former in cosmetics; dietary bulking agent; pharmaceutical tablet binder/disintegrant; as bulk laxative, appetite suppressant; pharmaceutical jelly formulations; treatment of peptic ulcers; 5-8 times the thickening power of starch  
*Use Level:* Limitation 0.35% (baked goods), 1.2% (cereal), 0.8% (cheese), 1% (dairy prods.), 2% (fats, oils), 1.2% (gravies), 1% (jams), 0.6% (milk prods.), 2% (processed vegetables), 0.8% (soups), 1% (sweet sauces), 0.5% (other foods)

*Regulatory:* FDA 21CFR §133.124, 133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 184.1339, GRAS; FEMA GRAS; FDA approved for buccals, orals; USP/NF compliance; Japan approved; Europe listed; UK approved; ADI not specified (WHO)

*Manuf./Distrib.:* AEP Colloids; Aldrich; Alfa Chem; Ashland; CarboMer; Charkit; Chart; Colloides Naturels; Fabricchem; Folexco; Frutarom Meer; Gumix Int'l.; Hercules/Aqualon; Hercules; Houghton Chem.; Int'l. Chem. Inc; Multi-Kem; Nat'l. Starch & Chem.; P.L. Thomas; Penta Mfg.; Rhodia HPCII; Ruger; Sarcom; Sigma; Spectrum Quality Prods.; Stan Chem Int'l. Ltd; TIC Gums; Tomen Am.; V.L. Clark

*Trade Names:* Jaguar® 2100®; Jaguar® CB-11; Jaguar® CB-123; Jaguar® CP-13; Liporol SP; Lycold® 260; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB; Powdered Gum Guar NF Type 80 Mesh B/T; Powdered Gum Guar Type 140 Mesh B/T; Powdered Gum Guar Type ECM; Powdered Gum Guar Type M; Powdered Gum Guar Type MM FCC; Powdered Gum Guar Type MM (HV); Powdered Gum Guar Type MMM 1/2; Powdered Gum Guar Type MMW; TIC Pretested® Guar Gum TICOLV

**Guar flour.** See Guar (*Cyanopsis tetragonoloba*) gum

**Guar gum, carboxymethyl 2-hydroxypropyl ether, sodium salt.** See Carboxymethyl hydroxypropyl guar



**Guar gum, 2-hydroxypropyl ether.** See Hydroxypropyl guar

**Gulf red.** See Iron oxide red

**Gulitol.** See Sorbitol

**Gum carrageenan.** See Carrageenan (*Chondrus crispus*)

**Gum cyanopsis.** See Guar (*Cyanopsis tetragonoloba*) gum

**Gum Damar.** See Dammar

**Gum Dammar.** See Dammar

**Gum elemi.** See Elemi gum

#### Gum ghatti

CAS 9000-28-6; FEMA 2519

**Synonyms:** Ghatti gum; Indian gum

**Classification:** Water-soluble polysaccharide

**Definition:** Gummy exudate from wounds in the bark of *Anogeissus latifolia*

**Properties:** Colorless to pale yel. solid; almost odorless and tasteless; partly sol. in water; can be solubilized by autoclaving; insol. in 90% alcohol

**Toxicology:** LD50 (oral, rat) 17 g/kg; mildly toxic by ing.; can cause allergy

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Thickener, stabilizer in soft drinks, cake mixes, glazes, confectionery; protective colloid; emulsifier for waxes, fats, and oils; stabilizer, emulsifier, binder for beverages, pharmaceuticals, coating and barrier applics.; substitute for acacia

**Use Level:** Limitation 0.2% (nonalcoholic beverages), 0.1% (other food)

**Regulatory:** FDA 21CFR §184.1333, GRAS; FEMA GRAS; Japan approved

**Manuf./Distrib.:** AEP Colloids; Houghton Chem.; P.L. Thomas; Sarcom; Sigma; V.L. Clark

**Trade Names:** Granular Gum Ghatti #1; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Staform P

**Gum guar.** See Guar (*Cyanopsis tetragonoloba*) gum

**Gum karaya.** See Karaya (*Sterculia urens*) gum

**Gum lac.** See Shellac

**Gum rosin.** See Rosin

**Gum sandarac.** See Sandarac (*Callitris quadrivalvis*) gum

**Gum, Shorea Robusta.** See Dammar

**Gum sterculia.** See Karaya (*Sterculia urens*) gum

**Gum turpentine.** See Turpentine

**Guncotton.** See Nitrocellulose

**Gypsum.** See Calcium sulfate; Calcium sulfate dihydrate

**Gypsum hemihydrate.** See Calcium sulfate hemihydrate

**Gypsum stone.** See Calcium sulfate dihydrate

**HA.** See Hydroquinone monomethyl ether

**Halane.** See 1,3-Dichloro-5,5-dimethyl hydantoin

**Halite.** See Sodium chloride

**Halowax.** See Tetrachloronaphthalene

**Hard paraffin.** See Paraffin

**HBD.** See Tributyltin oxide

**HCB.** See Hexachlorobenzene

**HCFC-141b.** See Dichlorofluoroethane

**HCl.** See Hydrochloric acid

**HDDA.** See 1,6-Hexanediol diacrylate

**HDODA.** See 1,6-Hexanediol diacrylate

**HDPE.** See Polyethylene, high-density

**HDSA.** See Hexadecenyl succinic anhydride

**n-HDSA.** See Hexadecenyl succinic anhydride

**HEA.** See 2-Hydroxyethyl acrylate

**Heavy mineral oil.** See Mineral oil

**Heavy naphtha.** See Naphtha

**Heavy spar.** See Barium sulfate

**HEC.** See Hydroxyethylcellulose

**HE cellulose.** See Hydroxyethylcellulose

**HEDP.** See Etidronic acid

**HEDPA.** See Etidronic acid

**HEDTAN<sub>3</sub>.** See Trisodium HEDTA

**HEDTA, trisodium salt.** See Trisodium HEDTA

**HEEDTAN<sub>3</sub>.** See Trisodium HEDTA

**HEEDTA, trisodium salt.** See Trisodium HEDTA

**Helanthrene yellow.** See Vat yellow 4

**Helianthus annuus.** See Sunflower (*Helianthus annuus*) seed oil

**Helianthus annuus oil.** See Sunflower (*Helianthus annuus*) seed oil

**HEMA.** See 2-Hydroxyethyl methacrylate

**1-Heptadecanecarboxylic acid.** See Stearic acid

**Heptadecanoic acid, 16-methyl-** See Isostearic acid

**2-(8-Heptadecenyl)-4,5-dihydro-1H-imidazole-1-ethanol.** See Oleyl hydroxyethyl imidazoline

**2-(8-Heptadecenyl)-2-imidazoline-1-ethanol.** See Oleyl hydroxyethyl imidazoline

#### 2-Heptadecenyl-4-methyl-4-hydroxymethyl-2-oxazoline

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**2-Heptadecyl-4,5-dihydro-1H-imidazole.** See Stearyl hydroxyethyl imidazoline

**2-Heptadecyl-1-hydroxyethylimidazoline.** See Stearyl hydroxyethyl imidazoline

**2-Heptadecyl-2-imidazoline-1-ethanol.** See Stearyl hydroxyethyl imidazoline

#### Heptane

CAS 142-82-5; 64742-89-8; EINECS/ELINCS 205-563-8; UN No. 1206 (DOT)

**Synonyms:** Alkane C<sub>7</sub>; Dipropyl methane; n-Heptane; Heptyl hydride

**Classification:** Sat. aliphatic hydrocarbon

**Empirical:** C<sub>7</sub>H<sub>16</sub>

**Formula:** CH<sub>2</sub>(CH<sub>2</sub>)<sub>5</sub>CH<sub>3</sub>

**Properties:** Volatile colorless liq.; gasoline-like odor; sol. in alcohol, ether, chloroform; misc. with oxygenated, chlorinated, and hydrocarbon solvs.; insol. in water; m.w. 100.21; dens. 0.68368 (20 C); m.p. -91 C; b.p. 98.428 C; flash pt. (CC) -3.89 C; ref. index 1.38764 (20 C)

**Toxicology:** ACGIH TLV/TWA 400 ppm; STEL 500 ppm; LD50 (IV, mouse) 222 mg/kg; lethal conc. for mice 15,900 ppm in air; irritating to respiratory tract; narcotic in high concs.; poison by IV route; ing. may cause nausea, vomiting, swelling of abdomen, headache, depression; relatively low oral toxicity unless aspirated into lungs; TSCA listed

**Precaution:** Flamm. when exposed to heat or flame; dangerous fire risk; can react vigorously with oxidizing materials; mod. explosive exposed to heat or flame; violent reaction with phosphorus + chlorine

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area out of direct sunlight

**Uses:** Standard for octane rating determinations; anesthetic; solvent for rubber compounding, cements/sealants, inks, fast-drying adhesives, lacquers, extraction of oils and fats; organic synthesis; replacement for n-hexane; reagent; major ingred. in gasoline, aviation fuel, petroleum solvents such as petroleum naphtha and rubber solvent; reaction diluent in polyolefin prod.; in food-pkg. adhesives; adjuvant for PC food-pkg. resins

**Regulatory:** FDA 21CFR §175.105, 177.1580, 27CFR §21.111

**Manuf./Distrib.:** Aldrich; Ashland; Burdick & Jackson; ChevronPhillips; Coyne; Exxon; Fisher Scientific; Fluka; Great Western; Houghton Chem.; Hukill; Humphrey; Romil Ltd; Ruger; Sigma; Spectrum Quality Prods.; Triple Crown Am.

**Trade Names Containing:** Shell Sol B HT; Shell Tolu-Sol® W HT Solv.

#### n-Heptane.

See Heptane

**1-Heptanecarboxylic acid.** See Caprylic acid

**4-Heptanol, 2,6-dimethyl-** See 2,6-Dimethyl heptanol-4

**3,6,9,12,15,18,21-Heptaoxatricosane-1,23-diol.** See PEG-8

**Heptyl hydride.** See Heptane

**Hetastarch.** See Hydroxyethylcellulose

**Hexa.** See Hexamethylenetetramine

**Hexabutylidistannoxane.** See Tributyltin oxide

**Hexa C.B.** See Hexachlorobenzene

#### Hexachlorobenzene

CAS 118-74-1; EINECS/ELINCS 204-273-9; UN No. 2729

**Synonyms:** HCB; Benzene, hexachloro-; Hexa C.B.; Pentachlorophenyl chloride; Perchlorobenzene; Phenyl perchloryl

**Empirical:** C<sub>6</sub>Cl<sub>6</sub>

**Properties:** Wh. need. or gray powd.; sol. in chloroform, CS<sub>2</sub>, ether, benzene; sol. 1-5 mg/ml in acetone, < 1 mg/ml in water, DMSO, 95% ethanol; sparingly sol. in CCl<sub>4</sub>; m.w. 284.76; dens. 2.044 g/ml (23 C); vapor pressure 1 mm Hg (114.4 C); m.p. 227-229 C; b.p. 322 C (subl.); flash pt. 242 C

**Guar gum, 2-hydroxypropyl ether.** See Hydroxypropyl guar  
**Gulf red.** See Iron oxide red  
**Gulitol.** See Sorbitol  
**Gum carrageenan.** See Carrageenan (*Chondrus crispus*)  
**Gum cyanopsis.** See Guar (*Cyanopsis tetragonoloba*) gum  
**Gum Damar.** See Dammar  
**Gum Dammar.** See Dammar  
**Gum elemi.** See Elemi gum

**Gum ghatti**  
 CAS 9000-28-6; FEMA 2519  
*Synonyms:* Ghatti gum; Indian gum  
*Classification:* Water-soluble polysaccharide  
*Definition:* Gummy exudate from wounds in the bark of *Anogeissus latifolia*  
*Properties:* Colorless to pale yel. solid; almost odorless and tasteless; partly sol. in water; can be solubilized by autoclaving; insol. in 90% alcohol  
*Toxicology:* LD50 (oral, rat) 17 g/kg; mildly toxic by ing.; can cause allergy  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
*Uses:* Thickener, stabilizer in soft drinks, cake mixes, glazes, confectionery; protective colloid; emulsifier for waxes, fats, and oils; stabilizer, emulsifier, binder for beverages, pharmaceuticals, coating and barrier applics.; substitute for acacia  
*Use Level:* Limitation 0.2% (nonalcoholic beverages), 0.1% (other food)  
*Regulatory:* FDA 21CFR §184.1333, GRAS; FEMA GRAS; Japan approved  
*Manuf./Distrib.:* AEP Colloids; Houghton Chem.; P.L. Thomas; Sarcom; Sigma; V.L. Clark  
*Trade Names:* Granular Gum Ghatti #1; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Staform P

**Gum guar.** See Guar (*Cyanopsis tetragonoloba*) gum  
**Gum karaya.** See Karaya (*Sterculia urens*) gum  
**Gum lac.** See Shellac  
**Gum rosin.** See Rosin  
**Gum sandarac.** See Sandarac (*Callitris quadrivalvis*) gum  
**Gum, Shorea Robusta.** See Dammar  
**Gum sterculia.** See Karaya (*Sterculia urens*) gum  
**Gum turpentine.** See Turpentine  
**Guncotton.** See Nitrocellulose  
**Gypsum.** See Calcium sulfate; Calcium sulfate dihydrate  
**Gypsum hemihydrate.** See Calcium sulfate hemihydrate  
**Gypsum stone.** See Calcium sulfate dihydrate  
**HA.** See Hydroquinone monomethyl ether  
**Halane.** See 1,3-Dichloro-5,5-dimethyl hydantoin  
**Halite.** See Sodium chloride  
**Halowax.** See Tetrachloronaphthalene  
**Hard paraffin.** See Paraffin  
**HBD.** See Tributyltin oxide  
**HCB.** See Hexachlorobenzene  
**HCFC-141b.** See Dichlorofluoroethane  
**HCl.** See Hydrochloric acid  
**HDDA.** See 1,6-Hexanediol diacrylate  
**HDODA.** See 1,6-Hexanediol diacrylate  
**HDPE.** See Polyethylene, high-density  
**HDSA.** See Hexadecenyl succinic anhydride  
**n-HDSA.** See Hexadecenyl succinic anhydride  
**HEA.** See 2-Hydroxyethyl acrylate  
**Heavy mineral oil.** See Mineral oil  
**Heavy naphtha.** See Naphtha  
**Heavy spar.** See Barium sulfate  
**HEC.** See Hydroxyethylcellulose  
**HE cellulose.** See Hydroxyethylcellulose  
**HEDP.** See Etidronic acid  
**HEDPA.** See Etidronic acid  
**HEDTANa<sub>3</sub>.** See Trisodium HEDTA  
**HEDTA, trisodium salt.** See Trisodium HEDTA  
**HEEDTANa<sub>3</sub>.** See Trisodium HEDTA  
**HEEDTA, trisodium salt.** See Trisodium HEDTA  
**Helanthrene yellow.** See Vat yellow 4  
**Helianthus annuus.** See Sunflower (*Helianthus annuus*) seed oil  
**Helianthus annuus oil.** See Sunflower (*Helianthus annuus*) seed oil

**HEMA.** See 2-Hydroxyethyl methacrylate  
**1-Heptadecanecarboxylic acid.** See Stearic acid  
**Heptadecanoic acid, 16-methyl-.** See Isostearic acid  
**2-(8-Heptadecenyl)-4,5-dihydro-1H-imidazole-1-ethanol.** See Oleyl hydroxyethyl imidazoline  
**2-(8-Heptadecenyl)-2-imidazoline-1-ethanol.** See Oleyl hydroxyethyl imidazoline  
**2-Heptadecenyl-4-methyl-4-hydroxymethyl-2-oxazoline**  
*Uses:* Defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210  
**2-Heptadecyl-4,5-dihydro-1H-imidazole.** See Stearyl hydroxyethyl imidazoline  
**2-Heptadecyl-1-hydroxyethylimidazoline.** See Stearyl hydroxyethyl imidazoline  
**2-Heptadecyl-2-imidazoline-1-ethanol.** See Stearyl hydroxyethyl imidazoline

**Heptane**  
 CAS 142-82-5; 64742-89-8; EINECS/ELINCS 205-563-8; UN No. 1206 (DOT)  
*Synonyms:* Alkane C<sub>7</sub>; Dipropyl methane; n-Heptane; Heptyl hydride  
*Classification:* Sat. aliphatic hydrocarbon  
*Empirical:* C<sub>7</sub>H<sub>16</sub>  
*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>5</sub>CH<sub>3</sub>  
*Properties:* Volatile colorless liq.; gasoline-like odor; sol. in alcohol, ether, chloroform; misc. with oxygenated, chlorinated, and hydrocarbon solvs.; insol. in water; m.w. 100.21; dens. 0.68368 (20 C); m.p. -91 C; b.p. 98.428 C; flash pt. (CC) -3.89 C; ref. index 1.38764 (20 C)  
*Toxicology:* ACGIH TLV/TWA 400 ppm; STEL 500 ppm; LD50 (IV, mouse) 222 mg/kg; lethal conc. for mice 15,900 ppm in air; irritating to respiratory tract; narcotic in high concs.; poison by IV route; ing. may cause nausea, vomiting, swelling of abdomen, headache, depression; relatively low oral toxicity unless aspirated into lungs; TSCA listed  
*Precaution:* Flamm. when exposed to heat or flame; dangerous fire risk; can react vigorously with oxidizing materials; mod. explosive exposed to heat or flame; violent reaction with phosphorus + chlorine  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
 NFPA: Health 1; Flammability 3; Reactivity 0  
*Storage:* Store in cool, dry, well-ventilated area out of direct sunlight  
*Uses:* Standard for octane rating determinations; anesthetic; solvent for rubber compounding, cements/sealants, inks, fast-drying adhesives, lacquers, extraction of oils and fats; organic synthesis; replacement for n-hexane; reagent; major ingred. in gasoline, aviation fuel, petroleum solvents such as petroleum naphtha and rubber solvent; reaction diluent in polyolefin prod.; in food-pkg. adhesives; adjuvant for PC food-pkg. resins  
*Regulatory:* FDA 21CFR §175.105, 177.1580, 27CFR §21.111  
*Manuf./Distrib.:* Aldrich; Ashland; Burdick & Jackson; ChevronPhillips; Coyne; Exxon; Fisher Scientific; Fluka; Great Western; Houghton Chem.; Hukill; Humphrey; Romil Ltd; Ruger; Sigma; Spectrum Quality Prods.; Triple Crown Am.  
*Trade Names Containing:* Shell Sol B HT; Shell Tolu-Sol® W HT Solv.

**n-Heptane.** See Heptane  
**1-Heptanecarboxylic acid.** See Caprylic acid  
**4-Heptanol, 2,6-dimethyl-.** See 2,6-Dimethyl heptanol-4  
**3,6,9,12,15,18,21-Heptaaxtricosane-1,23-diol.** See PEG-8  
**Heptyl hydride.** See Heptane  
**Hetastarch.** See Hydroxyethylcellulose  
**Hexa.** See Hexamethylenetetramine  
**Hexabutyldistannoxane.** See Tributyltin oxide  
**Hexa C.B.** See Hexachlorobenzene

**Hexachlorobenzene**  
 CAS 118-74-1; EINECS/ELINCS 204-273-9; UN No. 2729  
*Synonyms:* HCB; Benzene, hexachloro-; Hexa C.B.; Pentachlorophenyl chloride; Perchlorobenzene; Phenyl perchloryl  
*Empirical:* C<sub>6</sub>Cl<sub>6</sub>  
*Properties:* Wh. need. or gray powd.; sol. in chloroform, CS<sub>2</sub>, ether, benzene; sol. 1-5 mg/ml in acetone, < 1 mg/ml in water, DMSO, 95% ethanol; sparingly sol. in CCl<sub>4</sub>; m.w. 284.76; dens. 2.044 g/ml (23 C); vapor pressure 1 mm Hg (114.4 C); m.p. 227-229 C; b.p. 322 C (subl.); flash pt. 242 C

**Toxicology:** LD50 (oral, rat) 10,000 mg/kg; LC50 (inh., rat) 3600 mg/m<sup>3</sup>; mod. toxic by ing.; irritating to eyes, skin, mucous membranes, upper respiratory tract; may cause corneal opacity, focal alopecia, atrophic hands, hypertrichosis, hepatomegaly, porphyria, anorexia, wt. loss, enlargement of thyroid and lymph nodes, skin photosensitization, abnormal growth of hair; experimental neoplastigen, carcinogen; equivocal tumorigen and teratogen; suspected human carcinogen; target organ: liver; TSCA listed  
**Precaution:** Combustible; reacts violently with dimethylformamide; easily sublimable; keep away from food  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of chlorides, CO, CO<sub>2</sub>  
**Storage:** Sensitive to moisture; store at ambient temps., preferably under inert atmosphere; protect from moisture  
**Uses:** Organic synthesis; fungicide for seeds; wood preservative; mfg. of pentachlorophenol; prod. of aromatic fluorocarbons; in impregnation of paper  
**Manuf./Distrib.:** AccuStandard; Acros Org.; Aldrich; Alfa Aesar; ChemService; Fluka; Isotec; Lancaster Synthesis; Riedel-deHaën; Spectrum Quality Prods.; Supelco; TCI Am.

## 2,2',4,4',5,5'-Hexachlorobiphenyl

CAS 35065-27-1; EINECS/ELINCS 215-648-1; UN No. 2315  
**Synonyms:** 1,1'-Biphenyl, 2,2',4,4',5,5'-hexachloro-; 2,2',4,4',5,5'-Hexachloro-1,1'-biphenyl; 2,4,5,2',4',5'-Hexachlorobiphenyl  
**Classification:** Polychlorinated biphenyl  
**Empirical:** C<sub>12</sub>H<sub>4</sub>Cl<sub>6</sub>  
**Properties:** Colorless liq.; sol. in oils, lipids, org. solvs.; sl. sol. in water, glycerol, glycols; m.w. 360.86; dens. 1.4-1.5 g/ml; m.p. 103-104 °C; probably nonflamm.; thermally stable; very resist. to degradation; resist. to oxidation, acids, bases, other chem. agents  
**Toxicology:** Toxic by inh., ing., skin contact; irritating to eyes, skin, respiratory system; may cause adenofibrosis, wt./hair loss, mouth/eyelid edema, acneform lesions, gastric mucosal ulceration, etc.; may cause in humans: skin hyperpigmentation, conjunctivitis, edema, hepatic hypertrophy, dec. hemoglobin, serum hyperlipidemia, leukocytosis, etc.; may cause nausea, lethargy, GI distress, jaundice, etc. on chronic exposure; experimental equivocal tumorigen; target organs: liver, skin  
**Environmental:** Harmful, dangerous to the environment  
**Precaution:** Incompat. with strong oxidizing agents; may react with sodium hydroxide under high temps.; may react with metal to cause corrosion under elevated temps.  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>, hydrogen chloride gas, Cl<sub>2</sub>; emits toxic fumes under fire conditions  
**Storage:** Store in cool, dry place; keep tightly closed; protect from light  
**Uses:** Capacitors; transformers; mfg. of plasticizers, hydraulic fluids, lubricants, surf. coatings, inks, sealants, adhesives; pesticide extenders; microencapsulation of dyes for carbonless duplicating paper; ingred. in lacquers, paints, varnishes; waterproofing compds.; vacuum pump fluids; air compressors  
**Regulatory:** Prod. and sale of PCB's were discontinued in 1977; however, they are still present in many transformers/capacitors now in use  
**Manuf./Distrib.:** Riedel-deHaën

2,2',4,4',5,5'-Hexachloro-1,1'-biphenyl. See 2,2',4,4',5,5'-Hexachlorobiphenyl  
 2,4,5,2',4',5'-Hexachlorobiphenyl. See 2,2',4,4',5,5'-Hexachlorobiphenyl  
 Hexachlorocyclopentadiene dimer. See Perchloropentacyclodecane  
 1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene dimer. See Perchloropentacyclodecane

Hexacyanoferrate (3-) tripotassium. See Potassium ferricyanide  
 Hexadecanamide, N,N-bis (2-hydroxyethyl)-. See Palmitamide DEA  
 1-Hexadecanaminium, N-(carboxymethyl)-N,N-dimethyl-, hydroxide, inner salt. See Cetyl betaine  
 Hexadecanoic acid, magnesium salt. See Magnesium palmitate  
 Hexadecanoic acid. See Palmitic acid  
 Hexadecanoic acid aluminum salt. See Aluminum palmitate  
 Hexadecanoic acid isopropyl ester. See Isopropyl palmitate  
 Hexadecanoic acid, methyl ester. See Methyl palmitate  
 Hexadecanoic acid, 1-methylethyl ester. See Isopropyl palmitate  
 Hexadecanoic acid, 2-methylpropyl ester. See Isobutyl palmitate  
 Hexadecanoic acid, potassium salt. See Potassium palmitate  
 Hexadecanoic acid sodium salt. See Sodium palmitate  
 Hexadecanoic acid, zinc salt. See Zinc palmitate  
 1-Hexadecanol. See Cetyl alcohol

## Hexadecene-1

CAS 629-73-2; EINECS/ELINCS 211-105-8  
**Synonyms:** Linear C16 alpha olefin; Cetene;  $\alpha$ -Hexadecylene  
**Empirical:** C<sub>16</sub>H<sub>32</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>13</sub>CH=CH<sub>2</sub>  
**Properties:** Colorless liq., mild hydrocarbon odor; sol. in alcohol, ether, petrol, and coal-tar solvs.; sl. sol. in water; dens. 0.785; b.p. 518-554 °F; m.p. 37 °F; ref. index 1.4420; flash pt. (Seta) 272 °F  
**Toxicology:** Irritating to skin and eyes; low acute inhalation toxicity; low acute ingestion toxicity but ingestion may cause vomiting, aspiration of vomitus  
**Precaution:** Combustible  
**Uses:** Organic synthesis; intermediate for surfactants and specialty industrial chemicals  
**Manuf./Distrib.:** Albemarle; Aldrich; Fluka; Monomer-Polymer & Dajac Labs; Shell; Sigma  
**Trade Names:** Gulftene® 16

3-(Hexadecenyl) dihydro-2,5-furandione. See Hexadecenyl succinic anhydride

Hexadecenyl succinic acid anhydride. See Hexadecenyl succinic anhydride

## Hexadecenyl succinic anhydride

CAS 32072-96-1  
**Synonyms:** HDSA; n-HDSA; 2,5-Furandione, 3-(hexadecenyl) dihydro-; 3-(Hexadecenyl) dihydro-2,5-furandione; Hexadecenyl succinic acid anhydride  
**Empirical:** C<sub>20</sub>H<sub>34</sub>O<sub>3</sub>  
**Properties:** M.w. 322.49  
**Uses:** Curing agent for epoxy resins; corrosion inhibitor for nonaq. lubricating oils, intermediate for prep. of alkyd or unsat. polyester resins, intermediate in chem. reactions; paper sizing agent  
**Manuf./Distrib.:** Dixie; Haltermann GmbH  
**Trade Names Containing:** Accosize® 100 Synthetic Size

n-Hexadecoic acid. See Palmitic acid

Hexadecyl alcohol. See Cetyl alcohol

Hexadecylbetaine. See Cetyl betaine

Hexadecyl eicosanol. See Cetyl arachidol

2-Hexadecyl-1-eicosanol. See Cetyl arachidol

$\alpha$ -Hexadecylene. See Hexadecene-1

Hexadecylic acid. See Palmitic acid

Hexadecyl methacrylate. See Cetyl methacrylate

Hexadecyl 2-methyl-2-propenoate. See Cetyl methacrylate

## 2-Hexadecyl-1 octadecanol

CAS 69472-23-7  
**Manuf./Distrib.:** Jarchem Ind.  
**Trade Names Containing:** Jarcol™ I-34T

2-[2-Hexadecyloxy] ethanol. See Ceteth-2

2-[2-(2-Hexadecyloxy) ethoxy] ethoxy ethanol. See Ceteth-3

Hexadecyl trimethyl ammonium chloride. See Cetrimonium chloride

2,4-Hexadienoic acid, sodium salt. See Sodium sorbate

Hexaethylene glycol. See PEG-6

Hexafluorosilicate (2-) magnesium (1:1). See Magnesium silicofluoride

Hexahydrobenzene. See Cyclohexane

Hexahydro-1,3,5-(2-hydroxyethyl)-s-triazine. See Hydroxyethyl-s-triazine

Hexahydrophenol. See Cyclohexanol

Hexahydro-1,3,5-triazine-1,3,5-triethanol. See Hydroxyethyl-s-triazine

## Hexahydro-1,3,5-triethyl-s-triazine

CAS 7779-27-3; EINECS/ELINCS 231-924-4  
**Synonyms:** 1,3,5-Triazine, 1,3,5-triethylhexahydro-; s-Triazine, 1,3,5-triethylhexahydro-; N,N',N''-Triethylhexahydrotriazine; 1,3,5-Triethylhexahydro-1,3,5-triazine; 1,3,5-Triethylhexahydro-s-triazine; Triethylhexahydro-s-triazine; Triethyltrimethylenetriamine  
**Empirical:** C<sub>9</sub>H<sub>21</sub>N<sub>3</sub>  
**Properties:** Colorless to lt. yel. liq.; sol. in water; m.w. 171.33; dens. 0.894; b.p. 190-196 °C; ref. index 1.4595  
**Toxicology:** LD50 (oral, rat) 316 mg/kg; LDLo (skin, rabbit) 2000 mg/kg; poison by ing.; mod. toxic by skin contact; severe eye irritant; irritating to respiratory system; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

*Storage:* Store in a cool, dry place; keep container closed when not in use  
*Uses:* Fungicide, biocide, industrial preservative for latex, adhesives, cutting fluids, marine lubricants; catalyst for PU foam; antimicrobial for coatings, binders, pigments, fillers, and sizings used in mfg. of paper/paperboard in contact with aq./fatty foods; accelerator for food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §176.170, 177.2600; SARA nonreportable  
*Manuf./Distrib.:* Aldrich

**Hexahydro-1,3,5-tris (hydroxyethyl) triazine.** See Hydroxyethyl-s-triazine

**Hexahydro-1,3,5-tris-(2-hydroxyethyl)-s-triazine.** See Hydroxyethyl-s-triazine

**Hexakis (methoxymethyl) melamine.** See Hexamethoxymethylmelamine

**Hexakis (methoxymethyl)-s-triazine-2,4,6-triamine.** See Hexamethoxymethylmelamine

**Hexalin.** See Cyclohexanol

**Hexametaphosphate sodium salt.** See Sodium hexametaphosphate

**Hexamethoxymethylmelamine**

CAS 3089-11-0; 11098-24-1

*Synonyms:* HMMM; Hexakis (methoxymethyl) melamine; Hexakis (methoxymethyl)-s-triazine-2,4,6-triamine; Hexamethylmethoxymelamine; Hexamethyl methylolmelamine; Malamine, hexakis (methoxymethyl); 1,3,5-Triazine-2,4,6-triamine, N,N,N',N',N',N''-hexakis (methoxymethyl)-

*Empirical:* C<sub>15</sub>H<sub>30</sub>N<sub>6</sub>O<sub>6</sub>

*Properties:* M.w. 390.51

*Toxicology:* LD50 (oral, rat) > 17 g/kg, (IP, rat) 550 mg/kg; primary irritant; TSCA listed

*Uses:* Crosslinking agent in melamine resin coating systems, sat. polyester resins, thermosetting acrylic resins, alkyd-amino resins, epoxy, cellulose resins, general industrial finishes, appliance finishes, stoving finishes; reinforcing agent for rubber compds.; condensation agent for resorcinol-type bonding systems; food-contact cellophane; resin-bonded filters for food contact

*Trade Names:* Resimene® 745; Resimene® 747

**Hexamethylenamine.** See Hexamethylenetetramine

**Hexamethylene.** See Cyclohexane

**Hexamethyleneamine.** See Hexamethylenetetramine

**1,6-Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate).** See Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate)

**Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate)**

CAS 35074-77-2

*Synonyms:* 1,6-Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate); Hexamethylenebis (3,5-di-t-butyl-4-hydroxyhydroxycinnamate); 1,6-Hexanediy bis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate]

*Empirical:* C<sub>40</sub>H<sub>62</sub>O<sub>6</sub>

*Properties:* Wh. powd.; m.w. 638.93; dens. 1.08 kg/l; m.p. 101 C

*Uses:* Antioxidant, stabilizer for polyolefins, elastomers, styrenics, polyacetals, cellulose, polyesters, PU, PVC, petroleum prods., org. substrates, food-grade polymers; antioxidant in lubricants for incidental food-contact use

*Regulatory:* FDA 21CFR §178.2010, 178.3570

*Manuf./Distrib.:* Ciba Spec. Chems./Addit.

*Trade Names:* Irganox® 259

**Hexamethylenebis (3,5-di-t-butyl-4-hydroxyhydroxycinnamate).** See Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate)

**Hexamethylene diamine tetra (methylene phosphonate)**

*Synonyms:* HMDTMP; Hexamethylenediaminetetra (methylene phosphonic acid)

*Empirical:* C<sub>10</sub>H<sub>28</sub>N<sub>2</sub>O<sub>12</sub>P<sub>4</sub>

*Properties:* Wh. powd.; m.w. 492.23

*Uses:* Scale and corrosion inhibitor for industrial water systems; aq. process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; chelant

**Hexamethylenediaminetetra (methylene phosphonic acid).** See Hexamethylene diamine tetra (methylene phosphonate)

**Hexamethylene diamine tetramethylene phosphonic acid, potassium salt.** See Potassium hexamethylene diamine tetra (methylene phosphonate)

**Hexamethylene glycol diacrylate.** See 1,6-Hexanediol diacrylate

**Hexamethylenetetraamine.** See Hexamethylenetetramine

**Hexamethylenetetramine**

CAS 100-97-0; EINECS/ELINCS 202-905-8; UN No. 1328 (DOT)

*Synonyms:* HMT; HMTA; Aminoform; Ammonioformaldehyde; Hexa; Hexamethylenamine; Hexamethyleneamine; Hexamethylenetetraamine; Hexamine; Methamin; Methenamine; 1,3,5,7-Tetraazaadamantane; 1,3,5,7-Tetraazatricyclo [3,3,1,1] decane; Urotropine

*Classification:* Organic amine

*Empirical:* C<sub>6</sub>H<sub>12</sub>N<sub>4</sub>

*Formula:* (CH<sub>2</sub>)<sub>6</sub>N<sub>4</sub>

*Properties:* Wh. cryst. powd. or colorless lustrous crystals, sl. amine odor; sol. in water, alcohol, chloroform; insol. in ether; m.w. 140.22; dens. 1.27 (25 C); subl. @ 263 C without melting and with partial decomp.

*Toxicology:* LD50 (IV, rat) 9200 mg/kg, (subcut., mouse) 215 mg/kg; LDLo (oral, mouse) 512 mg/kg; poison by subcut. route; mod. toxic by ing., IP routes; skin, eye, and mucous membrane irritant; may cause skin rash in humans; questionable carcinogen; experimental tumorigen; human mutagenic data; TSCA listed

*Precaution:* DOT: Flamm. solid; in contact with flame, readily burns with smokeless flame; can react with oxidizers; explosive reactions possible; reacts violently with Na<sub>2</sub>O<sub>2</sub>

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of formaldehyde and NO<sub>x</sub>

HMIS: Health 2; Flammability 3; Reactivity 1

*Storage:* Hygroscopic

*Uses:* Accelerator; curing of phenolformaldehyde/resorcinolformaldehyde resins; crosslinking agent for vulcanizing rubber; adhesives; sealants; fungicide; antibacterial; intermediate for paints; antimicrobial preservative for foods; dye fixative; corrosion inhibitor for steel; in coatings; preservation of hides; camping stove fuel tablets; as stabilizer for lubricating/insulating oils, in photography; absorber of poison gases; reagent; neutralizer; preservative in cosmetics; in food-pkg. adhesives; polymerization crosslinking agent for protein in paper/paperboard in contact with aq./fatty/dry foods; in closure-sealing gaskets for food containers; polymerization control agent for melamine-formaldehyde resins

*Use Level:* ADI 0-0.15 mg/kg (EU)

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 177.1210, 177.2410, 177.2600, 181.30; Europe listed; UK approved

*Manuf./Distrib.:* Aldrich; Alfa Aesar; Allchem Ind.; BCH Brühl; Browning; DSM Chem. N. Am.; Fluka; Harcros; Kowa Am.; Miljac; Monomer-Polymer & Dajac Labs; OxyChem/Durez; R.W. Greeff; Ruger; San Yuan; Schütz; Sigma; Spectrum Quality Prods.; U.S. Chems.; Van Waters & Rogers; Vanguard Chem. Int'l.; Wright

**Hexamethylmethoxymelamine.** See Hexamethoxymethylmelamine

**Hexamethyl methylolmelamine.** See Hexamethoxymethylmelamine

**Hexamethylparosaniline chloride.** See Basic violet 3

**Hexamethyl p-rozaniline chloride.** See Basic violet 3

**Hexamethyl p-rozaniline hydrochloride.** See Basic violet 3

**Hexamethyl violet.** See Basic violet 3

**Hexamine.** See Hexamethylenetetramine

**Hexanaphthene.** See Cyclohexane

**Hexane**

CAS 110-54-3; 64742-49-0; EINECS/ELINCS 203-777-6; UN No. 1208 (DOT)

*Synonyms:* Alkane C-6; n-Hexane; Hexyl hydride; Normal hexane

*Classification:* Aliphatic hydrocarbon

*Empirical:* C<sub>6</sub>H<sub>14</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>4</sub>CH<sub>3</sub>

*Properties:* Colorless volatile liq., faint petrol. odor; sol. in alcohol, acetone, ether; misc. with oxygenated, chlorinated and hydrogenated solvs.; insol. in water; m.w. 86.20; dens. 0.65937 (20/4 C); m.p. -95 C; b.p. 67-70 C; flash pt. (CC) -21.7 C; ref. index 1.37486 (20 C)

*Toxicology:* ACGIH TLV/TWA 50 ppm; LD50 (oral, rat) 28.710 mg/kg; sl. toxic by ing., inh.; human systemic effects by inh. (nausea, headache, dizziness, drowsiness); irritating to respiratory tract; skin and eye irritant; narcotic in high concs.; massive exposures can cause unconsciousness and death; mutagenic data; TSCA listed

*Precaution:* Flamm.; very dangerous fire/explosion hazard exposed to heat or flame; can react vigorously with oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and

fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight; limit quantities in use; avoid generating mists*Uses:* Solvent and thinner for veg. oil and pharmaceutical extraction, compounding rubber cements, shoe, cosmetics industries; alcohol denaturant; paint diluent; polymerization reaction medium; filling for thermometers; cleaning agent for textiles, furniture, leather; in adhesives; cements; paints; laboratory reagent; extraction solvent for hops extract, spice oleoresins; processing desorbent; in food-pkg. adhesives; food processing aid (Japan); adjuvant in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings*Use Level:* Limitation 25 ppm (spice oleoresins), 2.2% (hops extract)*Regulatory:* FDA 21CFR §173.270, 175.105, 175.320, 176.200; Japan approved with restrictions*Manuf./Distrib.:* Aldrich; Amyl; Ashland; BP Chems. Ltd; Burdick & Jackson; ChevronPhillips; Coyne; Exxon; Fisher Scientific; Fluka; Great Western; Houghton Chem.; Hukill; Humphrey; Romil Ltd; Ruger; Sal Chem.; Shell; Sigma; Spectrum Quality Prods.*Trade Names Containing:* Shell Sol B HTn-Hexane. *See* Hexane**1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-, polymers with morpholine-2,4,6-trichloro-1,3,5-triazine**

CAS 193098-40-7

*Uses:* Lt. stabilizer*Trade Names:* Cyasorb® UV-3529**Hexanedioic acid.** *See* Adipic acid**1,6-Hexanedioic acid.** *See* Adipic acid**Hexanedioic acid, diisononyl ester.** *See* Diisononyl adipate**Hexanedioic acid, dimethyl ester.** *See* Dimethyl adipate**Hexanedioic acid, polymer with N-(2-aminoethyl)-1,2-ethanediamine and (chloromethyl) oxirane.** *See* Adipic acid/epoxypropyl diethylenetriamine copolymer**1,6-Hexanediol diacrylate**

CAS 13048-33-4; EINECS/ELINCS 235-921-9

*Synonyms:* HDDA; HDODA; Acrylic acid, hexamethylene ester; Hexamethylene glycol diacrylate; 2-Propenoic acid 1,6-hexanediyl ester*Classification:* Nonaromatic ester*Empirical:* C<sub>12</sub>H<sub>18</sub>O<sub>4</sub>*Formula:* [H<sub>2</sub>C=CHCO<sub>2</sub>(CH<sub>2</sub>)<sub>6</sub>]<sub>2</sub>*Properties:* Sol. in org. solvs.; difficulty sol.; m.w. 226.28; dens. 1.010; flash pt. > 110 C; ref. index 1.4560*Toxicology:* LD50 (oral, rat) 5 g/kg, (skin, rabbit) 3600 mg/kg; mod. toxic by skin contact; low toxicity by ing.; severe skin and eye irritant; TSCA listed*Precaution:* Hygroscopic*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors*Storage:* Light-sensitive; hygroscopic; store away from heat*Uses:* Crosslinking agent used in inks, coatings, adhesives, textile prod. modifiers, photoresists, modifiers for castings, polyesters, fiberglass, or radiation-cured prods.; reactive diluent for radiation-cured inks, lacquers, photosensitive resins*Manuf./Distrib.:* Aldrich; CPS; Monomer-Polymer & Dajac Labs; UCB Radcure*Trade Names:* SR 238*Trade Names Containing:* CN 104 B80; CN 120 B60; CN 120 B80; CN 953 B70; CN 963 B80; CN 981 B88; CN 982 B88; CN 983 B88; CN 985 B88; Ebecryl® 3720-HD20; Ebecryl® 4849**1,6-Hexanediyl bis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate].** *See* Hexamethylenebis(3,5-di-t-butyl-4-hydroxycinnamate)**(1,6-Hexanediylbis (nitrilobis (methylene))) tetrakisphosphonic acid potassium salt.** *See* Potassium hexamethylene diamine tetra (methylene phosphonate)**1,2,6-Hexanetriol**

CAS 106-69-4; EINECS/ELINCS 203-424-6

*Synonyms:* Hexane-1,2,6-triol; 1,2,6-Trihydroxyhexane*Classification:* Aliphatic alcohol*Empirical:* C<sub>6</sub>H<sub>14</sub>O<sub>3</sub>*Formula:* HOCH<sub>2</sub>CH(OH)CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH*Properties:* Water-wh. to pale yel. liq.; misc. with water and oxygenated solvs.; m.w. 134.20; dens. 1.1063; vapor pressure < 0.01 mm Hg (20 C); pour pt. -20 C; f.p. 32.8 C; b.p. 178 C (5 mm); flash pt. 380 F; ref. index 1.4760*Toxicology:* LD50 (oral, rat) 15,500 mg/kg, (oral, mouse) 11,400 mg/kg; mildly toxic by ing.; eye, skin irritant; TSCA listed*Precaution:* Combustible; can react with oxidizing materials*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes*Storage:* Hygroscopic liq.*Uses:* Alkyd/polyester/polyurethane resin comonomer; softener for tech. papers, printing inks; moistening agent; solvent; humectant, solvent, visc. control agent in cosmetics; ointment base for pharmaceuticals; in food-pkg. adhesives*Regulatory:* FDA 21CFR §175.105*Manuf./Distrib.:* Aldrich; Fabrichem; Fluka; Maypro Ind.; Penta Mfg.; Ruger; Sigma; Spectrum Quality Prods.; TCI Am.**Hexane-1,2,6-triol.** *See* 1,2,6-Hexanetriol**Hexanoic acid, 2-ethyl-, zinc salt.** *See* Zinc 2-ethylhexanoate**1-Hexanol, 2-ethyl.** *See* 2-Ethylhexanol**1-Hexanol, 2-ethyl-, acrylate.** *See* Octyl acrylate**1-Hexanol, 2-ethyl-, phosphate.** *See* Trioctyl phosphate**3,6,9,12,15,18-Hexaoxatetratricontan-1-ol.** *See* Ceteth-6**Hexapotassium hexamethylene diamine tetra (methylene phosphonate).** *See* Potassium hexamethylene diamine tetra (methylene phosphonate)**Hexasodium diethylenetriaminepenta (methylenephosphonate)***Synonyms:* Na<sub>6</sub>DTPMP*Properties:* Amber liq.; m.w. 705*Uses:* Deflocculant, sequestrant, scale inhibitor for cooling water treatment, detergents, peroxide bleach stabilization, I&I cleaners, geothermal, oil field applics.*Trade Names:* Dequest® 2066**Hexasodium metaphosphate.** *See* Sodium hexametaphosphate**Hexene.** *See* 1-Hexene**Hexene-1.** *See* 1-Hexene**1-Hexene**

CAS 592-41-6; EINECS/ELINCS 209-753-1; UN No. 2370

*Synonyms:* Butyl ethylene; C<sub>6</sub> linear alpha olefin; Hexene; Hexene-1; Hexylene*Empirical:* C<sub>6</sub>H<sub>12</sub>*Formula:* CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH:CH<sub>2</sub>*Properties:* Colorless liq., mild hydrocarbon odor; sol. in alcohol, most org. solvs.; insol. in water; m.w. 84.16; dens. 0.678; f.p. -139.8 C; b.p. 62-63 C; flash pt. (Seta) -14 F; ref. index 1.3876 (20 C)*Toxicology:* Mod. toxic irritant to skin, eyes, and mucous membranes; sl. toxic by ing.; inh. may produce CNS depression; TSCA listed*Precaution:* Highly flamm.; dangerous fire and explosion risk exposed to heat, flame, or oxidizers; can react vigorously with oxidizers*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes*Uses:* Intermediate for surfactants and specialty industrial chemicals (flavors, perfumes, dyes, resins); prod. of oxo alcohols and syn. fatty acids; polymer modifier; comonomer in polyolefins*Manuf./Distrib.:* Albemarle; Aldrich; ChevronPhillips; Fluka; Johnson Matthey; Monomer-Polymer & Dajac Labs; Shell; Sigma*Trade Names:* Gulltene® 6**2-Hexyl decanoic acid**

CAS 25354-97-6

*Synonyms:* 7-Pentadecanecarboxylic acid*Classification:* Nonaromatic carboxylic acid*Empirical:* C<sub>16</sub>H<sub>32</sub>O<sub>2</sub>*Properties:* Visc. oil; sol. in water; m.w. 256.43; dens. 0.874; m.p. 18 C; b.p. 268 C; flash pt. (CC) 235 F; ref. index 1.4460*Toxicology:* LDLo (oral, rat) 300 mg/kg; poison by IP route; irritant; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes*Uses:* Emollient for cosmetics, pharmaceuticals; sclerosing agent; metal-

working applics.

Manuf./Distrib.: Aldrich; Jarchem Ind.

Trade Names: Jaric I-16

#### Hexyldecanol

CAS 2425-77-6; EINECS/ELINCS 219-370-1

Synonyms: 2-Hexyl-1-decanol

Classification: Aliphatic alcohol

Empirical:  $C_{16}H_{34}O$

Formula:  $CH_3(CH_2)_7CH_2CH_2OHCH_2(CH_2)_4CH_3$

Uses: Extender and solvent for dyes and fragrance oils; intermediate for prod. of compds. for applics. in lubricants, emulsifiers, metal processing, and textiles; humectant; solubilizer for pharmaceuticals; emollient, carrier, dispersant, spreading agent

Trade Names: Jarcol<sup>TM</sup> I-16

#### 2-Hexyl-1-decanol. See Hexyldecanol

#### Hexyl dodecanol

CAS 110225-00-8

Trade Names Containing: Jarcol<sup>TM</sup> I-18E; Jarcol<sup>TM</sup> I-18T

#### Hexylene. See 1-Hexene

#### Hexylene glycol

CAS 107-41-5; EINECS/ELINCS 203-489-0

Synonyms: 2,4-Dihydroxy-2-methylpentane; 4-Methyl-2,4-pentanediol; 2-Methyl-2,4-pentanediol; 2-Methylpentane-2,4-diol; 2,4-Pentanediol, 2-methyl;  $\alpha, \alpha, \alpha'$ -Trimethyltrimethyleneglycol

Classification: Aliphatic dihydric alcohol

Empirical:  $C_6H_{14}O_2$

Formula:  $(CH_3)_2COHCH_2CHOHCH_3$

Properties: Colorless liq., nearly odorless; sol. in water, aliphatic and aromatic hydrocarbons, alcohols, ethers, fatty acids; m.w. 118.18; dens. 0.9216 (20/4 C); m.p. -50 C; sets to glass; b.p. 198.3 C; flash pt. (TCC) 98 C; ref. index 1.4276 (20 C)

Toxicology: ACGIH TLV/CL 25 ppm; LD50 (oral, rat) 4.70 g/kg, (dermal, rabbit) 7900-12,000 mg/kg; very low oral toxicity; mod. toxic by IP route; mildly toxic by skin contact; skin and eye irritant; inh. may cause nose/respiratory irritation; very high concs. may cause headache, dizziness, nausea, incoordination; mutagenic data; TSCA listed

Precaution: Combustible; can react vigorously with oxidizing materials; incompat. with strong acids (decomp. occurs)

Hazardous Decomp. Prods.: Thermal decomp. prods.: CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 1; Reactivity 0

Storage: Store in cool, dry area away from heat and ignition sources; hygroscopic; avoid generating mists

Uses: Coupling agent/penetrant for textiles, cosmetics; ice inhibitor in carburetors; fuel and lubricant emulsifier; solvent for hydraulic fluids, printing inks, textile dyes, in petroleum refining, agrochems., water-based paints, cosmetics; cement additive; component of soaps, cosmetics; intermediate in chem. prod.; defoamer; pharmaceutical aid, humectant, solvent; comonomer for unsat. polyester resins; in food-pkg. adhesives; in paper/paperboard in contact with dry food; defoamer in food-contact coatings and paper/paperboard; in closure-sealing gaskets for food containers; in food-contact textiles

Regulatory: FDA 21CFR §175.105, 176.180, 176.200, 176.210, 177.1210, 177.2800; FDA approved for topicals; USP/NF compliance

Manuf./Distrib.: AMC Chems.; Aldrich; Allchem Ind.; Altair Ind.; Ashland; Atofina SA; BP Chems. Ltd; Brown; Coyne; Duso; Fluka; G.J. Chem.; Great Western; Herdillia Chems. Ltd; Houghton Chem.; Innovative Processing; Penta Mfg.; Ruger; Sal Chem.; Shell; Sigma; Spectrum Quality Prods.; Union Carbide; Universal Preserv-A-Chem; Van Waters & Rogers

Trade Names Containing: Monawet MT-70; Monawet MT-80H2W

#### Hexyl hydride. See Hexane

#### Hexyl methacrylate

CAS 142-09-6; EINECS/ELINCS 205-521-9

Synonyms: N-Hexyl methacrylate

Empirical:  $C_{10}H_{18}O_2$

Formula:  $C_6H_{13}OOC(C(CH_3)=CH_2)$

Properties: Liq.; dens. 0.88; b.p. 67-85 C (8 mm)

Uses: Monomer for plastics, molding powder, etc.; emulsions for textile,

leather, and paper finishing; internal plasticizer; leather, paint, textiles, paper applics.

Manuf./Distrib.: Monomer-Polymer & Dajac Labs; Rohm Tech

Trade Names: Mhoromer<sup>®</sup> AM 107

#### N-Hexyl methacrylate. See Hexyl methacrylate

#### 2-Hexyl-1-octanol

CAS 19780-79-1

Synonyms: Isomyristyl alcohol

Trade Names Containing: Jarcol<sup>TM</sup> I-14T

#### Hide glue. See Animal glue

HMDTMP. See Hexamethylene diamine tetra (methylene phosphonate); Potassium hexamethylene diamine tetra (methylene phosphonate)

HMMM. See Hexamethoxymethylmelamine

HMP. See Sodium hexametaphosphate

HMPP. See 2-Hydroxy 2-methyl 1-phenyl 1-propanone

HMT. See Hexamethylenetetramine

HMTA. See Hexamethylenetetramine

HOCH. See Formaldehyde

HPC. See Hydroxypropylcellulose

HPMA. See 2-Hydroxypropyl methacrylate

HQ. See Hydroquinone

HQMEE. See Hydroquinone monomethyl ether

HSA. See Hydroxystearic acid

Huile de ricini. See Castor (Ricinus communis) oil

#### Hybrid sulfopolyester

Definition: Sulfopolyester with vinyl and/or acrylic polymers

Uses: Ink resin/vehicle

Trade Names: Eastek 2140

Hydantoin, 1-bromo-3-chloro-5,5-dimethyl. See 1-Bromo-3-chloro-5,5-dimethyl hydantoin

Hydantoin, 1,3-dichloro-5,5-dimethyl-. See 1,3-Dichloro-5,5-dimethyl hydantoin

Hydrated alumina. See Aluminum hydroxide

Hydrated aluminum oxide. See Aluminum hydroxide

Hydrated aluminum silicate. See Kaolin

Hydrated lime. See Calcium hydroxide

Hydrated silica. See Silica, hydrated

#### Hydroabietyl alcohol

CAS 1333-89-7; 26266-77-3; EINECS/ELINCS 247-574-0

Synonyms: Dihydroabietyl alcohol; Dodecahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenemethanol

Definition: Organic alcohol derived from wood rosin

Empirical:  $C_{20}H_{34}O$

Formula:  $C_{19}H_{31}CH_2OH$

Properties: Colorless visc. liq. to solid; insol. in water; m.w. 290.49; dens. 1.007-1.008; m.p. 32-33 C; flash pt. (COC) 185 C; ref. index 1.526 (20 C)

Toxicology: TSCA listed

Precaution: Combustible

Uses: Tackifier for adhesives; in food-pkg. adhesives; plasticizer for cellulose nitrate, ethylcellulose, PVC, paints; in paper/paperboard in contact with dry food; pharmaceutical excipient

Regulatory: FDA 21CFR §175.105, 176.180

Manuf./Distrib.: Hercules

Trade Names: Abitol<sup>®</sup>-E

Hydrobromic acid monoammoniate. See Ammonium bromide

#### Hydrochloric acid

CAS 7647-01-0; EINECS/ELINCS 231-595-7; UN No. 1050 (DOT), 1789 (DOT), 2186 (DOT)

Synonyms: HCl; Aqueous hydrogen chloride; Chlorhydric acid; Hydrogen chloride; Muriatic acid; Spirits of salt

Classification: Inorganic acid

Empirical: ClH

Formula: HCl

Properties: Colorless fuming gas or liq., pungent odor; sol. in water, alcohol, ether, benzene; insol. in hydrocarbons; m.w. 36.46; dens. 1.639 g/l (gas, 0 C), 1.194 (liq., -26 C); m.p. -114.3 C; b.p. -84.8 C; pH 1.1 (0.1 N

sol'n.); nonflamm. gas

**Toxicology:** ACGIH TLV/CL 5 ppm; mod. toxic by ing.; human poison; mildly toxic to humans by inh.; corrosive irritant to skin, eyes, mucous membranes; mutagenic data; experimental teratogen; 35 ppm causes throat irritation on short exposure; TSCA listed

**Precaution:** DOT: Corrosive material; explosive reaction with many chems.; potentially dangerous reaction with sulfuric acid releases HCl gas; strongly corrosive; incompat. with metals, bases, oxidizing/reducing agents, etc.

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl  
**NFPA:** Health 3; Flammability 0; Reactivity 1

**Storage:** Store in cool, dry, well-ventilated area out of direct sunlight; prevent release of vapor or mist

**Uses:** Acidizing of petroleum wells; industrial acidizing; pH control (water treatment); water softener; boiler scale removal; chemical intermediate; ore reduction; pickling and metal cleaning; general cleaning; alcohol denaturant; laboratory reagent; leather delimiting/tanning agent; textile scouring agent; neutralization of alkaline prods./waste materials; acid, buffer, neutralizer in foods/pharmaceuticals; food processing aid; hydrolysis of starch and protein; preservative for soft contact lens; scouring and cleaning in paper industry

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §131.144, 131.129, 160.105, 160.185, 172, 172.560, 182.1057, GRAS; Japan restricted; Europe listed; UK approved; FDA approved for injectables, parenterals, inhalants, intravenous, ophthalmics, orals, otics, topicals; USP/NF, BP, Ph. Eur., JP compliance

**Manuf./Distrib.:** Albemarle; Aldrich; Amyl; Arch Chems.; Asahi Denka Kogyo; Atofina SA; BASF; Bayer; Bilt Chems. Ltd; CXY Chems.; Condea Vista; Crompton/Witco; Degussa-Huls AG; Dover; Dow; DuPont; Fabrichem; Finnish Chems. Oy; Fisher Scientific; Fluka; Harcros; Honeywell Perf. Polymers; Independent Chem.; Lyondell; MG Ind.; Nissan Chem. Ind.; Occidental; Olin/Chlor Alkali; PPG Ind.; PVS; Rasa Ind.; Romil Ltd; Ruger; Sal Chem.; Schaefer Tech.; Showa Denko; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Vulcan Perf. Chems.

**Trade Names Containing:** TurboCLEAR™ PC-1

**Hydrofuran.** See Tetrahydrofuran

### Hydrogenated castor oil

CAS 8001-78-3; EINECS/ELINCS 232-292-2

**Synonyms:** Castor oil, hydrogenated; Castorwax; Opalwax

**Definition:** End prod. of controlled hydrogenation of castor oil, consisting mainly of the triglyceride of hydroxystearic acid

**Properties:** Wh. hard wax; very insol. in water and in the more common org. solvs.; m.w. ≈ 932; m.p. 86-88 C; iodine no. 5 max.; sapon. no. 176-182; hyd. no. 154-162

**Toxicology:** LD50 (oral, rat) > 10 g/kg; ingestion of large amts. may cause pelvic congestion; TSCA listed

**Uses:** Surfactant; emollient; emulsifier; visc. control agent; in water-repellent coatings, candles, polishes, ointments, cosmetics; impregnant for paper, wood, cloth; as lubricant, mold release in mfg. of formed plastics and rubber goods; thixotrope for aq. paints; wax for food applcs., pharmaceutical ointments; solvent for pharmaceutical injectables; tablet coatings; in food-pkg. adhesives; in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers; in cellophane for food pkg.; in food-contact crosslinked polyesters; lubricant for PVC food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2420, 177.2800, 178.3280; USP/NF compliance

**Manuf./Distrib.:** Acme-Hardesty; Akzo Nobel; Allyson Enterprises; Alnor Oil; Amber Syn.; Arista Ind.; Artek; Ashland; Biddle Sawyer; Brook-Chem; Celanese; Collaborative Labs/Oleochems.; Condor; Hansotech; J.H. Calo; NorChem; Ruger; Sea-Land; Seegott; Southern Clay Prods.; Süd-Chemie Inc; Universal Preserv-A-Chem; Vilax; Vliengenthart BV; Welch, Holme & Clark

**Trade Names:** Caster Wax A

### Hydrogenated coconut acid

CAS 68938-15-8; EINECS/ELINCS 273-118-5

**Synonyms:** Acids, coconut, hydrogenated; Coconut acid, hydrogenated; Coconut oil fatty acids, hydrogenated; Fatty acids, coco, hydrogenated

**Definition:** End prod. of controlled hydrogenation of coconut acid

**Uses:** Surfactant; emollient; chemical intermediate; emulsifier for personal

care prods., waxes, textile aux., pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact rubber articles; in lubricants for incidental food contact

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2600, 177.2800, 178.3570

**Manuf./Distrib.:** Nottingham; Rhodia HPCII

### Hydrogenated coconut oil

CAS 84836-98-6; EINECS/ELINCS 284-283-8

**Synonyms:** Coconut oil, hydrogenated

**Definition:** End prod. of controlled hydrogenation of coconut oil

**Uses:** Emollient, superfatting agent in cosmetics; clouding agent in foods; lubricant, moisturizer, base in pharmaceutical coatings, gelatin capsules, suppositories; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2800

**Manuf./Distrib.:** Alnor Oil; Nottingham; Sea-Land; Welch, Holme & Clark

### Hydrogenated cottonseed oil

CAS 68334-00-9; EINECS/ELINCS 269-804-9

**Definition:** End prod. of controlled hydrogenation of cottonseed oil

**Properties:** Pale yel.; dens. 0.915-0.921; flash pt. 486 F

**Toxicology:** May cause allergic reaction

**Precaution:** Combustible

**Uses:** Emollient; leather dressing; soap stock; lubricant; glycerol; base for cosmetic creams; hydrogenated to semisolid for use in food prods.; water-proofing compositions; dietary supplement; crystallization promoter, m.p. modifier, bodying agent, binder, vehicle, lubricant, moisturizer in pharmaceuticals; filler, binder, lubricant, disintegrant, solubilizer, carrier, emulsifier, emollient in capsules, tablets, suppositories; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2800

**Manuf./Distrib.:** Sea-Land

### Hydrogenated ditallowamine

CAS 61789-79-5; EINECS/ELINCS 263-089-7

**Synonyms:** Amines, bis (hydrogenated tallow alkyl)-; Bis (hydrogenated tallow alkyl) amines; Dihydrogenated tallow amine

**Definition:** Sec. aliphatic amine derived from hydrogenated tallow acid

**Formula:** R<sub>2</sub>NH, R represents the alkyl groups derived from hydrogenated tallow

**Properties:** Cationic

**Toxicology:** TSCA listed

**Uses:** Surfactant; emulsifier; industrial use; grease; corrosion inhibitor; anti-caking agent; chemical intermediate; antioxidant; flotation agent; cosmetics; surf. lubricant in mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §178.3910

**Trade Names:** Amine 2HBG; Amine 2 VT

### Hydrogenated fish oil

CAS 8016-14-6; 91078-95-4; EINECS/ELINCS 293-379-9

**Synonyms:** Fish oil, hydrogenated; Oils, fish, hydrogenated

**Definition:** End prod. of the controlled hydrogenation of fish oil

**Uses:** Emollient in cosmetics; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170, 176.210, 177.2800

**Manuf./Distrib.:** Acme-Hardesty; Sea-Land; Werner G. Smith

### Hydrogenated fish oil, potassium salt

**Uses:** In paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

### Hydrogenated lard glyceride

CAS 8040-05-9; 91744-55-7; EINECS/ELINCS 294-619-5

**Synonyms:** Glycerides, hydrogenated lard mono-; Glycerides, lard mono-, hydrogenated

**Definition:** End prod. of controlled hydrogenation of lard glyceride

**Properties:** Nonionic

**Uses:** Emulsifier, stabilizer, dispersant, opacifier for cosmetics, foods and drugs; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.210

### Hydrogenated lard glycerides

CAS 91744-48-8; EINECS/ELINCS 294-611-1

**Synonyms:** Hydrogenated lard mono-, di- and tri- glycerides; Glycerides, lard mono-, di- and tri-, hydrogenated



*Definition:* End prod. of controlled hydrogenation of lard glycerides

*Properties:* Nonionic

*Uses:* Emulsifier, stabilizer, dispersant, opacifier for cosmetics, foods and drugs; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210

**Hydrogenated lard mono-, di- and tri- glycerides.** See Hydrogenated lard glycerides

**Hydrogenated menhaden acid**

*Synonyms:* Acids, menhaden, hydrogenated; Fatty acids, menhaden oil, hydrogenated; Menhaden acid, hydrogenated

*Definition:* End prod. of controlled hydrogenation of fatty acids obtained from menhaden oil

*Uses:* Chemical intermediate; surfactant; emulsifier, lubricant, mold release agent for personal care prods., waxes, textile aux., pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800, 178.3570

**Hydrogenated menhaden oil**

CAS 93572-53-3; 68002-72-2; EINECS/ELINCS 297-485-6

*Synonyms:* Menhaden oil, hydrogenated

*Definition:* End prod. of controlled hydrogenation of menhaden oil

*Properties:* Wh. opaque solid, odorless; iodine no. 10 max.; sapon. no. 180-200

*Uses:* Emollient; solvent; textile lubricant; pharmaceutical intermediate; emulsifier; mold release agent; buffing compd.; edible fats and oils; in food-pkg. adhesives; in food-contact paper/paperboard; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 177.2800, 184.1472, 186.1551

**Hydrogenated methyl ester of rosin.** See Methyl hydrogenated rosinate

**Hydrogenated methyl rosinate.** See Methyl hydrogenated rosinate

**Hydrogenated palm glyceride**

CAS 67784-87-6; 91744-73-9; 97593-29-8; EINECS/ELINCS 294-638-9

*Synonyms:* Palm oil glyceride, hydrogenated; Glycerides, palm oil mono-, hydrogenated

*Definition:* End prod. of controlled hydrogenation of palm glyceride

*Properties:* Nonionic

*Uses:* Emollient; emulsifier, stabilizer, dispersant, opacifier for cosmetics, foods and drugs; dispersant, mold release, processing aid, antistat, antifog, lubricant, antiblock for PS, polyolefins, PVC, PU; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

**Hydrogenated palm oil**

CAS 8033-29-2; 68514-74-9; EINECS/ELINCS 271-056-3

*Synonyms:* Oils, palm, hydrogenated; Palm oil, hydrogenated

*Definition:* End prod. of controlled hydrogenation of palm oil

*Uses:* Hard wax used in cosmetic and pharmaceutical preparations; emollient; consistency regulator for fatty food preps.; coating fat; stabilizer in nut pastes; crystallization promoter, m.p. modifier, bodying agent, and moisturizer in pharmaceuticals; filler, binder, lubricant, disintegrant, solubilizer, carrier, emulsifier, emollient in tablets, capsules, suppositories; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800

**Hydrogenated peanut oil**

CAS 68425-36-5; EINECS/ELINCS 270-350-9

*Synonyms:* Oils, peanut, hydrogenated; Peanut oil, hydrogenated

*Definition:* End prod. of controlled hydrogenation of peanut oil

*Uses:* Emollient; emulsifier; filling fat for chocolate/confectionery prods.; personal care applics.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800

**Hydrogenated polybutene**

CAS 68937-10-0

*Synonyms:* But-1-ene compd. with but-2-ene; Polybutene, hydrogenated

*Classification:* Polymer

*Properties:* Dens. 0.830; flash pt. 235 C; ref. index 1.4581

*Toxicology:* TSCA listed

*Uses:* Cosmetics; metalworking lubricants; cable oils; thermoplastic modifier; rubber modifier and plasticizer; tackifier, strengthener, extender in adhesives; vehicle and fugitive binder in coatings; cling additive for films; release agent, plasticizer in food-contact polymers; in food-pkg. adhesives and pressure-sensitive adhesives; in paper/paperboard in contact with aq./fatty/dry foods; defoamer in food-contact paper; for fiber finishing for resin-bonded filters for food contact; in food-contact coatings and textiles; in lubricants for incidental food-contact use; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 175.125, 175.300, 176.170, 176.180, 176.210, 177.2260, 177.2800, 178.3740, 178.3570, 178.3740, 178.3860, 178.3910

**Hydrogenated rice bran wax**

*Synonyms:* Rice bran wax, hydrogenated

*Definition:* End prod. of controlled hydrogenation of rice bran wax

*Uses:* Visc. control agent in cosmetics; natural wax for use in lipsticks; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

**Hydrogenated rosin**

*Synonyms:* Rosin, hydrogenated

*Classification:* Thermoplastic acidic resin

*Definition:* Derived from hydrogenation of wood rosin

*Properties:* Solid; soften. pt. (R&B) 68 C; acid no. ≈ 160

*Uses:* Tackifier, modifier in adhesives and hot-melt-applied decorative, pressure-sensitive, and heat-sealable coatings; prod. of rosin ester gum; component of food-contact articles

*Regulatory:* FDA 21CFR §178.3870

*Manuf./Distrib.:* D.B. Becker; J.H. Calo; Loos & Dilworth; PDM; Resinas Sintéticas

*Trade Names:* Staybelite®

**Hydrogenated shark liver oil**

*Synonyms:* Oils, shark liver, hydrogenated; Shark liver oil, hydrogenated

*Definition:* End prod. of controlled hydrogenation of shark liver oil

*Uses:* Emollient in cosmetics; food pkg. adhesives; in food-contact paper/paperboard; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.210, 177.2800

**Hydrogenated soybean glyceride.** See Hydrogenated soy glyceride  
**Hydrogenated soybean glycerides.** See Hydrogenated soy glycerides

**Hydrogenated soybean oil**

CAS 8016-70-4; EINECS/ELINCS 232-410-2

*Synonyms:* Soybean oil hydrogenated

*Definition:* End prod. of controlled hydrogenation of soybean oil

*Toxicology:* TSCA listed

*Uses:* Emollient in cosmetics; textile lubricant; pharmaceutical intermediate, diluent; emulsifier; mold release agent; buffing compd.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles; filler in capsules, tablets, and suppositories

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800, 182.70, 182.170

*Manuf./Distrib.:* Alnor Oil; Arista Ind.; Ruger; Sea-Land; Welch, Holme & Clark

**Hydrogenated soybean oil glycerides.** See Hydrogenated soy glycerides  
**Hydrogenated soybean oil mono-, di- and tri- glycerides.** See Hydrogenated soy glycerides

**Hydrogenated soybean oil monoglyceride.** See Hydrogenated soy glyceride

**Hydrogenated soy glyceride**

CAS 61789-08-0; EINECS/ELINCS 263-030-5

*Synonyms:* Glycerides, soya mono-, hydrogenated; Glycerides, soybean oil, hydrogenated, mono; Hydrogenated soybean glyceride; Hydrogenated soybean oil monoglyceride

*Definition:* End prod. of controlled hydrogenation of soybean monoglycerides  
*Properties:* Nonionic

*Uses:* Emulsifier, stabilizer, dispersant, opacifier for cosmetics, foods, drugs; lubricating greases, synthetic waxes, textile lubricants; antistat, lubricant, processing aid in plastics, nonwoven fibers; dispersant for color concs.; emollient; defoamer in food-contact paper/paperboard; in food-contact textiles

## Hydrogenated soy glycerides

*Regulatory:* FDA 21CFR §176.210, 177.2800

## Hydrogenated soy glycerides

CAS 68201-48-9; 91745-04-9; EINECS/ELINCS 294-672-4

*Synonyms:* Glycerides, soya mono-, di- and tri-, hydrogenated; Hydrogenated soybean glycerides; Hydrogenated soybean oil glycerides; Hydrogenated soybean oil mono-, di- and tri- glycerides

*Definition:* End prod. of controlled hydrogenation of a mixture of mono, di and triglycerides derived from soybean oil

*Properties:* Nonionic

*Uses:* Emollient; emulsifier, stabilizer, dispersant, opacifier for cosmetics, foods and drugs; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

## Hydrogenated tallow

CAS 8030-12-4; EINECS/ELINCS 232-442-7

*Synonyms:* Tallow, hardened; Tallow, hydrogenated

*Definition:* End prod. of controlled hydrogenation of tallow

*Uses:* Emollient; emulsifier; plastics processing lubricant; raw material for food, pharmaceutical, and cosmetic applics.; hydrophobing agent for powds.; coating fat for salt, spices, citric acid; defoamer for beet sugar and yeast processing; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.170, 176.210, 177.2800, 182.70

*Manuf./Distrib.:* Acme-Hardesty; South Chicago Packing

## Hydrogenated tallow acid

CAS 61790-38-3; EINECS/ELINCS 263-130-9

*Synonyms:* Acids, tallow, hydrogenated; Fatty acids, tallow, hydrogenated; Tallow acid, hydrogenated

*Definition:* End prod. of controlled hydrogenation of tallow acid

*Toxicology:* TSCA listed

*Uses:* Emollient; emulsifier; used in industrial prods. incl. syn. lubricants, bar soaps, cosmetics, rubber tires; emulsifier for polymerization of SBR, ABS, methyl methacrylate-butadiene-styrene polymers; lubricant, defoamer for foods; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 176.210, 177.2600, 177.2800, 178.3570

*Manuf./Distrib.:* Sea-Land

## Hydrogenated tallow alcohol

*Synonyms:* Alcohols, tallow, hydrogenated; Tallow alcohol, hydrogenated

*Definition:* End prod. of controlled hydrogenation of tallow alcohol

*Uses:* Wetting agent, emulsifier, emollient, consistency agent for skin care prods.; intermediate for surfactant mfg.; defoamer for beet sugar and yeast processing; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §173.340, 175.105, 176.170, 176.210, 177.2800

## Hydrogenated tallow glyceride

CAS 61789-09-1; EINECS/ELINCS 263-031-0

*Synonyms:* Glycerides, hydrogenated tallow mono-; Glycerides, tallow mono-, hydrogenated; Hydrogenated tallow monoglyceride

*Definition:* Monoglyceride of hydrogenated tallow

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient; emulsifier, stabilizer, thickener, dispersant, opacifier for cosmetics, foods and drugs; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

*Trade Names Containing:* Ross Synthetic Candelilla Wax

## Hydrogenated tallow glycerides

CAS 67701-27-3; 68308-54-3; 92128-50-2; EINECS/ELINCS 269-658-6; 295-745-3

*Synonyms:* Glycerides, tallow, hydrogenated; Glycerides, tallow mono-, di- and tri-, hydrogenated; Hydrogenated tallow mono-, di- and tri- glycerides

*Definition:* Mixture of mono, di and triglycerides of hydrogenated tallow acid

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient; emulsifier, stabilizer, dispersant, opacifier for cosmetics,

foods, and drugs; lubricating greases, synthetic waxes, textile lubricants; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

*Manuf./Distrib.:* Anar

*Trade Names Containing:* Ross Beeswax Substitute No. 628/5

**Hydrogenated tallow mono-, di- and tri- glycerides.** *See* Hydrogenated tallow glycerides

**Hydrogenated tallow monoglyceride.** *See* Hydrogenated tallow glyceride

## Hydrogenated vegetable glyceride

CAS 61789-08-0; EINECS/ELINCS 263-030-5

*Synonyms:* Glycerides, hydrogenated vegetable mono-; Glycerides, vegetable mono-, hydrogenated

*Definition:* End prod. of controlled hydrogenation of vegetable monoglyceride

*Properties:* Nonionic

*Uses:* Emollient; visc. control agent; emulsifier for foods, cosmetics; emulsion stabilizer; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

## Hydrogenated vegetable glycerides

CAS 69028-36-0

*Synonyms:* Glycerides, vegetable mono-, di-, and tri, hydrogenated; Glycerides, vegetable oil, hydrogenated; Hydrogenated vegetable oil mono-, di-, and triglycerides

*Definition:* Mixture of hydrogenated mono-, di-, and triglycerides of vegetable oil

*Uses:* Emollient; emulsifier; food emulsifier and emulsion stabilizer; dispersant for coffee whiteners; aerator for shortenings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

## Hydrogenated vegetable oil

CAS 68334-28-1; 68938-37-4; EINECS/ELINCS 269-820-6

*Synonyms:* Fats and glyceric oils, vegetable, hydrogenated; Oils, vegetable, hydrogenated; Vegetable oil, hydrogenated

*Definition:* End prod. of controlled hydrogenation of vegetable oil; mixt. of triglycerides of fatty acids

*Properties:* Wh. fine powd., pale yel. oily liq. above its m.p.; insol. in water; sol. in hot IPA, hexane, chloroform; Type I: m.p. 57-70 C; acid no. 4 max.; iodine no. 0-5; sapon. no. 175-205; Type II: m.p. 20-50 C; acid no. 4 max.; iodine no. 55-80; sapon. no. 185-200; nonionic

*Toxicology:* May cause skin reactions

*Uses:* Emollient; emulsifier for food processing; binder, lubricant in pharmaceutical tableting, pressed powders; base, cocoa butter replacement in cosmetics and pharmaceuticals; wax; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210; USP/INF and JP compliance

*Manuf./Distrib.:* A. E. Staley Mfg.; ABITEC; Arista Ind.; C & P Sales; Int'l. Flora Tech.; Lipo; Ruger

**Hydrogenated vegetable oil mono-, di-, and triglycerides.** *See* Hydrogenated vegetable glycerides

**Hydrogen carboxylic acid.** *See* Formic acid

**Hydrogen chloride.** *See* Hydrochloric acid

**Hydrogen dioxide.** *See* Hydrogen peroxide

**Hydrogen oxide.** *See* Water

## Hydrogen peroxide

CAS 7722-84-1; EINECS/ELINCS 231-765-0; UN No. 2014 (DOT); 2984

*Synonyms:* Hydrogen dioxide; Hydrogen peroxide solution; Hydroperoxide

*Classification:* Inorganic oxide

*Empirical:* H<sub>2</sub>O<sub>2</sub>

*Formula:* HOOH

*Properties:* Colorless visc. liq., cryst. solid at low temp.; sl. pungent irritating odor; bitter taste; sol. in ether, alcohol; misc. with water; dec. by many org. solvs.; m.w. 34.02; dens. (liq.) 1.450 g/cc (20 C); f.p. -0.41 C; b.p. 150.2 C; nonflamm.

*Toxicology:* ACGIH TLV/TWA 1 ppm; LD50 (oral, mouse) 2 g/kg, (skin, rat) 4060 mg/kg; mod. toxic by inh., ing., skin contact; corrosive irritant to skin, eyes, mucous membranes; tumorigenic; human mutagenic data

*Environmental:* LC50 (fish, 96 h) 16.4 mg/l; nonbioaccumulative

*Precaution:* Dangerous fire hazard by chem. reaction with flamm. materials; explosion hazard; strong oxidizer; incompat. with acids, bases, metals,

reducing agents, org. materials  
**Hazardous Decom. Prods.:** Oxygen and heat  
**HMS:** Health 1; Flammability 0; Reactivity 1  
**Storage:** Store in cool, ventilated, noncombustible area away from incompat. materials  
**Uses:** Oxidizing, bleaching and deodorizing industrial/municipal water/waste-water, textiles, wood pulp, hair, fur, etc.; plasticizers; refining and cleaning metals; visc. control for starch and cellulose derivs.; intermediate for paints; flue gas treatment; sulfite removal in oil refineries, photo finishing, paper mills; removal of hypochlorite, nitrite, cyanide, formaldehyde, phenols, sulfides, SO<sub>2</sub>, NO<sub>x</sub>, Cl<sub>2</sub>; foods; cosmetics; mining; electronics; pharmaceuticals (antiseptic, foamer in dentifrices); resin solubilizer; in food-pkg. adhesives; sterilizer for polymeric food-contact surfaces  
**Use Level:** Limitation 0.05% (milk), 0.04% (whey), 0.15% (starch), 0.15% (corn syrup), 0.05% (annatto colored cheese whey), 1.25% (emulsifiers contg. fatty acid esters)  
**Regulatory:** FDA 21CFR §133.133, 160.105, 160.145, 160.185, 172.814, 172.892, 175.105, 178.1005, 178.1005 (35% sol'n. max.), 178.1010, 184.1366, GRAS; BATF 27CFR §240.1051 (3 ppm max. in wine), 240.1051a (200 ppm max. in distilling materials); Japan restricted; FDA approved for topicals; BP compliance (sol'n.)  
**Manuf./Distrib.:** Aldrich; Arch Chems.; Ashland; Atofina; Belinka; Browning; Burlington Chem.; C.P. Hall; Coyne; Degussa-Hüls; DuPont; Eka Chems. AB; FMC Foret; FMC; Farleyway Chem. Ltd; Fluka; Hansol; Harcross; Honeywell Perf. Polymers; ICC Ind.; Independent Chem.; J.T. Baker; Mallinckrodt Baker; O.C. Lugo; Oriental Chem. Ind.; Rochem Int'l.; Romil Ltd; Ruger; Sal Chem.; Schaefer Tech.; Seppic; Sigma; Solvay Interlox; Spectrum Quality Prods.; Tri-K Ind.; Universal Preserv-A-Chem; Van Waters & Rogers; Veckridge  
**Trade Names:** Albone® 35; Albone® 50; Albone® 70; Albone® 70 DG; Tysul® WW 35; Tysul® WW 50; Tysul® WW 70 DG  
**Trade Names Containing:** Pericide® EF

**Hydrogen peroxide solution.** See Hydrogen peroxide  
**Hydrogen sulfate.** See Sulfuric acid

#### Hydrogen sulfide

CAS 7783-06-4; EINECS/ELINCS 231-977-3; UN No. 1053 (DOT)  
**Synonyms:** Hydrogen sulfuric acid; Hydrogen sulphide; Hydrosulfuric acid; Sewer gas; Sour gas; Stink damp; Sulfureted hydrogen; Sulfur hydride  
**Classification:** Sulfide  
**Empirical:** H<sub>2</sub>S  
**Properties:** Colorless gas; colorless liq. at low temp. or high pressure; odor of rotten eggs from 0.13-100 ppm; paralyzes sense of smell > 100 ppm; sol. in hydrocarbon solvs., ether, alcohol, glycerol, carbon disulfide; sol. 437 ml of gas/100 ml water (0 C); m.w. 34.08; vapor pressure 20 atm (25.5 C); m.p. -85.5 C; b.p. -60.7 C; pH 4.1 (0.1N aq.)  
**Toxicology:** ACGIH TLV/TWA 10 ppm; STEL-TLV 15 ppm; LC50 (inh., rat) 444 ppm; toxic by inh.; 200-250 ppm: severe irritation, headache, nausea, vomiting, dizziness; prolonged exposure may cause lung damage; 4-8 h exposure can cause death; exposure above 500 ppm rapidly causes unconsciousness, death; gas may irritate the skin; liq. can cause frostbite; eye irritant; liq. may freeze the eye and cause severe damage or blindness; TSCA listed  
**Precaution:** Flamm. gas; very dangerous fire hazard exposed to heat, flame, or oxidizers; mod. explosive; vigorous reaction with metal powds.  
**Hazardous Decom. Prods.:** Heated to decomp., emits highly toxic fumes of SO<sub>x</sub>; high concs. burn to water and sulfur; low concs. burn to water and sulfur dioxide  
**NFPA:** Health 4; Flammability 4; Reactivity 0  
**Uses:** Agricultural disinfectant; laboratory reagent; additive in extreme pressure lubricants and cutting oils; in prep. of heavy water for nuclear reactors; raw material in Kraft paper prod.  
**Manuf./Distrib.:** MG Ind.

**Hydrogen sulfite sodium.** See Sodium bisulfite

**Hydrogen sulfuric acid.** See Hydrogen sulfide

**Hydrogen sulphide.** See Hydrogen sulfide

**α-Hydro-ω-hydroxypoly [oxy (methyl-1,2-ethanediyl)].** See Polypropylene glycol

**α-Hydro-ω-hydroxypoly (oxypropylene).** See Polypropylene glycol

**Hydrolyzed animal protein.** See Hydrolyzed collagen

#### Hydrolyzed collagen

CAS 92113-31-0  
**Synonyms:** Collagen hydrolysates; Hydrolyzed animal protein; Protein hydrolysate; Proteins, collagen, hydrolysate  
**Definition:** Hydrolysate of animal collagen derived by acid, enzyme or other method of hydrolysis  
**Properties:** Brn. liq.; anionic  
**Toxicology:** TSCA listed  
**Uses:** Surfactant; antistat; humectant; protective colloid, conditioner for skin and hair prods.; improves combing; emollient, conditioner in pharmaceuticals; film-former; dyeing aux.; in paper/paperboard in contact with aq./fatty foods  
**Regulatory:** FDA 21CFR §161.190, 176.170, 573.200; FDA approved for orals, topicals  
**Manuf./Distrib.:** Nihon Surfactant; Seporga

**Hydrolyzed polyacrylamide.** See Acrylic acid/acrylamide copolymer

#### Hydrolyzed soy protein

CAS 68607-88-5; 70084-94-5; EINECS/ELINCS 271-770-5  
**Synonyms:** Protein hydrolysates, soya; Soy protein, hydrolyzed  
**Definition:** Hydrolysate of soy protein derived by acid, enzyme or other methods of hydrolysis  
**Properties:** Pale yel. clear sol'n.; water-sol.  
**Uses:** Antistat, humectant in cosmetics; substantive protein moisturizer, film-former, conditioner for skin and hair care prods.; coating adhesive, pigment structuring agent, and fiber retention aid in paper/paperboard in contact with dry food  
**Use Level:** 5-10%  
**Regulatory:** FDA 21CFR §176.180  
**Manuf./Distrib.:** Biosil Tech.; Brooks Ind.; Cascade; ChemMark Development; Croda Inc; Fabrichem; Hormel Foods; Lanaetex Prods.; Maybrook; McIntyre; MelChem; Thornley; Tri-K Ind.

**Hydromagnesite.** See Magnesium carbonate; Magnesium carbonate hydroxide

**Hydroperoxide.** See Hydrogen peroxide

**7-Hydroperoxykumen.** See Cumene hydroperoxide

**2-Hydroperoxy-2-methylpropane.** See t-Butyl hydroperoxide

**Hydrophenol.** See Cyclohexanol

**Hydroquinol.** See Hydroquinone

#### Hydroquinone

CAS 123-31-9; EINECS/ELINCS 204-617-8; UN No. 2662 (DOT)  
**Synonyms:** HQ; Benzohydroquinone; Benzoquinone; 1,4-Benzenediol; p-Benzenediol; Dihydroxybenzene; 1,4-Dihydroxybenzene; p-Dihydroxybenzene; Hydroquinol; p-Hydroquinone; 1,4-Hydroxybenzene; p-Hydroxyphenol; Hydroxyquinone; Paradioxybenzene; Pyrogenistic acid; Quinol  
**Classification:** Aromatic organic compd.; aromatic alcohol  
**Empirical:** C<sub>6</sub>H<sub>6</sub>O<sub>2</sub>  
**Formula:** C<sub>6</sub>H<sub>4</sub>(OH)<sub>2</sub>  
**Properties:** Wh. or colorless cryst. solid; odorless; discolored by light and air; sol. in water, alcohol, ether, CCl<sub>4</sub>, oxygenated solvs.; mod. sol. in acetone; sl. sol. in benzene; m.w. 110.11; dens. 1.330; vapor pressure 0.00018 mm Hg; m.p.170 C; b.p. 285 C; flash pt. (TCC) 165 C; pH weakly acidic (aq. sol'ns.)  
**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup>; PEL-TWA 2 mg/m<sup>3</sup>; LD50 (oral, rat) 320 mg/kg; toxic by ing., inh., IP, IV, subcut. routes; human poison by ing.; harmful if absorbed thru skin or swallowed; human systemic effects by ing. (cyanosis, coma); lachrymator; irritant to eyes, skin, respiratory tract; severe human skin irritant; skin sensitizer; active allergen; human mutagenic data; experimental reproductive data; questionable carcinogen; TSCA listed  
**Precaution:** Combustible; dust may be ignited by static discharge; incompat. with strong bases (violent reactions may occur) and strong oxidizers (increased fire/explosion risk); may corrode copper and brass  
**Hazardous Decom. Prods.:** CO, CO<sub>2</sub>  
**NFPA:** Health 2; Flammability 1; Reactivity 0  
**Storage:** Sensitive to air and light; store in cool, dry, well-ventilated area, out of direct sunlight, away from heat and ignition sources, work areas, and incompat. materials  
**Uses:** Photographic developer and reducer (not for color film); dye intermedi-

ate; polymerization inhibitor (vinyl acetate, acrylic monomers); polyarylate comonomer; stabilizer in paints and varnishes, motor fuels and oils; hair dyes; bleaching agents; antioxidant for fats and oils, syn. latexes, polyester resins, in suntan lotions; oxygen scavenger in water treatment; reagent for phosphate determination; in food-pkg. adhesives; monomer inhibitor in paper/paperboard in contact with aq./fatty foods; inhibitor in food-contact crosslinked polyesters

**Regulatory:** FDA 21CFR §175.105, 176.170, 177.2420; BP compliance  
**Manuf./Distrib.:** AMC Chems.; Aceto; Aldrich; Alfa Chem; Allchem Ind.; Charkit; Eastman; Fluka; Goodyear; Indofine; Kraeber GmbH; Penta Mfg.; Rhodia/Fine Orgs.; Rochem Int'l.; Ruger; San Yuan; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; Universal Preserv-A-Chem; Whyte Chems. Ltd  
**Trade Names Containing:** Ageflex FM-68; Mhoromer® AM 414; SR 205; SR 209; SR 238; SR 268; SR 351; SR 379; SR 9003; SR 9209

**o-Hydroquinone.** See Pyrocatechol

**p-Hydroquinone.** See Hydroquinone

**Hydroquinone, 2,5-di-t-butyl-. See Di-t-butylhydroquinone**

**Hydroquinone ethyl ether**

**Synonyms:** Hydroquinone monoethyl ether  
**Uses:** Monomer inhibitor in paper/paperboard in contact with aq./fatty foods; in food-pkg. adhesives  
**Regulatory:** FDA 21CFR §175.105, 176.170  
**Manuf./Distrib.:** Penta Mfg.

**Hydroquinone methyl ether.** See Hydroquinone monomethyl ether

**Hydroquinone monoethyl ether.** See Hydroquinone ethyl ether

**Hydroquinone monomethyl ether**

CAS 150-76-5; EINECS/ELINCS 205-769-8  
**Synonyms:** HA; HOMEE; MEHQ; MME; p-Guaiacol; Hydroquinone methyl ether; p-Hydroxyanisole; 4-Hydroxyanisole; 4-Methoxyphenol; p-Methoxyphenol; Monomethyl ether of hydroquinone; Phenol, 4-methoxy-  
**Classification:** Aromatic ether; substituted phenolic compd.  
**Definition:** Monomethyl ether of hydroquinone  
**Empirical:** C<sub>7</sub>H<sub>8</sub>O<sub>2</sub>  
**Formula:** CH<sub>3</sub>OC<sub>6</sub>H<sub>4</sub>OH  
**Properties:** Colorless to wh. waxy solid or cryst. powd.; caramel/phenol odor; sol. in water, benzene, ether, acetone, ethyl acetate, alcohol, oxygenated solvs.; m.w. 124.14; dens. 1.55 (20/20 C); vapor pressure < 0.01 mm Hg (20 C); m.p. 52.5 C; b.p. 243 C; flash pt. (COC) 132 C; pH 5.6 (aq. sol'n.)  
**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; PEL-TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 1600 mg/kg, (IP, mouse) 250 mg/kg, (dermal, rabbit) > 1000 mg/kg; poison by IP route; mildly toxic by ing.; severe skin and eye irritant; skin sensitizer; may cause allergic skin reaction; TSCA listed

**Precaution:** Combustible; may form explosive dust-air mixts.; incompat. with strong oxidizers (increases fire/explosion risk), strong bases, acid chlorides, and acid anhydrides (vigorous exothermic reactions possible)

**Hazardous Decom. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and fumes

**NFPA:** Flammability 1; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat and ignition sources and work areas; hygroscopic

**Uses:** Mfg. of antioxidants, pharmaceuticals, plasticizers, dyestuffs; stabilizer for chlorinated hydrocarbons, ethylcellulose, styrene monomer; UV inhibitor; inhibitor for acrylic and vinyl monomers and acrylonitrile; antioxidant for fats, oils, vitamins, and cosmetics; monomer inhibitor in mfg. of paper/paperboard in contact with aq./fatty foods; antioxidant in acrylic food pkg.

**Regulatory:** FDA 21CFR §176.170, 177.1010

**Manuf./Distrib.:** Aldrich; Alemark; Alfa Chem; Allchem Ind.; Arenol; Borregaard Synthesis US; Charkit; ChemDesign; Eastman; Fluka; Kincaid Enterprises; Maypro Ind.; Mitsui & Co. USA; Monomer-Polymer & Dajac Labs; Penta Mfg.; Rhodia/Fine Orgs.; Sigma; Skymart Enterprises; Specialty Chem Prods.; Spectrum Quality Prods.

**Trade Names Containing:** Ageflex EGDMA; Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC; Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC; Ageflex FM-1Q80DMS; Ageflex FM-10; Bisomer EGDMA; Bisomer PEG 200DMA; CD 501; CN 111; CN 120; CN 120 A75; CN 120 B60; CN 120 B80; CN 120 C60; CN 120 C80; CN 120 D80; CN 120 E50; CN

120 M50; CN 292; CN 383; CN 384; CN 963 A80; CN 963 B80; CN 963 E75; CN 963 E80; CN 963 J85; CN 964 A85; CN 970 A60; CN 970 E60; CN 970 H75; CN 971 A80; CN 972; CN 973 A80; CN 973 H85; CN 973 J75; CN 980; CN 980 M50; CN 981; CN 981 A75; CN 981 B88; CN 982 A75; CN 982 B88; CN 982 E75; CN 982 P90; CN 983; CN 983 B88; CN 985 B88; Esacure® KB1; Mhoromer® AM 107; Mhoromer® AM 199; Mhoromer® AM 414; Mhoromer® AM 438; Mhoromer® BM 613; Mhoromer® BM 711; Mhoromer® BM 713; Mhoromer® BM 731; Mhoromer® BM 903; Mhoromer® BM 905; Mhoromer® BM 923; Mhoromer® BM 951; Mhoromer® BM 955; Rohamere® 6844-0; Rohamere® 6852-0; Sipomer® SEM 25; SR 268; SR 295; SR 306HP; SR 344; SR 351; SR 395; SR 399; SR 444; SR 454; SR 454HP; SR 492; SR 494; SR 495; SR 499; SR 502; SR 506; SR 9020; SR 9021; SR 9035; SR 9041

**Hydrosilicic acid.** See Silica, hydrated

**Hydrosulfuric acid.** See Hydrogen sulfide

**Hydrotreated (mild) light naphthenic distillate.** See Naphthenic oil

**Hydrotreated (mild) light naphthenic distillates (petroleum).** See Naphthenic oil

**Hydrotreated naphtha.** See Naphtha

**Hydrous magnesium calcium silicate.** See Talc

**Hydrous magnesium silicate.** See Talc

**Hydroxyaluminum di (acetate).** See Aluminum acetate

**Hydroxyaluminum distearate.** See Aluminum distearate

**4-Hydroxyanisole.** See Hydroquinone monomethyl ether

**p-Hydroxyanisole.** See Hydroquinone monomethyl ether

**Hydroxyanisole, butylated.** See BHA

**Hydroxybenzene.** See Phenol

**1,4-Hydroxybenzene.** See Hydroquinone

**4-Hydroxybenzoic acid, 2-methylpropyl ester.** See Isobutylparaben

**2-Hydroxybenzoic-5-sulfonic acid.** See 5-Sulfosalicylic acid

**2-Hydroxybiphenyl.** See o-Phenylphenol

**o-Hydroxybiphenyl.** See o-Phenylphenol

**2-Hydroxybiphenyl sodium salt.** See Sodium o-phenylphenate

**1-Hydroxybutane.** See Butyl alcohol

**2-Hydroxybutane.** See 2-Butanol

**Hydroxycellulose.** See Cellulose

**Hydroxycyclohexane.** See Cyclohexanol

**1-Hydroxydecane.** See Decyl alcohol

**4-Hydroxy-3,5-di-t-butylphenyl propionic acid thioglycolate.** See Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate

**2-Hydroxydiphenyl.** See o-Phenylphenol

**o-Hydroxydiphenyl.** See o-Phenylphenol

**2-Hydroxydiphenyl sodium salt.** See Sodium o-phenylphenate

**1-Hydroxy-1,1-diphosphonoethane.** See Etidronic acid

**Hydroxyethanediphosphonic acid.** See Etidronic acid

**2-[2-(2-(2-Hydroxyethoxy) ethoxy) ethoxy] ethanol.** See PEG-4

**2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethyl dodecanoate.** See PEG-4 laurate

**2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethyl octadecanoate.** See PEG-4 stearate

**2-(2-Hydroxyethoxy) ethyl ester stearic acid.** See PEG-2 stearate

**2-(2-Hydroxyethoxy) ethyl laurate.** See PEG-2 laurate

**2-(2-Hydroxyethoxy) ethyl oleate.** See PEG-2 oleate

**2-(2-Hydroxyethoxy) ethyl stearate.** See PEG-2 stearate

**Hydroxyethyl acrylate.** See 2-Hydroxyethyl acrylate

**2-Hydroxyethyl acrylate**

CAS 818-61-1; EINECS/ELINCS 212-454-9

**Synonyms:** HEA; Acrylic acid 2-hydroxyethyl ester; Ethylene glycol, acrylate; Ethylene glycol monoacrylate; Hydroxyethyl acrylate; 2-Propenoic acid, 2-hydroxyethyl ester

**Classification:** Aromatic ester

**Empirical:** C<sub>7</sub>H<sub>8</sub>O<sub>3</sub>

**Formula:** CH<sub>2</sub>CHCOOCH<sub>2</sub>CH<sub>2</sub>OH

**Properties:** Liq.; m.w. 116.12; dens. 1.011; b.p. 90-92 C (12 mm); flash pt. (CC) 209 F

**Toxicology:** LD50 (oral, rat) 650 µl/kg; highly toxic; readily absorbed thru skin; sensitizer; target organs: liver, kidneys; TSCA listed

**Precaution:** Corrosive

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and

fumes  
NFPA: Health 2; Flammability 1; Reactivity 2  
*Storage:* Refrigerate; protect from light  
*Uses:* Reactive comonomer for acrylic, vinyl acetate, S/B, nitrile resins; reactive diluent for radiation-cured coatings; crosslinkable paint resin; binder for textiles and paper; adhesion promoter  
*Manuf./Distrib.:* ABCR; Aldrich; Alfa Aesar; Lancaster Synthesis; Pfaltz & Bauer; TCI Am.  
*Trade Names:* Mhoromer® AM 414

**2-Hydroxyethyl acrylate homopolymer**  
*Uses:* In paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180

**2-Hydroxyethylamine.** See Ethanolamine  
**β-Hydroxyethylamine.** See Ethanolamine

**Hydroxyethylcellulose**  
CAS 9004-62-0  
*Synonyms:* HEC; Cellulose hydroxyethylate; Cellulose, 2-hydroxyethyl ether; Cellulose hydroxyethyl ether; HE cellulose; Hetastarch; 2-Hydroxyethyl cellulose; Hydroxyethyl cellulose ether; 2-Hydroxyethyl cellulose ether; Hydroxyethyl ether cellulose; Hydroxyethyl starch  
*Definition:* Partially substituted poly(hydroxyethyl) ether of cellulose  
*Empirical:*  $C_8H_{14}O_6$   
*Formula:*  $C_8H_{14}O_6(OH)_2OCH_2CH_2OH$   
*Properties:* Wh. free-flowing powd., odorless, tasteless; nonionic; insol. in org. solvs.; sol. in hot or cold water; grease and oil resistant; bulk dens. 0.7 kg/l; m.p. 288-290 C (dec.); ref. index 1.336; pH 6.0-8.5 (1%)  
*Toxicology:* LDLo (IV, human female, 6 days intermittent) 5100 mg/kg; human systemic effects (change in plasma or blood volume, intracranial pressure inc., somnolence); eye and respiratory system irritant; target organs: blood, nerves; experimental reproductive effects; TSCA listed  
*Precaution:* Combustible  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors  
*Storage:* Hygroscopic  
*Uses:* Suspending agent; stabilizer for vinyl polymerization; retards evaporation of water in mortars and cements; binder in ceramic glazes; in paper and textile sizing; latex paints; cast resins (water-sol. films); toothpaste/cosmetics ingred.; thickener/protective colloid in paints, adhesives, paper coatings, latex prod.; viscosifier in drilling muds, building prods.; mineral flotation depressant; thickener, suspending agent, protective colloid, binder, stabilizer in pharmaceuticals; emulsion stabilizer; film-former; visc. control agent; in food-pkg. adhesives; in food-contact coatings; in cellophane for food pkg.  
*Regulatory:* FDA 21CFR §175.105, 175.300, 177.1200, 177.1400; FDA approved for ophthalmics, orals, otics, topicals; USP/NF, BP, Ph.Eur. compliance  
*Manuf./Distrib.:* Aldrich; Allchem Ind.; Amerchol Europe; Amerchol; CarboMer; Hercules/Aqualon; Kraft Chem.; Lowenstein Dyes & Cosmetics; Spectrum Quality Prods.; Sumisho Plaschem; Union Carbide; Whittaker, Clark & Daniels; Whyte Chems. Ltd  
*Trade Names:* Natrosol® 250

**2-Hydroxyethyl cellulose.** See Hydroxyethylcellulose  
**Hydroxyethyl cellulose ether.** See Hydroxyethylcellulose  
**2-Hydroxyethyl cellulose ether.** See Hydroxyethylcellulose

**1-(2-Hydroxyethyl)-1-(4-chlorobutyl)-2-alkyl (C6-17) imidazolinium chloride**  
*Uses:* In food-contact paper/paperboard, food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 181.30

**β-Hydroxyethyl dimethylamine.** See Dimethylethanolamine  
**2-Hydroxyethyl ester methacrylic acid.** See 2-Hydroxyethyl methacrylate  
**2-Hydroxyethyl ester stearic acid.** See Glycol stearate  
**Hydroxyethyl ether cellulose.** See Hydroxyethylcellulose  
**N-(2-Hydroxyethyl)-N-ethylaniline.** See Phenylethylethanolamine  
**Hydroxyethyl ethylenediaminetriacetic acid, trisodium salt.** See Trisodium HEDTA  
**N-Hydroxyethyl-N-ethyl-m-toluidine.** See N-Ethyl-N-hydroxyethyl-m-toluidine  
**1-Hydroxyethyl-2-heptadecenylglyoxalidine.** See Oleyl hydroxyethyl imidazoline

**1-(2-Hydroxyethyl)-2-heptadecenylglyoxalidine.** See Oleyl hydroxyethyl imidazoline  
**1-(2-Hydroxyethyl)-2-heptadecenyl-2-imidazoline.** See Oleyl hydroxyethyl imidazoline  
**1-(2-Hydroxyethyl)-2-N-heptadecenyl-2-imidazoline.** See Oleyl hydroxyethyl imidazoline  
**1-Hydroxyethyl-2-heptadecylimidazoline.** See Stearyl hydroxyethyl imidazoline  
**2-Hydroxyethyl hexadecanoate.** See Glycol palmitate  
**2-Hydroxyethyl 12-hydroxy-9-octadecenoate.** See Glycol ricinoleate  
**(1-Hydroxyethylidene) bisphosphonic acid.** See Etidronic acid  
**(1-Hydroxyethylidene) bisphosphonic acid, tetrasodium salt.** See Tetrasodium etidronate  
**(1-Hydroxyethylidene) diphosphonic acid.** See Etidronic acid  
**1-Hydroxyethylidene-1,1-diphosphonic acid.** See Etidronic acid  
**(1-Hydroxyethylidene) diphosphonic acid, tetrasodium salt.** See Tetrasodium etidronate  
**1-Hydroxyethylidene-1,1-diphosphonic acid, tetrasodium salt.** See Tetrasodium etidronate  
**Hydroxyethyl methacrylate.** See 2-Hydroxyethyl methacrylate

**2-Hydroxyethyl methacrylate**  
CAS 868-77-9; EINECS/ELINCS 212-782-2  
*Synonyms:* GMA; HEMA; Ethylene glycol methacrylate; Ethylene glycol monomethacrylate; Glycol methacrylate; Glycol monomethacrylate; 2-Hydroxyethyl ester methacrylic acid; Hydroxyethyl methacrylate; β-Hydroxyethylmethacrylate; 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester  
*Empirical:*  $C_8H_{10}O_3$   
*Formula:*  $CH_2=C(CH_3)COOCH_2CH_2OH$   
*Properties:* Clear mobile liq.; sol. in common org. solvs.; misc. with water; m.w. 130.16; dens. 1.0644 (77/60 F); f.p. -2 C; b.p. 205-208 C; flash pt. (COC) 108 C; ref. index 1.4505  
*Toxicology:* LD50 (IP, rat) 1250 mg/kg, (oral, mouse) 5888 mg/kg; mod. toxic by IP route; mildly toxic by ingestion; TSCA listed  
*Precaution:* Flamm.; mod. fire risk  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
*Storage:* Moisture- and light-sensitive  
*Uses:* Monomer for creating and modifying wide range of polymers, acrylic resins; marine antifouling paint resin comonomer; reactive comonomer for acrylic and S/B resins; food-pkg. adhesives, polymers; binder for non-woven fabrics, enamels, adhesives; reactive thinner for radiation curing; rubber modifier  
*Manuf./Distrib.:* Acros Org.; Aldrich; Allchem Ind.; Ashland; BP Amoco; Electron Microscopy Sciences; Fluka; ICN Biomed. Research Prods.; Kessler; Lancaster Synthesis; Laporte Perf. Chems.; Monomer-Polymer & Dajac Labs; Pfaltz & Bauer; Rohm & Haas; Rohm Tech; San Esters; Scientific Polymer Prods.; Sigma; TCI Am.; Ubichem plc; Whyte Chems. Ltd  
*Trade Names:* Blemmer E; Mhoromer® BM 903; Mhoromer® BM 905; Mhoromer® BM 923

**β-Hydroxyethylmethacrylate.** See 2-Hydroxyethyl methacrylate  
**N-(2-Hydroxyethyl)-N-methylaniline.** See 2-(N-Methylanilino) ethanol  
**N-(2-Hydroxyethyl) octadecanamide.** See Stearamide MEA  
**2-Hydroxyethyl octadecanoate.** See Glycol stearate  
**2-Hydroxyethyl 9-octadecenoate.** See Glycol oleate  
**1-Hydroxyethyl-2-oleyl imidazoline.** See Oleyl hydroxyethyl imidazoline  
**Hydroxyethyl starch.** See Hydroxyethylcellulose  
**N-(2-Hydroxyethyl) stearamide.** See Stearamide MEA  
**1-Hydroxyethyl-2-tall oil imidazoline.** See Tall oil hydroxyethyl imidazoline

**Hydroxyethyl-s-triazine**  
CAS 4719-04-4; EINECS/ELINCS 225-208-0  
*Synonyms:* Hexahydro-1,3,5-(2-hydroxyethyl)-s-triazine; Hexahydro-1,3,5-triazine-1,3,5-triethanol; Hexahydro-1,3,5-tris (hydroxyethyl) triazine; Hexahydro-1,3,5-tris-(2-hydroxyethyl)-s-triazine; 1,3,5-Triazine-1,3,5-(2H,4H,6H)-triethanol; s-Triazine-1,3,5 (2H,4H,6H)-triethanol; 1,3,5-Tris (2-hydroxyethyl) hexahydrotriazine; 1,3,5-Tris (2-hydroxyethyl) hexahydro-1,3,5-triazine; N,N',N''-Tris (β-hydroxyethyl) hexahydro-1,3,5-triazine; N,N',N''-Tris (2-hydroxyethyl) hexahydrotriazine  
*Empirical:*  $C_9H_{12}N_3O_3$

## 1-Hydroxyethyl 2-undecyl imidazoline

*Properties:* Yel. visc. liq.; sol. > 10 mg/ml in water, DMSO, 95% ethanol; m.w. 219.33; flash pt. > 93.3 C

*Toxicology:* LD50 (oral, rat) 763 mg/kg, (skin, rat) > 2 g/kg; mod. toxic by ing. and skin contact; may cause somnolence, hypermotility, diarrhea; mutagenic; TSCA listed

*Precaution:* Probably combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub>

*Storage:* Refrigerate

*Uses:* Biocide for metalworking fluids, paper coatings, adhesives, paints; coolant preservative, biocide for water treatment applics.; organic synthesis; comonomer for high temp. plastics

*Trade Names:* Paxgard EM

**1-Hydroxyethyl 2-undecyl imidazoline.** See Lauryl hydroxyethyl imidazoline

**23-Hydroxy-3,6,9,12,15,18,21-heptaaxtricos-1-yl dodecanoate.** See PEG-8 laurate

**23-Hydroxy-3,6,9,12,15,18,21-heptaaxtricos-1-yl octadecanoate.** See PEG-8 stearate

**$\alpha$ -Hydroxy- $\omega$ -hydroxypoly (oxy-1,2-ethanediyl).** See Polyethylene glycol

### $\alpha$ -Hydroxy ketone

*Synonyms:* Alpha hydroxy ketone

*Trade Names Containing:* Esacure® KIP100F; Esacure® KT37

### Hydroxylated lecithin

CAS 8029-76-3; EINECS/ELINCS 232-440-6

*Synonyms:* Lecithin, hydroxylated

*Definition:* Prod. obtained by the controlled hydroxylation of lecithin

*Properties:* Lt. yel. liq. to paste, char. odor; mod. sol. in water

*Toxicology:* Nontoxic; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Wetting agent, emulsifier for personal care products and pharmaceuticals; wetting agent and dispersant for air-drying and stoving paints; raw material for textile and leather compds.; emulsifier, clouding agent, defoamer in foods; hair/skin conditioner; release agent; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings

*Use Level:* ADI not specified (FAO/WHO)

*Regulatory:* FDA 21CFR §136.110, 136.115, 136.130, 136.160, 136.165, 136.180, 172.814, 173.340, 176.170, 176.200

*Manuf./Distrib.:* Barnet Prods.; Central Soya; Fanning; Lucas Meyer

**2-Hydroxy 3-methacryl oxypropyl trimethyl ammoniumchloride.** See 2-Hydroxy 3-methacryl oxypropyl trimoniumchloride

### 2-Hydroxy 3-methacryl oxypropyl trimoniumchloride

*Synonyms:* 2-Hydroxy 3-methacryl oxypropyl trimethyl ammoniumchloride

*Properties:* Cationic

*Uses:* Antistat, electroconductive paper coatings, polyelectrolyte dispersant, flocculant acid dye receptive fibers, electrodeposition acrylic coatings

*Trade Names:* Blemmer QA

**Hydroxymethanesulfinic acid monosodium salt.** See Sodium formaldehyde sulfoxylate

**Hydroxymethanesulfinic acid sodium salt.** See Sodium formaldehyde sulfoxylate

**4-Hydroxy-3-(2-methoxyphenylazo) naphthalene-1-sulfonic acid, sodium salt.** See Acid red 4

### N-(Hydroxymethyl) acrylamide homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**N-(Hydroxymethyl)-N-(1,3-dihydroxymethyl-2,5-dioxo-4-imidazolidinyl)-N-(hydroxymethyl) urea.** See Diazolidinyl urea

**(Hydroxymethyl) methyl-carbamodithioic acid, monopotassium salt.** See Potassium N-hydroxymethyl-N-methyldithiocarbamate

**2-(Hydroxymethyl)-2-[(oleoyloxy) methyl]-1,3-propanediyl dioleate.** See Pentaerythrityl trioleate

### 2-Hydroxy 2-methyl 1-phenyl 1-propanone

CAS 7473-98-5

*Synonyms:* HMPP; 2-Hydroxy-2-methylpropiofenone; 1-Phenyl-2-hydroxy-2-methyl-propan-1-one

*Classification:* Aromatic ketone

*Empirical:* C<sub>10</sub>H<sub>12</sub>O<sub>2</sub>

*Formula:* C<sub>10</sub>H<sub>12</sub>O<sub>2</sub>

*Properties:* M.w. 164.2; dens. 1.077; b.p. 102-103 C (4 mm); flash pt. > 110 C; ref. index 1.5330

*Toxicology:* Irritant to eyes, skin, respiratory system; TSCA listed

*Precaution:* Light sensitive

*Uses:* Photoinitiator in radiation-cured lacquers and inks

*Manuf./Distrib.:* Aldrich; Sigma

*Trade Names Containing:* Esacure® KIP100F

**1-Hydroxymethylpropane.** See Isobutyl alcohol

**2-Hydroxy-2-methylpropiophenone.** See 2-Hydroxy 2-methyl 1-phenyl 1-propanone

**2-Hydroxynaphthalene.** See  $\beta$ -Naphthol

**$\beta$ -Hydroxynaphthalene.** See  $\beta$ -Naphthol

**4-[(2-Hydroxy-1-naphthalenyl) azo] benzenesulfonic acid monosodium salt.** See Acid orange 7

**4-(2-Hydroxynaphthalen-1-ylazo)-3-methylbenzenesulfonic acid, sodium salt.** See Acid orange 8

**4-(2-Hydroxynaphthalen-1-ylazo) naphthalene-1-sulfonic acid, sodium salt.** See Acid red 88

**4-[(2-Hydroxy-1-naphthalenyl) azo]-1-naphthalene sulfonic acid sodium salt.** See Acid red 88

**4-(2-Hydroxy-1-naphthylazo) benzenesulfonic acid sodium salt.** See Acid orange 7

**p-[(2-Hydroxy-1-naphthyl) azo] benzenesulfonic acid sodium salt.** See Acid orange 7

**4-[(2-Hydroxy-1-naphthyl) azo]-3-methylbenzenesulfonic acid, monosodium salt.** See Acid orange 8

**12-Hydroxyoctadecanoic acid.** See Hydroxystearic acid

**12-Hydroxyoctadecanoic acid, methyl ester.** See Methyl hydroxystearate

**12-Hydroxy-9-octadecenoic acid 2,3-dihydroxypropyl ester.** See Glyceril ricinoleate

**12-Hydroxy-9-octadecenoic acid, methyl ester.** See Methyl ricinoleate

**12-Hydroxy-9-octadecenoic acid, monoester with 1,2,3-propanetriol.** See Glyceril ricinoleate

**p-Hydroxy-2-oxo-phenylacetylhydroxymic acid chloride.** See 2-(p-Hydroxyphenyl) glyoxylohydroximoyl chloride

**17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl dodecanoate.** See PEG-6 laurate

**17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl octadecanoate.** See PEG-6 stearate

**2-Hydroxyphenol.** See Pyrocatechol

**o-Hydroxyphenol.** See Pyrocatechol

**p-Hydroxyphenol.** See Hydroquinone

**7-Hydroxy-8-(phenylazo)-1,3-naphthalenedisulfonic acid, disodium salt.** See Acid orange 10

**1-(4-Hydroxyphenyl)-2-bromoethanone.** See 2-Bromo-4'-hydroxyacetophenone

### 2-(p-Hydroxyphenyl) glyoxylohydroximoyl chloride

CAS 34911-46-1

*Synonyms:* Benzeneethanimidoyl chloride, N,4-dihydroxy- $\alpha$ -oxo-; 2-Chloro-4'-hydroxy-2-isonitrosoacetophenone; 2-(p-Hydroxyphenyl) oxoacetylhydroximic chloride; p-Hydroxy-2-oxo-phenylacetylhydroxymic acid chloride

*Empirical:* C<sub>8</sub>H<sub>6</sub>ClNO<sub>3</sub>

*Properties:* M.w. 199.60

*Uses:* Slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**2-(p-Hydroxyphenyl) oxoacetylhydroximic chloride.** See 2-(p-Hydroxyphenyl) glyoxylohydroximoyl chloride

**1-Hydroxypropane.** See Propyl alcohol

**2-Hydroxy-1,2,3-propanetricarboxylic acid.** See Citric acid

**2-Hydroxypropane-1,2,3-tricarboxylic acid.** See Citric acid

**2-Hydroxy-1,2,3-propanetricarboxylic acid, monoctadecyl ester.** See Stearyl citrate

**2-Hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester.** See Triethyl citrate

**2-Hydroxypropanol.** See Propylene glycol

### Hydroxypropyl acrylate

CAS 25584-83-2; EINECS/ELINCS 247-118-0

*Synonyms:* Acrylic acid, hydroxypropyl ester; Acrylic acid, monoester with 1,2-propanediol; 1,2(or 3)-Propanediol, 1-acrylate; 2-Propenoic acid, monoester with 1,2-propanediol; Propylene glycol acrylate; Propylene glycol monoacrylate

*Classification:* Nonaromatic ester

*Empirical:* C<sub>8</sub>H<sub>10</sub>O<sub>3</sub>

*Properties:* Liq.; m.w. 130.16; dens. 1.044; b.p. 77 C (5 mm); flash pt. (CC) 193 F

*Toxicology:* Highly toxic; toxic by inh., ing., skin contact; irritant; causes burns; readily absorbed thru skin; may cause sensitization by skin contact; TSCA listed

*Precaution:* Combustible

*Uses:* Crosslinkable paint resin; binder for textiles, paper; reactive thinner; adhesion promoter

*Manuf./Distrib.:* Aldrich; Pfaltz & Bauer; Whyte Chems. Ltd

*Trade Names:* Mhoromer<sup>®</sup> AM 438

**Hydroxypropyl alginate.** See Propylene glycol alginate

**2-Hydroxypropylamine.** See Isopropanolamine

### Hydroxypropylcellulose

CAS 9004-64-2

*Synonyms:* HPC; Cellulose, 2-hydroxypropyl ether; Hydroxypropyl ether of cellulose; Hyprollose; Oxypropylated cellulose

*Definition:* Partially substituted poly(hydroxypropyl) ether of cellulose

*Properties:* Off-wh. gran. powd., odorless, tasteless; sol. in cold water, methanol, ethanol, many polar org. solvs.; insol. in water > 37.7 C; m.w. 80,000-1,150,000; thermoplastic; can be extruded and molded; softens at 130 C; visc. various; ref. index 1.337; pH 5-8.5 (1%); nonionic

*Toxicology:* LD50 (oral, rat) 10,200 mg/kg, (IV, rat) 250 mg/kg; poison by IV route; sl. toxic by ingestion; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Binder; emulsion stabilizer; visc. control agent; emulsifier, film-former, protective colloid, stabilizer, thickener in foods, cosmetics; thickener, protective colloid in emulsion paints, adhesives; suspending agent in PVC polymerization; binder in ceramics; protective colloid in suspension polymerization; mineral flotation depressant; hair preps.; in blow-molded bottles; tablet coating aid in pharmaceuticals; in cellophane for food pkg.

*Use Level:* ADI 0-25 mg/kg (FAO/WHO)

*Regulatory:* FDA 21CFR §172.870, 177.1200; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP, Ph. Eur. compliance

*Manuf./Distrib.:* Aldrich; Barrington; CarboMer; Hercules/Aqualon; Shin-Etsu; Spectrum Quality Prods.; Whyte Chems. Ltd

*Trade Names:* Klucel<sup>®</sup> E; Klucel<sup>®</sup> L

**2-Hydroxypropyl dodecanoate.** See Propylene glycol laurate

**Hydroxypropyl ether of cellulose.** See Hydroxypropylcellulose

**Hydroxypropyl ether guar gum.** See Hydroxypropyl guar

### Hydroxypropyl guar

CAS 39421-75-5; 68442-94-4; EINECS/ELINCS 270-497-9

*Synonyms:* Guar gum, 2-hydroxypropyl ether; Hydroxypropyl ether guar gum; Hydroxypropyl guar gum

*Definition:* Propylene glycol ether of guar gum

*Formula:* R-(CHCH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H, R = guar gum

*Toxicology:* TSCA listed

*Uses:* Antistat, binder, emulsion stabilizer, film-former, visc. control agent, thickener, suspending agent, stabilizer, slip agent, flocculant in cosmetics; mineral flotation depressant; textile auxiliaries; viscosifier for oil-well workover/completion fluids; binder, surfactant, lubricant, plasticizer in ceramics; dry str. and formation aid in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

*Manuf./Distrib.:* Aldrich; CarboMer; Economy Polymers & Chems.; Fabrichem; Hercules/Aqualon; P.L. Thomas

**Hydroxypropyl guar gum.** See Hydroxypropyl guar

### Hydroxypropyl methacrylate

CAS 27813-02-1; EINECS/ELINCS 248-666-3

*Synonyms:* Hydroxypropyl monomethacrylate; Methacrylic acid, monoester with 1,2-propanediol; 1,2-Propanediol, 2-methyl, monomethacrylate; 2-

Propenoic acid, 2-methyl-, 2-hydroxymethylethyl ester; 2-Propenoic acid, 2-methyl-, monoester with 1,2-propanediol

*Classification:* Nonaromatic ester

*Empirical:* C<sub>7</sub>H<sub>12</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>CHOHCH<sub>2</sub>OOC(CH<sub>3</sub>)CH<sub>2</sub>

*Properties:* Clear mobile liq.; limited sol. in water; sol. in common org. solvs.; m.w. 144.17; sp.gr. 1.03; b.p. 205-209 C; flash pt. 96.6 C; ref. index 1.4447

*Toxicology:* LD50 (oral, rats) > 5000 mg/kg, (dermal, rabbits) > 5000 mg/kg; severe eye irritant, mod. skin irritation; nontoxic by inhalation; TSCA listed

*Precaution:* Combustible

*Storage:* Heat- and light-sensitive; refrigerate; protect from light

*Uses:* Monomer for acrylic resins, nonwoven fabric binders, detergent lube oil additives, coatings, adhesives, contact lenses; modifier for paints, polymers, rubber, paper, adhesives; binder

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Allchem Ind.; Ashland; BP Amoco; Fluka; Monomer-Polymer & Dajac Labs; Rhodia; Rohm & Haas; Rohm Tech; Sigma; Whyte Chems. Ltd

*Trade Names:* Mhoromer<sup>®</sup> BM 951; Mhoromer<sup>®</sup> BM 955

### 2-Hydroxypropyl methacrylate

CAS 923-26-2; EINECS/ELINCS 213-090-3

*Synonyms:* HPMA; β-Hydroxypropyl methacrylate; 2-Hydroxypropyl 2-methyl-2-propenoate; Methacrylic acid, 2-hydroxypropyl ester; 2-Propenoic acid, 2-methyl-, 2-hydroxypropyl ester

*Empirical:* C<sub>7</sub>H<sub>12</sub>O<sub>3</sub>

*Formula:* CH<sub>2</sub>C(CH<sub>3</sub>)COOCH(CH<sub>3</sub>)CH<sub>2</sub>OH

*Properties:* Colorless liq.; sol. in water, common org. solvs.; m.w. 144.19; dens. 1.03 kg/l; f.p. < -70 C; b.p. 240 C; flash pt. 121 C

*Toxicology:* LD50 (oral, mouse) 7964 mg/kg; mildly toxic by ing.; eye and skin irritant; TSCA listed

*Precaution:* Avoid incompat. materials, strong oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Storage:* Light and heat sensitive; store in a cool, dry place

*Uses:* Engineering adhesives; monomer for hydrophilic polymer synthesis; reactive comonomer for acrylic and S/B resins

*Manuf./Distrib.:* ABCR; Acros Org.

*Trade Names:* Blemmer P

**β-Hydroxypropyl methacrylate.** See 2-Hydroxypropyl methacrylate

### 2-Hydroxypropyl methanethiol sulfonate

*Uses:* Slicicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**2-Hydroxypropyl 2-methyl-2-propenoate.** See 2-Hydroxypropyl methacrylate

**Hydroxypropyl monomethacrylate.** See Hydroxypropyl methacrylate

**8-Hydroxyquinoline copper complex.** See Copper 8-quinolinolate

**Hydroxyquinone.** See Hydroquinone

### Hydroxystearic acid

CAS 106-14-9; EINECS/ELINCS 203-366-1

*Synonyms:* HSA; 12-Hydroxyoctadecanoic acid; 12-Hydroxystearic acid; Octadecanoic acid, 12-hydroxy-

*Classification:* Fatty acid

*Definition:* C-18 straight chain fatty acid

*Empirical:* C<sub>18</sub>H<sub>36</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>5</sub>(CHOH)(CH<sub>2</sub>)<sub>10</sub>COOH

*Properties:* Wh. flakes; sol. in alcohol; insol. in water; m.w. 300.49; sp.gr. 1.021; m.p. 79-82 C; acid no. 178-187; sapon. no. 180-190

*Toxicology:* Experimental carcinogen; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Emulsifier; major component in lithium greases; chemical intermediate; lubricant for PVC and plastics processing; in cosmetics; toiletries; wax blends; polishes; inks; hot-melt adhesives; paints; defoamer in food-contact paper/paperboard; in lubricants for incidental food-contact use

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3570

*Manuf./Distrib.:* Acme-Hardesty; Aldrich; Allchem Ind.; Alnor Oil; Amber Syn.; Brook-Chem; CasChem; Collaborative Labs/Oleochems.; Conдор; Eastech; Fluka; Jarchem Ind.; Miljac; NOF Am.; NorChem; Penta





## 12-Hydroxystearic acid

Mfg.: Sea-Land; Storchem; Universal Preserv-A-Chem; Vilax  
Trade Names: Loxiol® G 21

**12-Hydroxystearic acid.** See Hydroxystearic acid  
**12-Hydroxystearic acid methyl ester.** See Methyl hydroxystearate  
**Hydroxystearic acid, monoester with glycerol.** See Glyceryl hydroxystearate  
**2-Hydroxy-5-sulfo benzoic acid.** See 5-Sulfosalicylic acid  
**2-Hydroxy-5-sulfo benzoic acid, dihydrate.** See 5-Sulfosalicylic acid dihydrate  
**Hydroxytoluene, butylated.** See BHT  
**β-Hydroxytricarballylic acid.** See Citric acid  
**2-Hydroxytriethylamine.** See Diethylaminoethanol  
**3-Hydroxy-4-(2,4-xylylazo)-3,7-naphthalenedisulfonic acid, disodium salt.** See Acid red 26  
**Hypo.** See Sodium thiosulfate anhydrous  
**Hypochlorite sol'n.** See Sodium hypochlorite  
**Hypochlorous acid, calcium salt.** See Calcium hypochlorite  
**Hypochlorous acid, sodium salt.** See Sodium hypochlorite  
**Hypolose.** See Hydroxypropylcellulose  
**IBA.** See Isobutyl alcohol  
**IBMA.** See Isobutyl methacrylate  
**IBOA.** See Isobornyl acrylate  
**IBVE.** See Vinyl isobutyl ether  
**Ice.** See Water  
**3-Icosenylsuccinic anhydride.** See Eicosenyl succinic anhydride  
**IDA.** See Iodecyl acrylate  
**IIR.** See Isobutylene/isoprene copolymer  
**1H-Imidazole-1-ethanol, 4,5-dihydro-2-docosanyl-.** See Behenyl hydroxyethyl imidazoline  
**1H-Imidazole-1-ethanol, 4,5-dihydro-2-norcoco alkyl derivs.** See Cocoyl hydroxyethyl imidazoline  
**1H-Imidazole-1-ethanol, 4,5-dihydro-2-norcocoyl-.** See Cocoyl hydroxyethyl imidazoline  
**1H-Imidazole-1-ethanol, 4,5-dihydro-2-undecyl-.** See Lauryl hydroxyethyl imidazoline  
**2,4-Imidazolidinedione, 1,3-dichloro-5-ethyl-5-methyl-.** See 1,3-Dichloro-5-ethyl-5-methylhydantoin  
**2,4-Imidazolidinedione, dimethyl-, polymer with formaldehyde.** See Dimethyl hydantoin-formaldehyde polymer  
**Imidazolidinyl urea 11.** See Diazolidinyl urea  
**Imidocarbonic acid, cyanodithio-, disodium salt.** See Disodium cyanodithioimidocarbonate  
**4,4'-(Imidocarbonyl) bis (N,N-dimethylaniline) monohydrochloride.** See Basic yellow 2  
**2,2'-Iminobisethanol.** See Diethanolamine  
**2,2'-Iminobisethylamine.** See Diethylenetriamine  
**1,1'-Iminobis-2-propanol.** See Diisopropanolamine  
**1,1'-Iminobis (propan-2-ol).** See Diisopropanolamine  
**1,1'-Iminodipropan-2-ol.** See Diisopropanolamine  
**2,2'-Iminodiethanol.** See Diethanolamine  
**2,2'-Iminodiethylamine.** See Diethylenetriamine  
**1,1'-Iminodi-2-propanol.** See Diisopropanolamine  
**Iminodisuccinate tetrasodium salt.** See Tetrasodium iminodisuccinate  
**IMS.** See Alcohol  
**Indanthrene golden yellow.** See Vat yellow 4  
**Indene/coumarone resin.** See Coumarone/indene resin  
**1H-Indene-1,3(2H)-dione, 2-(2-quinolinyl)-, sulfonated, sodium salts.** See Acid yellow 3  
**Independence red.** See Pigment red 3  
**Indian gum.** See Gum ghatti  
**Indian red.** See Iron oxide red  
**Indian tragacanth.** See Karaya (Sterculia urens) gum  
**India rubber.** See Natural rubber  
**India tragacanth.** See Karaya (Sterculia urens) gum  
**Indigenous peanut oil.** See Peanut (Arachis hypogaea) oil  
**Indigo blue 2B.** See Direct blue 6  
**3H-Indolium, 1,3,3-trimethyl-2-(3-(1,3,3-trimethyl-2-indolinyldiene) propenyl)-, chloride.** See Basic red 12  
**Indulin B.** See Acid blue 20  
**Industrial methylated spirit.** See Alcohol  
**Industrial talc.** See Talc

**Infusorial earth.** See Diatomaceous earth; Diatomaceous earth, amorphous

**Iodopropynyl butylcarbamate**

CAS 55406-53-6; EINECS/ELINCS 259-627-5  
**Synonyms:** IPBC; Butyl-3-iodo-2-propynylcarbamate; Carbamic acid, butyl-3-iodo-2-propynyl ester; 3-Iodopropynylbutylcarbamate; 3-Iodo-2-propynyl butyl carbamate; 3-Iodo-2-propynyl-N-butyl carbamate  
**Classification:** Organic compd.  
**Empirical:** C<sub>8</sub>H<sub>7</sub>INO<sub>2</sub>  
**Formula:** IC<sub>2</sub>CH<sub>2</sub>OCONH(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>  
**Properties:** Wh. to off-wh. powd.; m.w. 281.1; m.p. 65-67 C  
**Toxicology:** TSCA listed  
**Uses:** Fungicide, antimildew additive, wood preservative used in oil-based and latex paints, wood prods., cutting oils, textiles, paper coatings, inks, plastics, adhesives; antifungal preservative in food-pkg. adhesives  
**Use Level:** 0.1-1.0%  
**Regulatory:** FDA 21CFR §175.105; USA EPA registered; Japan approved; Europe listed  
**Manuf./Distrib.:** Arch Chems.; Troy  
**Trade Names:** Troysan® Polyphase® AF1; Troysan® Polyphase® EC17; Troysan® Polyphase® P-20T; Troysan® Polyphase® P-100  
**Trade Names Containing:** Ipex™-400; Ipex™-1000; Troysan® Polyphase® CST

**3-Iodopropynylbutylcarbamate.** See Iodopropynyl butylcarbamate  
**3-Iodo-2-propynyl butyl carbamate.** See Iodopropynyl butylcarbamate  
**3-Iodo-2-propynyl-N-butyl carbamate.** See Iodopropynyl butylcarbamate  
**IPA.** See Isopropyl alcohol  
**IPBC.** See Iodopropynyl butylcarbamate  
**IPM.** See Isopropyl myristate  
**IPP.** See Diisopropyl perdicarbonate; Isopropyl palmitate  
**IR.** See Polyisoprene  
**Irish gum.** See Carrageenan (Chondrus crispus)  
**Irish moss.** See Carrageenan (Chondrus crispus)  
**Iron ammonium sulfate.** See Ferrous ammonium sulfate  
**Iron blue.** See Ferric ferrocyanide  
**Iron chloride.** See Ferric chloride  
**Iron (II) chloride.** See Ferric chloride  
**Iron chlorides.** See Ferric chloride  
**Iron citrate.** See Ferric citrate  
**Iron (III) citrate.** See Ferric citrate  
**Iron ferrocyanide.** See Ferric ferrocyanide  
**Iron mass, spent.** See Iron oxide red  
**Iron oxide.** See Iron oxide black; Iron oxide red  
**Iron (III) oxide.** See Ferric oxide; Iron oxide black  
**Iron (II, III) oxide.** See Iron oxide black

**Iron oxide black**

CAS 1317-61-9; EINECS/ELINCS 215-277-5  
**Synonyms:** Black magnetic oxide; Black oxide, precipitated; Black rouge; CI 77499; Ethiops iron; Ferric ferrous oxide; Ferrosferric oxide; Iron oxide; Iron (II, III) oxide; Iron (III) oxide; Iron (II) oxide, black; Iron (II, III) oxide, black; Iron oxide magnetic; Iron oxides (Fe<sub>2</sub>O<sub>3</sub>); Magnetite; Pigment black 11; Triiron tetraoxide  
**Classification:** Syn. iron oxide  
**Empirical:** Fe<sub>3</sub>O<sub>4</sub>  
**Properties:** Blk. powd.; sol. in acids; insol. in water, alcohol, ether, oils, solvs.; m.w. 231.54; dens. 4.7 kg/l; m.p. 1538 C (dec.); oxidized to Fe<sub>2</sub>O<sub>3</sub> on heating in air  
**Toxicology:** Harmful by inh., ing., skin contact; irritating to eyes, skin, respiratory system  
**Uses:** Pigment for paints, plastics, caulks, sealants, printing inks; polishing compd.; metallurgy; magnetic inks; in ferrites for electronic industry; coatings for magnetic tape; catalyst; linoleum; colorant in food-grade polymers  
**Manuf./Distrib.:** ABCR; Aldrich; Costec; Fisher Scientific; Warner-Jenkinson  
**Trade Names:** Synox HB-1094

**Iron (II) oxide, black.** See Iron oxide black  
**Iron (II, III) oxide, black.** See Iron oxide black  
**Iron oxide magnetic.** See Iron oxide black

**Iron oxide red**

CAS 1332-37-2; UN No. 1376  
**Synonyms:** Burnt sienna; CI 77491; Copperas red; Ferrous ferrite; Gulf red;

Indian red; Iron mass, spent; Iron oxide; Iron oxide, spent; Iron sponge, spent; Pigment red 101; Pigment red 102; Red haematite; Red iron oxide; Red oxide; Turkey red

**Definition:** Sienna, siderite, Persian red, Spanish red, and red ochre are natural iron oxide ores used as red pigments

**Empirical:** Fe<sub>2</sub>O<sub>3</sub>

**Properties:** Red powd.; insol. in water, oils, and solvs.; m.w. 159.69; dens. 4.5-5.0 kg/l

**Toxicology:** TSCA listed

**Precaution:** Spontaneously combustible

**Uses:** Colorant for ceramic tiles, sanitaryware; food colorant; pigment for concrete, roofing tiles, paving slabs, plaster, bitumen, stoving finishes, primer paints, marine paints, rubber, plastics, sealants, caulks, printing inks; polishing compds.; theatrical rouge

**Manuf./Distrib.:** Costec; Hammill & Gillespie; Warner-Jenkinson

**Trade Names:** Synox HR-1200; Synox HR-1201; Synox HR-1202; Synox HR-1203; Synox HR-1204; Synox HR-1205; Synox HR-1208; Synox HR-1209

See also Ferric oxide

### Iron oxides

CAS 1309-37-1 (Fe<sub>2</sub>O<sub>3</sub>); 1345-25-1 (FeO); 1317-61-9 (Fe<sub>3</sub>O<sub>4</sub>); EINECS/ELINCS 215-168-2 (Fe<sub>2</sub>O<sub>3</sub>); 215-721-8 (FeO); 215-277-5 (Fe<sub>3</sub>O<sub>4</sub>)

**Synonyms:** CI 77489; CI 77491; CI 77492; CI 77499

**Definition:** Inorganic compd. consisting of any one or combinations of synthetically prepared iron oxides incl. the hydrated forms

**Toxicology:** TSCA listed

**Uses:** Pigment for cosmetics, toiletries, paints, rubber; colorant for ingested drugs, food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §73.200, 73.1200, 73.2250, 175.300, 176.170, 177.1460, 177.2600, 178.3297, 182.90, 186.1300, 186.1374, 522.940

**Manuf./Distrib.:** Aldrich; Cary; Costec; D.B. Becker; Elementis Pigments; Fluka; Ironics; Pea Ridge Iron Ore; R.E. Carroll; Robert I. Webber; Royale Pigments & Chems.; Spectrum Quality Prods.; TCR Ind.; Warner-Jenkinson; Whittaker, Clark & Daniels

**Trade Names:** Sicopur®

See also CI 77492; CI 77499; Ferric oxide; Iron oxide black; Iron oxide red; Iron oxide yellow

**Iron oxides (Fe<sub>2</sub>O<sub>3</sub>).** See Iron oxide black

**Iron oxide, spent.** See Iron oxide red

### Iron oxide yellow

**Synonyms:** CI 77492; Ferrite yellow; Ochre; Sienna; Yellow ochre

**Definition:** Limonite, yellow ochre, and sienna are natural iron oxide minerals used as yel. pigments

**Empirical:** HFeO<sub>2</sub>

**Formula:** FeOOH

**Properties:** Yel. solid; insol. in water, oils, solvs.; m.w. 88.85; dens. 4.0 kg/l; converts to red iron oxide on heating

**Uses:** Pigment for concrete, roofing tiles, paving slabs, paints, plastics, caulks, sealants, printing inks

**Manuf./Distrib.:** Costec; Warner-Jenkinson

**Trade Names:** Synox HY-600M; Synox HY-605M; Synox HY-610M; Synox HY-620M

**Iron sesquioxide.** See Ferric oxide

**Iron sponge, spent.** See Iron oxide red

**Iron trichloride.** See Ferric chloride

**Iron, tris (5,6-dihydro-5,6-dioxo-2-naphthalenesulfonic acid-5-oximate)-, trisodium salt.** See Acid green 1

**Isoarachidyl alcohol.** See Octyldodecanol

**1,3-Isobenzofurandione, 4,5,6,7-tetrabromo-.** See Tetrabromophthalic anhydride

### Isobornyl acrylate

CAS 5888-33-5; EINECS/ELINCS 227-561-6

**Synonyms:** IBOA

**Empirical:** C<sub>13</sub>H<sub>20</sub>O<sub>2</sub>

**Properties:** M.w. 208.3; dens. 0.986; m.p. -60 C; b.p. 104 C (5 mm); flash pt. 97 C; ref. index 1.4760 (20 C)

**Toxicology:** Irritant; TSCA listed

**Precaution:** Light sensitive

**Uses:** Curing agent; reactive diluent monomer (UV EB resin) and modifier for radiation-cured coatings, inks, electronics applics., paints, textile finishes, adhesives, industrial and textile coatings; resists UV degradation

**Manuf./Distrib.:** Aldrich; Ashland; CPS; Monomer-Polymer & Dajac Labs; Rhodia HPCII; San Esters; UCB Radcure

**Trade Names:** SR 506

**Trade Names Containing:** CN 963 J85; CN 973 J75

### Isobornyl methacrylate

CAS 7534-94-3; EINECS/ELINCS 231-403-1

**Synonyms:** Methacrylic acid isobornyl ester

**Empirical:** C<sub>14</sub>H<sub>22</sub>O<sub>2</sub>

**Properties:** M.w. 222.33; dens. 0.983; b.p. 127-129 (15 mm); flash pt. 107 C; ref. index 1.4770 (20 C)

**Toxicology:** Irritant

**Uses:** Monomer for creating and modifying a wide range of polymers; for high-performance coatings; paints; textile finishes; adhesives; industrial and textile coatings; food pkg.; reactive diluent for radiation-cured coatings

**Manuf./Distrib.:** Aldrich; Ashland; CPS; Monomer-Polymer & Dajac Labs; Rhodia HPCII; Rohm Tech; San Esters

**Trade Names:** Mhoromer® BM 731

**Isobutanol.** See Isobutyl alcohol

**Isobutanolamine.** See Aminomethyl propanol

**Isobutanol-2 amine.** See Aminomethyl propanol

**Isobutene homopolymer.** See Polyisobutene

**Isobutene polymer.** See Polyisobutene

### Isobutyl acrylate homopolymer

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

### Isobutyl alcohol

CAS 78-83-1; EINECS/ELINCS 201-148-0; UN No. 1212 (DOT), 1213; FEMA 2179

**Synonyms:** IBA; 1-Hydroxymethylpropane; Isobutanol; Isopropylcarbinol; 2-Methyl-1-propanol; 2-Methylpropanol; 2-Methylpropan-1-ol; 2-Methylpropyl alcohol

**Classification:** Primary aliphatic alcohol

**Empirical:** C<sub>4</sub>H<sub>10</sub>O

**Formula:** (CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</sub>OH

**Properties:** Colorless liq., sweet odor; sol. in alcohol, ether; misc. with most org. solvs.; partly sol. in water; m.w. 74.12; dens. 0.806 (15 C); f.p. -108 C; b.p. 106-109 C; flash pt. (TCC) 29 C; ref. index 1.396

**Toxicology:** ACGIH TLV/TWA 50 ppm; LD50 (oral, rat) 2460 mg/kg; poison by IV, IP route; mod. toxic by ing., skin contact; severe skin/eye irritant; inh. of high concs. or ing. may cause CNS depression effects; collapse, coma, or death possible at higher doses; liver/kidney damage possible; experimental carcinogen, tumorigen; mutagenic data; TSCA listed

**Precaution:** Flamm.; dangerous fire hazard with heat, flame; mod. explosive as vapor with heat, flame, oxidizers; also incompat. with chromium trioxide; explosion potential with various chems.

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and fumes

**NFPA:** Health 1; Flammability 3; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources

**Uses:** Synthetic flavoring agent and fragrance for foods and pharmaceuticals; organic synthesis; latent solvent; intermediate; solvent for paints, lacquers, paint removers, cleaners, hydraulic fluids; fluorometric determinations; liq. chromatography; mfg. of isobutyl esters for use in solvents, plasticizers, flavorings, and perfumes; extraction agent for phosphoric acid purification; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles

**Use Level:** 12 ppm (nonalcoholic beverages), 1 ppm (alcoholic beverages), 7 ppm (ice cream), 34 ppm (candy), 32 ppm (baked goods), 4 ppm (cream)

**Regulatory:** FDA 21CFR §172.515, 175.105, 176.200, 176.210, 177.2800; FEMA GRAS

**Manuf./Distrib.:** Aldrich; Alfrebro; Allchem Ind.; Ashland; BASF; CPS; Celanese; Eastman; Fluka; GNC Group; Grau Aromatics; Houghton Chem.; Hukill; Penta Mfg.; Romil Ltd; Ruger; Shell; Sigma; Spectrum Quality Prods.; Union Carbide

## Isobutylene homopolymer

*Trade Names Containing:* Beetle® 1032-10; Beetle® 1047; Cymel® 255-10; Nacure® 4054; Resimene® HM-2608; Resimene® U-933; Resimene® U-970

**Isobutylene homopolymer.** See Polyisobutene

### Isobutylene/isoprene copolymer

CAS 9010-85-9

*Synonyms:* IIR; 1,3-Butadiene-2-methyl polymer with 2-methyl-1-propene; Butyl rubber; Isobutylene/isoprene copolymers; 3-Methyl-1,3-butadiene polymer with 2-methyl-1-propene; Poly (isobutylene-co-isoprene)

*Definition:* Copolymer of isobutylene and isoprene monomers

*Formula:* (C<sub>5</sub>H<sub>8</sub> · C<sub>4</sub>H<sub>6</sub>)<sub>x</sub>

*Properties:* Dens. 0.92; vulcanizates have tens. str. to 2000 psi (unreinforced); exc. resist. to aging, sunlight; exc. impermeability to gases; superior shock absorp.; good abrasion resist.; high dielec. const.

*Toxicology:* TSCA listed

*Precaution:* Will support combustion

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Butyl rubber used in tires, molded, extruded and calendered goods, mech. goods, dips, sealants, tapes, adhesives, membranes, dynamic parts, diaphragms, elec. wire insulation, paints, pharmaceuticals; visc. control agent; masticatory substance in chewing gum base; latex for paper coatings, textile/leather finishing, adhesives, air bags, tire vulcanization, self-curing cements, sealants; LDPE modifier; wax/plastic additive; in food-pkg. adhesives and pressure-sensitive adhesives; in food-contact coatings; in closure-sealing gaskets for food containers; in food-contact articles for repeated use

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 175.320, 177.1210, 177.1420, 177.2600, 178.3850

*Manuf./Distrib.:* Aldrich; Bayer; Exxon; Nichem; Sea-Land

**Isobutylene/isoprene copolymers.** See Isobutylene/isoprene copolymer

### Isobutylene/MA copolymer

CAS 26426-80-2

*Synonyms:* 2,5-Furandione, polymer with 2-methyl-1-propene; Isobutylene/maleic anhydride copolymer; 2-Methyl-1-propene, polymer with 2,5-furandione

*Definition:* Copolymer of isobutylene and maleic anhydride monomers

*Formula:* (C<sub>5</sub>H<sub>8</sub> · C<sub>4</sub>H<sub>2</sub>O<sub>3</sub>)<sub>x</sub>

*Toxicology:* TSCA listed

*Uses:* Visc. control agent; dispersant for dyes, pigments in cosmetics, latex paints, polymerization, leather tanning; antiscaldant, surfactant for water treatment; food-pkg. adhesives, paper/paperboard

*Trade Names:* Tamol® 731A

**Isobutylene/maleic anhydride copolymer.** See Isobutylene/MA copolymer

**Isobutylene polymer.** See Polyisobutene

**Isobutylene resin.** See Polyisobutene

**Isobutyl 4-hydroxybenzoate.** See Isobutylparaben

**Isobutyl p-hydroxybenzoate.** See Isobutylparaben

### Isobutyl methacrylate

CAS 97-86-9; EINECS/ELINCS 202-613-0; UN No. 2283 (DOT)

*Synonyms:* IBMA; Isobutyl- $\alpha$ -methacrylate; Methacrylic acid, isobutyl ester; 2-Methyl-2-propenoic acid 2-methylpropyl ester; 2-Methylpropyl methacrylate

*Empirical:* C<sub>8</sub>H<sub>14</sub>O<sub>2</sub>

*Formula:* CH<sub>2</sub>:C(CH<sub>3</sub>)COOCH<sub>2</sub>CH(CH<sub>3</sub>)

*Properties:* Colorless transparent liq.; ether-like odor; insol. in water; m.w. 142.22; dens. 0.886 (20/4 C); b.p. 155 C; flash pt. (TOC) 49 C; ref. index 1.420 (20 C)

*Toxicology:* LD50 (oral, mouse) 11,990 mg/kg, (IP, mouse) 1340 mg/kg; mod. toxic by IP route; mildly toxic by ing.; irritating to eyes, skin, respiratory system; experimental teratogen, reproductive effects; TSCA listed

*Precaution:* Flamm.; mod. fire risk

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Monomer for acrylic resins; thermoplastic resin for plastic coatings, printing inks, overprint varnishes, refinish lacquers; dispersant; lube oil additive; fiber modifier; coating agent for paper; heat-sealing raw material

for pkg. of foods and pharmaceuticals

*Manuf./Distrib.:* Aldrich; Ashland; Fluka; Monomer-Polymer & Dajac Labs; Rohm Tech; Whyte Chems. Ltd

*Trade Names:* Blemmer IBMA; Degalan® LP 70/01; Mhoromer® AM 105H

**Isobutyl- $\alpha$ -methacrylate.** See Isobutyl methacrylate

**Isobutyl oleate sulfate.** See Sulfated isobutyl oleate

**Isobutyl oleate, sulfated.** See Sulfated isobutyl oleate

**Isobutyl oleate, sulfated, ammonium salt.** See Ammonium isobutyl oleate sulfate

**Isobutyl oleate, sulfated, potassium salt.** See Potassium isobutyl oleate sulfate

**Isobutyl oleate, sulfated, sodium salt.** See Sodium isobutyl oleate sulfate

### Isobutyl palmitate

CAS 110-34-9; EINECS/ELINCS 203-758-2

*Synonyms:* Hexadecanoic acid, 2-methylpropyl ester; 2-Methylpropyl hexadecanoate; Palmitic acid, isobutyl ester

*Definition:* Ester of isobutyl alcohol and palmitic acid

*Empirical:* C<sub>20</sub>H<sub>40</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>COOCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>

*Uses:* Emollient, lubricant, solvent for cosmetics, textiles, metalworking; for fiber finishing for resin-bonded filters for food contact; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2260, 177.2800

### Isobutylparaben

CAS 4247-02-3; EINECS/ELINCS 224-208-8

*Synonyms:* Isobutyl p-hydroxybenzoate; Isobutyl 4-hydroxybenzoate; 4-Hydroxybenzoic acid, 2-methylpropyl ester; Isobutyl parahydroxybenzoate

*Definition:* Ester of isobutyl alcohol and p-hydroxybenzoic acid

*Empirical:* C<sub>11</sub>H<sub>14</sub>O<sub>3</sub>

*Properties:* M.w. 194.25

*Toxicology:* LD50 (subcut., mouse) 2600 mg/kg; TSCA listed

*Uses:* Broad-spectrum preservative for foods, topical pharmaceuticals; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200; Japan approved

*Manuf./Distrib.:* ISP; Schütz

**Isobutyl parahydroxybenzoate.** See Isobutylparaben

### Isobutyl stearate

CAS 646-13-9; 85865-69-6; EINECS/ELINCS 211-466-1; 288-668-1

*Synonyms:* 2-Methylpropyl octadecanoate; Octadecanoic acid, 2-methylpropyl ester; Stearic acid, isobutyl ester; Stearic acid, 2-methylpropyl ester

*Definition:* Ester of isobutyl alcohol and stearic acid

*Empirical:* C<sub>22</sub>H<sub>44</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Waxy cryst. solid; m.w. 340.57; m.p. 20 C

*Toxicology:* Primary skin irritant; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Emollient for cosmetics, topical pharmaceuticals; inks; waterproof coatings; polishes; ointments; rubber mfg.; dyes; plasticizer/lubricant for PVC, PS; for fiber finishing for resin-bonded filters for food contact; defoamer in food-contact paper/paperboard; in surf. lubricants for mfg. of food-contact metallic articles; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2260, 177.2800, 178.3910

*Manuf./Distrib.:* Inolex; Uniqema N. Am.

### Isobutyl tallowate

CAS 68526-50-1; EINECS/ELINCS 271-207-3

*Synonyms:* Fatty acids, tallow, isobutyl esters; Tallow fatty acids, isobutyl esters

*Definition:* Ester of isobutyl alcohol and tallow acid

*Uses:* Emollient; lubricant for metalworking oils, syn. metalworking fluids, rolling, stamping and drawing oils, greases, motor oils, extrusion of ceramics; fatting agents in textile and leather auxs.; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

**Isobutyl vinyl ether.** See Vinyl isobutyl ether

**Isobutyric acid, 1-isopropyl-2,2-dimethyltrimethylene ester.** See Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate

**Isodeceth-4**

CAS 61827-42-7 (generic)  
*Synonyms:* PEG-4 isodecyl ether; PEG 200 isodecyl ether; POE (4) isodecyl ether  
*Definition:* PEG ether of isodecyl alcohol  
*Empirical:* C<sub>18</sub>H<sub>36</sub>O<sub>5</sub>  
*Formula:* C<sub>10</sub>H<sub>21</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4  
*Properties:* Nonionic  
*Uses:* Emulsifier, detergent, dispersant, wetting agent, penetrant for household and industrial cleaners, textile, paper, leather, agric. applics.  
*Trade Names:* Oxetal ID 104; Surfonic® DA-4

**Isodeceth-6**

CAS 61827-42-7 (generic)  
*Synonyms:* PEG-6 isodecyl ether; PEG 300 isodecyl ether; POE (6) isodecyl ether  
*Definition:* PEG ether of isodecyl alcohol  
*Empirical:* C<sub>22</sub>H<sub>46</sub>O<sub>7</sub>  
*Formula:* C<sub>10</sub>H<sub>21</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6  
*Properties:* HLB 12.5; nonionic  
*Uses:* Emulsifier, wetting agent, penetrant, foamer, detergent for textiles, household and industrial cleaners, metal degreasing, agric., waxes, resins, paper; emulsifier for defoamers; dyeing agent  
*Trade Names:* Surfonic® DA-6; Synperonic 10/6-100%

**Isodeceth-7**

CAS 61827-42-7 (generic)  
*Synonyms:* PEG-7 isodecyl ether; POE (7) isodecyl ether  
*Definition:* PEG ether of isodecyl alcohol  
*Properties:* Nonionic  
*Uses:* Wetting agent, emulsifier, detergent, solubilizer, dye leveling agent for industrial cleaners and textile applics.; base for toxicant emulsifiers  
*Trade Names:* Synperonic 10/7-100%

**Isodeceth-6 phosphate**

*Uses:* Emulsifier in textile wetting/scouring; penetrant, coupling agent used in alkaline detergents and pulp/paper formulations  
*Trade Names:* Sipophos DA-6P

**Isodecyl acrylate**

CAS 1330-61-6; EINECS/ELINCS 215-542-5  
*Synonyms:* IDA; Acrylic acid isodecyl ester; Isodecyl alcohol acrylate; Isodecyl propenoate; 2-Propenoic acid isodecyl ester  
*Classification:* Monomer  
*Empirical:* C<sub>13</sub>H<sub>24</sub>O<sub>2</sub>  
*Formula:* CH<sub>2</sub>=CHCOOC<sub>10</sub>H<sub>21</sub>  
*Properties:* M.w. 212.33; dens. 0.875; b.p. 121 C (10 mm); ref. index 1.4420  
*Toxicology:* LD50 (oral, rat) 12 g/kg, (skin, rabbit) 3540 mg/kg; mod. toxic by skin contact; mildly toxic by ing.; skin irritant; TSCA listed  
*Precaution:* Combustible  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Acrylic resin comonomer for pkg. adhesives, coatings; reactive diluent in radiation-cured inks, lacquers, and coatings; visc. index improver  
*Manuf./Distrib.:* Aldrich; CPS; Monomer-Polymer & Dajac Labs  
*Trade Names:* SR 395

**Isodecyl alcohol acrylate.** See Isodecyl acrylate

**Isodecyl methacrylate**

CAS 29964-84-9; EINECS/ELINCS 249-978-2  
*Synonyms:* Methacrylic acid, isodecyl ester; 2-Methyl acrylic acid decyl ester  
*Classification:* Monomer  
*Empirical:* C<sub>14</sub>H<sub>26</sub>O<sub>2</sub>  
*Formula:* CH<sub>2</sub>=C(CH<sub>3</sub>)COOC<sub>10</sub>H<sub>21</sub>  
*Properties:* Colorless liq.; insol. in water; m.w. 226.36; dens. 0.878; b.p. 126 C (10 mm); flash pt. (COC) 121 C; ref. index 1.4430  
*Toxicology:* LD50 (IP, rat) 2467 mg/kg; mod. toxic by IP; irritant; sensitizer; experimental teratogen, reproductive effector; TSCA listed  
*Precaution:* Nonhazardous (DOT)  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Pressure-sensitive adhesives; coatings for leather, textiles, paper,

nonwoven fiber; polymer modifier and stabilizer; visc. index improver; dispersion for plastics and rubber; floor waxes; potting compds.; sealants  
*Manuf./Distrib.:* Aldrich; CPS; Monomer-Polymer & Dajac Labs; Rohm & Haas; Sartomer  
*Trade Names:* Ageflex FM-10; Blemmer IDMA

**Isodecyl oleate**

CAS 59231-34-4; EINECS/ELINCS 261-673-6  
*Synonyms:* 9-Octadecenoic acid, isodecyl ester  
*Definition:* Ester of branched chain decyl alcohols and oleic acid  
*Empirical:* C<sub>28</sub>H<sub>54</sub>O<sub>2</sub>  
*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>COOC<sub>10</sub>H<sub>21</sub>  
*Properties:* Wh. to straw liq., char. mild odor; sol. in peanut oil, 95% ethanol, IPM, oleyl alcohol; insol. in water, glycerin, propylene glycol; sp.gr. 0.858-0.864; ref. index 1.4540-1.4560; nonionic  
*Toxicology:* LD50 (oral, rat) > 40 ml/kg; nonirritating to eyes; mildly irritating to skin; TSCA listed  
*Uses:* Emollient, cosolvent for cosmetics, pharmaceutical topicals; emulsifier, lubricant, antistat, defoamer for metalworking, textiles, plastics, paper

**Isodecyl propenoate.** See Isodecyl acrylate

**Isoeicosyl alcohol.** See Octyldodecanol

**1H-Isindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-((trichloromethyl) thio)-.** See Captan

**Isolaureth-3**

CAS 60828-78-6 (generic)  
*Synonyms:* PEG-3 isododecyl ether; PEG-3 isolauryl ether; POE (3) isododecyl ether; POE (3) isolauryl ether; 2,6,8-Trimethyl-4-nonyl polyethylene glycol ether  
*Definition:* PEG ether of branched chain aliphatic 12 carbon alcohols  
*Empirical:* C<sub>18</sub>H<sub>38</sub>O<sub>4</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 3  
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 5650 mg/kg; primary irritant; TSCA listed  
*Uses:* Surfactant for cleaning prods., industrial processes, textile processing, lubricants, water treatment, metalworking fluids, dry-cleaning, oil field chems., pulp/paper deinking; emulsifier, wetting agent, coupler, penetrant, leveling agent  
*Manuf./Distrib.:* Fluka; Sigma  
*Trade Names:* Tergitol® TMN-3

**Isolaureth-6**

CAS 60828-78-6 (generic)  
*Synonyms:* PEG-6 isododecyl ether; PEG-6 isolauryl ether; POE (6) isododecyl ether; POE (6) isolauryl ether; PEG 300 isolauryl ether  
*Definition:* PEG ether of branched chain aliphatic 12 carbon alcohols  
*Empirical:* C<sub>24</sub>H<sub>50</sub>O<sub>7</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6  
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 5650 mg/kg, (skin, rabbit) 4780 μl/kg; primary irritant; TSCA listed  
*Uses:* Surfactant for cleaning prods., industrial processes, textile processing, lubricants, water treatment, metalworking fluids, dry-cleaning, oil field chems., pulp/paper deinking; emulsifier; wetting agent, penetrant, spreading agent, rewetting agent, detergent, dispersant, leveling agent  
*Manuf./Distrib.:* Fluka; Sigma

**Isolaureth-10**

CAS 60828-78-6 (generic)  
*Synonyms:* PEG-10 isododecyl ether; PEG-10 isolauryl ether; POE (10) isododecyl ether; POE (10) isolauryl ether; PEG 500 isolauryl ether  
*Definition:* PEG ether of branched chain aliphatic 12 carbon alcohols  
*Empirical:* C<sub>32</sub>H<sub>66</sub>O<sub>11</sub>  
*Formula:* C<sub>12</sub>H<sub>25</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10  
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 5650 mg/kg, (skin, rabbit) 4780 μl/kg; primary irritant; TSCA listed  
*Uses:* Surfactant, wetting agent, penetrant for high-temp. applics.; used in cleaning prods. and industrial processes, textile processing, lubricants, water treatment, metalworking fluids, dry-cleaning, oil field chems., pulp/paper deinking; emulsifier, spreading agent, penetrant, detergent, leveling agent, fiber lubricant  
*Manuf./Distrib.:* Fluka; Sigma

## Isolignoceryl alcohol

Trade Names: Tergitol® TMN-10

**Isolignoceryl alcohol.** See 2-Decyl-1-tetradecanol

**Isomelamine.** See Melamine

**Isomyristyl alcohol.** See 2-Hexyl-1-octanol

**Isonaphthol.** See  $\beta$ -Naphthol

**1-Isooctadecanaminiium, N-ethyl-N,N-dimethyl-, ethyl sulfate (salt).** See

Isostearyl ethylimidonium ethosulfate

**Isooctadecanoic acid.** See Isostearic acid

**Isooctadecanol.** See Isostearyl alcohol

**Isooctadecan-1-ol.** See Isostearyl alcohol

## Isooctyl acid phosphate

CAS 12645-53-3

Synonyms: Isooctyl phosphate; Isooctyl phosphoric acid; Phosphoric acid isooctyl ester

Empirical:  $C_8H_{19}O_4P$

Properties: M.w. 210.21

Uses: Catalyst in solder fluxes; in coatings and inks (appliance, automotive, floor, furniture, paper, and other coatings); antistatic agents, corrosion inhibitors, tanning chems.; lubricity/detergent additive in textile lubricants, metalworking fluids

Manuf./Distrib.: Akzo Nobel; Albright & Wilson Am.; Dexter

Trade Names: Albrite® Isooctyl Acid Phosphate

**Isooctyl phosphate.** See Isooctyl acid phosphate

**Isooctyl phosphoric acid.** See Isooctyl acid phosphate

**Isooctyl phthalate.** See Diisooctyl phthalate

## Isooctyl stearate

CAS 91031-48-0; EINECS/ELINCS 292-951-5

Definition: Ester of isooctyl alcohol and stearic acid

Empirical:  $C_{26}H_{52}O_2$

Formula:  $CH_3(CH_2)_{16}COOCH_2C_8H_{15}$

Properties: Colorless nonvolatile liq.; sol. in hydrocarbon oils; insol. in water; m.w. 396.71; dens. 0.86 kg/l (20 C); sapon. no. 145-150

Uses: Emollient, solvent for cosmetics; plasticizer and lubricant for plastics, paper industry; lubricant for metalworking fluids, textile spin finishes; plasticizer, flow improver for plastics, rubber, lacquers; surfactant for industrial detergents, cosmetics, toiletries, feed, food, textiles, agric., lubricants, metal treatment, and petroleum/mining/road construction industries

**Isophthalic acid, dimethyl ester.** See Dimethyl isophthalate

**Isoprene rubber.** See Polyisoprene

**Isopropanol.** See Isopropyl alcohol

## Isopropanolamine

CAS 78-96-6; EINECS/ELINCS 201-162-7

Synonyms: MIPA;  $\alpha$ -Aminoisopropyl alcohol; 1-Amino-2-propanol; 1-Aminopropan-2-ol; 2-Hydroxypropylamine; Monoisopropanolamine

Classification: Aliphatic amine

Empirical:  $C_3H_9NO$

Formula:  $H_2NCH_2CHOHCH_3$

Properties: Colorless liq.; sl. ammonia odor; sol. in water; completely misc. with oxygenated solvs.; m.w. 75.13; dens. 0.969; m.p. 1.4 C; b.p. 159 C; flash pt. 171 F

Toxicology: LD50 (oral, rat) 1715 mg/kg, (skin, rabbit) 1640 mg/kg; poison by intraperitoneal route; moderately toxic by ingestion and skin contact; skin and severe eye irritant; TSCA listed

Precaution: Combustible; mod. flamm. with heat, flame, strong oxidizers; ignites on contact with cellulose nitrate of high surf. area; catalyzes explosive polymerization of 2,4-hexadienal

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO

Uses: Emulsifier for polishes, cleaners, textile auxs., pesticides, cosmetics, pharmaceuticals; solubilizer; neutralizer; buffering agent; corrosion inhibitor in metalworking fluids; dry-cleaning soaps; wax removers; metal cutting oils; plasticizers; insecticides; in shampoos; agric. and polymer curing chems.; adhesives; coatings; petroleum/rubber processing; gas conditioning chems.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §175.105, 176.210; FDA approved for orals

Manuf./Distrib.: Aldrich; Ashland; BASF; Dow; Fluka; Sigma; Van Waters & Rogers

## Isopropanolamine hydrochloride

Uses: In paper/paperboard in contact with dry food

Regulatory: FDA 21CFR §176.180

## Isopropyl acetate

CAS 108-21-4; EINECS/ELINCS 203-561-1; UN No. 1220 (DOT); FEMA 2926

Synonyms: Acetic acid isopropyl ester; Acetic acid 1-methylethyl ester; 2-Acetoxypropane; 1-Methylethyl acetate; 2-Propyl acetate; 2-Propyl ethanoate

Classification: Sat. aliphatic carboxylic acid ester

Empirical:  $C_5H_{10}O_2$

Formula:  $CH_3COOCH(CH_3)_2$

Properties: Colorless aromatic liq., fruity odor; sol. in acetone, most org. solvs.; mod. sol. in water; misc. with alcohol, ether, fixed oils; m.w. 102.15; dens. 0.874 (20/20 C); f.p. -73 C; b.p. 88.4 C; flash pt. 40 F; ref. index 1.377; surf. tens. 26 dynes/cm (20 C)

Toxicology: ACGIH TLV/TWA 250 ppm; STEL 310 ppm; LD50 (oral, rat) 3000 mg/kg; mod. toxic by ing.; mildly toxic by inh.; high concs. of vapor irritating to nose and throat; human systemic effects on inh.; narcotic in high conc.; chronic exposure can cause liver damage; TSCA listed

Precaution: Highly flamm.; dangerous fire hazard with heat, flame, oxidizers; mod. explosive with heat or flame; incompat. with strong oxidizers, strong acids, bases, potassium t-butoxide

Hazardous Decomp. Prods.: Isopropanol, acetic acid

NFPA: Health 1; Flammability 3; Reactivity 0

Storage: Store in cool, dry, well-ventilated area, out of direct sunlight, away from heat/ignition sources

Uses: Solvent for paint mfg., syn. resins (nitrocellulose, ethylcellulose, CAB, some vinyl copolymers, PS, methacrylate resins), printing inks, gums, lacquers, plastics, oils and fats; organic synthesis; odorant in perfumes; recovery of acetic acid from dil. aq. sol'ns.; syn. flavoring agent for foods and pharmaceuticals; in food-pkg. adhesives; in cellophane for food pkg. Use Level: 16 ppm (nonalcoholic beverages), 17 ppm (ice cream, ices), 58 ppm (candy), 75 ppm (baked goods)

Regulatory: FDA 21CFR §172.515, 175.105, 177.1200; FEMA GRAS

Manuf./Distrib.: Aldrich; Allchem Ind.; Ashland; BP Chems. Ltd; Celanese; Chemcentral; Coyne; Eastman; Fluka; Goldensun Mfg.; Harcros; Houghton Chem.; Hukill; Indofine; J.T. Baker; Samson; Sunnyside; Union Carbide; Van Waters & Rogers

Trade Names Containing: Metalure® L-54894

## Isopropyl alcohol

CAS 67-63-0; EINECS/ELINCS 200-661-7; UN No. 1219 (DOT); FEMA 2929

Synonyms: IPA; Dimethyl carbinol; Isopropanol; Petrohol; 2-Propanol; Propan-2-ol; s-Propyl alcohol; Secondary propyl alcohol

Classification: Aliphatic alcohol

Empirical:  $C_3H_8O$

Formula:  $(CH_3)_2CHOH$

Properties: Colorless volatile liq., pleasant odor, sl. bitter taste; sol. in water, alcohol, ether, chloroform, most org. solvs.; insol. in salt sol'ns.; m.w. 60.11; sp.gr. 0.7863 (20/20 C); f.p. -86 C; b.p. 82.4 C (760 mm); flash pt. (TOC) 11.7 C; ref. index 1.3756 (20 C)

Toxicology: ACGIH TLV/TWA 400 ppm; STEL 500 ppm; LD50 (oral, rat) 5045 mg/kg, (IP, rat) 2735 mg/kg, (IV, rat) 1099 mg/kg; poison by ing., subcut. routes; mod. toxic by IV and IP routes; mildly toxic by skin contact; skin and eye irritant; human systemic effects by ing./inh. (head-ache, nausea, vomiting, narcosis); 100 ml can be fatal; may cause dry cracking skin; experimental teratogen, reproductive effector; mutagenic data; questionable carcinogen; TSCA listed

Precaution: DOT: Flamm. liq.; very dangerous fire hazard with heat, flame, oxidizers; reacts with air to form dangerous peroxides; incompat. with strong oxidizers, phosgene, iron salts, hydrogen-palladium, potassium t-butoxide, nitroform

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and fumes

NFPA: Health 1; Flammability 3; Reactivity 0

Storage: Store in tightly closed electrically grounded containers in a cool area separate from workplace; use in minimal quantities

Uses: Solvent for essential oils, alkaloids, gums, resins, cellulose derivs., coatings; deicing agent for liq. fuels; lacquers; dehydrating agent; denatur-

ing ethyl alcohol; in cosmetics; mfg. of acetone, glycerol, isopropyl acetate; in quick-drying oils and inks; preservative in extraction processes; cosolvent for pesticides; syn. flavoring agent, in antifreezes; body rubs; after-shaves; color diluent for foods and pharmaceuticals; antiseptic in topical anti-infectives; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in food-contact textiles; surf. lubricant in mfg. of food-contact metallic articles

**Use Level:** 25 ppm (nonalcoholic beverages), 10-75 ppm (candy), 75 ppm (baked goods); ADI not specified (FAO/WHO)

**Regulatory:** FDA 21CFR §73.1 (no residue), 73.1001, 172.515, 172.560, 172.712, 173.240 (limitation 50 ppm in spice oleoresins, 6 ppm in lemon oil, 2% in hops extract), 173.340; 175.105, 176.200, 176.210, 177.1200, 177.2800, 178.1010, 178.3910; 27CFR §21.112; use in bread is permitted in Ireland and Japan; FEMA GRAS; FDA approved for orals, topicals; USP/NF, BP compliance

**Manuf./Distrib.:** AMRESCO; Aldrich; Allchem Ind.; Amyl; Arch Chems.; Ashland; BP Amoco; BP Chems. Ltd; Baychem; C.P. Hall; Chemcentral; Coyne; Degussa-Hüls AG; Eastman; Exxon; Fisher Scientific; Fluka; General Chem.; Haltermann Prods. UK; Harcros; Houghton Chem.; Hukill; J.T. Baker; Lyondell; Mallinckrodt Baker; Mitsui Chems.; Nippon Petrochems.; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Samson; Schaefer Tech.; Shell; Sigma; Spectrum Quality Prods.; Union Carbide; Van Waters & Rogers; Veckridge; Whyte Chems. Ltd

**Trade Names Containing:** Ancamide® 220-IPA-73; Aromox® C/12; Arquad® 2C-70 Nitrite; Arquad® 2C-75; Arquad® 2HT-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® 218-75; Arquad® C-50; Carboset® 514A; Carsoquat® SDQ-25; Celnax® CX-Z210 IP; Cerol® M Liq.; Cyostat® SN; K-Cure® 1040; Krytox® DF250/IPA; Krytox® DF/IPA; Metalure® L-54949; Monawet MM-80; MS-122DF; Nature® 2530; Octowet 70D; Qemisof 8075; Resimene® 730; Resimene® 735; Surfynol® 104PA

### Isopropylamine dodecylbenzenesulfonate

CAS 26264-05-1; 68584-24-7; EINECS/ELINCS 247-556-2

**Synonyms:** Dodecylbenzenesulfonic acid, compd. with isopropylamine (1:1); Dodecylbenzenesulfonic acid, compd. with 2-propanamine (1:1); Isopropylamine salt of dodecylbenzene sulfonic acid

**Classification:** Aromatic compd.

**Definition:** Salt of isopropylamine and dodecylbenzene sulfonic acid

**Empirical:**  $C_{21}H_{39}NO_3S$

**Formula:**  $C_{18}H_{30}O_3S \cdot C_3H_7N$

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, solubilizer, solvent, detergent, and wetting agent for oil-based systems; dispersant in oil and water-based systems; used in dry-cleaning surfactants; hydrotrope for liq. detergents; latex emulsifier; emulsion polymerization; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Trade Names:** Calimulse PR; Calimulse PRS; POLYSTEP® A-11

**Isopropylamine salt of dodecylbenzene sulfonic acid.** See Isopropylamine dodecylbenzenesulfonate

**Isopropylbenzene hydroperoxide.** See Cumene hydroperoxide

**Isopropylbiphenyl.** See 1,1'-Biphenyl (1-methylethyl)

**Isopropylcarbinol.** See Isobutyl alcohol

**Isopropyl diphenyl.** See 1,1'-Biphenyl (1-methylethyl)

**Isopropyl hexadecanoate.** See Isopropyl palmitate

**Isopropyl n-hexadecanoate.** See Isopropyl palmitate

**4,4'-Isopropylidenediphenol diglycidyl ether.** See Bisphenol A diglycidyl ether

### Isopropyl laurate

CAS 10233-13-3; EINECS/ELINCS 233-560-1

**Synonyms:** Dodecanoic acid, 1-methylethyl ester; 1-Methylethyl dodecanoate

**Definition:** Ester of isopropyl alcohol and lauric acid

**Empirical:**  $C_{15}H_{30}O_2$

**Formula:**  $CH_3(CH_2)_{10}COOCH(CH_3)_2$

**Toxicology:** TSCA listed

**Uses:** Emollient, lubricant, plasticizer, and cosolvent in cosmetic and pharmaceutical industries; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §176.210, 177.2800

### Isopropyl myristate

CAS 110-27-0; EINECS/ELINCS 203-751-4; FEMA 3556

**Synonyms:** IPM; Isopropyl tetradecanoate; 1-Methylethyl tetradecanoate; Myristic acid isopropyl ester; Tetradecanoic acid isopropyl ester; Tetradecanoic acid, 1-methylethyl ester; 1-Tridecanecarboxylic acid, isopropyl ester

**Classification:** Synthetic fatty alcohol

**Definition:** Ester of isopropyl alcohol and myristic acid

**Empirical:**  $C_{17}H_{34}O_2$

**Formula:**  $CH_3(CH_2)_{12}COOCH(CH_3)_2$

**Properties:** Colorless oily low-visc. liq., odorless; sol. in most org. solvs., acetone, chloroform, ethyl acetate, ethanol, min. oil, veg. oil; dissolves waxes; insol. in water; m.w. 270.44; dens. 0.850-0.860; f.p. 3 C; b.p. 192.6 C (20 mm); dec. 208 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 202-212; cloud pt. -3 to 5 C; ref. index 1.432-1.436 (20 C)

**Toxicology:** LD50 (oral, mouse) 49,700 mg/kg, (skin, rabbit) 5 g/kg; low toxicity by ing. and skin contact; human skin irritant; causes blackheads; suspected tumorigen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic smoke and fumes

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Light-sensitive

**Uses:** Emulsifier, emollient, lubricant, vehicle, solvent, solubilizer in cosmetic creams, topical medicinals, industrial applics.; plasticizer for cellulose; pigment dispersant; sewing thread lubricant; binder; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §176.210, 177.2800; FEMA GRAS; FDA approved for topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aldrich; Allan; Alzo; Amerchol; Berje; Burdick & Jackson; C.P. Hall; Cognis/Chems. Group; Creative Fragrances; Fanning; Fluka; Givaudan-Roure; Goldschmidt; Haltermann GmbH; Haltermann Prods. UK; Inolex; Jarchem Ind.; Kraft Chem.; Lanaetex Prods.; Lipo; NOF Am.; Norman, Fox; Penta Mfg.; Phoenix; Protameen; R.I.T.A.; RTD; Robeco; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stepan; Thornley; U.S. Synthetics; Uniqema N. Am.; Uniqema/Oleochems.

### Isopropyl oleate

CAS 112-11-8; 85116-87-6; EINECS/ELINCS 203-935-4; 285-540-7

**Synonyms:** 1-Methylethyl-9-octadecenoate; 9-Octadecenoic acid, 1-methylethyl ester

**Definition:** Ester of isopropyl alcohol and oleic acid

**Empirical:**  $C_{21}H_{40}O_2$

**Formula:**  $CH_3(CH_2)_7CH=CH(CH_2)_7COOCH(CH_3)_2$

**Properties:** Colorless liq.; odorless; misc. with paraffin oil; insol. in water; m.w. 324.55; dens. 0.87 kg/l (20 C); pour pt. -21 C; flash pt. (COC) 185 C

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Emollient, emulsifier, bodying agent, and spreading agent in cosmetics and toiletries; lubricant for makeup; lubricity additive for lubricants; plasticizer for rubber; defoamer in food-contact paper/paperboard; surf. lubricant in mfg. of food-contact metallic articles; adjuvant to improve lubricity in mineral oil lubricants for incidental food-contact use

**Regulatory:** FDA 21CFR §176.210, 177.2800, 178.3570, 178.3910

**Manuf./Distrib.:** Inolex; Ruger; Uniqema N. Am.

### Isopropyl palmitate

CAS 142-91-6; EINECS/ELINCS 205-571-1

**Synonyms:** IPP; Hexadecanoic acid isopropyl ester; Hexadecanoic acid, 1-methylethyl ester; Isopropyl n-hexadecanoate; Isopropyl hexadecanoate; 1-Methylethyl hexadecanoate

**Definition:** Ester of isopropyl alcohol and palmitic acid

**Empirical:**  $C_{19}H_{38}O_2$

**Formula:**  $CH_3(CH_2)_{14}COOCH(CH_3)_2$

**Properties:** Colorless mobile liq., very sl. odor; sol. in 4 parts 90% alcohol, min. oil, fixed oils, acetone, castor oil, chloroform, cottonseed oil, ethyl acetate, oxygenated solvs.; insol. in water, glycerin, propylene glycol; m.w. 298.57; dens. 0.850-0.855; m.p. 14 C; acid no. 1 max.; iodine no. 1 max.; sapon. no. 183-193; cloud pt. 12-14 C; flash pt. > 230 F; ref. index 1.4350-1.4390 (20 C)

**Toxicology:** LD50 (IP, mouse) 100 mg/kg; poison by IP route; human skin irritant; TSCA listed



## Isopropyl percarbonate

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Light-sensitive

*Uses:* Antistat; emollient, lubricant, emulsifier, solvent, cosolvent, stabilizer in lotions, creams, similar cosmetics, deodorants, industrial applics.; vehicle in topical pharmaceuticals; plasticizer for cellulose; extender for fragrances; binder; metal stamping oils; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800; FDA approved for topicals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Allan; Alzo; Amerchol; Berje; Cognis/Chems. Group; Fanning; Fluka; Givaudan-Roure; Goldschmidt; Haltermann Prods. UK; Inolex; Jarchem Ind.; Kraft Chem.; Lanaetex Prods.; Lipo; NOF Am.; Norman, Fox; Penta Mfg.; Phoenix; Protameen; R.I.T.A.; RTD; Robeco; Ruger; Sea-Land; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stepan; Thornley; U.S. Synthetics; Uniqema/Oleochems.

**Isopropyl percarbonate.** See Diisopropyl perdicarbonate

**Isopropyl peroxydicarbonate.** See Diisopropyl perdicarbonate

## Isopropyl phosphate

CAS 76483-21-1

*Properties:* Anionic

*Uses:* Base for formulating acid cleaners for glass, metal, and ceramics, flame retardants, mercerizing wetting agents and antistats; anticorrosive props.

*Trade Names:* Servoxyl® VPPZ 100

## Isopropyl stearate

CAS 112-10-7; EINECS/ELINCS 203-934-9

*Synonyms:* 1-Methylethyl octadecanoate; Octadecanoic acid, 1-methylethyl ester; Stearic acid, isopropyl ester

*Definition:* Ester of isopropyl alcohol and stearic acid

*Empirical:* C<sub>21</sub>H<sub>42</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOCH(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Pale yel. liq.; m.w. 326.63; m.p. 16-20°C

*Toxicology:* LDLo (oral, rat) 8 g/kg; mildly toxic by ing.; primary skin irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Binder; emollient, cosolvent, and lubricant for cosmetics, toiletries, and topical pharmaceuticals; lubricant for textile processing; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800; FDA approved for topicals

*Manuf./Distrib.:* Cognis/Chems. Group

## Isopropyl tallowate

CAS 92456-96-7; EINECS/ELINCS 296-275-1

*Synonyms:* Fatty acids, tallow, isopropyl esters; Tallow fatty acids, isopropyl esters

*Definition:* Ester of isopropyl alcohol and tallow acid

*Uses:* Emollient in cosmetics; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §176.210, 177.2800

**Isopropyl tetradecanoate.** See Isopropyl myristate

## Isostearamidopropyl ethyldimonium ethosulfate

CAS 67633-63-0; EINECS/ELINCS 266-778-0

*Synonyms:* N-Ethyl-N,N-dimethyl-3-[(1-oxoisooctadecyl) amino]-1-propanaminium ethyl sulfate; Ethyldimethyl [3-[(1-oxoisooctadecyl) amino] propyl] ammonium ethyl sulfate; Isostearyl dimethylamidopropyl ethonium ethosulfate

*Classification:* Quaternary ammonium salt

*Empirical:* C<sub>27</sub>H<sub>53</sub>NO<sub>5</sub>S

*Formula:* C<sub>28</sub>H<sub>53</sub>N<sub>2</sub>O • C<sub>2</sub>H<sub>5</sub>O<sub>4</sub>S

*Properties:* Amber liq., sweet odor; partly sol. in water; sp.gr. 0.855; b.p. 80°C; flash pt. (PMCC) 112 F; cationic

*Toxicology:* Nonhazardous; TSCA listed

*Precaution:* Incompat. with oxidizing agents

*Storage:* Store away from strong oxidizing agents; avoid excessive heat

*Uses:* Surfactant, conditioner, substantivity agent, antistat for hair conditioners

and shampoos; emulsifier for min. oil, veg. oil, esters, aromatic, aliphatic, and chlorinated hydrocarbons; emulsifier, dispersant, and flocculant for fibers, pulp and paper

*Trade Names:* Schercoquat IAS

## Isostearic acid

CAS 2724-58-5; 30399-84-9; EINECS/ELINCS 220-336-3; 250-178-0

*Synonyms:* Heptadecanoic acid, 16-methyl-; Isooctadecanoic acid; 16-Methylheptadecanoic acid

*Definition:* Mixture of branched chain C18 carbon aliphatic acids

*Empirical:* C<sub>18</sub>H<sub>36</sub>O<sub>2</sub>

*Formula:* C<sub>17</sub>H<sub>35</sub>COOH

*Properties:* Yel. liq.; insol. in water; m.w. 284.49; dens. 0.89 kg/l; cloud pt. 2°C; flash pt. (COC) 175°C

*Toxicology:* TSCA listed

*Uses:* Binder; emulsifier; surfactant; cosmetics emollient; chemicals; dispersant; softener in rubber compds., food packaging, suppositories, ointments; detergent intermediate; soap/shampoo ingred.; deleafing inhibitor (aerosol metallic paints)

*Manuf./Distrib.:* Cognis/Chems. Group; Int'l. Paper; Jarchem Ind.; Lanaetex Prods.; Nissan Chem. Ind.; Rhodia; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Uniqema/Oleochems.; Universal Preserv-A-Chem

*Trade Names:* Emersol® 869; Emersol® 872

## Isostearyl alcohol

CAS 27458-93-1; EINECS/ELINCS 248-470-8

*Synonyms:* Isooctadecanol; Isooctadecan-1-ol

*Definition:* Mixture of branched chain 18 carbon aliphatic alcohols

*Empirical:* C<sub>18</sub>H<sub>38</sub>O

*Formula:* C<sub>18</sub>H<sub>37</sub>OH

*Properties:* Insol. in water; m.w. 270.50; flash pt. (COC) 170°C

*Toxicology:* TSCA listed

*Uses:* Visc. control agent; coemulsifier, lubricant, foam control agent, cosolvent, plasticizer, stabilizer, emollient, intermediate; for metal lubricants, inks, textiles, emulsions, paper, cosmetics, mineral processing, oil field chemicals, fabric softener

*Manuf./Distrib.:* Albemarle; Ashland; Fluka; Indofine; Jarchem Ind.; M. Michel; Uniqema N. Am.; Uniqema/Oleochems.; Universal Preserv-A-Chem

**Isostearyl dimethylamidopropyl ethonium ethosulfate.** See Isostearamidopropyl ethyldimonium ethosulfate

## Isostearyl ethylimidonium ethosulfate

CAS 67633-57-2; EINECS/ELINCS 266-778-0

*Synonyms:* 1-Isooctadecanaminium, N-ethyl-N,N-dimethyl-, ethyl sulfate (salt); Quaternium-32

*Classification:* Quaternary ammonium salt

*Formula:* C<sub>27</sub>H<sub>53</sub>N<sub>2</sub>O<sub>3</sub> • C<sub>2</sub>H<sub>5</sub>O<sub>4</sub>S

*Properties:* Cationic

*Uses:* Antistat, lubricant, softener, conditioner, corrosion inhibitor, wetting agent for cosmetics, industrial applics., textiles, synthetic coolants, plastics; emulsifier, dispersant, flocculant for fibers, pulp and paper

*Trade Names:* Schercoquat IIS

## Isostearyl hydroxyethyl imidazoline

CAS 68966-38-1; EINECS/ELINCS 273-429-6

*Synonyms:* 4,5-Dihydro-2-isoheptadecyl-1H-imidazole-1-ethanol; Isostearyl imidazoline

*Classification:* Heterocyclic compd.

*Empirical:* C<sub>22</sub>H<sub>44</sub>N<sub>2</sub>O

*Properties:* M.w. 352.60; cationic

*Toxicology:* TSCA listed

*Uses:* Surfactant, softener, antistat, corrosion inhibitor, lubricant

*Trade Names:* Schercozoline I

**Isostearyl imidazoline.** See Isostearyl hydroxyethyl imidazoline

**Isotactic polypropylene.** See Polypropylene

**4-Isothiazolin-3-one, 5-chloro-2-methyl-.** See Methylchlorisothiazolinone

**3(2H)-Isothiazolone, 2-methyl-.** See Methylisothiazolinone

**Isothiourea.** See Thiourea

**Isotridecanol ethoxylates.** See Trideceth

## Isotrideceth-7

*Synonyms:* PEG-7 isotridecyl ether; POE (7) isotridecyl ether

*Definition:* PEG ether of isotridecyl alcohol

*Properties:* Nonionic

*Uses:* Emulsifier for agric.; intermediate for carboxymethylate mfg.; sulfation; filter cake dewatering agent; dust suppressant in coal industry; domestic and window cleaners; leather finishing; wetting agent for paper and cellulose, textiles

*Trade Names:* Teric™ 13A7

#### Isotrideceth-9

*Synonyms:* PEG-9 isotridecyl ether; POE (9) isotridecyl ether

*Definition:* PEG ether of isotridecyl alcohol

*Properties:* Nonionic

*Uses:* O/w emulsifier, dispersant, wetting agent, detergent, degreaser for pigment disp., agric., hard surf. cleaners, textile processing, solv. emulsion cleaners, paper; pitch dispersant for pulp and paper processing; wool dye leveling agent

*Trade Names:* Surfonic® TDA-9; Teric™ 13A9

#### Isotrideceth-3 phosphate

*Properties:* Anionic

*Uses:* Low foaming wetting agent; emulsifier and antistat for textiles in salt form

*Trade Names:* Servoxy® VPDZ 3/100

#### Isotrideceth-6 phosphate

*Properties:* Anionic

*Uses:* Surfactant for textile, agric., paper, cleaning, and metal processing

*Trade Names:* Servoxy® VPDZ 6/100

#### Isoundeceth-3

*Properties:* Nonionic

*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

#### Isoundeceth-6

*Properties:* Nonionic

*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

#### Isoundeceth-9

*Properties:* Nonionic

*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

#### Isoundeceth-12

*Properties:* Nonionic

*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

#### Isourea. *See* Urea

#### Isourethane. *See* Polyurethane, thermoplastic

#### Itaconic acid

CAS 97-65-4; EINECS/ELINCS 202-599-6

*Synonyms:* Methylenesuccinic acid; Propylenedicarboxylic acid

*Empirical:* C<sub>5</sub>H<sub>4</sub>O<sub>4</sub>

*Formula:* HOOCCH<sub>2</sub>C(CH<sub>2</sub>)COOH

*Properties:* Wh. cryst. powd., char. odor; sol. (1 g/ml): 12 ml water, 5 ml alcohol; very sl. sol. in benzene, chloroform, ether, CS<sub>2</sub>, petroleum ether; m.w. 130.10; dens. 1.63; m.p. 165-167 C (dec.)

*Storage:* Hygroscopic; keep well closed

*Uses:* Intermediate for acrylic latex and S/B latex for paper coatings, carpet backings, nonwoven textiles, adhesives, and paints; reactive comonomer for acrylic, S/B, PVAc, nitrile latex; prep. of acrylic fibers; copolymerization of nylon (caprolactam base), resins, plasticizers, intermediates, paper additives; aluminum anodizing reagent; lube oil additive; in food-contact paper/paperboard; in food-pkg. adhesives; natural food acid (Japan); in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1200, 181.30; Japan approved (itaconic acid)

*Manuf./Distrib.:* AMC Chems.; Aceto; Aldrich; Allchem Ind.; Ashland; Eastwest United Group; F.T.L. Int'l.; Fluka; GNC Group; Int'l. Chem. Inc.; Maypro Ind.; Mays; Pacific West; Rambach; Rhodia HPCII; San

Yuan; Sigma; United Min. & Chem.; Van Waters & Rogers; Varsal Instruments; Wego Chem. & Min.; Westpro; Whyte Chems. Ltd

#### Itaconic acid-bis-(3-sulfopropyl)-ester, dipotassium salt

CAS 93841-09-9

*Empirical:* C<sub>11</sub>H<sub>16</sub>K<sub>2</sub>O<sub>10</sub>S<sub>2</sub>

*Uses:* Functional monomer for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners, and polyelectrolytes

*Trade Names:* SPI

#### Itaconic acid homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

#### IVE. *See* Vinyl isobutyl ether

#### Jaguar gum. *See* Guar (Cyanopsis tetragonoloba) gum

#### Japan orange 201. *See* Acid orange 11

#### Japan (Rhus succedanea) wax

CAS 8001-39-6

*Synonyms:* Rhus succedanea wax; Rhus succedanea; Japan wax; Japan tallow; Sumac wax

*Definition:* Fat expressed from the mesocarp of the fruit of *Rhus succedanea*, contg. 10-15% palmitin, stearin, olein, 1% janic acid

*Properties:* Pale yel. solid, greasy feel; tallow-like rancid odor and taste; sol. in benzene, naphtha, CS<sub>2</sub>, ether, hot alcohol, alkalis; insol. in water, cold alcohol; dens. 0.97-0.98; m.p. 53.5-55 C; acid no. 22-23; iodine no. 10-15; sapon. no. 217-237

*Toxicology:* TSCA listed

*Precaution:* Combustible

*Uses:* Substitute for beeswax in wax varnishes, candles; in plasters; ointments; floor waxes; furniture polish; lubricant for plastics processing; binder in Chinese lacquerware coatings; plasticizer in dental impression compds.; migrating to foods from cotton in dry food pkg.; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §73.1, 175.105, 175.350, 176.170, 182.70

*Manuf./Distrib.:* Alfa Chem; Barnet Prods.; Kobo; Koster Keunen; Kowa Am.; Robeco; Spec. Ingreds. & Perfume; Stevenson Cooper; Strahl & Pitsch

*Trade Names:* Ross Japan Wax

#### Japan tallow. *See* Japan (Rhus succedanea) wax

#### Japan wax. *See* Japan (Rhus succedanea) wax

#### Jesuit's balsam. *See* Balsam copaiba (Copaifera officinalis)

#### Judean pitch. *See* Asphalt

#### Jute

*Classification:* Cellulosic material

*Definition:* Fibers obtained from stems of *Corchorus* spp., esp. *C. capularis*

*Properties:* Soft, lustrous fibers; loses str. when wet

*Precaution:* Combustible; not self-extinguishing; flamm. as dust, may ignite spontaneously when wet

*Uses:* Burlap; sacking; linoleum; twine; carpet backing; packing; coarse paper; filler

#### Kadaya gum. *See* Karaya (Sterculia urens) gum

#### Kalinite. *See* Potassium alum dodecahydrate

#### Kaolin

CAS 1332-58-7; EINECS/ELINCS 296-473-8; 310-127-6

*Synonyms:* Aluminum silicate dihydrate; Aluminum silicate hydrated; Aluminum silicate hydrous; Aluminum silicate hydroxide; Bolus alba; Bentone; China clay; CI 77004; Hydrated aluminum silicate; Pigment white 19; Porcelain clay

*Definition:* Native hydrated aluminum silicate

*Formula:* ≈ Al<sub>2</sub>O<sub>3</sub> • 2SiO<sub>2</sub> • 2H<sub>2</sub>O

*Properties:* Wh. to yel. or grayish fine powd., clay-like odor when moist, earthy taste; insol. in water, dilute acids, alkali hydroxides; dens. 1.8-2.6; m.p. 0 C; high lubricity

*Toxicology:* ACGIH TLV/TWA 2 mg/m<sup>3</sup> (respirable fraction); TDLo (oral, female rat, 37 days prior to copulation) 590 g/kg; harmful by inh., ing., skin contact; nuisance dust; large doses may cause obstructions, perforations, or granuloma (tumor formation)

*Precaution:* Noncombustible; incompat. with strong oxidizers

*Properties:* Nonionic  
*Uses:* Emulsifier for agric.; intermediate for carboxymethylate mfg., sulfation; filter cake dewatering agent; dust suppressant in coal industry; domestic and window cleaners; leather finishing; wetting agent for paper and cellulose, textiles  
*Trade Names:* Teric™ 13A7

**Isotrideceth-9**

*Synonyms:* PEG-9 isotridecyl ether; POE (9) isotridecyl ether  
*Definition:* PEG ether of isotridecyl alcohol  
*Properties:* Nonionic  
*Uses:* O/w emulsifier, dispersant, wetting agent, detergent, degreaser for pigment disps., agric., hard surf. cleaners, textile processing, solv. emulsion cleaners, paper; pitch dispersant for pulp and paper processing; wool dye leveling agent  
*Trade Names:* Surfonic® TDA-9; Teric™ 13A9

**Isotrideceth-3 phosphate**

*Properties:* Anionic  
*Uses:* Low foaming wetting agent; emulsifier and antistat for textiles in salt form  
*Trade Names:* Servoxyl® VPDZ 3/100

**Isotrideceth-6 phosphate**

*Properties:* Anionic  
*Uses:* Surfactant for textile, agric., paper, cleaning, and metal processing  
*Trade Names:* Servoxyl® VPDZ 6/100

**Isoundeceth-3**

*Properties:* Nonionic  
*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isoundeceth-6**

*Properties:* Nonionic  
*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isoundeceth-9**

*Properties:* Nonionic  
*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isoundeceth-12**

*Properties:* Nonionic  
*Uses:* Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isourea.** See Urea

**Isourethane.** See Polyurethane, thermoplastic

**Itaconic acid**

CAS 97-65-4; EINECS/ELINCS 202-599-6  
*Synonyms:* Methylene succinic acid; Propylenedicarboxylic acid  
*Empirical:* C<sub>5</sub>H<sub>6</sub>O<sub>4</sub>  
*Formula:* HOOCCH<sub>2</sub>C(CH<sub>2</sub>)COOH  
*Properties:* Wh. cryst. powd., char. odor; sol. (1 g/ml): 12 ml water, 5 ml alcohol; very sl. sol. in benzene, chloroform, ether, CS<sub>2</sub>, petroleum ether; m.w. 130.10; dens. 1.63; m.p. 165-167 C (dec.)  
*Storage:* Hygroscopic; keep well closed  
*Uses:* Intermediate for acrylic latex and S/B latex for paper coatings, carpet backings, nonwoven textiles, adhesives, and paints; reactive comonomer for acrylic, S/B, PVAc, nitrile latex; prep. of acrylic fibers; copolymerization of nylon (caprolactam base), resins, plasticizers, intermediates, paper additives; aluminum anodizing reagent; lube oil additive; in food-contact paper/paperboard; in food-pkg. adhesives; natural food acid (Japan); in cellophane for food pkg.  
*Regulatory:* FDA 21CFR §175.105, 176.180, 177.1200, 181.30; Japan approved (itaconic acid)  
*Manuf./Distrib.:* AMC Chems.; Aceto; Aldrich; Allchem Ind.; Ashland; Eastwest United Group; F.T.L. Int'l.; Fluka; GNC Group; Int'l. Chem. Inc.; Maypro Ind.; Mays; Pacific West; Rambach; Rhodia HPCII; San

Yuan; Sigma; United Min. & Chem.; Van Waters & Rogers; Varsal Instruments; Wego Chem. & Min.; Westpro; Whyte Chems. Ltd

**Itaconic acid-bis-(3-sulfopropyl)-ester, dipotassium salt**

CAS 93841-09-9  
*Empirical:* C<sub>11</sub>H<sub>16</sub>K<sub>2</sub>O<sub>10</sub>S<sub>2</sub>  
*Uses:* Functional monomer for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners, and polyelectrolytes  
*Trade Names:* SPI

**Itaconic acid homopolymer**

*Uses:* In paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180

**IVE.** See Vinyl isobutyl ether

**Jaguar gum.** See Guar (Cyanopsis tetragonoloba) gum

**Japan orange 201.** See Acid orange 11

**Japan (Rhus succedanea) wax**

CAS 8001-39-6  
*Synonyms:* Rhus succedanea wax; Rhus succedanea; Japan wax; Japan tallow; Sumac wax  
*Definition:* Fat expressed from the mesocarp of the fruit of *Rhus succedanea*, contg. 10-15% palmitin, stearin, olein, 1% japaic acid  
*Properties:* Pale yel. solid, greasy feel; tallow-like rancid odor and taste; sol. in benzene, naphtha, CS<sub>2</sub>, ether, hot alcohol, alkalis; insol. in water, cold alcohol; dens. 0.97-0.98; m.p. 53.5-55 C; acid no. 22-23; iodine no. 10-15; sapon. no. 217-237  
*Toxicology:* TSCA listed  
*Precaution:* Combustible  
*Uses:* Substitute for beeswax in wax varnishes, candles; in plasters; ointments; floor waxes; furniture polish; lubricant for plastics processing; binder in Chinese lacquerware coatings; plasticizer in dental impression compds.; migrating to foods from cotton in dry food pkg.; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §73.1, 175.105, 175.350, 176.170, 182.70  
*Manuf./Distrib.:* Alfa Chem; Barnet Prods.; Kobo; Koster Keunen; Kowa Am.; Robeco; Spec. Ingreds. & Perfume; Stevenson Cooper; Strahl & Pitsch  
*Trade Names:* Ross Japan Wax

**Japan tallow.** See Japan (Rhus succedanea) wax

**Japan wax.** See Japan (Rhus succedanea) wax

**Jesuit's balsam.** See Balsam copaiba (Copaifera officinalis)

**Judean pitch.** See Asphalt

**Jute**

*Classification:* Cellulosic material  
*Definition:* Fibers obtained from stems of *Corchorus* spp., esp. *C. capularis*  
*Properties:* Soft, lustrous fibers; loses str. when wet  
*Precaution:* Combustible; not self-extinguishing; flamm. as dust, may ignite spontaneously when wet  
*Uses:* Burlap; sacking; linoleum; twine; carpet backing; packing; coarse paper; filler

**Kadaya gum.** See Karaya (Sterculia urens) gum

**Kalinite.** See Potassium alum dodecahydrate

**Kaolin**

CAS 1332-58-7; EINECS/ELINCS 296-473-8; 310-127-6  
*Synonyms:* Aluminum silicate dihydrate; Aluminum silicate hydrated; Aluminum silicate hydrous; Aluminum silicate hydroxide; Bolus alba; Bentonite; China clay; CI 77004; Hydrated aluminum silicate; Pigment white 19; Porcelain clay  
*Definition:* Native hydrated aluminum silicate  
*Formula:* ≈ Al<sub>2</sub>O<sub>3</sub> • 2SiO<sub>2</sub> • 2H<sub>2</sub>O  
*Properties:* Wh. to yel. or grayish fine powd., clay-like odor when moist, earthy taste; insol. in water, dilute acids, alkali hydroxides; dens. 1.8-2.6; m.p. 0 C; high lubricity  
*Toxicology:* ACGIH TLV/TWA 2 mg/m<sup>3</sup> (respirable fraction); TDLo (oral, female rat, 37 days prior to copulation) 590 g/kg; harmful by inh., ing., skin contact; nuisance dust; large doses may cause obstructions, perforations, or granuloma (tumor formation)  
*Precaution:* Noncombustible; incompat. with strong oxidizers

**Properties:** Nonionic  
**Uses:** Emulsifier for agric.; intermediate for carboxymethylate mfg., sulfation; filter cake dewatering agent; dust suppressant in coal industry; domestic and window cleaners; leather finishing; wetting agent for paper and cellulose, textiles  
**Trade Names:** Teric™ 13A7

**Isotrideceth-9**

**Synonyms:** PEG-9 isotridecyl ether; POE (9) isotridecyl ether  
**Definition:** PEG ether of isotridecyl alcohol  
**Properties:** Nonionic  
**Uses:** O/w emulsifier, dispersant, wetting agent, detergent, degreaser for pigment disp., agric., hard surf. cleaners, textile processing, solv. emulsion cleaners, paper; pitch dispersant for pulp and paper processing; wool dye leveling agent  
**Trade Names:** Surfonic® TDA-9; Teric™ 13A9

**Isotrideceth-3 phosphate**

**Properties:** Anionic  
**Uses:** Low foaming wetting agent; emulsifier and antistat for textiles in salt form  
**Trade Names:** Servoxyl® VPDZ 3/100

**Isotrideceth-6 phosphate**

**Properties:** Anionic  
**Uses:** Surfactant for textile, agric., paper, cleaning, and metal processing  
**Trade Names:** Servoxyl® VPDZ 6/100

**Isoundeceth-3**

**Properties:** Nonionic  
**Uses:** Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isoundeceth-6**

**Properties:** Nonionic  
**Uses:** Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isoundeceth-9**

**Properties:** Nonionic  
**Uses:** Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isoundeceth-12**

**Properties:** Nonionic  
**Uses:** Intermediate for surfactants; emulsifier, detergent, dispersant, wetting agent, foam builder, solubilizer; for cleaners, pulp and paper industry, textiles, corrosion inhibitors

**Isourea.** See Urea

**Isourethane.** See Polyurethane, thermoplastic

**Itaconic acid**

CAS 97-65-4; EINECS/ELINCS 202-599-6  
**Synonyms:** Methylenesuccinic acid; Propylenedicarboxylic acid  
**Empirical:** C<sub>5</sub>H<sub>6</sub>O<sub>4</sub>  
**Formula:** HOOCCH<sub>2</sub>C(CH<sub>2</sub>)COOH  
**Properties:** Wh. cryst. powd., char. odor; sol. (1 g/ml): 12 ml water, 5 ml alcohol; very sl. sol. in benzene, chloroform, ether, CS<sub>2</sub>, petroleum ether; m.w. 130.10; dens. 1.63; m.p. 165-167 C (dec.)  
**Storage:** Hygroscopic; keep well closed  
**Uses:** Intermediate for acrylic latex and S/B latex for paper coatings, carpet backings, nonwoven textiles, adhesives, and paints; reactive comonomer for acrylic, S/B, PVAc, nitrile latex; prep. of acrylic fibers; copolymerization of nylon (caprolactam base), resins, plasticizers, intermediates, paper additives; aluminum anodizing reagent; lube oil additive; in food-contact paper/paperboard; in food-pkg. adhesives; natural food acid (Japan); in cellophane for food pkg.  
**Regulatory:** FDA 21CFR §175.105, 176.180, 177.1200, 181.30; Japan approved (itaconic acid)  
**Manuf./Distrib.:** AMC Chems.; Aceto; Aldrich; Allchem Ind.; Ashland; Eastwest United Group; F.T.L. Int'l.; Fluka; GNC Group; Int'l. Chem. Inc.; Maypro Ind.; Mays; Pacific West; Rambach; Rhodia HPCII; San

Yuan; Sigma; United Min. & Chem.; Van Waters & Rogers; Varsal Instruments; Wego Chem. & Min.; Westpro; Whyte Chems. Ltd

**Itaconic acid-bis-(3-sulfopropyl)-ester, dipotassium salt**

CAS 93841-09-9  
**Empirical:** C<sub>11</sub>H<sub>16</sub>K<sub>2</sub>O<sub>10</sub>S<sub>2</sub>  
**Uses:** Functional monomer for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners, and polyelectrolytes  
**Trade Names:** SPI

**Itaconic acid homopolymer**

**Uses:** In paper/paperboard in contact with dry food  
**Regulatory:** FDA 21CFR §176.180

**IVE.** See Vinyl isobutyl ether

**Jaguar gum.** See Guar (Cyanopsis tetragonoloba) gum

**Japan orange 201.** See Acid orange 11

**Japan (Rhus succedanea) wax**

CAS 8001-39-6  
**Synonyms:** Rhus succedanea wax; Rhus succedanea; Japan wax; Japan tallow; Sumac wax  
**Definition:** Fat expressed from the mesocarp of the fruit of *Rhus succedanea*, contg. 10-15% palmitin, stearin, olein, 1% japaic acid  
**Properties:** Pale yel. solid, greasy feel; tallow-like rancid odor and taste; sol. in benzene, naphtha, CS<sub>2</sub>, ether, hot alcohol, alkalis; insol. in water, cold alcohol; dens. 0.97-0.98; m.p. 53.5-55 C; acid no. 22-23; iodine no. 10-15; sapon. no. 217-237  
**Toxicology:** TSCA listed  
**Precaution:** Combustible  
**Uses:** Substitute for beeswax in wax varnishes, candles; in plasters; ointments; floor waxes; furniture polish; lubricant for plastics processing; binder in Chinese lacquerware coatings; plasticizer in dental impression compds.; migrating to foods from cotton in dry food pkg.; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods  
**Regulatory:** FDA 21CFR §73.1, 175.105, 175.350, 176.170, 182.70  
**Manuf./Distrib.:** Alfa Chem; Barnet Prods.; Kobo; Koster Keunen; Kowa Am.; Robeco; Spec. Ingreds. & Perfume; Stevenson Cooper; Strahl & Pitsch  
**Trade Names:** Ross Japan Wax

**Japan tallow.** See Japan (Rhus succedanea) wax

**Japan wax.** See Japan (Rhus succedanea) wax

**Jesuit's balsam.** See Balsam copaiba (Copaifera officinalis)

**Judean pitch.** See Asphalt

**Jute**

**Classification:** Cellulosic material  
**Definition:** Fibers obtained from stems of *Corchorus* spp., esp. *C. capularis*  
**Properties:** Soft, lustrous fibers; loses str. when wet  
**Precaution:** Combustible; not self-extinguishing; flamm. as dust, may ignite spontaneously when wet  
**Uses:** Burlap; sacking; linoleum; twine; carpet backing; packing; coarse paper; filler

**Kadaya gum.** See Karaya (Sterculia urens) gum

**Kalinite.** See Potassium alum dodecahydrate

**Kaolin**

CAS 1332-58-7; EINECS/ELINCS 296-473-8; 310-127-6  
**Synonyms:** Aluminum silicate dihydrate; Aluminum silicate hydrated; Aluminum silicate hydrous; Aluminum silicate hydroxide; Bolus alba; Bentonite; China clay; CI 77004; Hydrated aluminum silicate; Pigment white 19; Porcelain clay  
**Definition:** Native hydrated aluminum silicate  
**Formula:** ≈ Al<sub>2</sub>O<sub>3</sub> • 2SiO<sub>2</sub> • 2H<sub>2</sub>O  
**Properties:** Wh. to yel. or grayish fine powd., clay-like odor when moist, earthy taste; insol. in water, dilute acids, alkali hydroxides; dens. 1.8-2.6; m.p. 0 C; high lubricity  
**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup> (respirable fraction); TDLo (oral, female rat, 37 days prior to copulation) 590 g/kg; harmful by inh., ing., skin contact; nuisance dust; large doses may cause obstructions, perforations, or granuloma (tumor formation)  
**Precaution:** Noncombustible; incompat. with strong oxidizers

## Kaolin, calcined

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, irritating and toxic fumes and gases  
**Storage:** Store in cool, dry place; keep containers closed when not in use  
**Uses:** Absorbent; filler/extender/pigment for paper sizing, paints/coatings, rubber, refractories, ceramics, thermosetting resins; pigment for lacquers, printing inks; in anticaking preps.; adsorbent for clarification of liqs.; color laking base; porcelain/pottery/ceramics ingred.; anticaking/clarifying agent for wine; mfg. aid for food pkg. paper; food processing aid (Japan); pharmaceuticals (tablet/capsule diluent; adsorbent in antidiarrheal prods.; treatment for intestinal disorders); colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §176.170, 178.3297, 178.3550, 182.2727, 182.2729, 186.1256, GRAS as indirect additive; BAF 27CFR §240.1051; Japan restricted (0.5% max. residual); Europe listed; UK approved; FDA approved for orals; USP/NF, BP compliance

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich; Burgess Pigment; CE Mins.; Costec; ECC Int'l.; Engelhard; Feldspar; H.M. Royal; Hammill & Gillespie; IMERYS; J.M. Huber/Chems.; Kaopolite; Landers-Segal Color; R.T. Vanderbilt; Ruger; San Yuan; Sigma; Southeastern Clay; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Süd-Chemie Inc; Thiele Kaolin; U.S. Silica; Universal Preserv-A-Chem; Warner-Jenkinson; Whittaker, Clark & Daniels

**Trade Names:** Alphatex HP; ASP<sup>®</sup> 072; ASP<sup>®</sup> 100; Astra-Fil; Astraplate; Bilt-Plates<sup>®</sup> 145; Bilt-Plates<sup>®</sup> 156; DB-GLAZE<sup>™</sup>; DB-Kote-2; DB-SHEEN<sup>™</sup>; Opacitex; Peerless<sup>®</sup> No. 1; Peerless<sup>®</sup> No. 2; Peerless<sup>®</sup> No. 3; Premier; WW Filler<sup>™</sup>

**Trade Names Containing:** Digitex<sup>™</sup>; HP-95<sup>™</sup>; Luminex<sup>™</sup>; Miracclipse<sup>™</sup>; Mirafilm<sup>™</sup>; Miragloss<sup>™</sup>

See also Aluminum silicate dihydrate

## Kaolin, calcined

**Synonyms:** Calcined kaolin; Calcined kaolin clay

**Definition:** Natural kaolin that has been upgraded by heating @ ≈ 1050 C; calcining removes water of hydration and changes particle shape making it whiter and brighter

**Uses:** TiO<sub>2</sub> extender, pigment for papermaking

**Trade Names:** Ansilex<sup>®</sup>; Spectrafil<sup>®</sup> LA

See also Kaolin

## Karaya gum. See Karaya (Sterculia urens) gum

## Karaya (Sterculia urens) gum

CAS 9000-36-6; EINECS/ELINCS 232-539-4; FEMA 2605

**Synonyms:** Gum karaya; Gum sterculia; Kaday gum; Karaya gum; Indian tragacanth; India tragacanth; Sterculia gum; Sterculia urens; Sterculia urens gum

**Definition:** Dried exudate from the tree, *Sterculia urens*

**Properties:** Wh. fine powd., sl. acetic acid odor; insol. in alcohol; swells in water to a gel; produces highly stable emulsions, resist. to acids

**Toxicology:** LD50 (oral, rat) 9100 mg/kg; very mildly toxic by ing.; mild allergen causing hay fever, dermatitis, gastrointestinal diseases, and asthma; may cause intolerance; laxative effect, may reduce nutrient intake; TSCA listed

**Uses:** Protective colloid; stabilizer, thickener, emulsifier in cosmetics, foods, pharmaceuticals; thickener for textile dyes; textile coatings; as denture adhesive; binder in paper mfg.; pharmaceuticals (tablet excipient, bulk laxative); substitute for gum tragacanth

**Use Level:** Limitation 0.3% (frozen dairy desserts), 0.02% (milk prods.), 0.9% (soft candy), 0.002% (other foods); ADI 0-20 mg/kg (EU)

**Regulatory:** FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 184.1349, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; BP compliance

**Manuf./Distrib.:** AEP Colloids; Frutarom Meer; Houghton Chem.; P.L. Thomas; Penta Mfg.; Ruger; Sarcom; Sigma; TIC Gums; V.L. Clark

**Trade Names:** Karaya Gum #1 FCC; Powdered Gum Karaya Superfine #1 FCC; Powdered Gum Karaya Superfine XXXX FCC

## Katchung oil. See Peanut (Arachis hypogaea) oil

## Kerosene

CAS 8008-20-6; EINECS/ELINCS 232-366-4; UN No. 1223 (DOT)

**Synonyms:** Coal oil; Kerosine; Straight-run kerosene

**Classification:** Petroleum hydrocarbon

**Definition:** Mixt. of petroleum hydrocarbons, chiefly of the methane series

having 10-16 carbon atoms per molecule

**Properties:** Water-wh. to pale yel. oily liq.; mild char. petrol. odor; sol. in other petrol. solvs.; insol. in water; sp.gr. 0.8; vapor pressure 1.5 mm Hg (20 C); f.p. -45.6 C; b.p. 151-301 C; flash pt. 122 F; KB value 36

**Toxicology:** LD50 (oral, rabbit) 28 g/kg, (IP, rabbit) 6600 mg/kg, (IV, rabbit) 180 mg/kg; LDLo (oral, human male) 500 mg/kg; poison by IV and intratracheal routes; primary irritant; mod. to severe skin irritant; human systemic effects by ing., IV routes; tumorigen, mutagen; TSCA listed

**Environmental:** HAPs contg.

**Precaution:** Combustible exposed to heat or flame; mod. explosive as vapor exposed to heat or flame; incompat. with strong oxidizing agents; risk of fire and explosion

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 2; Reactivity 0

**Storage:** Store in a cool, dry, well-ventilated area, away from heat/ignition sources

**Uses:** Fuel for lamps, flares, stoves, rockets, jet engines; diesel fuel for automobiles; domestic heating; vehicle for paints, thinners, enamels, polishes, varnishes; carrier for pesticides; cleaning degreasing solvent; mold release agent for ceramics; solvent in asphalt coatings, cutback bitumens, printing inks; mineral flotation agent; lubricant for plastics processing; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, 177.2800

**Manuf./Distrib.:** Aldrich; Houghton Chem.; Sigma; Spectrum Quality Prods.

**Kerosene, deodorized.** See Deodorized kerosene

**Kerosene, odorless.** See Deodorized kerosene

**Kerosine.** See Kerosene

**Ketone, dimethyl.** See Acetone

**Ketone propane.** See Acetone

**β-Ketopropane.** See Acetone

**K<sub>4</sub>HDTMP.** See Potassium hexamethylene diamine tetra (methylene phosphonate)

**Kieselguhr.** See Diatomaceous earth; Diatomaceous earth, amorphous

**Knockout drops.** See Chloral hydrate

**KTPP.** See Potassium tripolyphosphate

**Labarrque's sol'n.** See Sodium hypochlorite

**Lac.** See Shellac

**Lacca.** See Shellac

**Lactic acid, compd. with 9,12-octadecadienamide, n-[3-(dimethylamino)propyl] linoleamide.** See Linoleamido dimethylamino lactate

**Lactis proteinum.** See Milk protein

**Lake red 4R.** See Pigment red 3

**Lamp black.** See Carbon black

**Land plaster.** See Calcium sulfate dihydrate

## Lanolin

CAS 8006-54-0 (anhyd.); 8020-84-6 (hyd.); EINECS/ELINCS 232-348-6

**Synonyms:** Anhydrous lanolin; Adeps lanæ; Wool grease; Wool wax; Wool fat

**Definition:** Deriv. of unctuous fatty sebaceous secretion of sheep, *Ovis aries*, consisting of complex mixt. of esters of high m.w. aliphatic, steroid, or triterpenoid alcohol and fatty acids

**Properties:** Yel.-wh. semisolid to paste; sl. odor; sol. in chloroform, ether; insol. in water; m.p. 38-42 C; iodine no. 18-36; flash pt. > 230 F; nonionic

**Toxicology:** Can cause allergic reactions, contact dermatitis; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

**Uses:** Soaps; face creams; facial tissues; hair set and suntan preps.; plasticizer for rubber; lubricant for textiles, metalworking compds.; EP and slip agent for metalworking/rust preventative coatings; in printing inks; waterproofing agent for leather; chewing gum base; food glazing agent; pharmaceutical emollient, ointment base, filler, vehicle; protectant in diaper rash, hemorrhoidal, antibiotic ointments; cosolvent, emollient, plasticizer, emulsifier, wetting agent for cosmetics; antistat; surf. lubricant in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; plasticizer in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §172.615, 175.300, 176.170, 176.210, 177.1200

**Kaolin, calcined**

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, irritating and toxic fumes and gases  
**Storage:** Store in cool, dry place; keep containers closed when not in use

**Uses:** Absorbent; filler/extender/pigment for paper sizing, paints/coatings, rubber, refractories, ceramics, thermosetting resins; pigment for lacquers, printing inks; in anticaking preps.; adsorbent for clarification of liqs.; color laking base; porcelain/pottery/ceramics ingred.; anticaking/clarifying agent for wine; mfg. aid for food pkg. paper; food processing aid (Japan); pharmaceuticals (tablet/capsule diluent; adsorbent in antidiarrheal prods.; treatment for intestinal disorders); colorant in food-pkg. polymers, paper/paperboard in contact with aq./fatty foods

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §176.170, 178.3297, 178.3550, 182.2727, 182.2729, 186.1256, GRAS as indirect additive; BAF 27CFR §240.1051; Japan restricted (0.5% max. residual); Europe listed; UK approved; FDA approved for orals; USP/NF, BP compliance

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich; Burgess Pigment; CE Mins.; Costec; ECC Int'l.; Engelhard; Feldspar; H.M. Royal; Hammill & Gillespie; IMERY'S; J.M. Huber/Chems.; Kaopolite; Landers-Segal Color; R.T. Vanderbilt; Ruger; San Yuan; Sigma; Southeastern Clay; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Süd-Chemie Inc; Thiele Kaolin; U.S. Silica; Universal Preserv-A-Chem; Warner-Jenkinson; Whittaker, Clark & Daniels

**Trade Names:** Alphatex HP; ASP® 072; ASP® 100; Astra-Fil; Astraplate; Bilt-Plates® 145; Bilt-Plates® 156; DB-GLAZE™; DB-Kote-2; DB-SHEEN™; Opacitex; Peerless® No. 1; Peerless® No. 2; Peerless® No. 3; Premier; WW Filler™

**Trade Names Containing:** Digitex™; HP-95™; Luminex™; Miraclipse™; Mirafilm™; Miragloss™

See also Aluminum silicate dihydrate

**Kaolin, calcined**

**Synonyms:** Calcined kaolin; Calcined kaolin clay  
**Definition:** Natural kaolin that has been upgraded by heating @ ≈ 1050 C; calcining removes water of hydration and changes particle shape making it whiter and brighter

**Uses:** TiO<sub>2</sub> extender, pigment for papermaking

**Trade Names:** Ansilx®; Spectrafil® LA

See also Kaolin

**Karaya gum. See Karaya (Sterculia urens) gum**

**Karaya (Sterculia urens) gum**

CAS 9000-36-6; EINECS/ELINCS 232-539-4; FEMA 2605

**Synonyms:** Gum karaya; Gum sterculia; Kadaya gum; Karaya gum; Indian tragacanth; India tragacanth; Sterculia gum; Sterculia urens; Sterculia urens gum

**Definition:** Dried exudate from the tree, *Sterculia urens*

**Properties:** Wh. fine powd., sl. acetic acid odor; insol. in alcohol; swells in water to a gel; produces highly stable emulsions, resist. to acids

**Toxicology:** LD50 (oral, rat) 9100 mg/kg; very mildly toxic by ing.; mild allergen causing hay fever, dermatitis, gastrointestinal diseases, and asthma; may cause intolerance; laxative effect, may reduce nutrient intake; TSCA listed

**Uses:** Protective colloid; stabilizer, thickener, emulsifier in cosmetics, foods, pharmaceuticals; thickener for textile dyes; textile coatings; as denture adhesive; binder in paper mfg.; pharmaceuticals (tablet excipient, bulk laxative); substitute for gum tragacanth

**Use Level:** Limitation 0.3% (frozen dairy desserts), 0.02% (milk prods.), 0.9% (soft candy), 0.002% (other foods); ADI 0-20 mg/kg (EU)

**Regulatory:** FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 184.1349, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; BP compliance

**Manuf./Distrib.:** AEP Colloids; Frutarom Meer; Houghton Chem.; P.L. Thomas; Penta Mfg.; Ruger; Sarcom; Sigma; TIC Gums; V.L. Clark

**Trade Names:** Karaya Gum #1 FCC; Powdered Gum Karaya Superfine #1 FCC; Powdered Gum Karaya Superfine XXXX FCC

**Katchung oil. See Peanut (Arachis hypogaea) oil**

**Kerosene**

CAS 8008-20-6; EINECS/ELINCS 232-366-4; UN No. 1223 (DOT)

**Synonyms:** Coal oil; Kerosine; Straight-run kerosene

**Classification:** Petroleum hydrocarbon

**Definition:** Mixt. of petroleum hydrocarbons, chiefly of the methane series

having 10-16 carbon atoms per molecule  
**Properties:** Water-wh. to pale yel. oily liq.; mild char. petrol. odor; sol. in other petrol. solvs.; insol. in water; sp.gr. 0.8; vapor pressure 1.5 mm Hg (20 C); f.p. -45.6 C; b.p. 151-301 C; flash pt. 122 F; KB value 36

**Toxicology:** LD50 (oral, rabbit) 28 g/kg, (IP, rabbit) 6600 mg/kg, (IV, rabbit) 180 mg/kg; LDLo (oral, human male) 500 mg/kg; poison by IV and intratracheal routes; primary irritant; mod. to severe skin irritant; human systemic effects by ing., IV routes; tumorigen, mutagen; TSCA listed

**Environmental:** HAPs contg.

**Precaution:** Combustible exposed to heat or flame; mod. explosive as vapor exposed to heat or flame; incompat. with strong oxidizing agents; risk of fire and explosion

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 2; Reactivity 0

**Storage:** Store in a cool, dry, well-ventilated area, away from heat/ignition sources

**Uses:** Fuel for lamps, flares, stoves, rockets, jet engines; diesel fuel for automobiles; domestic heating; vehicle for paints, thinners, enamels, polishes, varnishes; carrier for pesticides; cleaning degreasing solvent; mold release agent for ceramics; solvent in asphalt coatings, cutback bitumens, printing inks; mineral flotation agent; lubricant for plastics processing; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, 177.2800

**Manuf./Distrib.:** Aldrich; Houghton Chem.; Sigma; Spectrum Quality Prods.

**Kerosene, deodorized. See Deodorized kerosene**

**Kerosene, odorless. See Deodorized kerosene**

**Kerosine. See Kerosene**

**Ketone, dimethyl. See Acetone**

**Ketone propane. See Acetone**

**β-Ketopropane. See Acetone**

**K<sub>2</sub>HDTMP. See Potassium hexamethylene diamine tetra (methylene phosphonate)**

**Kieselguhr. See Diatomaceous earth; Diatomaceous earth, amorphous**

**Knockout drops. See Chloral hydrate**

**KTPP. See Potassium triphosphophate**

**Labarrque's sol'n. See Sodium hypochlorite**

**Lac. See Shellac**

**Lacca. See Shellac**

**Lactic acid, compd. with 9,12-octadecadienamide, n-[3-(dimethylamino)propyl] linoleamide. See Linoleamido dimethylamino lactate**

**Lactis proteinum. See Milk protein**

**Lake red 4R. See Pigment red 3**

**Lamp black. See Carbon black**

**Land plaster. See Calcium sulfate dihydrate**

**Lanolin**

CAS 8006-54-0 (anhyd.); 8020-84-6 (hyd.); EINECS/ELINCS 232-348-6

**Synonyms:** Anhydrous lanolin; Adeps lanae; Wool grease; Wool wax; Wool fat

**Definition:** Deriv. of unctuous fatty sebaceous secretion of sheep, *Ovis aries*, consisting of complex mixt. of esters of high m.w. aliphatic, steroid, or triterpenoid alcohol and fatty acids

**Properties:** Yel.-wh. semisolid to paste; sl. odor; sol. in chloroform, ether; insol. in water; m.p. 38-42 C; iodine no. 18-36; flash pt. > 230 F; nonionic

**Toxicology:** Can cause allergic reactions, contact dermatitis; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

**Uses:** Soaps; face creams; facial tissues; hair set and suntan preps.; plasticizer for rubber; lubricant for textiles, metalworking compds.; EP and slip agent for metalworking/rust preventative coatings; in printing inks; water-proofing agent for leather; chewing gum base; food glazing agent; pharmaceutical emollient, ointment base, filler, vehicle; protectant in diaper rash, hemorrhoidal, antibiotic ointments; cosolvent, emollient, plasticizer, emulsifier, wetting agent for cosmetics; antistat; surf. lubricant in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; plasticizer in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §172.615, 175.300, 176.170, 176.210, 177.1200,

177.2600, 178.3910; Japan approved; FDA approved for ophthalmics, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aldrich; Alfa Chem; Am. Int'l.; Amerchol; Brooks Ind.; Charkit; ChemMark Development; Cognis/Chems. Group; Costec; Croda Inc.; Fabrichem; Fanning; Fluka; Integra; Kraft Chem.; Lanaetex Prods.; Norman, Fox; O.C. Lugo; Penta Mfg.; Protameen; R.I.T.A.; Robeco; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stevenson Cooper; Thornley; Universal Preserv-A-Chem; Westbrook Lanolin

#### Lard oil triglycerides

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

#### Lauramide DEA

CAS 120-40-1; 52725-64-1; 61971-31-9; EINECS/ELINCS 204-393-1

**Synonyms:** N,N-Bis (2-hydroxyethyl) dodecanamide; Bis (2-hydroxyethyl) lauramide; N,N-Bis (2-hydroxyethyl) lauramide; N,N-Bis (β-hydroxyethyl) lauramide; Diethanolamine lauric acid amide; N,N-Diethanol lauramide; N,N-Diethanol lauric acid amide; Lauric acid diethanolamide; Lauric acid polydiethanolamide (2:1); Lauric acid superamide (1:1); Lauric diethanolamide; Lauryl diethanolamide; Lauryl diethanolamide

**Definition:** Mixture of ethanolamides of lauric acid

**Empirical:** C<sub>16</sub>H<sub>33</sub>NO<sub>3</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>

**Properties:** M.w. 287.50; 1:1 type; wh. cryst. solid; nonionic

**Toxicology:** LD50 (oral, rat) 2700 mg/kg; mod. toxic by ing.; may produce contact sensitivity; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Uses:** Foam booster/stabilizer, detergency and visc. builder, emulsifier, wetting agent for cosmetics, shaving soaps, household and I&I detergents; thickener/conditioner/stabilizer for shampoos and lotions; visc. control agent; antistat for thermoplastics and food pkg.; emulsifier in topical dermatological prods.; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §172.710, 173.315, 175.105, 176.180, 176.210, 177.2260, 177.2800, 178.3130; FDA approved for topicals

**Manuf./Distrib.:** ABITEC; Chemron; Clariant; Diamond Chem.; Jeen Int'l.; McIntyre; Norman, Fox; Pilot; Protameen; Rhodia HPCII; Scher; Stepan; Uniqema

**Trade Names:** DeMIDE LA-100; DeMIDE LLA-100; DeMIDE ML-100; DeMIDE MLY-100

#### Lauramine oxide

CAS 1643-20-5; 70592-80-2

EINECS/ELINCS 216-700-6; 274-687-2

**Synonyms:** DDAO; LDAO; N,N-Dimethyl-1-dodecanamine-N-oxide; Dimethyl dodecylamine-N-oxide; N,N-Dimethyl dodecylamine-N-oxide; N,N-Dimethyl dodecylamine oxide; Dimethyl lauramine oxide; Dimethyl laurylamine oxide; Dodecyl dimethylamine oxide; N-Dodecyl dimethylamine oxide; Lauryl dimethylamine oxide; Lauryl dimethylamine-N-oxide

**Classification:** Tertiary amine oxide

**Empirical:** C<sub>14</sub>H<sub>31</sub>NO

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>NO(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Liq.; m.w. 229.41; dens. 0.966 (20/4 C); ref. index 1.379 (20 C)

**Toxicology:** Severe skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Uses:** Surfactant; visc. control agent; detergent, foam booster/stabilizer, thickener, emollient in cosmetics, detergents, textile softeners, foam rubber, electroplating, paper coatings, bleach; antistat in textile spin finishes; thickener, emollient in pharmaceutical topicals; foaming agent for surgical scrubs

**Regulatory:** FDA approved for topicals

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** DeMOX LAO; Rhodamox® LO

#### Laureth-3

CAS 3055-94-5; 9002-92-0 (generic); 68002-97-1 (generic); EINECS/ELINCS 221-280-2

**Synonyms:** 2-[2-[2-(Dodecyloxy) ethoxy] ethoxy] ethanol; PEG-3 lauryl ether; Triethylene glycol dodecyl ether

**Definition:** PEG ether of lauryl alcohol

**Empirical:** C<sub>18</sub>H<sub>36</sub>O<sub>4</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 3

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant; detergent; emulsifier; solubilizer for solvents; bases for prod. of sulfates; raw material for dishwashing, cleansing agent and cold cleaners; emulsion polymerization; emulsifier, solubilizer for pharmaceuticals; penetrant, thickener

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Volpo L3

#### Laureth-4

CAS 5274-68-0; 9002-92-0 (generic); 68002-97-1 (generic); EINECS/ELINCS 226-097-1

**Synonyms:** PEG-4 lauryl ether; PEG 200 lauryl ether; POE (4) lauryl alcohol; POE (4) lauryl ether; 3,6,9,12-Tetraoxatetracosan-1-ol

**Definition:** PEG ether of lauryl alcohol

**Empirical:** C<sub>20</sub>H<sub>42</sub>O<sub>5</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4

**Properties:** HLB 9.5; nonionic

**Toxicology:** LD50 (oral, rat) 8600 mg/kg, (IV, rat) 27 mg/kg, (IP, mouse) 160 mg/kg; mildly toxic by ing., IV, IP routes; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Surfactant; emulsifier, solubilizer, lubricant, detergent for cosmetics, silicone polish, mold releases; bases for prod. of sulfates; raw material for dishwashing, cleansing agent and cold cleaners; antistat for PE, PS; surfactant for pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; food pkg.

**Regulatory:** FDA 21CFR §178.3520; FDA approved for topicals

**Manuf./Distrib.:** Aldrich; Fluka; Seabrook Ind.; Sigma

**Trade Names:** DeTHOX LA-4; Nonionic L-4; Rhodasurf® L-4

#### Laureth-8

CAS 3055-98-9; 9002-92-0 (generic)

**Synonyms:** PEG-8 lauryl ether; POE (8) lauryl ether; 3,6,9,12,15,18,21,24-Octaoxahexatriacontan-1-ol

**Definition:** PEG ether of lauryl alcohol

**Empirical:** C<sub>28</sub>H<sub>58</sub>O<sub>5</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Wetting agent, detergent, emulsifier, dispersant used for maintenance and institutional cleaners, in textile, paper, and paint industries; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800

**Manuf./Distrib.:** Aldrich; Fluka; Seabrook Ind.; Sigma

#### Laureth-9

CAS 3055-99-0; 9002-92-0 (generic); EINECS/ELINCS 221-284-4

**Synonyms:** PEG-9 lauryl ether; PEG-9 monododecyl ether; POE (9) lauryl ether; 3,6,9,12,15,18,21,24,27-Nonaoxonatriacontan-1-ol

**Definition:** PEG ether of lauryl alcohol

**Empirical:** C<sub>30</sub>H<sub>62</sub>O<sub>10</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 9

**Properties:** M.w. ≈ 600; sol. in water, ethanol, toluene, misc. with fats, fatty alcohols, and hot min., nat. and syn. oils; nonionic

**Toxicology:** LD50 (oral, mouse) 1170 mg/kg, (IV, mouse) 125 mg/kg; TSCA listed

**Uses:** Emulsifier, wetting agent, detergent, dispersant used for maintenance and institutional cleaners, in textile, paper, and paint industries; emulsion polymerization; solvent; pharmaceutical aid (surfactant); spermicide; penetrant; coupling agent; in food-contact textiles; antistat in food-pkg. materials

**Regulatory:** FDA 21CFR §177.2800, 178.3130

**Manuf./Distrib.:** Aldrich; Fluka; Seabrook Ind.; Sigma

#### Laureth-12

CAS 3056-00-6; 9002-92-0 (generic); EINECS/ELINCS 221-286-5

**Synonyms:** PEG-12 lauryl ether; POE (12) lauryl ether; PEG 600 lauryl ether

**Definition:** PEG ether of lauryl alcohol

**Empirical:** C<sub>38</sub>H<sub>84</sub>O<sub>13</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12

**Properties:** M.w. 1199.57; m.p. 41-45 C; b.p. 100 C; HLB 14.5; flash pt. > 110 C; nonionic



## Laureth-23

*Toxicology:* TSCA listed

*Uses:* Emulsifier for cosmetic, pharmaceutical, paints, and industrial uses; emollient, thickener for shampoos; emulsion polymerization; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Nonionic L-12

## Laureth-23

CAS 9002-92-0 (generic)

*Synonyms:* PEG-23 lauryl ether; POE (23) lauryl ether

*Definition:* PEG ether of lauryl alcohol

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 23

*Properties:* HLB 16.9; nonionic

*Toxicology:* LD50 (oral, rat) 8600 mg/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Emulsifier, stabilizer, solubilizer, surfactant, emollient, thickener, dispersant for cosmetics; post-ad stabilizer for syn. latexes; emollient, emulsifier, thickener, stabilizer in pharmaceutical topicals; anti-irritant in deodorants; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800; FDA approved for topicals

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* DeTHOX LA-23; Genapol® 26-L-23; Nonionic L-23; Rhodasurf® L-25

## Lauric acid

CAS 143-07-7; EINECS/ELINCS 205-582-1; FEMA 2614

*Synonyms:* Dodecanoic acid; n-Dodecanoic acid; Dodecoic acid; Duodecyclic acid; Laurostearic acid; 1-Undecanecarboxylic acid

*Classification:* Fatty acid

*Empirical:* C<sub>12</sub>H<sub>24</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>COOH

*Properties:* Colorless needles; sl. bay oil odor; sol. in benzene, chloroform, alcohol, ether, petrol. ether; insol. in water; m.w. 200.36; dens. 0.833; vapor pressure 1 mm (121 C); m.p. 44 C; b.p. 225 C (100 mm); ref. index 1.4323 (45 C)

*Toxicology:* LD50 (oral, rat) 12 g/kg, (IV, mouse) 131 mg/kg; poison by IV route; mildly toxic by ing.; skin and eye irritant; questionable carcinogen; mutagenic data; TSCA listed

*Precaution:* Combustible when exposed to heat or flame; reactive with oxidizing materials

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Plasticizing alkyl resin comonomer; wetting agents; superfatting agent in soaps; detergents; cosmetics; insecticides; emulsifier/stabilizer for polymerization of nitrile rubbers/latex; plastics processing lubricant; fragrance; flavoring agent; food additives (defoamer, lubricant); lubricant, emulsifier in pharmaceuticals; pharmaceutical intermediate; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

*Regulatory:* FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; FEMA GRAS

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Brown; Cognis/Chems. Group; Conдор; Fluka; Grau Aromatics (2:1). See Lauramide DEA; Protameen; Robeco; Sea-Land; Sigma; Spectrum Quality Prods.; Uniqema/Oleochems.; Welch, Holme & Clark

**Lauric acid diethanolamide.** See Lauramide DEA

**Lauric acid, 1,2-ethanediyl ester.** See Glycol dilaurate

**Lauric acid methyl ester.** See Methyl laurate

**Lauric acid, monoester with 1,2-propanediol.** See Propylene glycol laurate

**Lauric acid polydiethanolamide (2:1).** See Lauramide DEA

**Lauric acid sodium salt.** See Sodium laurate

**Lauric acid superamide (1:1).** See Lauramide DEA

**Lauric acid diethanolamide.** See Lauramide DEA

**Laurostearic acid.** See Lauric acid

**Lauroyl diethanolamide.** See Lauramide DEA

## Laurtrimonium chloride

CAS 112-00-5; EINECS/ELINCS 203-927-0

*Synonyms:* LTAC; Dodecyl trimethyl ammonium chloride; Lauryl trimethyl ammonium chloride; N,N,N-Trimethyl-1-dodecanaminium chloride

*Classification:* Quaternary ammonium salt

*Empirical:* C<sub>15</sub>H<sub>34</sub>N · Cl

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>N(CH<sub>3</sub>)<sub>3</sub>Cl

*Properties:* Wh. liq.; sol. in water and alcohol; m.w. 263.89; surf. tens. 33 dynes/cm (0.1% aq.); cationic

*Toxicology:* TSCA listed

*Precaution:* Nonflammable

*Uses:* Preservative, germicide, fungicide, surfactant, corrosion inhibitor, anti-stat, emulsifier for plastics, textiles, paper, cosmetics; gel sensitizer in latex foam; bactericide for antiseptics; textile fiber softener; germicide (duckweed killer) for water treatment, petrol. industry; flotation reagents; mildewproofing

*Use Level:* 0.1% max.

*Regulatory:* USA permitted; JSCI, Europe listed

*Manuf./Distrib.:* AMRESCO; Fluka; Spectrum Quality Prods.

*Trade Names:* Adogen® 412; Chemquat 12/33; Chemquat 12/50; Nissan Cation BB

*Trade Names Containing:* Arquad® 12-50

**Lauryl ammonium sulfate.** See Ammonium lauryl sulfate

**Laurylbenzenesulfonic acid.** See Dodecylbenzenesulfonic acid

**Lauryl diethanolamide.** See Lauramide DEA

**Lauryl dimethylamine oxide.** See Lauramine oxide

**Lauryldimethylamine-N-oxide.** See Lauramine oxide

**Lauryl guanidine acetate.** See Dodine

## Lauryl hydroxyethyl imidazoline

CAS 136-99-2; EINECS/ELINCS 205-271-0

*Synonyms:* 1-Hydroxyethyl 2-undecyl imidazoline; 1H-Imidazole-1-ethanol, 4,5-dihydro-2-undecyl-; 2-Lauryl-1-(hydroxyethyl) imidazoline; Lauryl imidazoline

*Classification:* Heterocyclic compd.

*Empirical:* C<sub>16</sub>H<sub>32</sub>N<sub>2</sub>O

*Properties:* Solid; m.w. 268.45; m.p. 38 C; cationic

*Toxicology:* TSCA listed

*Uses:* Antistat; corrosive inhibitor, emulsifier, dispersant and fluidizing agent for pigments, emulsions, cosmetics, polishes, textile, leather, and agric. prods.; acid detergent for food and dairy prods.; intermediate for quat. ammonium compds.; softener; dye assistant; shampoo ingred.

*Trade Names:* LamChem C-100-L; Schercozoline L

**2-Lauryl-1-(hydroxyethyl) imidazoline.** See Lauryl hydroxyethyl imidazoline

**Lauryl imidazoline.** See Lauryl hydroxyethyl imidazoline

## Lauryl methacrylate

CAS 142-90-5; EINECS/ELINCS 205-570-6

*Synonyms:* Dodecyl methacrylate; n-Dodecyl methacrylate; Dodecyl 2-methyl-2-propenoate; Methacrylic acid dodecyl ester; 2-Methacrylic acid dodecyl ester; Methacrylic acid lauryl ester

*Definition:* Ester of lauryl alcohol and methacrylic acid

*Empirical:* C<sub>16</sub>H<sub>30</sub>O<sub>2</sub>

*Formula:* CH<sub>2</sub>=C(CH<sub>3</sub>)COOC<sub>12</sub>H<sub>25</sub>

*Properties:* Pale yel. liq.; insol. in water; m.w. 254.43; dens. 0.868 kg/l; f.p. -22 C; b.p. 272-344 C; flash pt. (COC) 132 C

*Toxicology:* LD50 (IP, rat) 12 g/kg; skin and eye irritant; TSCA listed

*Precaution:* Combustible; DOT: nonhazardous

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Polymerizable monomer for plastics, molding powds., lube oil additives, solvent coatings for nonwoven fiber, floor waxes, paints, adhesives, varnishes, sealants, caulks; stabilizer in nonaq. disp. and inks; visc. control agent in cosmetics; emulsions for textile, leather, and paper finishing; internal plasticizer; modifier for deodorant

*Manuf./Distrib.:* Albright & Wilson Am.; Aldrich; Atofina; CPS; Fluka; Mono-

mer-Polymer & Dajac Labs; Rhodia; Rohm Tech

*Trade Names:* Blemmer SLMA

## Lauryl peroxide

*Uses:* Polymerization catalyst in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Lauryl sodium sulfate.** See Sodium lauryl sulfate

**Lauryl sulfate ammonium salt.** See Ammonium lauryl sulfate

**Lauryl sulfate sodium salt.** See Sodium lauryl sulfate  
**Lauryl trimethyl ammonium chloride.** See Laurtrimonium chloride  
**LDAO.** See Lauramine oxide  
**LDPE.** See Polyethylene, low-density  
**Leaf green.** See Chromium oxide (ic)  
**Leather blue G.** See Acid blue 1  
**Leather green SF.** See Acid green 5

**Lecithin**

CAS 8002-43-5; 8030-76-0; 93685-90-6; 97281-47-5; EINECS/ELINCS 232-307-2

*Synonyms:* Soya lecithin

*Definition:* Mixture of the diglycerides of stearic, palmitic and oleic acids linked to the choline ester of phosphoric acid; found in plants and animals

*Formula:* C<sub>8</sub>H<sub>17</sub>O<sub>5</sub>NRR', R and R' are fatty acid groups

*Properties:* Nearly wh. to yel. or brn. waxy mass or thick fluid, nutlike odor, bland taste; sol. in chloroform, ether, petrol. ether, min. oils, fatty acids, hydrocarbon and chlorinated solvs.; insol. but swells in water and salt sol'ns.; insol. in veg. oils; dens. 1.0305 (24/4 C); HLB 8.0; acid no. 15-30; iodine no. 95; sapon. no. 196; nonionic

*Toxicology:* May cause bronchoconstriction in people with asthma; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Refrigerate

*Uses:* Edible surfactant and emulsifier for food use, pharmaceuticals, cosmetics, animal feed, leather treatment, textiles; emulsifier for oil-based drilling fluids; release agent for silicone rubber molds; raw material for paints; dispersant; wetting agent; antistat; emollient; antioxidant; pigment/filler/clay dispersant for sealants, caulks, pesticides; nutritional in pharmaceuticals; tablet binding agent; choline source in dementia; in food-contact coatings

*Regulatory:* FDA 21CFR §133.169, 133.173, 133.179, 136.110, 136.115, 136.130, 137.160, 136.165, 136.180, 163.123, 163.130, 163.135, 163.140, 163.145, 163.150, 163.155, 166.40, 166.110, 169.115, 169.140, 169.150, 175.300, 184.1400, GRAS; USDA 9CFR §318.7, 0.5% max. in oleo-margarine, 381.147; Japan approved; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF compliance

*Manuf./Distrib.:* ADM Lecithin; Alfa Chem; Am. Lecithin; Ashland; Barnett Prods.; Central Soya; ChemMark Development; Collaborative Labs; Cosan; Fabricheem; Fanning; Fluka; Great Western; Int'l. Chem. Inc.; Kraft Chem.; Landers-Segal Color; Lipo; Lucas Meyer; Penta Mfg.; Premium Ingreds.; Reichhold; Ruger; Shea; Sigma; Solvay Duphar BV; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Spice King; Thornley; U.S. Biochemical; Universal Preserv-A-Chem; Vliengenthart BV; W.A. Cleary; Welch, Holme & Clark; Whyte Chems. Ltd

*Trade Names:* Lipotin SB; TLV 68-SB; TLV 68-UB; TLV 70-SB; TLV 70-UB; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS

*Trade Names Containing:* Metasol® TK-100 Disp. W

**Lecithin, hydroxylated.** See Hydroxylated lecithin

**Leinoleic acid.** See Linoleic acid

**Lichenic acid.** See Fumaric acid

**Light green CF.** See Acid green 5

**Light green SF yellowish.** See Acid green 5

**Light green yellowish.** See Acid green 5

**Light magnesium carbonate.** See Magnesium carbonate

**Light mineral oil.** See Mineral oil

**Light petroleum hydrocarbons, odorless**

*Synonyms:* Odorless light petroleum hydrocarbons

*Properties:* Liq., faint odor; b.p. 300-650 C

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Food coating agent, defoamer; froth-flotation cleaning; insecticides; defoamer in food-contact coatings and paper/paperboard; component of nonfood articles for food-contact use

*Regulatory:* FDA 21CFR §172.884, 176.200, 176.210, 178.3650

**Light spar.** See Calcium sulfate dihydrate

**Lignin calcium sulfonate.** See Calcium lignosulfonate

**Lignin liquor.** See Tall oil

**Lignin sodium sulfonate.** See Sodium lignosulfonate

**Lignin sulfonate**

CAS 8062-15-5

*Synonyms:* Ligninsulfonic acid; Lignosulfate; Lignosulfonate; Lignosulfonic acid; Poly (lignosulfonic acid); Sulfite lignin

*Definition:* A metallic sulfonate salt

*Properties:* Lt. tan to dark brn. powd.; no pronounced odor; nonhygroscopic; forms colloidal sol'ns. or disps. in water; pract. insol. in org. solvs.; m.w. 1000-20,000; dens. ≈ 1.5; dec. above 200 C

*Toxicology:* TDLo (oral, mammal, 45 days intermittent) 90 g/kg; may cause changes in blood, enzyme inhibition

*Uses:* Dispersant for concrete, carbon black-rubber mixes; extender for tanning agents; oil-well drilling mud additives; ore flotation agents; prod. of vanillin, industrial cleaners, gypsum slurries, dyestuffs, pesticides; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

*Manuf./Distrib.:* Bencorp Int'l.; Continental Ind. Group; LignoTech USA; Los Angeles Chem.; R.T. Vanderbilt; Tetra; Van Waters & Rogers; Wesco Tech. Ltd; Westvaco

**Ligninsulfonic acid.** See Lignin sulfonate

**Lignite wax.** See Montan wax

**Lignoceric acid, myristyl ether.** See Myristyl lignocerate

**Lignosulfate.** See Lignin sulfonate

**Lignosulfonate.** See Lignin sulfonate

**Lignosulfonic acid.** See Lignin sulfonate

**Lignosulfonic acid, calcium salt.** See Calcium lignosulfonate

**Lignosulfonic acid, sodium salt.** See Sodium lignosulfonate

**Lignroin.** See VM&P naphtha

**Ligroine.** See VM&P naphtha

**Lime.** See Calcium oxide

**Lime chloride.** See Calcium hypochlorite

**Lime, chlorinated.** See Calcium hypochlorite

**Limed rosin.** See Calcium resinolate

**Lime, hydrated.** See Calcium hydroxide

**Lime milk.** See Calcium hydroxide

**Lime, slaked.** See Calcium hydroxide

**Limestone.** See Calcium carbonate

**Lime water.** See Calcium hydroxide

**Linear C10 alpha olefin.** See Decene-1

**Linear C16 alpha olefin.** See Hexadecene-1

**Linear C18 alpha olefin.** See Octadecene-1

**Linear polyethyleneimine.** See Polyethyleneimine

**Linoleamide DEA**

CAS 27883-12-1; 56863-02-6; EINECS/ELINCS 260-410-2

*Synonyms:* N,N-Bis (2-hydroxyethyl)-9,12-octadecadienamide; (9Z,12Z)-N,N-Bis (2-hydroxyethyl) octadeca-9,12-dien-1-amide; Diethanolamine linoleic acid amide; Linoleic acid diethanolamide; Linoleic diethanolamide; 9,12-Octadecadienamide, N,N-bis (2-hydroxyethyl)-

*Classification:* Fatty acid alkanolamide

*Definition:* Mixt. of ethanolamides of linoleic acid

*Empirical:* C<sub>22</sub>H<sub>41</sub>NO<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>4</sub>CH=CHCH<sub>2</sub>CH=CH(CH<sub>2</sub>)<sub>4</sub>CON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>

*Properties:* Amber liq.; sol. in peanut oil, ethanol, propylene glycol, IPM, oleyl alcohol; gels in water; m.w. 367.58; dens. 0.972-0.982; nonionic

*Toxicology:* TSCA listed

*Uses:* Antistat; visc. control agent; conditioner, foam stabilizer, thickener for hair care prods., shampoos; food-pkg. adhesives, coatings, textiles; defoamer in food-contact paper/paperboard

*Trade Names:* DeMIDE SBA-100

**Linoleamido dimethylamino lactate**

*Synonyms:* Lactic acid, compd. with 9,12-octadecadienamide, n-[3-(dimethylamino) propyl] linoleamide; N-Linoleamido-N,N-dimethylamino lactate

*Properties:* Cationic

*Uses:* Surfactant, emulsifier, conditioner for hair and skin care prods., paper and pulp industry

*Trade Names:* Necon SOLC

**N-Linoleamido-N,N-dimethylamino lactate.** See Linoleamido dimethylamino lactate

**Linoleic acid**

CAS 60-33-3; EINECS/ELINCS 200-470-9

**Synonyms:** Linoleic acid; Linolic acid; 9,12-Linoleic acid; cis,cis-9,12-Octadecadienoic acid; 9,12-Octadecadienoic acid; (Z,Z)-9,12-Octadecadienoic acid

**Classification:** Unsaturated essential fatty acid

**Empirical:**  $C_{18}H_{32}O_2$

**Formula:**  $CH_3(CH_2)_7=CHCH_2CH=CH(CH_2)_7COOH$

**Properties:** Colorless to pale yel. oil; freely sol. in ether; sol. in chloroform, abs. alcohol; misc. with dimethylformamide, fat solvs., oils; insol. in water; m.w. 280.44; dens. 0.9007 (22/4 C); m.p. -12 C; b.p. 230 C (16 mm); ref. index 1.4699 (20 C)

**Toxicology:** LD50 (IP, mouse) 280 mg/kg; poison by IP route; human skin irritant; ing. can cause nausea and vomiting; TSCA listed

**Precaution:** Combustible; easily oxidized by air

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store refrigerated

**Uses:** Antistat; emollient; mfg. of paints, coatings, emulsifiers, vitamins; soaps; driers for protective coatings; feeds; biochemical research; dietary supplement, nutrient, flavoring agent, adjuvant; infant formulas; food-pkg. adhesives; drug delivery for pharmaceutical orals and topicals

**Regulatory:** FDA 21CFR §175.105, 182.5065, 184.1065, GRAS

**Manuf./Distrib.:** AMRESCO; Aldrich; Am. Biorganics; Arizona; Austin; CasChem; Cognis/Chem. Group; Fluka; Hercules; Langley-Smith Ltd; Penta Mfg.; Research Organics; Rhodia HPCII; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem

**Trade Names:** Pamolyn® 200; Pamolyn® 240

**9,12-Linoleic acid.** *See* Linoleic acid

**Linoleic acid diethanolamide.** *See* Linoleamide DEA

**Linoleic diethanolamide.** *See* Linoleamide DEA

#### **Linoleyl alcohol**

CAS 506-43-4

**Synonyms:** Cis,cis-9,12-Octadecadien-1-ol

**Definition:** Fatty alcohol derived from linoleic acid

**Empirical:**  $C_{18}H_{34}O$

**Formula:**  $CH_3(CH_2)_7CH=CHCH_2CH=CH(CH_2)_7CH_2OH$

**Properties:** Colorless solid; m.w. 266.5; dens. 0.855; iodine no. 137; cloud pt. 15 C

**Precaution:** Combustible

**Uses:** Paints; flotation; paper; surfactants; resins; leather

**Manuf./Distrib.:** Sigma

**Linolic acid.** *See* Linoleic acid

#### **Linseed acid**

CAS 68424-45-3; EINECS/ELINCS 270-304-8

**Synonyms:** Acids, linseed; Fatty acids, linseed oil; Linseed fatty acids; Linseed oil fatty acid

**Definition:** Mixture of fatty acids derived from linseed oil

**Toxicology:** TSCA listed

**Uses:** Emollient; emulsifier; prod. of alkyd resins and epoxy ester resins; in food-pkg. adhesive; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Acme-Hardesty; Alnor Oil; Sea-Land

**Linseed fatty acids.** *See* Linseed acid

#### **Linseed (Linum usitatissimum) oil**

CAS 8001-26-1; EINECS/ELINCS 232-278-6

**Synonyms:** VLO; Flaxseed oil; Linseed oil; Linseed oil, raw; Linum usitatissimum; Raw linseed oil; Varnish linseed oil

**Definition:** Expressed oil from the dried ripe seed of *Linum usitatissimum*

**Properties:** Golden-yel., amber, or brown drying oil, peculiar odor, bland taste; sol. in ether, chloroform, carbon disulfide, turpentine; sl. sol. in alcohol; insol. in water; dens. 0.921-0.936; m.p. -19 C; b.p. 343 C; iodine no. 160-200; sapon. no. 188-195; flash pt. 222 C

**Toxicology:** Allergen and skin irritant to humans; TSCA listed

**Precaution:** Combustible liq. exposed to heat or flame; can react with oxidizers; subject to spontaneous heating; violent reaction with  $Cl_2$

**Uses:** Drying/grinding oil for paints, varnishes, oil cloth, putty, printing inks, core oils, linings and packings, alkyd resins, soap, pharmaceuticals; hot-melt adhesives; binder in linoleum flooring; glazing putty; waterproofing

agent for paper, fabrics; purgative in veterinary medicine; pharmaceutical demulcent, emollient; medicinal soaps; drying oil in food-contact coatings  
**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 181.22, 181.26; BP compliance

**Manuf./Distrib.:** ADM; Acme-Hardesty; Aldrich; Alnor Oil; Arista Ind.; Ashland; C.P. Hall; Cargill Ind. Oils & Lubes; Chem. Distributors; Chemcentral; Degen; Eastech; Ferro/Bedford; Jesse S. Young; John L. Seaton Ltd; Lomas Int'l.; Maypro Ind.; Penta Mfg.; Pokonobe Ind.; Reichhold; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Van Waters & Rogers; Viengenthart BV; Welch, Holme & Clark

**Linseed oil.** *See* Linseed (*Linum usitatissimum*) oil

**Linseed oil fatty acid.** *See* Linseed acid

**Linseed oil, raw.** *See* Linseed (*Linum usitatissimum*) oil

#### **Linseed oil triglycerides**

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Linum usitatissimum.** *See* Linseed (*Linum usitatissimum*) oil

**Liquid bleach.** *See* Sodium hypochlorite

**Liquid paraffin.** *See* Mineral oil

**Liquid petrolatum.** *See* Mineral oil

**Liquid phenol.** *See* Phenol

**Liquid rosin.** *See* Tall oil

**Lithium hydrate.** *See* Lithium hydroxide monohydrate

#### **Lithium hydroxide monohydrate**

CAS 1310-66-3; EINECS/ELINCS 215-183-4; UN No. 2680

**Synonyms:** Lithium hydrate

**Classification:** Lithium compd.

**Empirical:**  $H_2LiO_2$

**Formula:**  $HLiO \cdot H_2O$

**Properties:** Colorless cryst.; odorless; mod. sol. in water; sl. sol. in alcohol; insol. in ether; m.w. 41.96; nonflamm.

**Toxicology:** Corrosive; ing. can cause severe pain, burning of mouth/throat, vomiting, diarrhea, collapse, and death; inh. of dust or mist can probably cause severe irritation and corrosive tissue damage; severe exposure may cause pulmonary edema; mist or dust can cause skin and severe eye irritation incl. permanent eye damage

**Precaution:** Strong base

**Hazardous Decomp. Prods.:** Corrosive aerosols of lithium hydroxide and lithium carbonate

**Uses:** Mfg. of lithium stearate and other lithium soaps; in alkaline batteries (electrolyte additive); corrosion inhibitor in steam boilers; dispersant in water-based alkyd paints; in tanning hides; in processing of paper, textiles, leather, and phosphors (stabilizes silica sol'ns.)

**Manuf./Distrib.:** Am. Int'l.; Cyprus-Foote Min.; FMC/Lithium; Morre-Tec Ind.; Storchem

**Lithium magnesium sodium silicate.** *See* Smectite

**Lithographic stone.** *See* Calcium carbonate

#### **Lithopone**

CAS 1345-05-7

**Synonyms:** CI 77115; Griffith's zinc white; Pigment white 5; Zinc white

**Definition:** Mixture of zinc sulfide (26-60%), barium sulfate, and zinc oxide

**Formula:**  $BaSO_4 \cdot nZnS$

**Properties:** Wh. powd.

**Toxicology:** Poison liberating hydrogen sulfide upon decomp. by heat, moisture, acids; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of  $SO_2$ , ZnO,  $H_2S$

**Uses:** Wh. pigment in plastics, rubber goods, paints, paper, leather, printing inks; provides thixotropy, improves gloss and flow

**Manuf./Distrib.:** D.N. Lukens; H.M. Royal; Landers-Segal Color; Ore & Chem.; Primachem; Sachtleben Chemie GmbH; San Yuan; Van Waters & Rogers

**LLDPE.** *See* Polyethylene, linear low density

#### **Locust bean (Ceratonia siliqua) gum**

CAS 9000-40-2; EINECS/ELINCS 232-541-5; FEMA 2648

**Synonyms:** Algaroba; Carob bean gum; Carob flour; Carob gum; Ceratonia; Ceratonia siliqua; Ceratonia siliqua gum; Locust bean gum; Locust gum;

St. John's bread

*Classification:* Polysaccharide plant mucilage

*Definition:* Ground seed of the ripe fruit of St. John's Bread (*Ceratonia siliqua*)

*Properties:* Yel.-grn. powd., odorless, tasteless; swells in cold water; insol. in org. solvs.; visc. increases when heated; m.w. ≈ 310,000

*Toxicology:* LD50 (oral, rat) 13 g/kg; mildly toxic by ingestion; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Stabilizer, thickener, emulsifier, suspending agent, water-binder in foods, feeds, cosmetics, pharmaceuticals; emollient, film-former in cosmetics; sizing and finishes for textiles; paints; fiber bonding agent in paper mfg.; drilling fluid; coffee, chocolate substitute; packaging material; pharmaceutical tablet excipient

*Use Level:* Limitation 0.15% (baked goods), 0.25% (beverages), 0.8% (cheese), 0.75% (gelatins, puddings), 0.75% (jams/jellies), 0.5% (other foods)

*Regulatory:* FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 182.20, 184.1343, 240.1051, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; ADI not specified (JECFA)

*Manuf./Distrib.:* AEP Colloids; Ashland; Bio-Botanica; Browning; CarboMer; Charkit; Chart; Colloides Naturels; Danisco Ingreds.; Fluka; Frutarom Meer; Gumix Int'l.; Hercules; Houghton Chem.; Lucas Meyer; P.L. Thomas; Rhodia Food Ingreds.; Sarcom; Sigma; Spectrum Quality Prods.; TIC Gums; V.L. Clark

*Trade Names:* Locust Bean Gum Speckless Type D-200; Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Locust Bean Gum Type D-200; Powdered Locust Bean Gum Type D-300; Powdered Locust Bean Gum Type P-100; Powdered Locust Bean Gum Type PP-100

**Locust bean gum.** See Locust bean (*Ceratonia siliqua*) gum

**Locust gum.** See Locust bean (*Ceratonia siliqua*) gum

**LTAC.** See Laurtrimonium chloride

**Luna yellow.** See Pigment yellow 74

**Lye.** See Sodium hydroxide

**MA.** See Maleic anhydride

**MAA.** See Maleic anhydride; Methacrylic acid

**Macrogol 200.** See PEG-4

**Macrogol 300.** See PEG-6

**Macrogol 400.** See PEG-8

**Macrogol 600.** See PEG-12

**Macrogol 1000.** See PEG-20

**Macrogol 1540.** See PEG-32

**Macrogol 4000.** See PEG-75

**Macrogol 6000.** See PEG-150

**Macrogol ester 400.** See PEG-8 stearate

**Macrogol stearate 400.** See PEG-8 stearate

**Macrogol stearate 2000.** See PEG-40 stearate

**Magnesia.** See Magnesium oxide

**Magnesia alba.** See Magnesium carbonate; Magnesium carbonate hydroxide

**Magnesia, calcined.** See Magnesium oxide

**Magnesia, caustic-calcined.** See Magnesium oxide

**Magnesia clinker.** See Magnesium oxide

**Magnesia, dead-burned.** See Magnesium oxide

**Magnesia, fused.** See Magnesium oxide

**Magnesia magma.** See Magnesium hydroxide

**Magnesia oxide fume.** See Magnesium oxide

**Magnesia, sintered.** See Magnesium oxide

**Magnesia usta.** See Magnesium oxide

**Magnesia white.** See Calcium sulfate dihydrate

**Magnesite.** See Magnesium carbonate

**Magnesite, caustic-calcined.** See Magnesium oxide

### Magnesium aluminum silicate

CAS 1327-43-1; 12199-37-0; EINECS/ELINCS 235-374-6

*Synonyms:* Aluminum magnesium silicate; Aluminosilicic acid, magnesium salt

*Definition:* Complex silicate refined from naturally occurring minerals (colerainite, leuchtenbergite, pyrope, saponite, sapphirine, sheridanite, zebedassite); blend of colloidal montmorillonite and saponite

*Empirical:* Al<sub>2</sub>MgO<sub>5</sub>Si<sub>2</sub>

*Properties:* Fine powd. or sm. flakes, odorless, tasteless; swells in water or glycerin; insol. in water or alcohol; m.w. 262.45; visc. 100-2200 cps; pH 9-10 (5% susp.)

*Toxicology:* Not harmful at presently used levels; WHO recommends further studies because of kidney damage in dogs that ingested it; TSCA listed HMIS: Health 1; Flammability 0; Reactivity 0

*Uses:* Absorbent; opacifier; visc. control agent; thixotrope; emulsifier, thickener, suspending agent, disintegrant, binder, stabilizer for cosmetics, pharmaceuticals; emulsion stabilizer; antacid

*Regulatory:* FDA approved for dentals, orals, rectals, topicals, vaginales; USP/NF, BP compliance

*Manuf./Distrib.:* Am. Colloid; Chemisphere; ECC Int'l.; H.M. Royal; IMERYS; Kaopolite; Kraft Chem.; Landers-Segal Color; R.T. Vanderbilt; Reade Advanced Materials; Ruger; Smectite; Southern Clay Prods.; Spectrum Quality Prods.; Volclay Ltd; Whittaker, Clark & Daniels

*Trade Names:* Van Gel<sup>®</sup> B; Veegum<sup>®</sup> T

### Magnesium-aluminum-zinc complex

*Uses:* Stabilizer for plastisol processing, artificial leather, wallpaper, conveyor belts, toys, automotive applics., food-contact applics.

### Magnesium carbonate

CAS 546-93-0 (anhyd.); 23389-33-5 (hydrate); EINECS/ELINCS 208-915-9

*Synonyms:* Carbonate magnesium; Carbonic acid magnesium salt; Carbonic acid magnesium salt (1:1); Carbonic acid magnesium salt (2:1); CI 77713; Hydromagnesite; Light magnesium carbonate; Magnesia alba; Magnesite; Magnesium (II) carbonate (1:1); Magnesium carbonate precipitated

*Classification:* Crystalline salt

*Definition:* Basic dehydrated magnesium carbonate or normal hydrated magnesium carbonate; the naturally occurring mineral is magnesite

*Empirical:* CO<sub>3</sub> • Mg

*Properties:* Light bulky wh. powd., odorless; sol. in acids; insol. in alcohol, water, NH<sub>3</sub>; m.w. 84.32; dens. 3.04; bulking value 0.055 gal/lb; oil absorp. 80; dec. 350 C; ref. index 1.52; noncombustible

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance particulate; TSCA listed

*Precaution:* Incompat. with formaldehyde

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Magnesium salts; heat insulation and refractory; glass; cosmetics; table salt; filler in paper, plastics, rubber; rubber reinforcing agent; fire extinguishant; fireproofing agent; flattening agent in paints, printing inks; polishing compds.; filtering medium; plastics flame retardant and filler; in foods (drying agent, color retention agent, anticaking agent, alkali/acidity regulator, carrier); pharmaceuticals (anticaking agent, colorant, buffer, abrasive in dentifrices, antacid); absorbent; opacifier; activator in food-contact rubber articles for repeated use

*Use Level:* ADI not specified (EU)

*Regulatory:* FDA 21CFR §133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.183, 133.195, 137.105, 137.155 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 163.110, 177.2600, 184.1425, GRAS; Japan approved (0.5% max.); Europe listed; UK approved; FDA approved for orals; BP, Ph.Eur. compliance

*Manuf./Distrib.:* Advance Research Chems.; Alfa Chem; Allan; Allchem Ind.; Am. Int'l.; Atlantic Equip. Engrs.; Baymag; Charkit; Chemisphere; EnerChem; Fluka; Gallard-Schlesinger Ind.; Generichem; H.M. Royal; Int'l. Chem. Inc; Lohmann; Lonza; Magnesia GmbH; Mallinckrodt Baker; Markinter; Martin Marietta Magnesia Spec.; Morton Int'l.; Poly Research; Premier Chems.; Robeco; Ruger; Spectrum Quality Prods.; Tomita Pharmaceutical; Universal Preserv-A-Chem; Wego Chem. & Min.; Whittaker, Clark & Daniels

**Magnesium (II) carbonate (1:1).** See Magnesium carbonate

**Magnesium carbonate basic.** See Magnesium carbonate hydroxide

**Magnesium carbonate basic, heavy.** See Magnesium carbonate hydroxide

### Magnesium carbonate hydroxide

CAS 7760-50-1; 12125-28-9; 39409-82-0; 56378-72-4 (pentahydrate); EINECS/ELINCS 231-851-8; 235-192-7

*Synonyms:* Basic magnesium carbonate; Hydromagnesite; Magnesia alba; Magnesium carbonate basic; Magnesium carbonate basic, heavy; Mag-

St. John's bread

*Classification:* Polysaccharide plant mucilage

*Definition:* Ground seed of the ripe fruit of St. John's Bread (*Ceratonia siliqua*)

*Properties:* Yel.-grn. powd., odorless, tasteless; swells in cold water; insol. in org. solvs.; visc. increases when heated; m.w.  $\approx$  310,000

*Toxicology:* LD50 (oral, rat) 13 g/kg; mildly toxic by ingestion; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Stabilizer, thickener, emulsifier, suspending agent, water-binder in foods, feeds, cosmetics, pharmaceuticals; emollient, film-former in cosmetics; sizing and finishes for textiles; paints; fiber bonding agent in paper mfg.; drilling fluid; coffee, chocolate substitute; packaging material; pharmaceutical tablet excipient

*Use Level:* Limitation 0.15% (baked goods), 0.25% (beverages), 0.8% (cheese), 0.75% (gelatins, puddings), 0.75% (jams/jellies), 0.5% (other foods)

*Regulatory:* FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 150.141, 150.161, 182.20, 184.1343, 240.1051, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; ADI not specified (JECFA)

*Manuf./Distrib.:* AEP Colloids; Ashland; Bio-Botanica; Browning; CarboMer; Charkit; Chart; Colloides Naturels; Danisco Ingreds.; Fluka; Frutarom Meer; Gumix Int'l.; Hercules; Houghton Chem.; Lucas Meyer; P.L. Thomas; Rhodia Food Ingreds.; Sarcom; Sigma; Spectrum Quality Prods.; TIC Gums; V.L. Clark

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**Locust bean gum.** See Locust bean (*Ceratonia siliqua*) gum

**Locust gum.** See Locust bean (*Ceratonia siliqua*) gum

**LTAC.** See Laurtrimonium chloride

**Luna yellow.** See Pigment yellow 74

**Lye.** See Sodium hydroxide

**MA.** See Maleic anhydride

**MAA.** See Maleic anhydride; Methacrylic acid

**Macrogol 200.** See PEG-4

**Macrogol 300.** See PEG-6

**Macrogol 400.** See PEG-8

**Macrogol 600.** See PEG-12

**Macrogol 1000.** See PEG-20

**Macrogol 1540.** See PEG-32

**Macrogol 4000.** See PEG-75

**Macrogol 6000.** See PEG-150

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**Macrogol stearate 400.** See PEG-8 stearate

**Macrogol stearate 2000.** See PEG-40 stearate

**Magnesia.** See Magnesium oxide

**Magnesia alba.** See Magnesium carbonate; Magnesium carbonate hydroxide

**Magnesia, calcined.** See Magnesium oxide

**Magnesia, caustic-calcined.** See Magnesium oxide

**Magnesia clinker.** See Magnesium oxide

**Magnesia, dead-burned.** See Magnesium oxide

**Magnesia, fused.** See Magnesium oxide

**Magnesia magma.** See Magnesium hydroxide

**Magnesia oxide fume.** See Magnesium oxide

**Magnesia, sintered.** See Magnesium oxide

**Magnesia usta.** See Magnesium oxide

**Magnesia white.** See Calcium sulfate dihydrate

**Magnesite.** See Magnesium carbonate

**Magnesite, caustic-calcined.** See Magnesium oxide

**Magnesium aluminum silicate**

CAS 1327-43-1; 12199-37-0; EINECS/ELINCS 235-374-6

*Synonyms:* Aluminum magnesium silicate; Aluminosilicic acid, magnesium salt

*Definition:* Complex silicate refined from naturally occurring minerals (colerainite, leuchtenbergite, pyrope, saponite, sapphirine, sheridanite, zebedassite); blend of colloidal montmorillonite and saponite

*Empirical:* Al<sub>2</sub>MgO<sub>8</sub>Si<sub>2</sub>

*Properties:* Fine powd. or sm. flakes, odorless, tasteless; swells in water or glycerin; insol. in water or alcohol; m.w. 262.45; visc. 100-2200 cps; pH 9-10 (5% susp.)

*Toxicology:* Not harmful at presently used levels; WHO recommends further studies because of kidney damage in dogs that ingested it; TSCA listed  
HMIS: Health 1; Flammability 0; Reactivity 0

*Uses:* Absorbent; opacifier; visc. control agent; thixotrope; emulsifier, thickener, suspending agent, disintegrant, binder, stabilizer for cosmetics, pharmaceuticals; emulsion stabilizer; antacid

*Regulatory:* FDA approved for dentals, orals, rectals, topicals, vaginals; USP/NF, BP compliance

*Manuf./Distrib.:* Am. Colloid; Chemisphere; ECC Int'l.; H.M. Royal; IMERYS; Kaopolite; Kraft Chem.; Landers-Segal Color; R.T. Vanderbilt; Reade Advanced Materials; Ruger; Smectite; Southern Clay Prods.; Spectrum Quality Prods.; Volclay Ltd; Whittaker, Clark & Daniels

*Trade Names:* Van Gel® B; Veegum® T

**Magnesium-aluminum-zinc complex**

*Uses:* Stabilizer for plastisol processing, artificial leather, wallpaper, conveyor belts, toys, automotive applics., food-contact applics.

**Magnesium carbonate**

CAS 546-93-0 (anhyd.); 23389-33-5 (hydrate); EINECS/ELINCS 208-915-9

*Synonyms:* Carbonate magnesium; Carbonic acid magnesium salt; Carbonic acid magnesium salt (1:1); Carbonic acid magnesium salt (2:1); Cl 77713; Hydromagnesite; Light magnesium carbonate; Magnesia alba; Magnesite; Magnesium (II) carbonate (1:1); Magnesium carbonate precipitated

*Classification:* Crystalline salt

*Definition:* Basic dehydrated magnesium carbonate or normal hydrated magnesium carbonate; the naturally occurring mineral is magnesite

*Empirical:* CO<sub>3</sub> • Mg

*Properties:* Light bulky wh. powd., odorless; sol. in acids; insol. in alcohol, water, NH<sub>3</sub>; m.w. 84.32; dens. 3.04; bulking value 0.055 gal/lb; oil absorp. 80; dec. 350 C; ref. index 1.52; noncombustible

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); nuisance particulate; TSCA listed

*Precaution:* Incompat. with formaldehyde

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Magnesium salts; heat insulation and refractory; glass; cosmetics; table salt; filler in paper, plastics, rubber; rubber reinforcing agent; fire extinguishant; fireproofing agent; flatting agent in paints, printing inks; polishing compds.; filtering medium; plastics flame retardant and filler; in foods (drying agent, color retention agent, anticaking agent, alkali/acidity regulator, carrier); pharmaceuticals (anticaking agent, colorant, buffer, abrasive in dentifrices, antacid); absorbent; opacifier; activator in food-contact rubber articles for repeated use

*Use Level:* ADI not specified (EU)

*Regulatory:* FDA 21CFR §133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.183, 133.195, 137.105, 137.155 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 163.110, 177.2600, 184.1425, GRAS; Japan approved (0.5% max.); Europe listed; UK approved; FDA approved for orals; BP, Ph.Eur. compliance

*Manuf./Distrib.:* Advance Research Chems.; Alfa Chem; Allan; Allchem Ind.; Am. Int'l.; Atlantic Equip. Engrs.; Baymag; Charkit; Chemisphere; EnerChem; Fluka; Gallard-Schlesinger Ind.; Genericchem; H.M. Royal; Int'l. Chem. Inc.; Lohmann; Lonza; Magnesia GmbH; Mallinckrodt Baker; Markinter; Martin Marietta Magnesia Spec.; Morton Int'l.; Poly Research; Premier Chems.; Robeco; Ruger; Spectrum Quality Prods.; Tomita Pharmaceutical; Universal Preserv-A-Chem; Wego Chem. & Min.; Whittaker, Clark & Daniels

**Magnesium (II) carbonate (1:1).** See Magnesium carbonate

**Magnesium carbonate basic.** See Magnesium carbonate hydroxide

**Magnesium carbonate basic, heavy.** See Magnesium carbonate hydroxide

**Magnesium carbonate hydroxide**

CAS 7760-50-1; 12125-28-9; 39409-82-0; 56378-72-4 (pentahydrate); EINECS/ELINCS 231-851-8; 235-192-7

*Synonyms:* Basic magnesium carbonate; Hydromagnesite; Magnesia alba; Magnesium carbonate basic; Magnesium carbonate basic, heavy; Mag-

nesium hydroxide carbonate; Magnesium, tetrakis[carbonato(2-)] dihydroxypenta-

**Classification:** Inorganic basic carbonate

**Formula:** Approx.  $(MgCO_3)_x \cdot Mg(OH)_2 \cdot 5H_2O$  or  $(MgCO_3)_3 \cdot Mg(OH)_2 \cdot 3H_2O$  or  $MgCO_3 \cdot Mg(OH)_2 \cdot H_2O$

**Properties:** Wh. bulky powder, odorless; sol. in about 3300 parts  $CO_2$ -free water; sol. in dil. acids with effervescence; insol. in alcohol; dec. > 700 C releasing  $CO_2$

**HMS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Flame retardant filler for elastomers, plastics, paper; fireproofing; thermal insulation; prep. of effervescent magnesium citrate; clarifying liqs. by filtration; polishing compds.; mfg. min. waters, pigments; anticaking agent (salt); buffering agent; visc. control agent; nitric acid conc. reagent; foods (anticaking agent, flour treating agent, lubricant, release agent, nutrient supplement, pH control agent, processing aid, synergist); in tooth and face powds.; antacid

**Regulatory:** FDA 21CFR §184.1425, GRAS

**Manuf./Distrib.:** EM Ind.; Fluka; Lohmann; Ruger; Sigma; Spectrum Quality Prods.

**Magnesium carbonate precipitated.** *See* Magnesium carbonate

### Magnesium chloride

CAS 7786-30-3; EINECS/ELINCS 232-094-6

**Synonyms:** Magnesium chloride anhydrous

**Classification:** Inorganic salt

**Empirical:**  $Cl_2Mg$

**Formula:**  $MgCl_2$

**Properties:** Wh. to opaque gray gran. or flakes, odorless; sol. in water evolving heat, alcohol; m.w. 95.21; dens. 2.325; m.p. 708 C; b.p. 1412 C

**Toxicology:** LD50 (oral, rat) 2800 mg/kg, (IV, mouse) 14 mg/kg; LDLo (IP, rat) 225 mg/kg, (subcut., rat) 900 mg/kg; poison by IP and IV routes; mod. toxic by ing., subcut. routes; irritating to eyes, skin, respiratory system; target organs: nerves, kidneys; human mutagenic data; TSCA listed

**Precaution:** Causes steel to rust very rapidly in humid environments

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $Cl^-$

**HMS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Deliq., very hygroscopic; store under nitrogen

**Uses:** Source of magnesium; disinfectants; fire extinguishers; fireproofing wood; cement; refrigerating brines; ceramics; cooling drilling tools; textile sizes and lubricants; paper mfg.; dust control on roads; flocculant; catalyst; thawing agent; curing agent (textile finishes); fertilizer granulation aid; foods (color retention aid, firming agent, flavor, tissue softener, processing aid, yeast nutrient); pharmaceuticals (electrolyte replenisher, in injectables and ophthalmics); in food-contact polysulfide polymer/polypepoxy resins

**Use Level:** ADI not specified

**Regulatory:** FDA 21CFR §172.560, 177.1650, 182.5446, 184.1426, GRAS; USDA 9CFR §318.7, 381.147, limitation  $\leq 3\%$  of 0.8 molar sol'n.; Japan approved; FDA approved for intramuscular injectables, intraocular injectables, ophthalmics; BP, Ph.Eur. compliance

**Manuf./Distrib.:** Advance Research Chems.; Aldrich; Almark; Alfa Chem; Allan; Allchem Ind.; Atofina N. Am./Basic Chem.; Barker Ind.; Chemisphere; EnerChem; Fluka; Hickson Danchem; Int'l. Chem. Inc; Jarchem Ind.; Lohmann; Magnesia GmbH; Mallinckrodt Baker; Min. R&D; Oremet-Wah Chang; Ruger; Sigma; Spectrum Quality Prods.; Tomita Pharmaceutical

**Magnesium chloride anhydrous.** *See* Magnesium chloride

### Magnesium cocoate

**Synonyms:** Coconut fatty acids, magnesium salts; Fatty acids, coco, magnesium salt; Fatty acids, coconut oil, magnesium salt

**Definition:** Magnesium salt of coconut acid

**Uses:** Emulsifier, surfactant in cosmetics; in food-pkg. adhesives, food-contact resinous/polymeric coatings for polyolefin films, paper/paperboard in contact with aq./fatty foods, food-contact cellophane; defoamer in food-contact coatings/paper; surf. lubricant in mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910

**Magnesium dipalmitate.** *See* Magnesium palmitate

**Magnesium distearate.** *See* Magnesium stearate

**Magnesium dodecyl sulfate.** *See* Magnesium lauryl sulfate

**Magnesium fluoroarsilicate.** *See* Magnesium silicofluoride

**Magnesium fluosilicate.** *See* Magnesium silicofluoride

**Magnesium hexadecanoate.** *See* Magnesium palmitate

**Magnesium hexafluoroarsilicate.** *See* Magnesium silicofluoride

**Magnesium hydrate.** *See* Magnesium hydroxide

**Magnesium hydrogen metasilicate.** *See* Talc

### Magnesium hydroxide

CAS 1309-42-8; EINECS/ELINCS 215-170-3

**Synonyms:** Brucite; Magnesia magma; Magnesium hydrate; Milk of magnesia

**Classification:** Inorganic base

**Empirical:**  $H_2MgO_2$

**Formula:**  $Mg(OH)_2$

**Properties:** Wh. amorphous powder or colorless hexagonal crystal, odorless; sol. in sol'n. of ammonium salts and dilute acids; almost insol. in water and alcohol; m.w. 58.33; dens. 2.36; m.p. 350 C (dec.)

**Toxicology:** LD50 (oral, rat) 8500 mg/kg, (IP, rat) 2780 mg/kg; mod. toxic by IP route; human systemic effects (general depressed activity, coma); toxic when inhaled; harmless to skin; TSCA listed

**Precaution:** Noncombustible; incompat. with maleic anhydride

**HMS:** Health 2; Flammability 0; Reactivity 0

**Uses:** Absorbent; buffering agent; intermediate for obtaining magnesium metal; sugar refining; residual fuel oil additive; in foods as drying agent, alkali, nutrient supplement, color retention aid, pH control, processing aid; sulfite pulp; uranium processing; dentifrices; flame retardant filler in plastics/rubber; extender pigment for flame retardant coatings; fluoride removal in water treatment; wastewater acid neutralization, desulfation, heavy metals removal; medicine (antacid, laxative); milk of magnesia

**Use Level:** ADI not specified (EU)

**Regulatory:** FDA 21CFR §184.1428, GRAS; Europe listed; UK approved; FDA approved for orals; BP, Ph.Eur. compliance

**Manuf./Distrib.:** Actrachem; Aldrich; Allchem Ind.; AluChem; Am. Int'l.; AmeriBrom; Baymag; Chemisphere; Coyne; EM Ind.; Fluka; Genericchem; Giles; J.M. Huber/Chems.; J.W.S. Delavau; Lohmann; Mallinckrodt Baker; Markinter; Martin Marietta Magnesia Spec.; Morton Int'l.; Nat'l. Magnesia; Ocean Chems.; Omya Croxton+Garry; Reheis; Ruger; Sigma; Spectrum Quality Prods.; Tetra; Whittaker, Clark & Daniels; Zinkan Enterprises

**Trade Names:** MHT® 60 S; MHT® 60 XS

**Magnesium hydroxide carbonate.** *See* Magnesium carbonate hydroxide

### Magnesium lauryl sulfate

CAS 3097-08-3; 68081-97-0; EINECS/ELINCS 221-450-6

**Synonyms:** Magnesium dodecyl sulfate; Magnesium monododecyl sulfate; Sulfuric acid, monododecyl ester, magnesium salt

**Definition:** Magnesium salt of lauryl sulfate

**Empirical:**  $C_{24}H_{50}MgO_8S_2$

**Formula:**  $[CH_3(CH_2)_{10}CH_2OSO_3]_2Mg^{++}$

**Properties:** Pale yel. liq., mild odor; sol. in methanol, acetone, water; insol. in kerosene; m.w. 555.09; anionic

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Surfactant, detergent, foaming, wetting agent, and emulsifier for toothpaste and shampoos; foaming agent in pharmaceuticals; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 176.170, 177.1200

**Manuf./Distrib.:** Ashland; Rhodia HPCII

**Magnesium lithium sodium silicate.** *See* Smectite

**Magnesium monododecyl sulfate.** *See* Magnesium lauryl sulfate

### Magnesium myristate

CAS 4086-70-8; EINECS/ELINCS 223-817-6

**Synonyms:** Myristic acid, magnesium salt; Tetradecanoic acid, magnesium salt

**Definition:** Magnesium salt of myristic acid

**Empirical:**  $C_{28}H_{56}O_4 \cdot \frac{1}{2}Mg$

**Formula:**  $[CH_3(CH_2)_{12}COO]_2Mg^{++}$

**Uses:** Opacifier, viscosity control agent in cosmetics; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in surf. lubricants for

mfg. of food-contact metallic articles  
Regulatory: FDA 21CFR §172.863, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910

**Magnesium octadecanoate.** See Magnesium stearate

**Magnesium oxide**

CAS 1309-48-4; EINECS/ELINCS 215-171-9

*Synonyms:* Calcined magnesia; Calcined magnesite; Deadburned magnesia; Magnesia; Magnesia, calcined; Magnesia, caustic-calcined; Magnesia clinker; Magnesia, dead-burned; Magnesia, fused; Magnesia oxide fume; Magnesia, sintered; Magnesia usta; Magnesite, caustic-calcined; Magnesium oxide fume; Periclase; Seawater magnesia; White charcoal

*Classification:* Inorganic oxide

*Definition:* Inorganic salt of magnesium

*Empirical:* MgO

*Properties:* Wh. powd. or cryst., odorless; sol. in dil. acids, ammonium salt sol'ns.; very sl. sol. in water; insol. in alcohol; m.w. 40.31; dens. 3.65-3.75; bulking value 0.034 gal/lb; oil absorp. 70; m.p. 2800 C; b.p. 3600 C

*Toxicology:* ACGIH TLV/TWA (as magnesium) 10 mg/m<sup>3</sup> (fume); TLo (inh., human) 400 mg/m<sup>3</sup>; toxic by inhalation of fume; can cause febrile reaction and leukocytosis in humans; irritating to eyes and respiratory system; equivocal tumorigen; questionable carcinogen; TSCA listed

*Precaution:* Noncombustible; violent reaction or ignition with interhalogens; incandescent reaction with phosphorus pentachloride

*Storage:* Moisture-sensitive

*Uses:* Refractories (steel furnace linings); polycrystalline ceramic for aircraft windshields; elec. insulations; cosmetics; inorg. rubber accelerator; paper mfg.; white color standard; reflector in optical instruments; filler/extender for paints, rubbers; thickener for polyester resins; fluoride removal in water treatment; acid neutralization; heavy metals removal; water desilication; foods (alkali, anticaking, lubricant, nutrient); pharmaceuticals (antacid, mild laxative, buffer, mineral nutrient); absorbent; opacifier; buffering agent; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods; in perfluorocarbon cured elastomers for food contact; activator in food-contact rubber articles for repeated use

*Use Level:* ADI not specified (FAO/WHO)

*Regulatory:* FDA 21CFR §163.110, 175.300, 176.170, 177.1460, 177.2400, 177.2600, 178.3297, 182.5431, 184.1431, GRAS; Japan restricted; Europe listed; FDA approved for orals; BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Alfa Aesar; Alfa Chem; Allan; AluChem; Am. Int'l.; Atlantic Equip. Engrs.; Baymag; Cerac; Chemisphere; Crystran Ltd; EM Ind.; Fluka; Generichem; Harwick; J.W.S. Delavau; K3; Lohmann; Magnesia GmbH; Mallinckrodt Baker; Markinter; Martin Marietta Magnesia Spec.; Morton Int'l.; Nat'l. Magnesia; Premier Chems.; Reade Advanced Materials; Ruger; Sal Chem.; Sigma; Southeastern Mins.; Spectrum Quality Prods.; Tetra; Tomita Pharmaceutical; Whittaker, Clark & Daniels

**Magnesium oxide fume.** See Magnesium oxide

**Magnesium palmitate**

CAS 2601-98-1; EINECS/ELINCS 220-010-0

*Synonyms:* Hexadecanoic acid, magnesium salt; Magnesium dipalmitate; Magnesium hexadecanoate

*Definition:* Magnesium salt of palmitic acid

*Empirical:* C<sub>32</sub>H<sub>62</sub>O<sub>2</sub> • ½Mg

*Formula:* Mg(C<sub>16</sub>H<sub>31</sub>O<sub>2</sub>)<sub>2</sub>

*Properties:* Cryst. needles or wh. lumps; insol. in water and alcohol; m.p. 121.5 C

*Precaution:* Combustible

*Uses:* Opacifier; visc. control agent; lubricant for plastics; in food-pkg. adhesives; drier for varnishes, in food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.863, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910

**Magnesium silicofluoride**

CAS 16949-65-8; 18972-56-0; EINECS/ELINCS 241-022-2; UN No. 2853 (DOT)

*Synonyms:* Hexafluorosilicate (2-) magnesium (1:1); Magnesium fluorosilicate; Magnesium fluosilicate; Magnesium hexafluorosilicate; Silicate (2-),

hexafluoro-, magnesium (1:1)

*Definition:* Avail. commercially as the hexahydrate

*Empirical:* F<sub>6</sub>Si • Mg

*Formula:* MgSiF<sub>6</sub>

*Properties:* Anhyd.: M.w. 166.40; Hexahydrate: Wh. efflorescent cryst., odorless; sol. in water; insol. in alcohol; m.w. 274.52; dens. 1.788; @ 120 C, loses SiF<sub>4</sub>

*Toxicology:* Anhyd.: Mod. toxic by ing.; Hexahydrate: OSHA PEL:TWA 2.5 mg (F)/m<sup>3</sup>; LD50 (oral, guinea pig) 200 mg/kg; poison by ingestion; mod. toxic by subcut. route; TSCA listed

*Precaution:* Keep away from food

*Hazardous Decom. Prods.:* Heated to decomp., emits toxic fumes of F<sup>-</sup>

*Uses:* Mothproofing agent for textiles, wool treatment; wood preservative; oral care agent

*Manuf./Distrib.:* Atomegic Chemetals; Browning; Miljac; Peridot; Triple Crown Am.

*Trade Names Containing:* Sylsisa 435; Sylsisa 445

**Magnesium stearate**

CAS 557-04-0; EINECS/ELINCS 209-150-3

*Synonyms:* Dibasic magnesium stearate; Magnesium distearate; Magnesium octadecanoate; Octadecanoic acid, magnesium salt; Stearic acid, magnesium salt

*Classification:* Sat. aliphatic carboxylic acid salt

*Definition:* Magnesium salt of stearic acid

*Empirical:* C<sub>36</sub>H<sub>70</sub>MgO<sub>4</sub>

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COO]<sub>2</sub>Mg

*Properties:* Wh. soft oily powd., tasteless, odorless; insol. in water, alcohol, ether; dec. by dilute acids; m.w. 591.27; dens. 1.028; m.p. 88.5 C (pure)

*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup>; LD50 (oral, rat) > 10 g/kg (@ 25%); sl. toxic by ing.; ing. may cause vomiting; inh. of high concs. of dust may cause coughing and mild temporary irritation; TSCA listed

*Precaution:* Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and toxic fumes

*Storage:* Store in cool area away from ignition sources

*Uses:* Baby dusting powder; lubricant in making tablets; drier in paints and varnishes; release, stabilizer, and lubricant for plastics; amino resin processing lubricant; emulsifier for cosmetics; surfactant; cosmetic colorant; anticaking agent in fire extinguishers; food additive (anticaking, binder, emulsifier, stabilizer, defoamer); pharmaceuticals (colorant, tablet lubricant); in food-pkg. adhesives; drier in food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard

*Use Level:* ADI not specified (FAO/WHO)

*Regulatory:* FDA 21CFR §172.863, 173.340; 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 178.3910, 179.45, 181.22, 181.29, 184.1440, GRAS; must conform to FDA specs for salts of fats or fatty acids derived from edible oils; Europe listed; UK approved; FDA approved for buccals, parenterals, orals, vaginals; USP/NF, BP, Ph.Eur., JP compliance

*Manuf./Distrib.:* Aldrich; Alfa Chem; Allan; Am. Int'l.; Avrachem AG; Charkit; Chemisphere; Comerals; Crompton/Witco; EM Ind.; Fallek; Ferro/Grant; Ferro; Gallard-Schlesinger Ind.; H.M. Royal; Jarchem Ind.; Kraft Chem.; Lohmann; Magnesia GmbH; Mallinckrodt Baker; Miljac; NOF Am.; Norac; Norman, Fox; Ruger; San Yuan; Sea-Land; Spectrum Quality Prods.; Universal Preserv-A-Chem; Whittaker, Clark & Daniels

**Magnesium sulfate (1:1).** See Magnesium sulfate anhydrous

**Magnesium sulfate anhydrous**

CAS 7487-88-9; EINECS/ELINCS 231-298-2

*Synonyms:* Epsom salts; Magnesium sulfate (1:1); Magnesium sulphate; Sulfuric acid magnesium salt (1:1)

*Classification:* Inorganic salt

*Empirical:* O<sub>7</sub>S • Mg

*Formula:* MgSO<sub>4</sub>

*Properties:* Colorless crystals, odorless, saline bitter taste; sol. in water; slowly sol. in glycerin; sl. sol. in alcohol; m.w. 120.37; dens. 2.65; dec. at 1124 C

*Toxicology:* LDLo (oral, mouse) 5 g/kg, (IV, mouse) 48 mg/kg; LD50 (subcut., rat) 1200 mg/kg; poison by IV route; mod. toxic by ing., IP, subcut. routes; human systemic effects; potential adverse reactions incl. drowsi-



ness, depressed reflexes, paralysis, low blood pressure, circulatory collapse; experimental teratogen; mutagenic data; TSCA listed

**Precaution:** Noncombustible; potentially explosive when heated with ethoxyethynyl alcohols

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>x</sub>  
HMIS: Health 1; Flammability 0; Reactivity 0

**Storage:** Hygroscopic

**Uses:** Fireproofing agent, warp sizing, dyeing/printing aux. for textiles; mineral waters; catalyst carrier; catalyst in process industries; paper sizing; cosmetic lotions; fertilizer ingred.; magnesia refractory brick raw material; ceramics; visc. control agent; detergent cake mfg.; micronutrient in agric.; nutrient, dietary supplement, flavor enhancer, processing aid, fermentation aid in foods; animal feed additive; pharmaceutical orals; medicine (cathartic, laxative, local painkiller, antidote)

**Regulatory:** FDA 21CFR §182.5443, 184.1443, GRAS; Japan approved; Europe listed; UK approved; FDA approved for orals; BP, Ph.Eur. compliance

**Manuf./Distrib.:** Adheswara Chems. Pvt. Ltd.; Aldrich; Alfa Chem; Allan; Am. Int'l.; Barrington; Brøste; Charkit; Chemisphere; Fluka; Gallard-Schlesinger Ind.; Generichem; Giles; Harcros; Heico; Lohmann; Mallinckrodt Baker; Miljac; O.C. Lugo; PQ; Poly Research; Ruger; Sigma; Southern Ionics; Spectrum Quality Prods.; Tomita Pharmaceutical; Wm. Blythe Ltd

**Trade Names:** Magnabrite™

#### Magnesium sulfate heptahydrate

CAS 10034-99-8; EINECS/ELINCS 231-298-8

**Synonyms:** Bitter salts; Epsom salts; Sulfuric acid, magnesium salt (1:1) heptahydrate

**Empirical:** MgO<sub>4</sub>S • 7H<sub>2</sub>O

**Formula:** MgSO<sub>4</sub> • 7H<sub>2</sub>O

**Properties:** Efflorescent cryst. or powd., bitter saline cooling taste; sol. 71 g/100 ml in water (20 C); sl. sol. in alcohol; m.w. 246.48; dens. 1.670; pH 6-7; loses water of cryst. above 150 C

**Toxicology:** TDLo (oral, man, 4 h intermittent) 183 mg/kg; mod. toxic by several routes; parenteral use or use in presence of renal insufficiency, may lead to magnesium intoxication; target organs: nerves, GI system

HMIS: Health 1; Flammability 0; Reactivity 0

**Storage:** Keep well closed; store @ R.T.

**Uses:** Nutrient magnesium source for horticulture; flavor enhancer, nutrient, dietary supplement, processing aid, firming agent in foods, beer-making; mfg. of Epsom salts; micronutrient in biosynthesis; in fertilizers, explosives; weighting cotton and silk; inc. bleaching action of chlorinated lime; maintains pulp visc. and quality in bleaching of kraft hard and soft wood pulps; fireproofing fabrics; anticonvulsant; cathartic; purgative

**Regulatory:** FDA 21CFR §184.1443, GRAS; Europe listed; UK approved

**Manuf./Distrib.:** AMRESCO; Aktiva Ltd; Aldrich; Allan; Fluka; Giles; Lohmann; Ruger; Sigma; Wm. Blythe Ltd

**Trade Names:** PQ® Epsom Salt Tech.

**Magnesium sulphate.** See Magnesium sulfate anhydrous

#### Magnesium tallowate

CAS 68953-41-3; EINECS/ELINCS 273-205-8

**Synonyms:** Fatty acids, tallow, magnesium salt

**Definition:** Magnesium salt of tallow acid

**Uses:** Emulsifier; surfactant; food pkg. adhesives; in food-contact paper/paperboard; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.170, 178.3910

**Magnesium, tetrakis[carbonato(2-)] dihydroxypenta-**. See Magnesium carbonate hydroxide

**Magnetite.** See Iron oxide black

**Mahogany oil.** See Sodium petroleum sulfonate

**Maize oil.** See Corn (Zea mays) oil

**Maize starch.** See Corn (Zea mays) starch

**MALA.** See Maleic anhydride

**Malamine, hexakis (methoxymethyl).** See Hexamethoxymethylmelamine

**Maleic acid anhydride.** See Maleic anhydride

#### Maleic anhydride

CAS 108-31-6; EINECS/ELINCS 203-571-6; UN No. 2215 (DOT)

**Synonyms:** MA; MAA; MALA; MAN; cis-Butenedioic anhydride; 2,5-Dihydrofuran-2,5-dione; Dihydro-2,5-dioxofuran; 2,5-Furandione; Maleic

acid anhydride; Toxilic anhydride

**Classification:** Aliphatic carboxylic acid anhydride

**Empirical:** C<sub>4</sub>H<sub>2</sub>O<sub>3</sub>

**Properties:** Colorless needles; irritating, acrid odor; sol. in water forming maleic acid; sol. in acetone, ethyl acetate, hydrocarbons, alcohol, dioxane, oxygenated solvs.; partly sol. in chloroform, benzene; m.w. 98.06; dens. 0.934 (20/4 C); m.p. 53 C; b.p. 200 C; flash pt. (CC) 102 C

**Toxicology:** ACGIH TLV/TWA 0.25 ppm; LD50 (oral, rat) 481 mg/kg, (IP, rat) 97 mg/kg, (skin, rabbit) 2620 mg/kg; poison by ing., IP routes; mod. toxic by skin contact; corrosive irritant to tissues, eyes, skin; can cause pulmonary edema; may cause asthmatic reaction in sensitized individuals; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed

**Precaution:** DOT: Corrosive material; combustible exposed to heat or flame; can react vigorously with oxidizing materials; explosive as vapor exposed to heat or flame; violent reaction with bases; reacts with water

**Hazardous Decomp. Prods.:** Combustion prods.: CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke, irritating fumes

NFPA: Health 3; Flammability 1; Reactivity 1

**Uses:** Mfg. of unsat. polyester resins, alkyd coating resins, herbicides, insecticides, fungicides, plant growth regulators, and malic, fumaric, and tartaric acids; a pesticide; preservative for oils and fats, pharmaceuticals; sizing agent for paper; stabilizer for vinyl chloride; plasticizer; paints; inks; permanent press fabrics; mfg. of lubricating oil additives

**Regulatory:** SARA reportable; BP compliance

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Aristech; Ashland; Atofina SA; BCH Brühl; BP Amoco; Baychem; Brown; Browning; Chemical; DSM Chemie Linz GmbH; Degussa-Hüls AG; Fluka; Huntsman; J.T. Baker; Miljac; Monsanto; NOF; Occidental; Primachem; Punda Mercantile; Royale Pigments & Chems.; Schweizerhall; Sigma; Spectrum Quality Prods.; U.S. Chems.; United Min. & Chem.; Van Waters & Rogers; Whyte Chems. Ltd

**Trade Names Containing:** Polybond® 3002; Polybond® 3150

**Maleic anhydride/diisobutylene copolymer, ammonium salt.** See Ammonium maleic anhydride/diisobutylene copolymer

**Maleic anhydride/diisobutylene copolymer, sodium salt.** See Sodium maleic anhydride/diisobutylene copolymer

#### Maleic anhydride homopolymer

CAS 24937-72-2

**Synonyms:** 2,5-Furandione, homopolymer; Maleic anhydride oligomer; Maleic anhydride polymer; Maleic anhydride, polymers; Poly (maleic anhydride)

**Formula:** (C<sub>4</sub>H<sub>2</sub>O<sub>3</sub>)<sub>x</sub>

**Toxicology:** LD50 (IV, mouse) 110 mg/kg; TSCA listed

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Manuf./Distrib.:** ABCR; Callaway

**Maleic anhydride oligomer.** See Maleic anhydride homopolymer

**Maleic anhydride/polyethylene copolymer.** See Ethylene/MA copolymer

**Maleic anhydride polymer.** See Maleic anhydride homopolymer

#### Maleic anhydride, polymer with ethyl acrylate and vinyl acetate, hydrolyzed

CAS 113221-69-5

**Toxicology:** TSCA listed

**Uses:** Deposit control additive, scale inhibitor in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Maleic anhydride, polymers.** See Maleic anhydride homopolymer

**Maleic anhydride/styrene copolymer.** See Styrene/MA copolymer

**Maleic anhydride/styrene polymer.** See Styrene/MA copolymer

#### Maleic resin

**Synonyms:** Fumaric resin; Maleinic resin

**Definition:** Avail. commercially in several different grades depending on type and ratio of raw materials: glycol-sol., spirit-sol., hydrocarbon-sol. types

**Properties:** Soften. pt. 120-160 C

**Uses:** Gloss/adhesion promoter and hardener in alkyd resins, nitrocellulose lacquers, varnishes, printing inks, emulsion floor polishes; dry-strength additive in paper; binder in varnishes, stoving lacquers, printing inks

*Manuf./Distrib.:* Chemcentral; Chemical; Monomer-Polymer & Dajac Labs

**Maleinic resin.** See Maleic resin

**MAN.** See Maleic anhydride

**Manila elemi copal.** See Elemi gum

**MAP.** See Ammonium phosphate

**MAPTAC.** See Methacrylamidopropyltrimethylammonium chloride

**Marble.** See Calcium carbonate

**Mascagnite.** See Ammonium sulfate

**Matting acid.** See Sulfuric acid

**Maxatase.** See Protease

**MBC.** See Carbendazim

**MBT.** See 2-Mercaptobenzothiazole; Methylenebis (thiocyanate)

**2-MBT.** See 2-Mercaptobenzothiazole

**MC.** See Methylcellulose

**MDAC.** See 7-Diethylamino-4-methylcoumarin

**MDPE.** See Polyethylene, medium density

**MEA.** See Ethanolamine

**MEG.** See Glycol

**MEHQ.** See Hydroquinone monomethyl ether

**MEK.** See Methyl ethyl ketone

**MELA.** See Ethanolamine

## Melamine

CAS 108-78-1; EINECS/ELINCS 203-615-4

*Synonyms:* Cyanuramide; Cyanuric triamide; Cyanurotriamide; Cyanurotriamine; Isomelamine; 2,4,6-Triamino-s-triazine; 2,4,6-Triamino-1,3,5-triazine; 2,4,6-Triamino-sym-triazine; sym-Triaminotriazine; 1,3,5-Triazine-2,4,6-triamine; s-Triazine, 2,4,6-triamino-

*Empirical:* C<sub>3</sub>H<sub>6</sub>N<sub>6</sub>

*Properties:* Colorless monoclinic prisms; sl. sol. in water; very sl. sol. in hot alcohol; insol. in ether; m.w. 126.15; dens. 1.573 (250 C); m.p. < 250 C; flash pt. > 300 C; b.p. sublimes; nonflamm.

*Toxicology:* LD50 (oral, rat) 3161 mg/kg; LDLo (IP, rat) 3200 mg/kg; mod. toxic by ing., IP routes; eye, skin, and mucous membrane irritant; causes dermatitis in humans; experimental carcinogen, tumorigen; experimental reproductive effector; mutagenic data; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub> and CN<sup>-</sup>

*Uses:* Forms synthetic resins with formaldehyde; melamine resins; organic synthesis; fire-retardant intumescent paint ingred.; mfg. of food-contact paper/paperboard; leather tanning; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 181.30

*Manuf./Distrib.:* Agrolinz Melamin; Aldrich; Allchem Ind.; Am. Melamine Ind.; Atofina; BASF; BCH Brühl; Browning; Brøste; Charkit; Chemical; Cytec Ind.; DSM Chem. N. Am.; Falek; Fluka; Int'l. Chem. Inc; Melamine Chems.; Miljac; Mitsui Toatsu; Monsanto; Nissan Chem. Ind.; Punda Mercantile; Reichhold; San Yuan; Sigma; United Min. & Chem.; Varsal Instruments; Whyte Chems. Ltd

**Melamine/formal copolymer.** See Melamine-formaldehyde resin

**Melamine/formaldehyde copolymer.** See Melamine-formaldehyde resin

## Melamine-formaldehyde resin

CAS 9003-08-1

*Synonyms:* Melamine/formal copolymer; Melamine/formaldehyde copolymer; Melamine, polymer with formaldehyde; Melamine resin; Polyoxymethylene melamine; 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde

*Classification:* Amino resin; triazine-formaldehyde resin

*Definition:* Thermosetting resin formed by the condensation reaction of formaldehyde with melamine

*Formula:* (C<sub>3</sub>H<sub>6</sub>N<sub>6</sub> • CH<sub>2</sub>O)<sub>x</sub>

*Properties:* Syrup or insol. wh. powd.; sol. in water

*Toxicology:* LD50 (oral, rat) > 10 g/kg, (IV, mouse) 1900 µg/kg, (skin, rabbit) > 10 g/kg; mod. toxic by IV route; low toxicity by ing. and skin contact; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Film-former; crosslinking agent for coatings; fiber and paper processing; in paper/paperboard for food pkg.; flame retardant for PU; as molding compds. with α-cellulose, wood flour, or mineral powds. as fillers; laminating; boil-proof adhesives; wet str. additive in papers; flame-retardant

textile treatment agent; textile/leather processing; dinnerware; decorative plastic items; concrete admixtures; binder for fiber webs; in food-pkg. adhesives; in food-contact coatings, paper/paperboard, molded articles; in cellophane for food pkg.; in resin-bonded filters for food contact

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.320, 176.180, 177.1200, 177.1460, 177.2260, 177.2470, 181.22, 181.30

*Manuf./Distrib.:* Akzo Nobel; Astro Ind.; BASF; BFGoodrich/Textile; Bakelite GmbH; Chemical; Cytec Ind.; DSM Chem. N. Am.; Eastech; Georgia-Pacific Resins; Harborchem; Hopton Tech.; Monsanto; Nat'l. Casein; Neste Resins; Reichhold; Solutia; Sybron

*Trade Names:* GMF-B

*Trade Names Containing:* Melmac® 243-3

## Melamine-formaldehyde resin, butylated

CAS 68002-25-5

*Synonyms:* Poly (melamine-co-formaldehyde), butylated

*Classification:* Formaldehyde copolymer

*Definition:* Commercial prods. are mixts. contg. 3-6 butylated methylol groups on each molecule

*Properties:* Sol. in oil; dens. 1.030; ref. index 1.4900 (20 C)

*Toxicology:* Harmful by inh., ing., skin contact; severe irritant; sensitizer; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting; may cause allergic skin reaction; exposure can cause dizziness, incoordination, anorexia, unconsciousness; cancer suspect agent; mutagen; target organs: CNS, ears, liver, kidneys, blood

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, methanol, formaldehyde, butanol; emits toxic fumes under fire conditions

*Storage:* Keep tightly closed; store in cool dry place

*Uses:* Crosslinking agent for hydroxyl-terminated thermosetting acrylic resins; alkyd-amino resins for printing inks; alkyd-amino stoving resins (domestic equipment, vehicle finishes); food-contact coatings, paper/paperboard

*Manuf./Distrib.:* Aldrich

*Trade Names Containing:* Cymel® 245-8; Cymel® 247-10; Cymel® 248-8; Cymel® 1158; Resimene® BM-5901

## Melamine-formaldehyde resin, etherified acrylated

CAS 152143-20-9

*Trade Names Containing:* Santolink® AM-129

## Melamine-formaldehyde resin, isobutylated

CAS 68002-21-1

*Synonyms:* Poly (melamine-co-formaldehyde), isobutylated

*Classification:* Formaldehyde copolymer

*Toxicology:* LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 5000 mg/kg; highly toxic; may be fatal if inh., ing., or absorbed thru skin; extremely destructive to tissues of mucous membranes, upper respiratory tract, eyes, skin; sensitizer; lachrymator; inh. may cause spasm, inflamm./edema of the larynx and bronchi, chem. pneumonitis, pulmonary edema; may cause dizziness, anorexia, unconsciousness; cancer suspect agent; mutagen; target organs: CNS; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, formaldehyde, isobutanol, melamine

*Storage:* Keep tightly closed; store in cool dry place

*Uses:* Crosslinking agent for fast curing finishes; food-contact coatings, paper/paperboard

*Manuf./Distrib.:* Aldrich

*Trade Names Containing:* Cymel® 255-10

## Melamine-formaldehyde resin, methylated

CAS 68002-20-0

*Synonyms:* Poly (melamine-co-formaldehyde), methylated; 1,3,5-Triazine-2,4,6-triamine compd. with formaldehyde, methylated; 1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde, methylated

*Classification:* Formaldehyde copolymer

*Properties:* Dens. 1.200; flash pt. 110 C; ref. index 1.5190 (20 C)

*Toxicology:* LD50 (oral, rat) 12,300 µl/kg; harmful if ing., inh. or absorbed thru skin; irritating to eyes, skin, respiratory system; sensitizer; may cause allergic skin reaction; can cause acute pulmonary edema, ulceration/bleeding from stomach, liver changes; cancer suspect agent; mutagen;

TSCA listed

**Precaution:** Avoid heat; incompat. with strong oxidizing agents; container explosion may occur under fire conditions**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>, methanol, formaldehyde; emits toxic fumes under fire conditions**Storage:** Keep tightly closed; store in a cool dry place**Uses:** Crosslinking agent for thermosetting surf. coatings; used in aq. coatings incl. metal, paper, automotive, coil, and wood furniture and cabinet coatings, inks; reinforcement for rubber compds., latex dips; enhances rubber adhesion to textiles, cord**Manuf./Distrib.:** Aldrich; Monsanto**Trade Names:** Cymel® 300; Resimene® AQ-1616; Resimene® AQ-7550**Trade Names Containing:** Modacure® Resin; Resimene® 717; Resimene® 730; Resimene® 735; Resimene® 797; Resimene® 7111; Resimene® 7112; Resimene® HM-2608**Melamine-formaldehyde resin, methylated-butylated**

CAS 68036-97-5

**Synonyms:** Poly (melamine-co-formaldehyde), methylated/butylated**Classification:** Formaldehyde copolymer**Properties:** Dens. 1.096; flash pt. 110 C; ref. index 1.5010 (20 C)**Toxicology:** LD50 (oral, rat) > 5000 mg/kg, (skin, rabbit) > 5000 mg/kg; toxic; harmful by ing. inh., skin absorption; irritating to eyes, skin, respiratory system; sensitizer; may cause allergic skin reaction; cancer suspect agent; mutagen**Precaution:** Incompat. with strong oxidizing agents; avoid heat**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>, methanol, formaldehyde; emits toxic fumes under fire conditions**Storage:** Keep tightly closed; store in cool dry place**Uses:** Crosslinking agent for thermosetting surf. coatings; resist. to hydrolysis; for auto, can/container, metal, metal deco, appliance, and extrusion coatings, and inks**Manuf./Distrib.:** Aldrich**Trade Names:** Resimene® 757**Trade Names Containing:** Resimene® CE-6517**Melamine orthophosphate.** See Melamine phosphate**Melamine phosphate**

CAS 20208-95-1; EINECS/ELINCS 243-601-5

**Synonyms:** Melamine orthophosphate**Empirical:** C<sub>3</sub>H<sub>6</sub>N<sub>6</sub>O<sub>3</sub>P**Formula:** C<sub>3</sub>H<sub>6</sub>N<sub>6</sub> • H<sub>3</sub>O<sub>3</sub>P**Properties:** Wh. powd.; sol. 0.35 g/ml water; dens. 1.69 kg/l; dec. starts at 300 C**Uses:** Flame retardant additive for plastics, rubbers, latex intumescent coating formulations, paper; intumescent paint/mastic ingred.**Manuf./Distrib.:** Akzo Nobel; Albright & Wilson Am.; DSM Chem. N. Am.; Great Lakes; Miljac**Melamine, polymer with formaldehyde.** See Melamine-formaldehyde resin**Melamine resin.** See Melamine-formaldehyde resin**Melaniline.** See Diphenylguanidine**Menhaden acid, hydrogenated.** See Hydrogenated menhaden acid**Menhaden oil**

CAS 8002-50-4; EINECS/ELINCS 232-311-4

**Synonyms:** Brevoortia tyrannus oil; Brevoortia; Pogy oil; Mossbunker oil**Definition:** Oil obtained from the small North Atlantic fish, *Brevoortia tyrannus***Properties:** Ylsh.-brown or reddish-brown oil, char. fishy odor and taste; sol. in ether, benzene, petrol. ether, naphtha, kerosene, CS<sub>2</sub>; dens. 0.925-0.933; m.p. 38.5-47.2 C; iodine no. 115-160; sapon. no. 191-200; ref. index 1.480 (20 C)**Toxicology:** No known toxicity; TSCA listed**Precaution:** Combustible**Uses:** Substitute for linseed oil; leather dressing; hydrogenated fats for cooking and industrial use; printing inks; animal feed; lubricants; paint drier; cleansers; lipstick; as tallow substitute in soap mfg.; rubber compounding; emollient, solvent in cosmetics; defoamer in food-contact coatings and paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles; nutritional supplements in pharmaceuticals**Regulatory:** FDA 21CFR §175.300, 176.200, 176.210, 177.2800**Manuf./Distrib.:** ABITEC; Alnor Oil; Arista Ind.; Croda Oleochems.; Sigma; Werner G. Smith**Menhaden oil, hydrogenated.** See Hydrogenated menhaden oil**2-Mercaptobenzothiazole**

CAS 149-30-4; EINECS/ELINCS 205-736-8

**Synonyms:** MBT; 2-MBT; 2-Benzothiazolethiol; 2(3H)-Benzothiazolethione; 2-Benzothiazolyl mercaptan**Classification:** Benzothiazole**Empirical:** C<sub>7</sub>H<sub>5</sub>NS<sub>2</sub>**Formula:** CHCHCHCHCCSC(SN)N**Properties:** Yel. powd., distinctive unpleasant odor; sol. in dilute caustic, alcohol, acetone, benzene, chloroform; sl. sol. in oxygenated solvs.; pract. insol. in water, gasoline; m.w. 167.25; sp.gr. 1.42; m.p. 180-182 C  
**Toxicology:** LD50 (oral, rat) 100 mg/kg, (skin, rabbit) > 7940 mg/kg; poison by ing. and IP routes; tumorigen; mutagen; carcinogenic evidence in rats; experimental teratogenic and reproductive effects; TSCA listed**Precaution:** Combustible**Hazardous Decomp. Prods.:** Heated to decomp. or on contact with acids or acid fumes, emits toxic SO<sub>x</sub> and NO<sub>x</sub>**Uses:** Vulcanization accelerator for rubber (requires stearic acid for full activation); tire treads; mech. specialties; fungicide; corrosion inhibitor in water treatment; petroleum prod.; extreme pressure additive in greases; flotation collector (sulfide ores); in food-pkg. adhesives; slimicide in food-contact paper/paperboard; accelerator for food-contact rubber articles for repeated use**Regulatory:** FDA 21CFR §175.105, 176.300, 177.2600; SARA reportable**Manuf./Distrib.:** Akzo Nobel; Aldrich; Allchem Ind.; Charkit; Cytec Ind.; Fluka; Monsanto; R.T. Vanderbilt; Sigma; Uniroyal**Trade Names:** Naugex® MBT**2-Mercaptobenzothiazole sodium deriv.** See Sodium 2-mercaptobenzothiazole**2-Mercaptobenzothiazole sodium salt.** See Sodium 2-mercaptobenzothiazole**Mercuriphenyl acetate.** See Phenylmercuric acetate**Mercurous chloride.** See Dimercury dichloride**Mercury, (acetato) phenyl-** See Phenylmercuric acetate**Mercury chloride.** See Dimercury dichloride**Mercury (I) chloride.** See Dimercury dichloride**Mercury subchloride.** See Dimercury dichloride**Meroxapol 105**

CAS 9003-11-6 (generic)

**Classification:** Polyoxypropylene, polyoxyethylene block polymer**Formula:** HO(CHCH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>(CH<sub>2</sub>CHCH<sub>3</sub>O)<sub>z</sub>H, avg. x = 7, y = 22, z = 7**Properties:** Nonionic liq.; nonionic**Toxicology:** LD50 (oral, rat) 2300 mg/kg; mod. toxic by ing. and IP routes; TSCA listed**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes**Uses:** Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surf. detergents, rinse aids, automatic dishwashing, textile processing, paper processing, paints; latexes, water treating systems, petrol. industries, pharmaceuticals**Regulatory:** FDA 21CFR §172.808, 173.340**Manuf./Distrib.:** Aldrich; Fluka; Sigma**Trade Names:** Pluronic® 10R5**Meroxapol 108**

CAS 9003-11-6 (generic)

**Classification:** Polyoxypropylene, polyoxyethylene block polymer**Formula:** HO(CHCH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>(CH<sub>2</sub>CHCH<sub>3</sub>O)<sub>z</sub>H, avg. x = 7, y = 91, z = 7**Properties:** Nonionic**Toxicology:** TSCA listed**Uses:** Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing, etc.**Manuf./Distrib.:** Aldrich; Fluka; Sigma**Meroxapol 171**

CAS 9003-11-6 (generic)

*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 12$ ,  $y = 4$ ,  $z = 12$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints, adhesives  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Nonionic 1017-R

**Meroxapol 172**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 12$ ,  $y = 9$ ,  $z = 12$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints, adhesives, pharmaceuticals  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Antarox® 17-R-2; Nonionic 2017-R; Pluronic® 17R2

**Meroxapol 174**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 12$ ,  $y = 23$ ,  $z = 12$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints; pharmaceuticals  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 178**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 12$ ,  $y = 136$ ,  $z = 12$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 251**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 18$ ,  $y = 6$ ,  $z = 18$   
*Properties:* Nonionic liq.; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; pharmaceuticals  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 252**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x=18$ ,  $y=14$ ,  $z=18$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard sur-

face detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints, latexes, pharmaceuticals  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Antarox® 25-R-2; Antarox® EGE 25-2; Pluronic® 25R2

**Meroxapol 254**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 18$ ,  $y = 34$ ,  $z = 18$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints, latexes, pharmaceuticals  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 255**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 18$ ,  $y = 51$ ,  $z = 18$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 258**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 18$ ,  $y = 163$ ,  $z = 18$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints, latexes, pharmaceuticals  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 311**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 21$ ,  $y = 7$ ,  $z = 21$   
*Properties:* Nonionic liq.; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing; paints; pharmaceuticals; antifreeze  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Antarox® 31-R-1

**Meroxapol 312**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer  
*Formula:*  $\text{HO}(\text{CHCH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CHCH}_2\text{O})_z\text{H}$ , avg.  $x = 21$ ,  $y = 15$ ,  $z = 21$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meroxapol 314**

CAS 9003-11-6 (generic)  
*Classification:* Polyoxypropylene, polyoxyethylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CH}_2\text{CH}_2\text{O})_y(\text{CH}_2\text{CH}(\text{CH}_3)\text{O})_z\text{H}$ , avg.  $x = 21$ ,  $y = 39$ ,  $z = 21$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, wetting agent, binder, stabilizer, plasticizer, lubricant, solubilizer, dispersant, visc. control agent, defoamer, intermediate for hard surface detergents, rinse aids, automatic dishwashing, textile processing, paper processing

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Meta black.** See Direct black 38

**Metanil yellow.** See Acid yellow 36

**Metaphosphoric acid, hexasodium salt.** See Sodium hexametaphosphate

**Metaphoxide.** See Tris [1-(2-methyl-aziridinyl) phosphine oxide]

**Metepa.** See Tris [1-(2-methyl-aziridinyl) phosphine oxide]

### Methacrylamidopropyltrimethylammonium chloride

CAS 51410-72-1; EINECS/ELINCS 257-182-1

*Synonyms:* MAPTAC; 3-(Methacrylamidopropyl) trimethyl ammonium chloride; Methacrylamidopropyl trimonium chloride; (3-(Methacryloylamino) propyl) trimethylammonium chloride

*Classification:* Nonaromatic amide

*Empirical:*  $\text{C}_{10}\text{H}_{21}\text{ClN}_2\text{O}$

*Formula:*  $\text{CH}_2\text{CH}_2\text{C}(\text{CONHCH}_2\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_3)^+\text{Cl}^-$

*Properties:* M.w. 220.74; dens. 1.1053; ref. index 1.43

*Toxicology:* Irritant; TSCA listed

*Uses:* Flocculating aid; paper sizes; ion exchange resins; antistatic finishing; hydrophilic glass fibers; superabsorbents; toner polymers; thickeners; cement additives; anticorrosives; adhesives; cosmetics; prod. of acrylamide copolymers

*Manuf./Distrib.:* Aldrich

*Trade Names:* Mhoromer® BM 613

**3-(Methacrylamidopropyl) trimethyl ammonium chloride.** See Methacrylamidopropyltrimethylammonium chloride

**Methacrylamidopropyl trimonium chloride.** See Methacrylamidopropyltrimethylammonium chloride

**Methacrylate copolymer.** See Methacrylic acid copolymer

### Methacrylateochromic chloride

*Synonyms:* Methacrylate chromic chloride hydroxide

*Empirical:*  $\text{C}_4\text{H}_4\text{Cl}_2\text{Cr}_2\text{O}_3$

*Formula:*  $\text{CH}_2\text{C}(\text{CH}_3)\text{C}(\text{OOCr}_2\text{Cl}_2\text{OH})$

*Properties:* Solid; water-sol.; m.w. 383.34

*Uses:* Coupling agent for plastics; bonding agent and coupling agent for glass-reinforced laminates; water repellent, nonadhesive, insolubilizer for vinyl polymer

*Trade Names:* Volan®, Volan® L

**Methacrylate chromic chloride hydroxide.** See Methacrylateochromic chloride

### Methacrylic acid

CAS 79-41-4; EINECS/ELINCS 201-204-4; UN No. 2531 (inhibited)

*Synonyms:* MAA; Acrylic acid, 2-methyl-; 2-Methylacrylic acid;  $\alpha$ -Methylacrylic acid;  $\alpha$ -Methylacrylic acid (monomer); 2-Methylene propionic acid; 2-Methylpropenoic acid; 2-Methyl-2-propenoic acid; 2-Propenoic acid, 2-methyl-; Propionic acid, 2-methylene-

*Empirical:*  $\text{C}_4\text{H}_6\text{O}_2$

*Formula:*  $\text{H}_2\text{C}(\text{CH}_3)\text{COOH}$

*Properties:* Colorless liq., repulsive acrid odor; sol. in warm water, alcohol, ether, most org. solvs.; sol. > 10 mg/ml in water (17 C); m.w. 86.09; dens. 1.015 (20 C); vapor pressure 1 mm (25.5 C); m.p. 15-16 C; b.p. 163 C; flash pt. (OC) 76 C

*Toxicology:* ACGIH TLV/TWA 20 ppm; LD50 (oral, rat) 1060 mg/kg, (IP, mouse) 48 mg/kg, (skin, rabbit) 500 mg/kg; poison by IP route; mod. toxic by ing., skin contact; corrosive; strong irritant to skin, eyes, mucous membranes; mutagenic data; TSCA listed

*Precaution:* Combustible; corrosive; flamm. exposed to heat, flame, oxidizers; a storage hazard; spontaneous exothermic polymerization can occur

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke, irritating fumes

*Storage:* Storage hazard

*Uses:* Monomer for large-volume resins and polymers, organic synthesis;

comonomer for thermosetting acrylic resins; carboxylated comonomer for S/B-nitrile latex; engineering adhesives; thickener for hair care prods.; paints; ion-exchange membrane; processing agent, binder for paper and textile; leather treatment; adhesion promoter; pharmaceutical ophthalmics

*Regulatory:* FDA approved for ophthalmics

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Atofina; Brøste; Degussa-Hüls; Fluka; Kuraray; Monomer-Polymer & Dajac Labs; Rohm & Haas; Rohm Tech; Sigma; Whyte Chems. Ltd

*Trade Names:* Mhoromer® AM 199

*Trade Names Containing:* Baypren Latex 4 R; Sipomer® SEM 25

### Methacrylic acid/acrylic acid copolymer

CAS 25751-21-7

*Uses:* Boiler water additive in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Methacrylic acid butyl ester.** See Butyl methacrylate

### Methacrylic acid copolymer

*Synonyms:* Methacrylate copolymer

*Definition:* Fully polymerized copolymer of methacrylic acid and an acrylic or methacrylic ester; Type C may contain surfactants

*Properties:* Wh. powd., faint char. odor; sol. in dil. alkali, buffer sol'ns. of pH  $\geq 7$ , methanol, alcohol, IPA, acetone; insol. in water, dil. acids; visc. 50-200 cps

*Uses:* Prod. of enteric coated tablets; masks unpleasant taste/odors of pharmaceutical ingreds.; visc. index improver, pour pt. depressant, low temp. sludge dispersant; in hydraulic fluids; lt. stabilizer for PP, ABS, PS, nylon, LDPE, LLDPE, HDPE, acrylics, PC, thermoplastic polyester, SAN, thermoplastic elastomers, surf. coatings; flocculant; retention agent; dehydration accelerator; hair fixative

*Regulatory:* USP/NF compliance

*Trade Names:* Floclair® DMR; Perglutin® K 418

**Methacrylic acid, diester with tetraethylene glycol.** See PEG-4 dimethacrylate

**Methacrylic acid, 2-(diethylamino) ethyl ester.** See Diethylaminoethyl methacrylate

**Methacrylic acid dodecyl ester.** See Lauryl methacrylate

**2-Methacrylic acid dodecyl ester.** See Lauryl methacrylate

**Methacrylic acid 2,3-epoxypropyl ester.** See Glycidyl methacrylate

**Methacrylic acid, ethyl ester.** See Ethyl methacrylate

**Methacrylic acid, hexadecyl ester.** See Cetyl methacrylate

### Methacrylic acid homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Methacrylic acid, 2-hydroxypropyl ester.** See 2-Hydroxypropyl methacrylate

**Methacrylic acid isobornyl ester.** See Isobornyl methacrylate

**Methacrylic acid, isobutyl ester.** See Isobutyl methacrylate

**Methacrylic acid, isodecyl ester.** See Isodecyl methacrylate

**Methacrylic acid lauryl ester.** See Lauryl methacrylate

**Methacrylic acid, methyl ester.** See Methyl methacrylate

**Methacrylic acid methyl ester polymers.** See Polymethyl methacrylate

**Methacrylic acid, monoester with 1,2-propanediol.** See Hydroxypropyl methacrylate

**2-Methacryloxyethyltrimethyl ammonium chloride.** See Dimethylaminoethyl methacrylate methyl chloride quat.

**(3-(Methacryloylamino) propyl) trimethylammonium chloride.** See Methacrylamidopropyltrimethylammonium chloride

### N-(2-Methacryloyloxyethyl) ethylene urea

*Uses:* In plastics, paints, leather, paper, textiles; polymerization

*Manuf./Distrib.:* Aldrich

*Trade Names:* Rohamere® 6852-0

*Trade Names Containing:* Rohamere® 6844-0

**Methamin.** See Hexamethylenetetramine

**Metham potassium.** See Potassium N-methyldithiocarbamate

**Methanal.** See Formaldehyde

**Methanecarboxylic acid.** See Acetic acid

**Methanesulfonic acid, hydroxy-, monosodium salt.** See Sodium formaldehyde sulfoxylate

**Methane, sulfonylbis trichloro-**. See Bis (trichloromethyl) sulfone

**Methanoic acid**. See Formic acid

**Methanol**. See Methyl alcohol

**Methanone, (1,1'-biphenyl)-4-yl phenyl-**. See p-Phenylbenzophenone

**Methenamine**. See Hexamethylenetetramine

**Methenamine 3-chloroallylochloride**. See Quaternium-15

### Methicone

CAS 9004-73-3

*Synonyms*: Poly [oxy(methylsilylene)]

*Classification*: Linear monomethyl polysiloxane

*Empirical*: (CH<sub>3</sub>OSi)<sub>x</sub>

*Properties*: Colorless fluid; odorless; tasteless; dens. 1.006; ref. index 1.3980

*Toxicology*: TSCA listed

*Uses*: Antistat; emollient; reactive fluid for modification of polyester and methacrylic resins; as waterproofing and impregnating agents for textiles, paper, leather; as hydrophobizing agents for powds., silicas, and other fillers; in food-pkg. adhesives; food-contact slimicide; ink transfer preventive for food-contact paper/paperboard

*Regulatory*: FDA 21CFR §175.105, 175.300, 176.130, 177.1200

*Manuf./Distrib.*: Aldrich; Fluka

*Trade Names*: Masil® SF-MH

**Methocel**. See Methylcellulose

**1-Methoxy-2-acetoxyp propane**. See Propylene glycol methyl ether acetate

**2-(Methoxycarbonylamino) benzimidazol**. See Carbendazim

**2-(Methoxycarbonylamino) benzimidazole**. See Carbendazim

**Methoxycarbonylethylene**. See Methyl acrylate

**Methoxy dipropylene glycol**. See PPG-2 methyl ether

**Methoxy ether of propylene glycol**. See Methoxyisopropanol

**1-Methoxy-2-hydroxypropane**. See Methoxyisopropanol

### Methoxyisopropanol

CAS 107-98-2; EINECS/ELINCS 203-539-1; UN No. 3092 (DOT)

*Synonyms*: MP; PGME; Methoxy ether of propylene glycol; 1-Methoxy-2-hydroxypropane; 2-Methoxy-1-methylethanol; Methoxypropanol; 1-Methoxy-2-propanol; Monopropylene glycol methyl ether; Polypropylene glycol monomethyl ether; 2-Propanol, 1-methoxy; Propylene glycol methyl ether; Propylene glycol monomethyl ether;  $\alpha$ -Propylene glycol monomethyl ether

*Classification*: Aliphatic ether alcohol

*Empirical*: C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>

*Formula*: CH<sub>3</sub>OCH<sub>2</sub>CH(OH)CH<sub>3</sub>

*Properties*: Colorless clear liq.; ether-like sweet odor; sol. in water, acetone, benzene, CCl<sub>4</sub>, ethyl ether, petrol. ether, methanol; misc. with oxygenated solvs.; m.w. 90.14; dens. 0.919; m.p. -96.7 C; b.p. 120 C; flash pt. (CC) 32 C

*Toxicology*: ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 5660 mg/kg, (IP, rat) 3720 mg/kg, (IV, rat) 4200 mg/kg, (dermal, rabbit) 13 g/kg; mod. toxic by IV route; mildly toxic by ing., inh., skin contact; vapor irritates eyes and causes tearing; skin irritant; human systemic effects by inh. (anesthesia, nausea); experimental teratogen; TSCA listed

*Precaution*: Flamm.; dangerous fire hazard when exposed to heat or flame; can react with oxidizing materials

*Hazardous Decomp. Prods.*: Heated to decomp., emits acrid smoke and irritating fumes

*NFPA*: Health 0; Flammability 3; Reactivity 0

*Storage*: Store in cool, well-ventilated area, out of direct sunlight; hygroscopic

*Uses*: Antifreeze/coolant for diesel engines; coalescing solvent for paints, lacquers, resins, dyes, oils/greases, cellulosics, acrylics, cleaners, inks, electronics, textile dyes, agric. prods., cosmetics, floor polish, adhesives, fuel additives; solvent sealing of cellophane; oil field; mining; epoxy laminates; chem. intermediate applics.; heat transfer fluid; in food-pkg. adhesives; adjuvant in slimicides in food-contact paper/paperboard; solvent, coupling agent, wetting agent, penetrant for household/industrial cleaners

*Regulatory*: FDA 21CFR §175.105, 176.300, 181.22, 181.30

*Manuf./Distrib.*: Aldrich; Allchem Ind.; Ashland; BP Amoco; Fluka; Harcross; Norman, Fox; Spectrum Quality Prods.; Whyte Chems. Ltd

**1-(2-Methoxyisopropoxy)-2-propanol**. See PPG-2 methyl ether

**2-Methoxy-1-methylethanol**. See Methoxyisopropanol

**2-(2-Methoxymethylethoxy) methylethoxy) propanol**. See PPG-3 methyl ether

**1-(2-Methoxy-1-methylethoxy)-2-propanol**. See PPG-2 methyl ether

**(2-Methoxymethylethoxy) propanol**. See PPG-2 methyl ether

**2-Methoxy-1-methylethyl acetate**. See Propylene glycol methyl ether acetate

**2-((2-Methoxy-4-nitrophenyl) azo)-N-(2-methoxyphenyl)-3-oxobutanamide**. See Pigment yellow 74

**4-Methoxyphenol**. See Hydroquinone monomethyl ether

**p-Methoxyphenol**. See Hydroquinone monomethyl ether

**$\alpha,\omega$ -Methoxypoly (ethylene oxide)**. See PEG dimethyl ether

**Methoxypropanol**. See Methoxyisopropanol

**1-Methoxy-2-propanol**. See Methoxyisopropanol

**1-Methoxy-2-propanol acetate**. See Propylene glycol methyl ether acetate

**Methoxypropoxypropanol**. See PPG-2 methyl ether

**3-(3-(3-Methoxypropoxy) propoxy) propan-1-ol**. See PPG-3 methyl ether

**Methoxypropyl acetate**. See Propylene glycol methyl ether acetate

**1-Methoxy-2-propyl acetate**. See Propylene glycol methyl ether acetate

**2-(1-Methoxy) propyl acetate**. See Propylene glycol methyl ether acetate

### Methoxy tripropylene glycol acrylate

*Synonyms*: Monomethoxy tripropylene glycol monoacrylate

*Uses*: Reactive diluent with exc. solvating props.; exhibits good adhesion to aluminum, paper, paperboard, and selected plastics; useful in UV/EB adhesives

*Trade Names*: Photomer® 8061

**Methurol**. See Dimethylol urea

**Methylene oxide**. See Formaldehyde

**Methyl abietate, hydrogenated**. See Methyl hydrogenated rosinate

**Methyl acetone**. See Methyl ethyl ketone

### Methyl acid phosphate

CAS 812-00-0

*Synonyms*: Methyl phosphoric acid; Methyl orthophosphoric acid; Phosphoric acid, monomethyl ester

*Empirical*: CH<sub>3</sub>O<sub>3</sub>P

*Formula*: CH<sub>3</sub>H<sub>2</sub>PO<sub>4</sub>

*Properties*: Straw-colored liq.; m.w. 112.03; dens. 1.42

*Toxicology*: LD (oral, rat) > 250 mg/kg; mutagen; TSCA listed

*Precaution*: Combustible

*Hazardous Decomp. Prods.*: Toxic fumes of PO<sub>x</sub>

*Uses*: Textile and paper processing compds.; catalyst in urea resin formulation; polymerizing agent for resins and oils; rust remover; soldering flux; chemical intermediate; solubilizer, hydrotrope for acid cleaners, detergents, industrial cleaning, water treatment

### Methyl acrylate

CAS 96-33-3; EINECS/ELINCS 202-500-6; UN No. 1919 (DOT)

*Synonyms*: Acrylic acid methyl ester; Methoxycarbonylethylene; Methyl propenoate; Methyl propenoate; Methyl 2-propenoate; Propenoic acid methyl ester; 2-Propenoic acid methyl ester

*Classification*: Aliphatic organic compd.

*Definition*: Ester of methyl alcohol and acrylic acid

*Empirical*: C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>

*Formula*: CH<sub>2</sub>:CHCOOCH<sub>3</sub>

*Properties*: Colorless volatile liq.; acrid odor; sl. sol. in water; m.w. 86.1; dens. 0.9574 (20/20 C); m.p. -76.5 C; b.p. 79-80 C; flash pt. (TOC) 25 F; ref. index 1.401 (20 C)

*Toxicology*: ACGIH TLV/TWA 10 ppm (skin); LD50 (oral, rat) 0.3 g/kg, (IP, rat) 325 mg/kg, (skin, rabbit) 1243 mg/kg; LC50 (inh., rat, 4 h) 1350 ppm; poison by ing., IP routes; mod. toxic by skin contact; mildly toxic by inh.; human systemic effects by inh. (olfaction, eye, and respiratory changes); irritant to skin and eyes; chronic exposure may cause lung/liver/kidney injury; questionable carcinogen; mutagenic data; TSCA listed

*Precaution*: Flamm.; dangerous fire and explosion risk; can react vigorously with oxidizers; may form peroxides which may initiate exothermic polymerization

*Hazardous Decomp. Prods.*: Heated to decomp., emits acrid smoke and irritating fumes

*Storage*: Storage hazard

*Uses*: Monomer for acrylic polymers; amphoteric surfactants; chemical intermediate; leather finish resins; textile and paper coatings; plastic films; oral pharmaceuticals; vitamin B<sub>12</sub>; modifier for oils/alkyds in food-contact coatings

*Regulatory*: FDA 21CFR §175.300; FDA approved for orals

## Methyl acrylate polymer

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Atofina; BASF; Celanese; Filo; Fluka; G.J. Chem.; LG Chem. Am.; Mitsubishi Chem.; Monomer Polymer & Dajac Labs; Showa Denko; Whyte Chems. Ltd  
*Trade Names:* Norsocryl® MA

## Methyl acrylate polymer

*Empirical:* C<sub>5</sub>H<sub>8</sub>O<sub>2</sub>  
*Properties:* Transparent elastic substance, pract. odorless; little adhesive power; resists the usual solvs.; m.w. 86.09; dens. 0.956; m.p. -75 C; b.p. 80 C; flash pt. 44 F  
*Precaution:* Flamm. liq.  
*Uses:* Used in mfg. of paper/paperboard for food pkg.  
*Regulatory:* FDA 21CFR §181.30  
*Manuf./Distrib.:* Aldrich; BASF; Celanese; Fluka

**2-Methylacrylic acid.** See Methacrylic acid

**α-Methylacrylic acid.** See Methacrylic acid

**2-Methyl acrylic acid decyl ester.** See Isodecyl methacrylate

**α-Methylacrylic acid (monomer).** See Methacrylic acid

**3-(2-Methylacryloyloxy)-propane-1-sulfonic acid, potassium salt.** See Potassium sulfopropyl methacrylate

**Methyl adipate.** See Dimethyl adipate

## Methyl alcohol

CAS 67-56-1; EINECS/ELINCS 200-659-6; UN No. 1230 (DOT)  
*Synonyms:* Carbinol; Colonial spirit; Columbian spirits; Methanol; Methyl hydrate; Methyl hydroxide; Methylol; Monohydroxymethane; Pyroxylic spirit; Wood alcohol; Wood naphtha; Wood spirit

*Empirical:* CH<sub>3</sub>O

*Formula:* CH<sub>3</sub>OH

*Properties:* Clear colorless liq., alcoholic odor (pure), pungent odor (crude); highly polar; misc. with water, alcohol, ether, benzene, ketones, most org. solvs.; m.w. 32.05; dens. 0.7924; m.p. -97.8 C; b.p. 64.5 C; flash pt.(CC) 6 C; ref. index 1.3292 (20 C)

*Toxicology:* ACGIH TLV/TWA 200 ppm; LD50 (oral, rat) 5628 mg/kg; toxic (causes blindness); poisonous by ing., inh., or percutaneous absorp.; eye/skin irritant; narcotic; acute effects: headache, fatigue, nausea, visual impairment, acidosis; convulsions, circulatory collapse, respiratory failure, death; usual fatal dose 100-250 ml; experimental teratogen, reproductive effects; TSCA listed

*Precaution:* DOT: Flamm. liq.; dangerous fire risk; explosive limits 6.0-36.5% vol. in air; reacts vigorously with oxidizers; violent or explosive reactions possible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Uses:* Industrial solvent; mfg. of formaldehyde, acetic acid, dimethyl terephthalate, methyl esters; chemical synthesis; antifreeze; solvent for nitrocellulose, polyvinyl butyral, shellac, rosin, manila resin, dyes, paints, waterborne coatings; plastics softener; denaturant; octane booster in gasoline; as fuel for picnic stoves, soldering torches; extractant for animal/veg. oils; extraction solvent for hops extract, spice oleoresins (foods); pharmaceutical solvent, excipient; in food-pkg. adhesives; in paper/paperboard in contact with dry food; defoamer in food-contact coatings and paper/paperboard; solvent in food-contact PPO resins

*Use Level:* Limitation 50 ppm (spice oleoresins), 2.2% (hops extract)

*Regulatory:* FDA 21CFR §172.560, 173.250, 173.385, 175.105, 176.180, 176.200, 176.210, 177.2420, 177.2460, 27CFR §21.115; FDA approved for orals; USP/NF, BP compliance

*Manuf./Distrib.:* Air Prods.; Albright & Wilson Am.; Aldrich; Allchem Ind.; Amyl; Ashland; Baychem; Brown; C.P. Hall; CPS; Celanese; Chemcentral; Coastal Chem Inc; Coyne; DuPont; Eastman; Equistar; Fisher Scientific; Fluka; General Chem.; Georgia Gulf; Harcros; Honeywell Perf. Polymers; Houghton Chem.; Hukill; J.T. Baker; Miljac; Nissan Chem. Ind.; Norsk Hydro AS; Romil Ltd; Ruger; Sal Chem.; Samson; Sigma; Spectrum Quality Prods.; Sterling Chems.; Sunnyside; Van Waters & Rogers; Varsal Instruments; Veckridge

*Trade Names Containing:* Ancowet A-70; Ancowet S-60; Arquad® 2C-70 Nitrite; Celnax® CX-Z401M; Nacure® 2530

**Methyl aldehyde.** See Formaldehyde

**2-Methyl-2-amino-1-propanol.** See Aminomethyl propanol

## 2-(N-Methylanilino) ethanol

CAS 93-90-3

*Synonyms:* Ethanol, 2-(N-methylphenylamino); N-(2-Hydroxyethyl)-N-methylaniline; N-Methyl-N-hydroxyethylaniline; N-Methyl-N-β-hydroxyethylaniline; 2-(Methylphenylamino) ethanol; Methyl phenyl ethanolamine; Phenyl methyl ethanolamine

*Empirical:* C<sub>9</sub>H<sub>13</sub>NO

*Properties:* M.w. 151.23

*Toxicology:* LD50 (oral, rat) 2830 mg/kg, (skin, rabbit) 3250 μl/kg; mod. toxic by ing. and skin contact; skin and severe eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>  
*Uses:* Coupling agent for disperse dyes for syn. fibers; photosensitive chemical for paper coatings

*Manuf./Distrib.:* Frinton Labs; Pfaltz & Bauer; TCI Am.

**Methyl afoxide.** See Tris [1-(2-methyl-aziridinyl) phosphine oxide]

## Methylated poly (N-1,2-dihydroxyethylene-1,3-imidazolidin-2-one)

*Uses:* Starch insolubilizer for paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**1-Methylazacyclopentan-2-one.** See N-Methyl-2-pyrrolidone

**2-Methylazacyclopropane.** See Propyleneimine

**2-Methylaziridine.** See Propyleneimine

**Methylbenzene.** See Toluene

**4-Methylbenzenesulfonic acid.** See p-Toluene sulfonic acid

**p-Methylbenzenesulfonic acid.** See p-Toluene sulfonic acid

**Methyl 2-benzimidazolecarbamate.** See Carbendazim

**Methyl benzimidazole-2-yl carbamate.** See Carbendazim

**Methyl benzimidazol-2-yl carbamate.** See Carbendazim

**Methylbenzol.** See Toluene

## 4-Methylbenzophenone

CAS 134-84-9

*Synonyms:* P-Benzophenone, methyl-; 4-Methyl-p-benzophenone; Phenyl p-tolyl ketone

*Empirical:* C<sub>14</sub>H<sub>12</sub>O

*Formula:* CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>COC<sub>6</sub>H<sub>5</sub>

*Properties:* Colorless cryst.; sol. in alcohol, benzene, common org. solvs.; m.w. 196.26; m.p. 59 C; b.p. 326 C

*Toxicology:* LD50 (IP, mouse) 250 mg/kg; poison by IP route; TSCA listed  
*Precaution:* Flamm.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Fixative in perfumes

*Manuf./Distrib.:* Aceto; Aldrich

*Trade Names Containing:* Esacure® KT37; Esacure® TZT

**4-Methyl-p-benzophenone.** See 4-Methylbenzophenone

**2-Methyl-4,6-bis [(octylthio) methyl] phenol.** See 2,4-Bis [(octylthio) methyl]-o-cresol

**2-Methyl-1,3-butadiene, homopolymer.** See Polyisoprene

**3-Methyl-1,3-butadiene polymer with 2-methyl-1-propene.** See Isobutylene/isoprene copolymer

**1-Methylbutyl acetate.** See s-Amyl acetate

**2-Methyl butylacrylate.** See Butyl methacrylate

## Methyl caprylate

CAS 111-11-5; EINECS/ELINCS 203-835-0; FEMA 2728

*Synonyms:* Caprylic acid, methyl ester; Methyl octanoate; Octanoic acid, methyl ester

*Definition:* Ester of methyl alcohol and caprylic acid

*Empirical:* C<sub>9</sub>H<sub>18</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>6</sub>COOCH<sub>3</sub>

*Properties:* Colorless liq.; sol. in alcohol, ether; insol. in water; m.w. 158.24; dens. 0.875 (20/4 C); f.p. -37.3 C; b.p. 193-194 C; flash pt. 69 C; ref. index 1.417 (20 C)

*Toxicology:* LDLo (IV, mouse) 48 mg/kg; poison by IV route; TSCA listed  
*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Emollient; intermediate for detergents, emulsifiers, wetting agents, stabilizers, resins, lubricants, plasticizers; synthetic flavoring agent for foods and pharmaceuticals; fragrance; defoamer in food-contact coatings



and paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §172.225, 172.515, 176.200, 176.210, 177.2800; FEMA GRAS

**Manuf./Distrib.:** Aldrich; Alfrebro; Fluka; Grau Aromatics; Penta Mfg.; Sigma

#### Methyl caprylate/caprata

CAS 67762-39-4; 68937-83-7

**Synonyms:** Mixed decanoic and octanoic acids, methyl esters

**Definition:** Mixture of esters of methyl alcohol and caprylic and capric acids

**Uses:** Emollient; in lubricants for automotive, textile, metal rolling operations; food coatings; solvent for pesticides and herbicides; detergent intermediate; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §172.225, 176.200, 176.210, 177.2800

#### Methylcarbinol. See Alcohol

#### Methylcellulose

CAS 9004-67-5; FEMA 2696

**Synonyms:** MC; Cellulose methyl; Cellulose methylate; Cellulose methyl ether; Citrucel; Cologel; Methocel; Methyl cellulose ether

**Definition:** Methyl ether of cellulose

**Properties:** Grayish-wh. fibrous powd., odorless, tasteless; aq. suspension swells in water to visc. colloidal sol'n.; sol. in cold water, glacial acetic acid, some org. solvs.; insol. in alcohol, ether, chloroform, warm water; m.w. 86,000-115,000

**Toxicology:** LD50 (IP, mouse) 275 g/kg; LDLo (IV, mouse) 1 g/kg; poison by IP route; nonallergenic; may cause immune responses; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Protective colloid in water-based paints to prevent flocculation of pigment; film and sheeting; binder in ceramic glazes; leather tanning; dispersant; thickener; sizing agent; adhesive; paper greaseproofing; plasticizer (ceramic/refractory); emulsion stabilizer; visc. stabilizer for latex and emulsion paints; foods (thickener, stabilizer, emulsifier, bodying agent, bulking agent, film-former, binder); pharmaceuticals (tablet binder, coating agent, emulsifier, dispersant, bulk laxative); visc. control agent; in food-pkg. adhesives; in food-contact coatings; defoamer in food-contact coatings

**Use Level:** ADI 0-25 mg/kg (FAO/WHO)

**Regulatory:** FDA 21CFR §150.141, 150.161, 175.105, 175.210, 175.300, 176.200, 182.1480, GRAS; USDA 9CFR §318.7, limitation 0.15% in meat and vegetable prods.; FEMA GRAS; Japan restricted (2% max.); Europe listed; UK approved; FDA approved for buccals, injectables, ophthalmics, orals, topicals, vaginals; USP/NF, BP, Ph. Eur. compliance

**Manuf./Distrib.:** Aceto; Akzo Nobel; Aldrich; Alfa Chem; Allchem Ind.; Ashland; CarboMer; Celanese; Chemcentral; Dow; Fluka; Hercules/Aqualon; J.H. Calo; Punda Mercantile; Ruger; Shin-Etsu; Sigma; Spectrum Quality Prods.

#### Methyl cellulose ether. See Methylcellulose

#### Methylchloroisothiazolinone

CAS 26172-55-4; EINECS/ELINCS 247-500-7

**Synonyms:** Chloromethylisothiazolinone; 5-Chloro-2-methyl-4-isothiazolin-3-one; 5-Chloro-2-methyl-2H-isothiazol-3-one; 4-Isouthiazolin-3-one, 5-chloro-2-methyl-

**Classification:** Heterocyclic organic compd.

**Empirical:** C<sub>4</sub>H<sub>4</sub>ClNOS

**Properties:** M.w. 149.60

**Toxicology:** Danger of skin and respiratory sensitization

**Uses:** Antimicrobial, biocide, preservative for metalworking fluids, polymer emulsions, cooling tower water treatment, paints, topical pharmaceuticals; slimicide for paper mills; food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.105, 176.170

**Trade Names:** Kathon® WT

**Trade Names Containing:** Acticide® HF; Acticide® SPX; Acticide® WT; Acticide® WTC; Amerstat® 251; Biochek® 430; Metasol® CMI-150; Nipacide® CBXA; Nipacide® Cl; Nipacide® Cl 15; Paxgard ST; Paxgard WT

#### 3-Methyl-4-chlorophenol. See p-Chloro-m-cresol

#### Methylchrysoidine. See Basic orange 1

#### Methyl cocoate

CAS 61788-59-8; EINECS/ELINCS 262-988-1

**Synonyms:** Coconut acid methyl ester; Fatty acids, coco, methyl esters; Methyl ester of coconut oil fatty acids

**Definition:** Ester of methyl alcohol and coconut fatty acids

**Formula:** RCO-OCH<sub>3</sub>, RCO- represents the fatty acids derived from coconut oil

**Toxicology:** TSCA listed

**Uses:** Emollient, plasticizer, lubricant for cosmetics, pharmaceuticals, plastics, lubricating oils, textiles, leather, cutting oils; chemical and detergent intermediate; food coatings; solvent for pesticides and herbicides; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; surf. lubricant in mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §172.225, 175.105, 176.200, 176.210, 177.2260, 177.2800, 178.3910

#### N-Methyldiallylamine hydrochloride polymer with epichlorohydrin

**Uses:** Retention aid, flocculant, wet str. additive for mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

#### Methyldibromo glutaronitrile

CAS 35691-65-7; EINECS/ELINCS 252-681-0

**Synonyms:** 2-Bromo-2-(bromomethyl) glutaronitrile; 2-Bromo-2-(bromomethyl) pentanedinitrile; 1,2-Dibromo-2,4-dicyanobutane; Glutaronitrile, 2-bromo-2-(bromomethyl)

**Definition:** Brominated methylene glutaronitrile

**Empirical:** C<sub>4</sub>H<sub>2</sub>Br<sub>2</sub>N<sub>2</sub>

**Formula:** NCCBrCH<sub>2</sub>BrCH<sub>2</sub>CH<sub>2</sub>CN

**Properties:** Mildly pungent odor; sol. in methanol, ethanol, ether; insol. in water; m.w. 265.96; m.p. 51.2-52.5 C

**Toxicology:** TDLo (oral, rat) 1750 mg/kg; TSCA listed

**Uses:** Antimicrobial for preserving cosmetics, personal care prods., aq. systems incl. paints, emulsions, adhesives, joint cements, metalworking fluids, inks, polishes, waxes, dispersed pigments; preservative in food-pkg. adhesives; preservative in latexes used as pigment binders in coatings, pigment slurries used in coatings, and in coatings for food-contact paper/paperboard; preservative for defoamers in food-contact paper/paperboard; slimicide in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.210, 176.300; USA not restricted; Europe listed

**Manuf./Distrib.:** Schülke & Mayr

**Trade Names:** Metasol® CB-225 L.C.; Tektamer® 38; Tektamer® 38 A.D.; Tektamer® 38 L.V.

**Trade Names Containing:** Biochek® 410; Biochek® 430; Metasol® CB-220; Metasol® CB-225A.D.

#### 4-Methyl-2,6-di-t-butylphenol. See BHT

#### Methyl di-t-butylphenol. See BHT

#### 4-Methyl-7-(diethylamino) coumarin. See 7-Diethylamino-4-methylcoumarin

#### 4-Methyl-1,3-dioxolan-2-one. See Propylene carbonate

#### Methyl dodecanoate. See Methyl laurate

#### Methyl n-dodecanoate. See Methyl laurate

#### Methyl dodecylate. See Methyl laurate

#### Methylenebisbutanethiolsulfonate

**Uses:** Slimicide in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.300

#### 2,2'-Methylenebis (4-chlorophenol). See Dichlorophene

#### Methylenebis (thiocyanate)

CAS 6317-18-6

**Synonyms:** MBT; MTC; Methylene dithiocyanate; Thiocyanic acid, methylene ester

**Classification:** Organosulfur compd.

**Empirical:** C<sub>3</sub>H<sub>2</sub>N<sub>2</sub>S<sub>2</sub>

**Formula:** CH<sub>2</sub>(SCN)<sub>2</sub>

**Properties:** Yel. to lt. orange powd., irritating pungent odor; not very sol. in water; m.w. 130.19; m.p. 105-107 C

**Toxicology:** LD50 (oral, rat) 55 mg/kg, (IV, mouse) 3600 µg/kg; LDLo (subcut., rabbit) 20 mg/kg; poison by ing., IV, subcut. routes; causes severe skin irritation; tumorigen; TSCA listed

## Methylene dithiocyanate

*Environmental:* Toxic to fish; do not discharge into lakes, streams, or public waters; keep away from drinking water sources

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub> and SO<sub>x</sub>

*Uses:* Biocide for water treatment, cooling water systems, evaporate condensers, pulp and paper, antifoulant paint, leather, timber preservation, oil well brines and drilling muds; wood preservative (stops wood rot, termite attack, mildew, and decay); algicide; fungicide; bactericide; slimicide in paper mills, food-contact paper/paperboard; preservative for paints, adhesives, syn. polymer latexes, latex emulsions; antimicrobial for aq. prods., thickeners, slurries

*Regulatory:* FDA 21CFR §176.300

*Manuf./Distrib.:* Albright & Wilson Am.; Aldrich; Aquapharm; Clearon; Dead Sea Bromine; Vinings Ind.

*Trade Names:* Amerstat® 282; Metasol® T-10WB; Microtol 210; Paxgard MB 10; Paxgard MBT; Pacicide MBT-10; Taurine-MBT; Tolcide® MBT; Tolcide® MW10

*Trade Names Containing:* Busan® 1105; Paxgard BSL

**Methylene dithiocyanate.** See Methylenebis (thiocyanate)

**Methylene glycol.** See Formaldehyde

**2-Methylene propionic acid.** See Methacrylic acid

**Methylenesuccinic acid.** See Itaconic acid

**Methyl ester of coconut oil fatty acids.** See Methyl cocoate

**Methyl esters of soybean oil.** See Methyl soyate

**Methyl ester stearic acid.** See Methyl stearate

**Methyl ester of wood rosin.** See Methyl rosinate

**1-Methylethyl acetate.** See Isopropyl acetate

**(1-Methylethyl) 1,1'-biphenyl.** See 1,1'-Biphenyl (1-methylethyl)

**Methyl ethyl carbinol.** See 2-Butanol

**1-Methylethyl dodecanoate.** See Isopropyl laurate

**1-Methyl ethylene carbonate.** See Propylene carbonate

**Methyl ethylene glycol.** See Propylene glycol

**Methylethylenimine.** See Propyleneimine

**2-Methylethylenimine.** See Propyleneimine

**Methyl ethyl glycol.** See Propylene glycol

**1-Methylethyl hexadecanoate.** See Isopropyl palmitate

**2,2'-(1-Methylethylidene) bis (4,1-phenyleneoxymethylene) bisoxirane.** See Bisphenol A diglycidyl ether

## Methyl ethyl ketone

CAS 78-93-3; EINECS/ELINCS 201-159-0; UN No. 1193 (DOT); FEMA 2170

*Synonyms:* MEK; Butanone; 2-Butanone; 3-Butanone; Ethyl methyl ketone; Methyl acetone; Methyl-2-propanone; 2-Oxobutane

*Classification:* Sat. aliphatic ketone

*Empirical:* C<sub>4</sub>H<sub>8</sub>O

*Formula:* CH<sub>3</sub>COCH<sub>2</sub>CH<sub>3</sub>

*Properties:* Colorless liq., acetone-like odor; sol. in 4 parts water, benzene, alcohol, ether, oxygenated and chlorinated solvs.; misc. with fixed oils; m.w. 72.10; dens. 0.8255 (0/4 C); vapor pressure 71.2 mm (20 C); visc. 0.40 cp; m.p. -86 C; b.p. 79.6 C; flash pt. (TOC) 24 F; ref. index 1.3814 (15 C)

*Toxicology:* ACGIH TLV/TWA 200 ppm; STEL 300 ppm; LD50 (oral, rat) 2737 mg/kg, (IP, mouse) 616 mg/kg; mod. toxic by ing., skin contact, IP routes; toxic by inh.; strong irritant; mod. to severe eye irritant; human eye irritant @ 350 ppm; affects CNS; ing. of extremely high concs. may cause loss of consciousness or death; experimental teratogen, reproductive effects; TSCA listed

*Precaution:* DOT: Flamm. liq.; dangerous fire risk; explosive limits in air 2-10%; incompat. with oxidizers, strong acids, mixts. of haloforms and strong bases, mixts. of hydrogen peroxide and nitric acid

*Hazardous Decomp. Prods.:* Explosive peroxides; heated to decomp., emits acrid smoke and fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, well-ventilated area, out of direct sunlight, away from heat/ignition sources, away from corrosives

*Uses:* Solvent in nitrocellulose coatings, acrylic coatings, vinyl films, paint removers, paints, lacquers, varnishes, cements, adhesives, magnetic tapes, printing inks, polymerization, organic synthesis; process solvent; metal degreasing; syn. leathers; chem. intermediate; mfg. of smokeless powder; cleaning fluids; lube oil dewaxing; priming, catalyst carrier; ex-

traction solvent in food processing; in food-pkg. adhesives; syn. flavoring agent; adjuvant in resinous/polymeric food-contact coatings; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §172.515, 175.105, 175.320, 177.1200

*Manuf./Distrib.:* Aldrich; Alfrebro; Allchem Ind.; Amyl; Arch Chems.; Ashland; Atofina; BP Chems. Ltd; Baychem; C.P. Hall; Celanese; Chemcentral; Eastman; Exxon; Fluka; GNC Group; General Chem.; Harcros; Honeywell Perf. Polymers; Houghton Chem.; Hukill; ICC Ind.; J.T. Baker; Mallinckrodt Baker; Oxiteno; Penta Mfg.; Primachem; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Samson; Shell; Spectrum Quality Prods.; Sunnyside; Union Carbide; Van Waters & Rogers; Varsal Instruments

*Trade Names Containing:* PAPHEN® PKHS-40

**1-Methylethyl octadecanoate.** See Isopropyl stearate

**1-Methylethyl-9-octadecenoate.** See Isopropyl oleate

**1-Methylethyl tetradecanoate.** See Isopropyl myristate

**Methyl glycol.** See Propylene glycol

**16-Methylheptadecanoic acid.** See Isostearic acid

**Methyl hexadecanoate.** See Methyl palmitate

**Methyl hydrate.** See Methyl alcohol

## Methyl hydrogenated rosinate

CAS 8050-13-3; 8050-15-5; EINECS/ELINCS 232-476-2

*Synonyms:* Hydrogenated methyl ester of rosin; Hydrogenated methyl rosinate; Methyl abietate, hydrogenated; Methyl rosinate, hydrogenated; Resin acids and rosin acids, hydrogenated, methyl esters

*Definition:* Ester of methyl alcohol and the hydrogenated mixed long chain acids derived from rosin

*Empirical:* C<sub>21</sub>H<sub>36</sub>O<sub>2</sub>

*Properties:* M.w. 320.52

*Uses:* Film-former; plasticizer and tackifier in lacquers, inks, adhesives, floor tiles, vinyl plastisols, artificial leather, and antifouling paints; fixative and carrier in perfumes and cosmetic preps.; visc. control agent; food-pkg. adhesives, coatings, paper, polymers

*Trade Names:* Herculyn® D

**Methyl hydroxide.** See Methyl alcohol

**N-Methyl-N-hydroxyethylaniiline.** See 2-(N-Methylanilino) ethanol

**N-Methyl-N-β-hydroxyethylaniiline.** See 2-(N-Methylanilino) ethanol

**Methyl 12-hydroxyoctadecanoate.** See Methyl hydroxystearate

**Methyl 12-hydroxy-9-octadecenoate.** See Methyl ricinoleate

**Methyl 12-hydroxyleate.** See Methyl ricinoleate

## Methyl hydroxystearate

CAS 141-23-1; EINECS/ELINCS 205-471-8

*Synonyms:* 12-Hydroxyoctadecanoic acid, methyl ester; 12-Hydroxystearic acid methyl ester; Methyl 12-hydroxyoctadecanoate; Methyl 12-hydroxystearate

*Definition:* Ester of methyl alcohol and hydroxystearic acid

*Empirical:* C<sub>18</sub>H<sub>36</sub>O<sub>3</sub>

*Formula:* C<sub>18</sub>H<sub>34</sub>OHCOOCH<sub>3</sub>

*Properties:* Wh. waxy solid, flat rods; insol. in water; sl. sol. in org. solvs.; m.w. 314.57; m.p. 48 C

*Toxicology:* Experimental tumorigen; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Emollient; lubricant, processing aid for butyl rubber, adhesives, inks, cosmetics, greases, paints; opacifier, pearlescent, emulsifier, visc. builder for surfactant systems; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

*Manuf./Distrib.:* Acme-Hardesty; Alnor Oil; Artek; Brook-Chem; J.H. Calo

**Methyl 12-hydroxystearate.** See Methyl hydroxystearate

## Methylisothiazolinone

CAS 2682-20-4; EINECS/ELINCS 220-239-6

*Synonyms:* 3(2H)-Isothiazolone, 2-methyl-, 2-Methyl-4-isothiazolin-3-one; 2-Methyl-3(2H)-isothiazolone

*Classification:* Heterocyclic organic compd.

*Empirical:* C<sub>4</sub>H<sub>6</sub>NOS

*Uses:* Antimicrobial preservative for paints, topical pharmaceuticals, etc.; paper mill slimicide; food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170

*Trade Names Containing:* Acticide® HF; Acticide® SPX; Acticide® WT; Acticide® WTC; Amerstat® 251; Biochek® 430; Metasol® CMI-150; Nipacide® CBXA; Nipacide® CI; Nipacide® CI 15; Paxgard ST; Paxgard WT

**2-Methyl-4-isothiazolin-3-one.** See Methylisothiazolinone

**2-Methyl-3(2H)-isothiazolone.** See Methylisothiazolinone

**Methyl ketone.** See Acetone

#### Methyl lardate

*Uses:* Solvent, carrier for agric. spray prods.; defoaming component in metalworking; paper deinking; pharmaceutical fermentation; wetting agent, lubricant ingred. for metalworking and lubricating oils

*Manuf./Distrib.:* Anar; Chemol; Norman, Fox; Sea-Land

#### Methyl laurate

CAS 111-82-0; EINECS/ELINCS 203-911-3; FEMA 2715

*Synonyms:* Dodecanoic acid methyl ester; Lauric acid methyl ester; Methyl dodecanoate; Methyl n-dodecanoate; Methyl dodecylate; Methyl laurate

*Definition:* Ester of methyl alcohol and lauric acid

*Empirical:*  $C_{13}H_{26}O_2$

*Formula:*  $CH_3(CH_2)_{10}COOCH_3$

*Properties:* Water-wh. liq., fatty floral odor; insol. in water; m.w. 214.35; dens. 0.8702 (20/4 C); m.p. 4-5 C; b.p. 262 C (766 mm); flash pt. > 230 F; ref. index 1.4320

*Toxicology:* LDLo (IV, mouse) 48 mg/kg; poison by IV route; may be harmful by inh., ing., or skin absorption; may cause irritation; TSCA listed

*Precaution:* Combustible; noncorrosive; incompat. with strong oxidizing agents, strong bases

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Storage:* Keep tightly closed; store in cool, dry place

*Uses:* Intermediate for detergents, emulsifiers, wetting agents, stabilizers, lubricants, plasticizers, textiles, plastics, cosmetics; lubricant in textile spin finishes; syn. flavoring agent for foods, pharmaceuticals; fragrance ingred.; emollient; solvent for pesticides and herbicides; defoamer in food-contact coatings and paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Use Level:* 0.5-5 ppm (nonalcoholic beverages), 0.5-5 ppm (ice cream), 0.02-0.5 ppm (candy), 1 ppm (baked goods)

*Regulatory:* FDA 21CFR §172.225, 172.515, 176.200, 176.210, 177.2260, 177.2800; FEMA GRAS; BP compliance

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Chemol; Cognis/Chems. Group; Fluka; Indofine; Jarchem Ind.; NOF Am.; Penta Mfg.; Pfaltz & Bauer; Procter & Gamble; Riedel-deHaën; Sigma; Stepan; Uniqema N. Am.; Uniqema/Oleochems.

**Methyl laurate.** See Methyl laurate

#### Methyl methacrylate

CAS 80-62-6; EINECS/ELINCS 201-297-1; UN No. NA 1247 (DOT)

*Synonyms:* MMA; MME; Acrylic acid, 2-methyl-, methyl ester; Methacrylic acid, methyl ester; Methyl  $\alpha$ -methacrylate; Methyl-2-methyl-2-propenoate; 2-Methyl-2-propenoic acid methyl ester; 2-Propenoic acid, 2-methyl-, methyl ester

*Definition:* Methyl ester of methacrylic acid

*Empirical:*  $C_5H_8O_2$

*Formula:*  $CH_2=C(CH_3)COOCH_3$

*Properties:* Colorless volatile liq.; sharp fruity odor; sol. in MEK, THF, esters, aromatic and chlorinated hydrocarbons; sl. sol. in water; m.w. 100.1; dens. 0.940 (25/25 C); vapor pressure 40 mm (25.5 C); f.p. -48.2 C; b.p. 99-100 C; flash pt. (TOC) 13 C

*Toxicology:* ACGIH TLV/TWA 100 ppm; LD50 (oral, rat) 8.4 g/kg, (IP, rat) 1328 mg/kg, (subcut., rat) 7500 mg/kg; LC50 (inh., rat) 3750 ppm; mod. toxic by inh., IP routes; mildly toxic by ing.; human systemic effects by inh. (anorexia, blood pressure decrease); potent sensitizer; may cause contact dermatitis on handling, occupational asthma; irritating to skin, eyes, respiratory system; questionable carcinogen; experimental tumorigen, teratogen, reproductive effector; mutagenic data; TSCA listed

*Precaution:* Highly flamm.; dangerous fire risk; explosive limits 2.1-12.5% in air; can react with oxidizers; explosive as vapor exposed to heat or flame; reacts in air to form heat-sensitive explosive prod.; violent reactions possible; common air contaminant

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Polymethyl methacrylate block bonding agent; monomer for polymethacrylate resins, paints, impregnation of concrete; nitrile resin comonomer; mfg. of acrylic sheet, molding compds.; marble-like surfaces for kitchen/bath; engineering adhesives; industrial flooring compds.; precast concrete composites; reactive diluent for unsat. polyester resins; resin mortars for self-leveling floors, jointless wall/floor coatings; thickener for hair care prods.; binder for lacquers, inks; pigment wetter; modifier for oils/alkyls in food-contact coatings

*Regulatory:* FDA 21CFR §175.300; SARA reportable

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Bröste; Cyro Ind.; Degussa-Hüls; FRP Services; Fluka; Ineos Acrylics; Monomer-Polymer & Dajac Labs; Rohm & Haas; Sigma; Total Spec. Chems.; Transol Chems. UK Ltd; United Min. & Chem.; Van Waters & Rogers; Whyte Chems. Ltd

*Trade Names:* Mhoromer® MMA

*Trade Names Containing:* Rohamere® 21; Rohamere® 61; Rohamere® 568; Rohamere® 626; Rohamere® 977; Rohamere® 1410; Rohamere® 1960-D; Rohamere® 3045; Rohamere® 6844-0; Rohamere® 8478; Rohamere® 8662; Rohamere® 9158; Rohamere® 84124; Rohamere® FF-6; Rohamere® FF+40

**Methyl  $\alpha$ -methacrylate.** See Methyl methacrylate

**Methyl methacrylate homopolymer.** See Polymethyl methacrylate

**Methyl methacrylate polymer.** See Polymethyl methacrylate

**Methyl methacrylate polymers.** See Polymethyl methacrylate

**Methyl methacrylate resin.** See Polymethyl methacrylate

**$\alpha$ -Methyl- $\alpha$ -methoxypolydimethylsiloxane.** See Dimethyl siloxane

**Methyl-2(methyl-2)oxybispropanol.** See Dipropylene glycol

**Methyl-2-methyl-2-propenoate.** See Methyl methacrylate

#### Methyl myristate

CAS 124-10-7; EINECS/ELINCS 204-680-1; FEMA 2722

*Synonyms:* Methyl tetradecanoate; Tetradecanoic acid, methyl ester

*Definition:* Ester of methyl alcohol and myristic acid

*Empirical:*  $C_{15}H_{30}O_2$

*Formula:*  $CH_3(CH_2)_{12}COOCH_3$

*Properties:* Colorless liq., honey and orris-like odor; insol. in water; m.w. 242.40; dens. 0.866 (20/4 C); m.p. 17.8 C; b.p. 186.8 C (30 mm); flash pt. > 112 C; ref. index 1.438 (20 C)

*Toxicology:* TSCA listed

*Precaution:* Combustible

*Uses:* Emollient; intermediate for myristic acid detergents; emulsifiers; wetting agents; stabilizers; resins; lubricants; plasticizers; animal feeds; standard for gas chromatography; syn. flavoring agent for foods, pharmaceuticals; fragrance; solvent for pesticides and herbicides; defoamer in food-contact coatings and paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Use Level:* 0.25-0.5 ppm (nonalcoholic beverages), 0.25-5 ppm (ice cream), 2.4 ppm (candy), 0.3-2 ppm (baked goods), 0.24 ppm (gelatins, puddings)

*Regulatory:* FDA 21CFR §172.225, 172.515, 176.200, 176.210, 177.2260, 177.2800; FEMA GRAS; BP compliance

*Manuf./Distrib.:* Aldrich; Cognis/Chems. Group; Fluka; Grau Aromatics; Indofine; Jarchem Ind.; NOF Am.; Penta Mfg.; RTD; Sigma; Stepan; Uniqema N. Am.

**Methyl Namate.** See Sodium dimethyldithiocarbamate

**1-((4-Methyl-2-nitrophenyl)azo)-2-naphthalenol.** See Pigment red 3

**Methyl octadecanoate.** See Methyl stearate

**Methyl n-octadecanoate.** See Methyl stearate

**Methyl 9-octadecenoate.** See Methyl oleate

**Methyl-cis-9-octadecenoate.** See Methyl oleate

**Methyl (Z)-9-octadecenoate.** See Methyl oleate

**Methyl octanoate.** See Methyl caprylate

**Methylol.** See Methyl alcohol

#### Methyl oleate

CAS 112-62-9; 67762-38-3; EINECS/ELINCS 203-992-5; 267-015-4

*Synonyms:* Methyl 9-octadecenoate; Methyl-cis-9-octadecenoate; Methyl (Z)-9-octadecenoate; 9-Octadecenoic acid, methyl ester; (Z)-9-Octadecenoic acid, methyl ester; Oleic acid, methyl ester, cis-; cis-Oleic acid, methyl ester

*Definition:* Ester of methyl alcohol and oleic acid



solvent in food-contact polysulfone and PES resins  
*Regulatory:* FDA 21CFR §176.300, 177.1655, 177.2440; SARA reportable  
*Manuf./Distrib.:* Aldrich; Allchem Ind.; Arch Chems.; Ashland; BASF; Coyne;  
Dynaloy; Fluka; Haltermann Prods. UK; ISP; Kessler; Lyondell; Romil  
Ltd; Sigma; Spectrum Quality Prods.; Whyte Chems. Ltd  
*Trade Names Containing:* Troysan® Polyphase® CST; Upaco® 2956

**Methyl ricinoleate**

CAS 141-24-2; EINECS/ELINCS 205-472-3  
*Synonyms:* Castor oil acid, methyl ester; 12-Hydroxy-9-octadecenoic acid,  
methyl ester; Methyl 12-hydroxy-9-octadecenoate; Methyl 12-  
hydroxyoleate  
*Definition:* Ester of methyl alcohol and ricinoleic acid  
*Empirical:* C<sub>19</sub>H<sub>36</sub>O<sub>3</sub>  
*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>5</sub>COHCH<sub>2</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>COOCH<sub>3</sub>  
*Properties:* Colorless liq.; sol. in alcohol, ether, oxygenated solvs.; insol. in  
water; dens. 0.925; f.p. -4.5 C; b.p. 245 C (10 mm); flash pt. (COC) 190  
C; ref. index 1.4620  
*Toxicology:* TSCA listed  
*Precaution:* Combustible  
*Uses:* Emollient; plasticizer for PVAc, PVB, cellulose; lubricant for cutting  
oils; wetting agent; in food-pkg. adhesives; defoamer in food-contact paper/  
paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.210  
*Manuf./Distrib.:* BFGoodrich/Textile; CasChem; Penta Mfg.; Sigma

**Methylrosaniline chloride.** See Basic violet 3

**Methyl rosinate**

CAS 68186-14-1; EINECS/ELINCS 269-035-9  
*Synonyms:* Methyl ester of wood rosin; Resin acids and rosin acids, methyl  
esters; Rosin acid, methyl ester; Rosin, methyl ester  
*Definition:* Methyl ester of acids recovered from rosin  
*Toxicology:* TSCA listed  
*Uses:* Film-former; resin with surf.-wetting properties, visc., and tack used in  
lacquers, inks, paper coatings, varnishes, adhesives, sealing compds.,  
plastics, wood preservatives, and perfumes; softener, tackifier for rubbers;  
processing aid; tackifier for cements; in food-contact articles and coatings  
*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 176.170, 176.200,  
176.210, 177.1200, 177.2600, 178.3120, 178.3800, 178.3870  
*Trade Names:* Abalyn®

**Methyl rosinate, hydrogenated.** See Methyl hydrogenated rosinate

**Methylsilanetriol sodium salt.** See Sodium methyl silicate

**Methyl silicone.** See Polydimethylsiloxane

**Methyl soyate**

CAS 67784-80-9  
*Synonyms:* Methyl esters of soybean oil  
*Definition:* Ester of methyl alcohol and soya acid  
*Uses:* Intermediate in prod. of superamides; in metalworking lubricants; as  
specialized solvent; opacifier; visc. control agent; agric. solvent and adju-  
vant; additive in adhesives for food production and/or pkg.  
*Trade Names:* Soygold® 1000  
*Trade Names Containing:* Soygold® 2000

**Methyl stearate**

CAS 112-61-8; 85586-21-6; EINECS/ELINCS 203-990-4; 287-824-6  
*Synonyms:* Methyl ester stearic acid; Methyl octadecanoate; Methyl n-  
octadecanoate; Octadecanoic acid, methyl ester; Stearic acid, methyl  
ester  
*Definition:* Ester of methyl alcohol and stearic acid  
*Empirical:* C<sub>19</sub>H<sub>38</sub>O<sub>2</sub>  
*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOCH<sub>3</sub>  
*Properties:* Wh. crystals; sol. in ether, alcohol; insol. in water; m.w. 298.57;  
m.p. 37.8 C; b.p. 234.5 C (30 mm); flash pt. 307 F  
*Toxicology:* TDL<sub>0</sub> (subcut., mouse, 26 wk intermittent) 5200 mg/kg; experi-  
mental tumorigen; questionable carcinogen; TSCA listed  
*Precaution:* Combustible exposed to heat or flame; can react with oxidizing  
materials  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and  
irritating fumes  
*Uses:* Emollient; intermediate for stearic acid detergents, emulsifiers, wetting  
agents, stabilizers, resins, lubricants, plasticizers, paints; foam depres-

sant and nutrient in fermentation; topical pharmaceuticals; specialized sol-  
vent; solvent for pesticides and herbicides; defoamer in food-contact coat-  
ings and paper/paperboard; in resin-bonded filters for food contact; in food-  
contact textiles; in surf. lubricants for mfg. of food-contact metallic articles  
*Regulatory:* FDA 21CFR §172.225, 176.200, 176.210, 177.2260, 177.2800,  
178.3910; FDA approved for topicals; BP compliance  
*Manuf./Distrib.:* A.P.; Aldrich; Ashland; Charkit; Chemol; Cognis/Chems.  
Group; Ferro/Bedford; Fluka; George Uhe; Indofine; Int'l. Paper; Jarchem  
Ind.; Norman, Fox; Penta Mfg.; Rochem Int'l.; Sea-Land; Sigma; Spec.  
Ingreds. & Perfume; Uniqema/Oleochems.

**α-Methyl styrene/acrylic acid copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in  
contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**α-Methyl styrene/butyl acrylate copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in  
contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**α-Methyl styrene/2-ethylhexylacrylate copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in  
contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**Methylstyrene homopolymer.** See Poly-α-methylstyrene

**α-Methyl styrene/methacrylic acid copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in  
contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**α-Methyl styrene/methyl methacrylate copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in  
contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**α-Methyl styrene polymer.** See Poly-α-methylstyrene

**Methylstyrene/vinyltoluene copolymer**

CAS 9017-27-0  
*Synonyms:* Benzene, ethenylmethyl-, polymer with (1-methylethenyl) ben-  
zene; α-Methylstyrene-vinyltoluene copolymer  
*Definition:* Polymer of methylstyrene and vinyltoluene monomers (molar ratio  
1 α-methylstyrene to 3 vinyltoluene)  
*Empirical:* (C<sub>9</sub>H<sub>10</sub> · C<sub>9</sub>H<sub>10</sub>)<sub>x</sub>  
*Properties:* Soften. pt. (R&B) 75-120 C  
*Uses:* Visc. control agent; tackifier and modifier resin for adhesives; in food-  
pkg. adhesives, resinous and polymeric coatings for polyolefin food pkg.,  
paper/paperboard in contact with aq./fatty foods; in cellophane for food  
pkg.; plasticizer in food-contact rubber articles for repeated use  
*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200, 177.2600

**α-Methylstyrene-vinyltoluene copolymer.** See Methylstyrene/vinyltoluene  
copolymer

**Methyl succinate.** See Dimethyl succinate

**N-Methyl-N-(tall oil acyl) taurine, sodium salt.** See Sodium methyl tall oil acid  
taurate

**Methyl tetradecanoate.** See Methyl myristate

**Methyl toluene.** See Xylene

**o-Methyltoluene.** See o-Xylene

**Methyl vinyl ether/maleic anhydride copolymer.** See PVM/MA copolymer

**Methyl violet.** See Basic violet 3

**Mica**

CAS 12001-26-2; EINECS/ELINCS 310-127-6  
*Synonyms:* CI 77019; Mica silicate; Muscovite mica; Phlogopite; Sericite;  
Suzorite mica  
*Classification:* Silicate minerals  
*Definition:* Any of several silicates of varying chem. composition, but similar  
physical props. and crystalline structure  
*Properties:* Colorless to sl. red, brown to greenish-yel. soft, translucent solid;  
odorless; dens. 2.6-3.2; bulking value 0.044 gal/lb; oil absorp. 40-65; GE  
brightness 80-88; ref. index 1.56.1.60; hardness (Mohs) 2.8-3.2; dielec.  
const. 6.5-8.7; heat resistant to 600 C; noncombustible

**Toxicology:** ACGIH TLV/TWA 3 mg/m<sup>3</sup> (respirable dust); irritant by inhalation; may damage lungs (fibrosis); may cause abnormal chest x-ray, coughing, shortness of breath; nontoxic to skin

**Uses:** Filler/extender/reinforcing agent for plastics, rubber, coatings, cosmetics, pearlescent pigments, glass, ceramics, roofing; binder/reinforcement in lipsticks; colorant for external pharmaceuticals; electrical insulation; incandescent lamps; asphalt shingles; prod. of vacuum tube spacers; dusting agent; lubricant; mold release agent; specialty papers for insulation and filtration; wallpaper/wallboard joint cement; oil-well drilling muds; film reinforcement; increases film flexibility; opacifier; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods; filler in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §73.1496, 73.2496, 175.300, 176.170, 177.1460, 177.2410, 177.2600, 178.3297; permanently listed

**Manuf./Distrib.:** Brooks Ind.; C.P. Hall; Costec; D.N. Lukens; Engelhard; Feldspar; Franklin Ind. Mins.; Gelest; H.M. Royal; ISP Van Dyk; J.M. Huber/Chems.; Jesse S. Young; Landers-Segal Color; Lomas Int'l.; Mykroy/Mycalex Ceramics; Nyco Mins.; Oglebay Norton; Presperse; Punda Mercantile; Reade Advanced Materials; Rona; Sea-Land; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Tams Ind.; Thornley; U.S. Synthetics; Van Waters & Rogers; Warner-Jenkinson; Whittaker, Clark & Daniels

**Trade Names Containing:** Mearlin® Supersparks

**Mica silicate.** See Mica

#### Microcrystalline wax

CAS 8063-08-9; 63231-60-7; 64742-42-3; EINECS/ELINCS 264-038-1

**Synonyms:** Cera microcrystallina; Petroleum wax, microcrystalline; Waxes, microcrystalline

**Classification:** Hydrocarbon wax

**Definition:** Wax derived from petroleum and char. by fineness of crystals; consists of high m.w. saturated aliphatic hydrocarbons

**Properties:** Wh. or cream-colored waxy solid, odorless; sol. in chloroform, ether, volatile oils, most warm fixed oils; insol. in water; very sl. sol. in dehydrated alcohol; m.p. 54-102 C

**Toxicology:** May be carcinogenic; TSCA listed

**Uses:** Wax used in hot-melt coatings and adhesives, paper coatings, printing inks, plastic modification (as lubricant and processing aid), lacquers, paints, and varnishes; as binder in ceramics; for elec. potting; candle wax; shoe/car polish ingred.; elec. insulation impregnation wax; heat-seal/hot melt flow additive; slip aid (inks); antiozonant in rubber; binder, emulsion stabilizer, opacifier, thickener in cosmetics; chewing gum ingred.; food polish, release agent, stiffener, tablet coating; pharmaceutical coating agent; defoamer in food-contact coatings; food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in paper/paperboard in contact with aq./fatty foods; in food-contact rubber articles

**Regulatory:** FDA 21CFR §172.886, 173.340, 175.105, 175.320, 176.170, 176.200, 177.2600; Europe listed; UK approved for restricted use; FDA approved for orals, topicals; USP/NF compliance

**Manuf./Distrib.:** Astor Corp.; BASF; Baker Petrolite; Barco Chem. Prods.; Biwax; C.P. Hall; Concord; Crompton/Witco; Dussek Campbell; Ferro; Frank B. Ross; Int'l. Group; Joy; Koster Keunen; Mobil; RTD; Rheox; Ruger; Scheel; Sea-Land; Shamrock Tech.; Shell; Spec. Ingreds. & Perfume; Stevenson Cooper; Strahl & Pitsch; Universal Preserv-A-Chem; Vivion; Whittaker, Clark & Daniels

**Trade Names:** Koster Keunen Microcrystalline Waxes; Microlube™ C; Multiwax® ML-445; Paracol® 404C; Starwax® 100

**Trade Names Containing:** Octowax 437

See also Petroleum wax

#### Microcrystalline wax, oxidized

CAS 97017-52-9

**Synonyms:** Oxidized microcrystalline wax

**Definition:** Reaction prod. of microcrystalline wax and oxygen

**Uses:** Wax used in the formulation of emulsions, polishes, and coatings; modifier in solvent polish systems; carnauba substitute; lubricant, process aid, slip and antiblock agent in plastics

**Trade Names:** Koster Keunen Oxidized Microcrystalline Wax

**Milk of lime.** See Calcium hydroxide

**Milk of magnesia.** See Magnesium hydroxide

#### Milk protein

CAS 9000-71-9; EINECS/ELINCS 232-555-1

**Synonyms:** Casein; Lactis proteinum

**Definition:** Mixture of proteins obtained from cow's milk

**Properties:** Light-yel. powd.

**Uses:** Cheesemaking; plastic items; paper coatings; water-dispersed paints; adhesives; textile sizing; foods and feeds; textile fibers; dietetic preps.; binder in foundry sands; thickener for pharmaceuticals; emulsifier/water binder for meat prods.

**Manuf./Distrib.:** Aldrich; Fluka; Nat'l. Casein; Sigma; U.S. Biochemical; Worthington Biochemical

See also Casein

**Milk protein, casein.** See Casein

**Milori blue.** See Ferric ferrocyanide

**Mineral grease (petrolatum).** See Petrolatum

**Mineral jelly.** See Petrolatum

#### Mineral oil

CAS 8012-95-1; 8020-83-5 (wh.); 8042-47-5 (wh.); 39355-35-6; 79956-36-8; 83046-05-3; EINECS/ELINCS 232-384-2; 232-455-8

**Synonyms:** Heavy mineral oil; Light mineral oil; Liquid paraffin; Liquid petrolatum; Mineral oil, white; Oil mist, mineral; Paraffin oil; Paraffinum liquidum; Petrolatum liquid; Petroleum oil; White mineral oil

**Definition:** Liq. mixture of hydrocarbons obtained from petroleum

**Properties:** Colorless transparent oily liq., odorless, tasteless; insol. in water, alcohol; sol. in benzene, chloroform, ether, petrol. ether, carbon disulfide, volatile oils; dens. 0.83-0.86 (light), 0.875-0.905 (heavy); flash pt. (OC) 444 F; surf. tens. < 35 dynes/cm

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; STEL 10 mg/m<sup>3</sup>; LD50 (oral, mouse) 22 g/kg; skin and severe eye irritant; inh. of vapor or particulates may cause aspiration pneumonia; human carcinogen and teratogen by inhalation; tumorigen; highly purified food grades are of low toxicity; TSCA listed

**Precaution:** Combustible

**Hazardous Decomprod.:** Heated to decomp., emits acrid smoke and fumes

NFPA: Health 0; Flammability 1; Reactivity 0

**Uses:** Protectant; lubricant; binder; carrier; extender; foods (mold release, formulation aid, coating for fruits/vegetables); food-pkg. materials; plasticizer, lubricant for plastics; pharmaceutical vehicle, solvent, lubricant, laxative; cathartic; emollient, antistat, solvent in cosmetics; in plastics; agric.; paper; textiles; water treatment; floor treatment; in food-pkg. adhesives; in hot-melt strippable food coatings; surf. lubricant in food-contact coatings; in cellophane for food pkg.; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles; lubricant for incidental food-contact use

**Use Level:** Limitation 0.6% (tablets contg. spices, nutrients, food for dietary use), 0.15% (baked goods), 0.02% (dried fruits/vegetables), 0.095% (frozen meat), 0.3% (molding starch), 0.15% (yeast), 0.25% (sorbic acid), 0.2% (confectionery), 0.02% (grain)

**Regulatory:** FDA 21CFR §172.878, 173.340 (limitation 0.008% in wash water for sliced potatoes, 150 ppm in yeast), 175.105, 175.210, 175.230, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3620, 178.3740, 178.3910, 179.45; 573.680; ADI not specified (FAO/WHO); FDA approved for ophthalmics, orals, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Advanced Polymer Systems; Air-Scent Int'l.; Aldrich; BP Amoco; C.P. Hall; CharKit; Chemisphere; Condea Vista; Coyne; Crompton/Witco; Exxon; Fluka; Golden Bear Oil Spec.; Harcros; J.H. Calo; Jarchem Ind.; Magie Bros. Oil; Mobil; Norman; Fox; O.C. Lugo; Penreco; Penta Mfg.; RTD; Ruger; San Yuan; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stevenson Cooper; Strahl & Pitsch; Surco Prods.; Total Petrol.; U.S. Synthetics; Universal Preserv-A-Chem

**Trade Names:** Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Drakeol® 9; Drakeol® 19; Drakeol® 35; Penreco 2259 Oil; Penreco 2260 Oil

**Trade Names Containing:** Adekanate B-187; Adekanate B-505; Adekanate B-556; Adekanate B-748A; Adekanate B-925; Adekanate B-940; Adekanate B-970; Adekanate B-988; Adekanate B-1011; Adekanate B-3056A; Adekanol LG-150; Adekanol LG-163; Defoamer™ C5B; Drewplus® L-108; Drewplus® L-131; Drewplus® L-139; Drewplus® L-175; Drewplus®

L-191; Drewplus® L-198; Drewplus® L-424; Drewplus® L-475; Drewplus® L-477; Drewplus® L-493; Drewplus® L-496; Drewplus® Y-250; Drewplus® Y-281; Drewplus® Y-601; Eldorado WT-50; Foamlex W-315; Foamlex W-320; Moussex® 3029 HL; PMO Ashless 150; PMO Ashless 220; PMO Ashless 320; PMO Ashless 460; Serdas® GBO; Serdas® GLN; Suntori 311; Suntori C-500

**Mineral oil, petroleum distillates, hydrotreated.** See Naphthenic oil

**Mineral oil, petroleum distillates, hydrotreated (mild) light naphthenic.** See Naphthenic oil

**Mineral oil sulfonic acids, sodium salts.** See Sodium petroleum sulfonate

**Mineral oil, white.** See Mineral oil

**Mineral pitch.** See Asphalt

**Mineral soap.** See Bentonite

#### Mineral spirits

CAS 64475-85-0; EINECS/ELINCS 232-453-7; UN No. 1271 (DOT)

Synonyms: Petroleum spirits; Turpentine substitutes; White spirits

Definition: Mixture of hydrocarbons from petroleum with distillation range of 149-213 C and flash pts. above 38 C; avail. in type I (reg., incl. Stoddard), II (high flash), III (odorless), IV (low dry pt.)

Properties: (I): Clear liq.; dens. 0.754-0.820 (15.6/15.6 C); i.b.p. 149 C; flash pt. 38 C min.; (II): dens. 0.768-0.820 (15.6/15.6 C); i.b.p. 177 C min.; flash pt. 60 C min.; (III): dens. 0.775 max. (15.6/15.6 C); i.b.p. 149 C min.; flash pt. 38 C min.; (IV): dens. 0.754-0.800 (15.6/15.6 C); i.b.p. 149 C; flash pt. 38 C min.

Toxicology: LD50 (oral, rat) 34,600 mg/kg, (skin, rabbit) 15,400 mg/kg; LC50 (inh., rat, 4 h) > 21,400 mg/m<sup>3</sup>; LDLo (IP, rat) 8560 mg/kg

NFPA: Health 0; Flammability 2; Reactivity 0

Uses: Solvent; paint and varnish thinner; solvent in dry-cleaning, coatings, adhesives, agric., automotive, and chemical specialties, cleaning and polishing compds., pharmaceuticals, inks, textile coatings, asphalt, concrete curing; wood preservative for agric. prods. pkg.

Regulatory: FDA 21CFR §178.3800

Manuf./Distrib.: Aldrich; Ashland; Houghton Chem.; Hukill; Ruger; Sal Chem.; Schaefer Tech.; Spectrum Quality Prods.; Sunoco

Trade Names Containing: GP-210 Silicone Antifoam Emulsion; Monawet MO-70S

See also VM&P naphtha

**Mineral wax.** See Ceresin; Ozokerite

**Mineral white.** See Calcium sulfate dihydrate

**MIPA.** See Isopropanolamine

#### MIPA-dodecylbenzenesulfonate

CAS 42504-46-1; 54590-52-2; EINECS/ELINCS 255-854-9; 259-249-0

Synonyms: Dodecylbenzenesulfonic acid, compd. with 1-amino-2-propanol (1:1); Monoisopropanolamine dodecylbenzenesulfonate

Classification: Substituted aromatic compd.

Empirical: C<sub>21</sub>H<sub>39</sub>O<sub>4</sub>S

Formula: C<sub>18</sub>H<sub>30</sub>O<sub>3</sub>S · C<sub>3</sub>H<sub>9</sub>NO

Properties: Yel. visc. liq.; sol. in oils, org. solvs.; m.w. 401.61

Toxicology: TSCA listed

Uses: Surfactant; emulsifier for oils, solvents, waxes; surfactant and gelling agent for hand cleaners; wetting agent; dispersant; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

**Mirex.** See Perchloropentacyclodecane

**Mixed decanoic and octanoic acids, methyl esters.** See Methyl caprylate/caprate

**Mixed xylenes.** See Xylene

**MMA.** See Methyl methacrylate

**MME.** See Hydroquinone monomethyl ether; Methyl methacrylate

**Mohr's salt.** See Ferrous ammonium sulfate

**Molybdenum tungsten hydroxide oxide phosphate, compd. with ethyl 2-(6-ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthen-9-yl) benzoate.** See Pigment red 81

**Molybdotungstophosphoric acid, compd. with ethyl 2-(6-(ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthen-9-yl) benzoate.** See Pigment red 81

**Monoacetylcellulose.** See Cellulose acetate

**Monoammonium phosphate.** See Ammonium phosphate

**Monoammonium sulfamate.** See Ammonium sulfamate

**Monobasic chromium sulfate.** See Chromium sulfate, basic

**Monobutyl glycol ether.** See Butoxyethanol

**Monocalcium carbonate.** See Calcium monocarbonate

**Monodehydrosorbitol monooleate.** See Sorbitan oleate

**Monododecyl sodium sulfate.** See Sodium lauryl sulfate

**Monoethanolamine.** See Ethanolamine

**Monoethanolamine stearic acid amide.** See Stearamide MEA

**Monoethylene glycol.** See Glycol

**Mono (2-ethylhexyl) sulfate sodium salt.** See Sodium 2-ethylhexyl sulfate

#### Monoglyceride citrate

Definition: Mixt. of glyceryl monooleate and its citric acid monoester

Properties: Wh. to ivory-colored soft waxy solid, bland odor/taste; sol. in most common fat solvs., alcohol; insol. in water

Uses: Food synergist and solubilizer for antioxidants added to fats and oils; in paper/paperboard in contact with aq./fatty/dry foods

Use Level: ADI 0-100 ppm (FAO/WHO)

Regulatory: FDA 21CFR §176.170, 176.180; FDA limitation 200 ppm (cured meats); WHO limitation 100 ppm (fats, oils, margarine)

**Monoglycerol oleate.** See Glycerol oleate

**Monohydroxyaluminum distearate.** See Aluminum distearate

**Monohydroxybenzene.** See Phenol

**Monohydroxymethane.** See Methyl alcohol

**Monoisopropanolamine.** See Isopropanolamine

**Monoisopropanolamine dodecylbenzenesulfonate.** See MIPA-dodecylbenzenesulfonate

**Monoisopropyl biphenyl.** See 1,1'-Biphenyl (1-methylethyl)

**1-Monolaurin.** See Glycerol laurate

**Monomethoxy tripropylene glycol monoacrylate.** See Methoxy tripropylene glycol acrylate

**Monomethyl ether of hydroquinone.** See Hydroquinone monomethyl ether

**Monomyristin.** See Glycerol myristate

**Monooctadecylamine.** See Stearamine

**Monooctanoic.** See Glycerol caprylate

**Monoolein.** See Glycerol oleate

**Monooleoylglycerol.** See Glycerol oleate

**Monopalmitate sorbitan.** See Sorbitan palmitate

**Monophenol.** See Phenol

**Monopropylene glycol.** See Propylene glycol

**Monopropylene glycol methyl ether.** See Methoxyisopropanol

**Monopropyl ether of ethylene glycol.** See Ethylene glycol propyl ether

**Monoricinolein.** See Glycerol ricinoleate

**α-Monoricinolein.** See Glycerol ricinoleate

**Monosodium carbonate.** See Sodium bicarbonate

**Monosodium gluconate.** See Sodium gluconate

**Monosodium hydroxymethane sulfinate.** See Sodium formaldehyde sulfoxylate

**Monosodium D(-)-pentahydroxy capronate.** See Sodium gluconate

**Monostearin.** See Glycerol stearate

**Monostearyl citrate.** See Stearyl citrate

**Monostearyl trimethyl ammonium chloride.** See Steartrimonium chloride

**Monosteol.** See Propylene glycol stearate

**Monothuram.** See Tetramethylthiuram monosulfide

**β-Monoxynaphthalene.** See β-Naphthol

**Montan acid, butylene glycol ester.** See Butylene glycol montanate

**Montan acid, calcium salt.** See Calcium montanate

#### Montan acid wax

CAS 68476-03-9; EINECS/ELINCS 270-664-6

Synonyms: Fatty acids, montan wax; Montanic acid; Waxes, montan fatty acids

Definition: Prod. obtained by the oxidation of montan wax

Toxicology: TSCA listed

Uses: Antistat; binder; visc. control agent; emulsifying component for paraffin wax emulsions, polishes; water repellent for textiles; lubricant and release agent for plastics; retarding agent (pharmaceuticals)

Trade Names: Hoechst Wax LP; Hoechst Wax S; Hoechst Wax UL

**Montan cera.** See Montan wax

**Montanic acid.** See Montan acid wax

#### Montan wax

CAS 8002-53-7; EINECS/ELINCS 232-313-5



**Montan wax acid, 1,3-butanediol diester**

*Synonyms:* Lignite wax; Montan cera; Waxes, montan  
*Definition:* Wax obtained by solvent extraction of lignite  
*Properties:* Dark brown lumps or wh. hard earth wax; sol. in CCl<sub>4</sub>, benzene, chloroform, hot petrol. ether; insol. in water; m.p. 80-90 C; acid no. 32-48; sapon. no. 88-112  
*Toxicology:* TSCA listed  
*Precaution:* Combustible  
*Uses:* Antistat; binder; opacifier; visc. control agent; substitute for carnauba and beeswax; shoe and furniture polishes; waterproof and roofing paints; adhesive pastes; candles; paper sizing compds.; carbon paper ink ingred.; wire coatings; internal processing lubricant for plastics, PVC, rubber; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; plasticizer in food-contact rubber articles for repeated use  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2600  
*Manuf./Distrib.:* Astor Corp.; BASF; Frank B. Ross; Michelman; Scheel; Shamrock Tech.; Spec. Ingreds. & Perfume; Stevenson Cooper; Strahl & Pitsch  
*Trade Names:* Luwax® E; Luwax® LG; Luwax® LGE; Ross Montan Wax

**Montan wax acid, 1,3-butanediol diester.** See Butylene glycol montanate

**Montmorillonite**

CAS 1318-93-0; EINECS/ELINCS 215-288-5  
*Classification:* Complex silicate clay mineral  
*Formula:* Al<sub>2</sub>O<sub>3</sub> · 4SiO<sub>2</sub> · 4H<sub>2</sub>O  
*Properties:* Lt. yel. or green, cream, pink, gray to black; insol. in water and common org. solvs.  
*Toxicology:* Poison by IV route; inh. of dust can cause respiratory irritation  
*Uses:* Absorbent; emulsion stabilizer; visc. control agent; major component of bentonite and Fuller's earth; thickener and rheological modifier in inks, paints, sealants, cosmetics; thickener for lithographic, letterpress, metal deco and UV-cured inks; filler for coatings; water treatment; adsorbent for removal of dyes from industrial wastewater; pond/lake sealing; industrial chromatography; catalyst carrier; in petroleum industry  
*Manuf./Distrib.:* Aldrich; Fluka; Southern Clay Prods.  
*Trade Names:* Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325

**Morpholine**

CAS 110-91-8; EINECS/ELINCS 203-815-1; UN No. 1760 (DOT), 2054 (DOT)  
*Synonyms:* Diethyleneimide oxide; Diethylene imidoxide; Diethylene oximide; Diethylenimide oxide; 1-Oxa-4-azacyclohexane; Tetrahydro-p-isoxazine; Tetrahydro-1,4-isoxazine; Tetrahydro-p-oxazine; Tetrahydro-1,4-oxazine; Tetrahydro-2H-1,4-oxazine; Tetrahydro-4H-1,4-oxazine  
*Classification:* Heterocyclic sec. amine  
*Empirical:* C<sub>4</sub>H<sub>8</sub>NO  
*Formula:* C<sub>4</sub>H<sub>8</sub>ONH  
*Properties:* Colorless clear oily liq., amine-like odor; sol. in water, acetone, benzene, ether, ethyl acetate, chloroform, ethylene glycol, castor oil, alcohols; m.w. 87.14; sp.gr. 1.002 (20/20 C); vapor pressure 10 mm Hg (23 C); f.p. -4.9 C; b.p. 128.9 C; flash pt. (OC) 37.7 C; autoignition temp. 590 F; ref. index 1.4540 (20 C)  
*Toxicology:* ACGIH TLV/TWA 20 ppm; STEL 30 ppm (skin); LD50 (oral, rat) 1050 mg/kg, (skin, rabbit) 500 mg/kg; mod. toxic by ing., inh., skin contact, IP; corrosive irritant to skin, eyes, mucous membranes; overexposure may cause visual disturbance, nose and respiratory irritation, coughing, liver and kidney damage; very high concs. may be fatal; TSCA listed  
*Precaution:* DOT: Flamm. liq.; dangerous fire hazard exposed to flame, heat or oxidizers; reactive with oxidizers; explosive with nitromethane; incompat. with strong acids, acid anhydrides, nitrites, cellulose nitrate, isocyanates, org. peroxides, epoxides  
*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>, ammonia  
 NFPA: Health 3; Flammability 3; Reactivity 0  
*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight; hygroscopic  
*Uses:* Org. intermediate for vulcanization accelerators, textile lubricants, softeners, sizing agents, antioxidants, surfactants, plasticizers, insecticides, dyes, bactericides, analgesics, anesthetics; solvent for resins, waxes, casein, dyes; neutralizer; emulsifier for cosmetics, rubless waxes, polishes; defoamer; optical brightener for detergents; lubricant, coolant for

machine tools; solubilizer in printing inks; separating agent for volatile amines; protective food coatings; corrosion inhibitor in steam boiler systems, steel or tinplate food pkg.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §172.235, 173.310 (10 ppm max. in steam), 175.105, 176.210, 178.3300; BP compliance  
*Manuf./Distrib.:* Air Prods.; Aldrich; Allchem Ind.; BASF AG; BASF; Coyne; Fluka; Houghton Chem.; Huntsman; Independent Chem.; Nippon Nyukazai; PMC Spec.; Ruger; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Varsal Instruments; Whyte Chems. Ltd

**Morrhua oil.** See Cod liver oil

**Mossbunker oil.** See Menhaden oil

**MP.** See Methoxyisopropanol

**MPA.** See Propylene glycol methyl ether acetate

**MTC.** See Methylenebis (thiocyanate)

**Muriatic acid.** See Hydrochloric acid

**Muscovite mica.** See Mica

**Mustardseed oil triglycerides**

*Uses:* Defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §176.210

**Mutton tallow.** See Tallow

**Myristalkonium chloride**

CAS 139-08-2; EINECS/ELINCS 205-352-0  
*Synonyms:* Benzenemethanaminium, N,N-dimethyl-N-tetradecyl-, chloride; Dimethyl myristyl benzylammonium chloride; N,N-Dimethyl-N-tetradecylbenzenemethanaminium chloride; Myristyl dimethyl benzyl ammonium chloride; Tetradecyl dimethyl benzyl ammonium chloride  
*Classification:* Quaternary ammonium salt  
*Empirical:* C<sub>23</sub>H<sub>42</sub>N · Cl  
*Properties:* Wh. free-flowing powd.; m.w. 368.11; m.p. 60-61 C; cationic  
*Toxicology:* LD50 (IV, mouse) 18 mg/kg; skin and eye irritant; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NH<sub>3</sub>, and Cl  
*Uses:* Surfactant; detergent; bactericide; fungicide; germicide; disinfectant; antistat; sanitizer for food and beverage processing; antimicrobial in cane-sugar mills, industrial use, laundry prods., pharmaceuticals; preservative; biocide in disinfectant cleaners, sanitizers, deodorant blocks; algicide/biocide in pools and cooling towers; conditioner; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §172.165 (limitation 3-12 ppm), 173.320 (limitation 0.6 ppm on wt. of raw sugar cane or raw beets), 175.105, 178.1010  
*Manuf./Distrib.:* Amyl; Fluka; Jame Fine Chem.; Lonza; Mason; Schweizerhall; Sigma  
*Trade Names:* Barquat® OJ-50; Barquat® OJ-80; Nissan Cation M2-100  
*Trade Names Containing:* Barquat® 1552

**Myristamide DEA**

CAS 7545-23-5; EINECS/ELINCS 231-426-7  
*Synonyms:* N,N-Bis (2-hydroxyethyl) myristamide; N,N-Bis (2-hydroxyethyl) tetradecanamide; Myristic diethanolamide; Myristoyl diethanolamide  
*Definition:* Mixture of ethanolamides of myristic acid  
*Empirical:* C<sub>18</sub>H<sub>37</sub>NO<sub>3</sub>  
*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>CON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>  
*Properties:* Nonionic  
*Toxicology:* May produce contact sensitivity; TSCA listed  
*Uses:* Antistat; visc. control agent; thickener, superfatting agent, foam booster/stabilizer, emulsifier for cosmetics, topical dermatological prods.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 177.2260, 177.2800

**Myristamine acetate**

*Synonyms:* Tetradecylamine acetate  
*Empirical:* C<sub>16</sub>H<sub>35</sub>NO<sub>2</sub>  
*Formula:* C<sub>14</sub>H<sub>29</sub>NH<sub>2</sub> · HOOCCH<sub>3</sub>  
*Properties:* Wh. to lt. yel. flake; solid. pt. 60-72 C; cationic  
*Uses:* Corrosion inhibitor and germicide (duckweed killer) in water treatment and petrol. industries, duckweed killer, pigment dispersant, antistatic agent used in textile industry  
*Trade Names:* Nissan Cation MA

**Myristic acid**

CAS 544-63-8; EINECS/ELINCS 208-875-2; FEMA 2764

*Synonyms:* Tetradecanoic acid; n-Tetradecic acid; 1-Tridecanecarboxylic acid*Classification:* Organic acid; aliphatic carboxylic acid*Empirical:* C<sub>14</sub>H<sub>28</sub>O<sub>2</sub>*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>COOH*Properties:* Oily wh. cryst. solid; faint odor; sol. in acetone, alcohol, benzene, chloroform, ether, aromatic and chlorinated solvs.; pract. insol. in water; m.w. 228.36; dens. 0.8739 (80 C); m.p. 54.5 C; b.p. 326.2 C; flash pt. > 230 F*Toxicology:* LD50 (oral, rat) > 10 g/kg, (IV, mouse) 43 mg/kg; poison by IV route; eye and human skin irritant; mutagenic data; TSCA listed*Precaution:* Combustible; incompat. with strong oxidizers (may react violently if heated, increased fire risk), reactive metals (may cause violent/explosive reaction), strong bases (may generate heat)*Hazardous Decomp. Prods.:* Combustion decomp. prods.: CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials; avoid generating dust; limit quantities in storage*Uses:* Emulsifier; soap ingred.; cosmetics ingred.; synthesis of esters for flavors and perfumes; nondrying oil for amino stoving resins; component of food-grade additives; food additive (defoamer, emulsifier, lubricant); plasticizer; pharmaceuticals (vaginals); in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in food-contact acrylics; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles*Regulatory:* FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; FEMA GRAS; FDA approved for vaginals*Manuf./Distrib.:* Akzo Nobel; Aldrich; Cognis/Chems. Group; Condor; Fluka; Genzyme; Grau Aromatics; Jarchem Ind.; Kraft Chem.; Penta Mfg.; Protameen; Robeco; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; U.S. Synthetics; Uniqema/Oleochems.; United Coconut Chem.; Universal Preserv-A-Chem; Whyte Chems. Ltd**Myristic acid isopropyl ester.** See Isopropyl myristate**Myristic acid, magnesium salt.** See Magnesium myristate**Myristic acid, monoester with 1,2-propanediol.** See Propylene glycol myristate**Myristic acid, palmitic acid, mixture, aluminum salt.** See Aluminum myristates/palmitates**Myristic acid, potassium salt.** See Potassium myristate**Myristic acid sodium salt.** See Sodium myristate**Myristic alcohol.** See Myristyl alcohol**Myristic diethanolamide.** See Myristamide DEA**Myristoyl diethanolamide.** See Myristamide DEA**Myristyl alcohol**

CAS 112-72-1; EINECS/ELINCS 204-000-3

*Synonyms:* Myristic alcohol; 1-Tetradecanol; N-Tetradecanol-1; Tetradecyl alcohol; N-Tetradecyl alcohol*Empirical:* C<sub>14</sub>H<sub>30</sub>O*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>CH<sub>2</sub>OH*Properties:* Colorless to wh. waxy solid flakes, waxy odor; sol. in ether; sl. sol. in alcohol; insol. in water; m.w. 214.38; dens. 0.8355 (20/20 C); vapor pressure 0.01 mm Hg (20 C); m.p. 38 C; b.p. 167 C; acid no. 2 max.; iodine no. 1 max.; hyd. no. 250-267; flash pt. 285 F*Toxicology:* TDLo (skin, mouse, 24 wk intermittent) 12 g/kg; nontoxic; human skin irritant; mod. eye irritant; questionable carcinogen; experimental tumorigen; TSCA listed*Precaution:* Combustible; can react with oxidizers*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1; Flammability 1; Reactivity 0

*Uses:* Surfactant intermediate; organic synthesis; antifoam agent; perfume fixative for soaps and cosmetics; specialty cleaning preparations; emollient for cold creams; emulsion polymerization; slip agent for plastics; emulsion stabilizer; visc. control agent; raw material for antioxidants; synthetic flavoring agent in foods; pharmaceutical oleaginous vehicle; in food-pkg. adhesives; in food-contact coatings; defoamer in food-contact

coatings and paper/paperboard

*Regulatory:* FDA 21CFR §172.864, 175.105, 175.300, 176.200, 176.210, 177.1010, 177.2800, 178.3480, 178.3910; FDA approved for orals; USP/NF compliance*Manuf./Distrib.:* Albemarle; Aldrich; Barnet Prods.; Cognis/Chems. Group; Condea Vista; Condor; Fluka; Indofine; Jarchem Ind.; Kraft Chem.; Lipo; M. Michel; R.W. Greeff; Robeco; Ruger; Schweizerhall; Sea-Land; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Whyte Chems. Ltd**Myristyl dimethyl benzyl ammonium chloride.** See Myristalkonium chloride**Myristyl eicosanol.** See Tetradecyleicosanol**Myristyl lignocerate**

CAS 42233-51-2

*Synonyms:* Lignoceric acid, myristyl ether; Tetracosanoic acid, tetradecyl ester; Tetradecyl tetracosanoate*Definition:* Ester of myristyl alcohol and lignoceric acid*Empirical:* C<sub>38</sub>H<sub>76</sub>O<sub>2</sub>*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>22</sub>COOCH<sub>2</sub>(CH<sub>2</sub>)<sub>12</sub>CH<sub>3</sub>*Uses:* Emollient in cosmetics*Trade Names Containing:* Ross Synthetic Candelilla Wax**Myristyloctadecanol.** See 2-Tetradecyloctadecanol**Na<sub>5</sub>ATMP.** See Pentasodium aminotrimethylene phosphonate**Nabam**

CAS 142-59-6

*Synonyms:* DSE; Disodium 1,2-ethanebis (carbomodithioate); Disodium ethylene bisdithiocarbamate; Disodium ethylene-1,2-bisdithiocarbamate; 1,2-Ethanediybis (dithiocarbamate) disodium salt; Ethylenebis (dithiocarbamate) disodium salt; Ethylenebis (dithiocarbamic acid) disodium salt*Classification:* Organosulfur compd.*Empirical:* C<sub>4</sub>H<sub>6</sub>N<sub>2</sub>S<sub>4</sub> • 2Na*Formula:* NaSSCNHCH<sub>2</sub>CH<sub>2</sub>NHCCSSNa*Properties:* Colorless crystals; sol. in water; m.w. 256.34*Toxicology:* LD50 (oral, rat) 395 mg/kg, (IP, rat) 500 mg/kg; poison by ing.; mod. toxic by IP route; skin irritant; experimental teratogen, reproductive effects; mutagen; TSCA listed*Environmental:* DOT regulated marine pollutant*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O, NO<sub>x</sub>, SO<sub>x</sub>*Uses:* Antimicrobial for water treatment; algicide; plant fungicide; biocide in paper prod.; cane-sugar and beet-sugar mills; starting material for pesticides; industrial applics.; slimicide in food-contact paper/paperboard*Use Level:* Limitation 3 ppm (raw sugarcane or raw beets)*Regulatory:* FDA 21CFR §173.320, 176.300; SARA reportable*Manuf./Distrib.:* Alco; FMC Foret*Trade Names Containing:* Amerstat® 272; Aquatreat® DNM-9; Aquatreat® DNM-30; Aquatreat® DNM-360; Metasol® 300; Qemicide DTC-35**NaCMC.** See Carboxymethylcellulose sodium**NaDBS.** See Sodium dodecylbenzenesulfonate**NaDOSS.** See Dioctyl sodium sulfosuccinate**Na<sub>5</sub>DTPA.** See Pentasodium pentetate**Na<sub>6</sub>DTPMP.** See Hexasodium diethylenetriaminepenta (methylenephosphonate)**Na<sub>8</sub>DTPMP.** See Octasodium diethylene triamine penta (methylene phosphonate)**Na<sub>5</sub>EDTMPA.** See Pentasodium ethylene diamine tetramethylene phosphonate**Nafka.** See Natural rubber**Nafka crystal gum.** See Natural rubber**Na<sub>4</sub>HEDP.** See Tetrasodium etidronate**NaMBT.** See Sodium 2-mercaptobenzothiazole**5-NAN.** See 5-Nitroacenaphthene**Naphtha**

CAS 8030-30-6; 68920-06-9; 64742-95-6 (lt. aromatic); UN No. 1255 (DOT), 1256 (DOT), 1270 (DOT), 2553 (DOT)

*Synonyms:* Benzin; Benzine; Coal tar naphtha; Coal tar naphtha distillate; Heavy naphtha; Hydrotreated naphtha; Naphtha coal tar; Naphtha, heavy; Naphtha, hydrotreated; Naphtha, petroleum; Naphtha, solvent; Petroleum benzin; Petroleum-derived naphtha; Petroleum distillates (naphtha); Petroleum ether; Petroleum naphtha; Petroleum oil; Petroleum spirit; VM&P naphtha

**Myristic acid**

CAS 544-63-8; EINECS/ELINCS 208-875-2; FEMA 2764

*Synonyms:* Tetradecanoic acid; n-Tetradecic acid; 1-Tridecanecarboxylic acid

*Classification:* Organic acid; aliphatic carboxylic acid

*Empirical:* C<sub>14</sub>H<sub>28</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>COOH

*Properties:* Oily wh. cryst. solid; faint odor; sol. in acetone, alcohol, benzene, chloroform, ether, aromatic and chlorinated solvs.; pract. insol. in water; m.w. 228.36; dens. 0.8739 (80 C); m.p. 54.5 C; b.p. 326.2 C; flash pt. > 230 F

*Toxicology:* LD50 (oral, rat) > 10 g/kg, (IV, mouse) 43 mg/kg; poison by IV route; eye and human skin irritant; mutagenic data; TSCA listed

*Precaution:* Combustible; incompat. with strong oxidizers (may react violently if heated, increased fire risk), reactive metals (may cause violent/explosive reaction), strong bases (may generate heat)

*Hazardous Decomp. Prods.:* Combustion decomp. prods.: CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 1; Flammability 0; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials; avoid generating dust; limit quantities in storage

*Uses:* Emulsifier; soap ingred.; cosmetics ingred.; synthesis of esters for flavors and perfumes; nondrying oil for amino stoving resins; component of food-grade additives; food additive (defoamer, emulsifier, lubricant); plasticizer; pharmaceuticals (vaginals); in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in food-contact acrylics; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles

*Regulatory:* FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; FEMA GRAS; FDA approved for vaginals

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Cognis/Chems. Group; Condor; Fluka; Genzyme; Grau Aromatics; Jarchem Ind.; Kraft Chem.; Penta Mfg.; Protameen; Robeco; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; U.S. Synthetics; Uniqema/Oleochems.; United Coconut Chem.; Universal Preserv-A-Chem; Whyte Chems. Ltd

**Myristic acid isopropyl ester.** See Isopropyl myristate

**Myristic acid, magnesium salt.** See Magnesium myristate

**Myristic acid, monoester with 1,2-propanediol.** See Propylene glycol myristate

**Myristic acid, palmitic acid, mixture, aluminum salt.** See Aluminum myristates/palmitates

**Myristic acid, potassium salt.** See Potassium myristate

**Myristic acid sodium salt.** See Sodium myristate

**Myristic alcohol.** See Myristyl alcohol

**Myristic diethanolamide.** See Myristamide DEA

**Myristoyl diethanolamide.** See Myristamide DEA

**Myristyl alcohol**

CAS 112-72-1; EINECS/ELINCS 204-000-3

*Synonyms:* Myristic alcohol; 1-Tetradecanol; N-Tetradecanol-1; Tetradecyl alcohol; N-Tetradecyl alcohol

*Empirical:* C<sub>14</sub>H<sub>30</sub>O

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>CH<sub>2</sub>OH

*Properties:* Colorless to wh. waxy solid flakes, waxy odor; sol. in ether; sl. sol. in alcohol; insol. in water; m.w. 214.38; dens. 0.8355 (20/20 C); vapor pressure 0.01 mm Hg (20 C); m.p. 38 C; b.p. 167 C; acid no. 2 max.; iodine no. 1 max.; hyd. no. 250-267; flash pt. 285 F

*Toxicology:* TDLo (skin, mouse, 24 wk intermittent) 12 g/kg; nontoxic; human skin irritant; mod. eye irritant; questionable carcinogen; experimental tumorigen; TSCA listed

*Precaution:* Combustible; can react with oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 1; Flammability 1; Reactivity 0

*Uses:* Surfactant intermediate; organic synthesis; antifoam agent; perfume fixative for soaps and cosmetics; specialty cleaning preparations; emollient for cold creams; emulsion polymerization; slip agent for plastics; emulsion stabilizer; visc. control agent; raw material for antioxidants; synthetic flavoring agent in foods; pharmaceutical oleaginous vehicle; in food-pkg. adhesives; in food-contact coatings; defoamer in food-contact

coatings and paper/paperboard

*Regulatory:* FDA 21CFR §172.864, 175.105, 175.300, 176.200, 176.210, 177.1010, 177.2800, 178.3480, 178.3910; FDA approved for orals; USP/NF compliance

*Manuf./Distrib.:* Albemarle; Aldrich; Barnet Prods.; Cognis/Chems. Group; Condea Vista; Condor; Fluka; Indofine; Jarchem Ind.; Kraft Chem.; Lipo; M. Michel; R.W. Greeff; Robeco; Ruger; Schweizerhall; Sea-Land; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Whyte Chems. Ltd

**Myristyl dimethyl benzyl ammonium chloride.** See Myristalkonium chloride

**Myristyl eicosanol.** See Tetradecyleicosanol

**Myristyl lignocerate**

CAS 42233-51-2

*Synonyms:* Lignoceric acid, myristyl ether; Tetracosanoic acid, tetradecyl ester; Tetradecyl tetracosanoate

*Definition:* Ester of myristyl alcohol and lignoceric acid

*Empirical:* C<sub>38</sub>H<sub>76</sub>O<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>22</sub>COOCH<sub>2</sub>(CH<sub>2</sub>)<sub>12</sub>CH<sub>3</sub>

*Uses:* Emollient in cosmetics

*Trade Names Containing:* Ross Synthetic Candelilla Wax

**Myristyloctadecanol.** See 2-Tetradecyloctadecanol

**Na<sub>8</sub>ATMP.** See Pentasodium aminotrimethylene phosphonate

**Nabam**

CAS 142-59-6

*Synonyms:* DSE; Disodium 1,2-ethanebis (carbamodithioate); Disodium ethylene bisdithiocarbamate; Disodium ethylene-1,2-bisdithiocarbamate; 1,2-Ethanediybis(carbamodithioic acid disodium salt); Ethylenebis (dithiocarbamate) disodium salt; Ethylenebis (dithiocarbamic acid) disodium salt

*Classification:* Organosulfur compd.

*Empirical:* C<sub>4</sub>H<sub>8</sub>N<sub>2</sub>S<sub>4</sub> · 2Na

*Formula:* NaSSCNHCH<sub>2</sub>CH<sub>2</sub>NHCCSNa

*Properties:* Colorless crystals; sol. in water; m.w. 256.34

*Toxicology:* LD50 (oral, rat) 395 mg/kg, (IP, rat) 500 mg/kg; poison by ing.; mod. toxic by IP route; skin irritant; experimental teratogen, reproductive effects; mutagen; TSCA listed

*Environmental:* DOT regulated marine pollutant

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O, NO<sub>x</sub>, SO<sub>x</sub>

*Uses:* Antimicrobial for water treatment; algicide; plant fungicide; biocide in paper prod.; cane-sugar and beet-sugar mills; starting material for pesticides; industrial applics.; slimicide in food-contact paper/paperboard

*Use Level:* Limitation 3 ppm (raw sugarcane or raw beets)

*Regulatory:* FDA 21CFR §173.320, 176.300; SARA reportable

*Manuf./Distrib.:* Alco; FMC Foret

*Trade Names Containing:* Amerstat® 272; Aquatreat® DNM-9; Aquatreat® DNM-30; Aquatreat® DNM-360; Metasol® 300; Qemicide DTC-35

**NaCMC.** See Carboxymethylcellulose sodium

**NaDBS.** See Sodium dodecylbenzenesulfonate

**NaDOSS.** See Dioctyl sodium sulfosuccinate

**Na<sub>5</sub>DTPA.** See Pentasodium pentetate

**Na<sub>6</sub>DTPMP.** See Hexasodium diethylenetriaminepenta (methylenephosphonate)

**Na<sub>8</sub>DTPMP.** See Octasodium diethylene triamine penta (methylene phosphonate)

**Na<sub>5</sub>EDTMPA.** See Pentasodium ethylene diamine tetramethylene phosphonate

**Nafka.** See Natural rubber

**Nafka crystal gum.** See Natural rubber

**Na<sub>4</sub>HEDP.** See Tetrasodium etidronate

**NaMBT.** See Sodium 2-mercaptobenzothiazole

**5-NAN.** See 5-Nitroacenaphthene

**Naphtha**

CAS 8030-30-6; 68920-06-9; 64742-95-6 (lt. aromatic); UN No. 1255 (DOT), 1256 (DOT), 1270 (DOT), 2553 (DOT)

*Synonyms:* Benzin; Benzine; Coal tar naphtha; Coal tar naphtha distillate; Heavy naphtha; Hydrotreated naphtha; Naphtha coal tar; Naphtha, heavy; Naphtha, hydrotreated; Naphtha, petroleum; Naphtha, solvent; Petroleum benzin; Petroleum-derived naphtha; Petroleum distillates (naphtha); Petroleum ether; Petroleum naphtha; Petroleum oil; Petroleum spirit; VM&P naphtha

*Definition:* Petroleum distillate

*Properties:* Dark straw-colored to colorless liq.; sol. in benzene, toluene, xylene; dens. 0.862-0.892; b.p. 149-216 C; flash pt. (CC) 107 F

*Toxicology:* ACGIH TLV/TWA 300 ppm; LD50 (oral, rat) > 5 g/kg, (skin, rabbit) 3 g/kg; LCLo (inh., rat, 6 h) 1600 ppm; mildly toxic by inh.; human poison and systemic effects by IV route (dyspnea, respiratory effects); irritating to eyes, skin, respiratory tract; vapor inh. may cause nausea, dizziness, unconsciousness; experimental carcinogen; tumorigen; common air contaminant; TSCA listed

*Precaution:* Flamm. when exposed to heat or flame; dangerous fire risk; explosive limits in air 1-6%; sl. explosion hazard; can react with oxidizing materials; sl. explosion hazard

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Keep containers tightly closed

*Uses:* Source of gasoline, special naphthas, petroleum chems. esp. ethylene; solvent, thinner in paint, dry-cleaning fluid, rubber compounding, sealants, chem. absorption; blending with natural gas; aviation fuel blending component; color diluent, protective coating solvent in foods; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §73.1, 172.250, 175.105, 176.200, 176.210

*Manuf./Distrib.:* Ashland; Baychem; Chemcentral; ChevronPhillips; Crowley Chem.; Exxon; Harcros; Houghton Chem.; J.T. Baker; Kerr-McGee; Mobil; Monsanto; Norsk Hydro AS; R.E. Carroll; Sal Chem.; Samson; Shell; Spectrum Quality Prods.; Sunnyside; Van Waters & Rogers

*Trade Names Containing:* Melmac® 243-3

See also VM&P naphtha

**Naphtha coal tar.** See Naphtha

**Naphtha, heavy.** See Naphtha

**Naphtha, hydrotreated.** See Naphtha

**Naphthalene, bis (1-methylethyl)-.** See Diisopropyl naphthalene

**Naphthalene diisopropyl-.** See Diisopropyl naphthalene

**2,7-Naphthalenedisulfonic acid, 4-amino-3-((4'-((2,4-diaminophenyl) azo) (1,1'-biphenyl)-4-yl) azo)-5-hydroxy-6-(phenylazo)-, disodium salt.** See Direct black 38

**2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-3-((4'-((4-hydroxyphenyl) azo) (1,1'-biphenyl)-4-yl) azo)-6-(phenylazo)-, disodium salt.** See Direct green 1

**2,7-Naphthalenedisulfonic acid, 4-amino-5-hydroxy-3-[(3-nitrophenyl) azo]-6-(phenylazo)-, disodium salt.** See Acid blue 29

**1,3-Naphthalenedisulfonic acid, 6,6'-(3,3'-dimethyl-4,4'-biphenylene) bis (azo) bis (4-amino-5-hydroxy-, tetrasodium salt.** See Direct blue 53

**1,3-Naphthalenedisulfonic acid, 7-hydroxy-8-(phenylazo)-, disodium salt.** See Acid orange 10

**2,7-Naphthalenedisulfonic acid, 3-hydroxy-4-(2,4-xylylo)-, disodium salt.** See Acid red 26

**Naphthalene green V.** See Acid green 16

**Naphthalene Orange G.** See Acid orange 7

**2-Naphthalenesulfonic acid, 6-((7-amino-1-hydroxy-3-sulfo-2-naphthalenyl) azo)-3-((4-((4-amino-6 (or 7)-sulfo-1-naphthalenyl) azo) phenyl) azo)-4-hydroxy-, trisodium salt.** See Direct black 80

**Naphthalenesulfonic acid-formaldehyde condensate, sodium salt.** See Sodium polynaphthalene sulfonate

**1-Naphthalenesulfonic acid, 4-hydroxy-3-((2-methoxyphenyl) azo)-, monosodium salt.** See Acid red 4

**1-Naphthalenesulfonic acid, 4-(2-hydroxy-1-naphthalenyl) azo)-, monosodium salt.** See Acid red 88

**Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt.** See Sodium polynaphthalene sulfonate

**Naphthalene, tetrachloro.** See Tetrachloronaphthalene

**2-Naphthalenol.** See  $\beta$ -Naphthol

**2-Naphthalenol, 1-((4-methyl-2-nitrophenyl) azo)-.** See Pigment red 3

**Naphthamine dark green B.** See Direct green 1

**Naphtha, petroleum.** See Naphtha; VM&P naphtha

**Naphtha, solvent.** See Naphtha

**Naphtha, VM&P.** See VM&P naphtha

## Naphthenic oil

CAS 64742-53-6; 67254-74-4

*Synonyms:* Distillates (petroleum), hydrotreated (mild) light naphthenic; Hydrotreated (mild) light naphthenic distillate; Hydrotreated (mild) light naphthenic distillates (petroleum); Mineral oil, petroleum distillates, hydrotreated;

Mineral oil, petroleum distillates, hydrotreated (mild) light naphthenic

*Classification:* Petroleum hydrocarbon

*Toxicology:* LD (oral, rat) > 5 g/kg, (skin, rabbit) > 2 g/kg; low toxicity by ing. and skin contact; primary irritant; severe skin irritant by Draize test; confirmed carcinogen; tumorigen; experimental neoplastigen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Extender/process oil offering color and heat stability for rubber compounding; plasticizer; softener; food-contact applics.

*Trade Names:* Alcaid 10; Alcaid 13; Alcaid 19; Alcaid 32; Alcaid 46; Alcaid 60; Alcaid 100

## 2-Naphthol. See $\beta$ -Naphthol

## $\beta$ -Naphthol

CAS 135-19-3; EINECS/ELINCS 205-182-7

*Synonyms:* C1 37500; C1 azoic coupling component 1; 2-Hydroxynaphthalene;  $\beta$ -Hydroxynaphthalene; Isonaphthol;  $\beta$ -Monoxynaphthalene; 2-Naphthalenol; 2-Naphthol;  $\beta$ -Naphthyl alcohol;  $\beta$ -Naphthyl hydroxide

*Definition:* Derived by fusing sodium  $\beta$ -naphthalene sulfonate with caustic soda

*Empirical:* C<sub>10</sub>H<sub>8</sub>O

*Formula:* C<sub>10</sub>H<sub>7</sub>OH

*Properties:* Wh. to tan powd.; darkens with age; faint phenol-like odor; sol. in alcohol, ether, chloroform, glycerol, oils, alkaline sol'ns.; pract. insol. in water; m.w. 144.18; dens. 1.217; vapor pressure 10 mm (145.5 C); m.p. 122-123 C; b.p. 285-286 C; flash pt. 152.7 C

*Toxicology:* LD50 (oral, rat) 1960 mg/kg, (IP, mouse) 97,500 mg/kg, (skin, rabbit) > 10 g/kg; LC50 (inh., rat, 1 h) > 770 mg/m<sup>3</sup>; harmful by inh., ing., skin absorption; primary irritant; eye/skin/respiratory system irritant; may cause changes in salivary glands/kidney wt./blood count/liver, somnolence, convulsions; mutagen; TSCA listed

*Environmental:* Very toxic to aquatic organisms; avoid release to environment

*Precaution:* Combustible; incompat. with strong oxidizing agents, acid chlorides, acid anhydrides, strong bases; stable in air, but darkens on exposure to sunlight

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

*Storage:* Light-sensitive; keep container closed; store in cool, dry place

*Uses:* Dyes; pigments; antioxidant for rubber, fats, oils, insecticides; pharmaceuticals; perfumes; antiseptic; preservative for defoamers in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §176.200, 176.210

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Allchem Ind.; Brook-Chem; EniChem Am.; Fluka; Monomer-Polymer & Dajac Labs; Pacific West; Penta Mfg.; Pfaltz & Bauer; S & D Chems. Canada; Sigma; Total Spec. Chems.

**Naphthol green.** See Acid green 1

**Naphthol green B.** See Acid green 1

**Naphthol orange.** See Acid orange 7

**$\beta$ -Naphthol orange.** See Acid orange 7

**$\beta$ -Naphthyl alcohol.** See  $\beta$ -Naphthol

**N-2-Naphthylaniline.** See Phenyl- $\beta$ -naphthylamine

**$\beta$ -Naphthyl hydroxide.** See  $\beta$ -Naphthol

**$\beta$ -Naphthyl orange.** See Acid orange 7

**2-Naphthylphenylamine.** See Phenyl- $\beta$ -naphthylamine

**$\beta$ -Naphthylphenylamine.** See Phenyl- $\beta$ -naphthylamine

**Native calcium sulfate.** See Calcium sulfate dihydrate

**Natron.** See Sodium carbonate

**Natural calcium carbonate.** See Calcium carbonate

**Natural iron oxides.** See Ferric oxide

**Natural red oxide.** See Ferric oxide

## Natural rubber

CAS 9006-04-6

*Synonyms:* NR; Caoutchouc; India rubber; Nafka; Nafka crystal gum; Rubber; Rubber dust; Rubber, natural

*Definition:* Coagulated and dried exudate of the rubber tree, *Hevea brasiliensis*; natural rubber contains 89-92% elastomeric hydrocarbon (cis-1,4-polyisoprene)

*Properties:* Pale yel. to dk. brn. elastomeric solid; m.w. 200,000-400,000

**Toxicology:** Mutagen  
**Precaution:** Fire hazard exposed to heat or flame  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>x</sub>  
**Uses:** Adhesives (pressure-sensitive, solvent-based); molded materials; vehicle engine/suspension mounts; print rollers; road repair compds.; rubber bands; tank/container linings; vehicle tires; vulcanizing cement; dipping applics.; coating applics.; in food-contact coatings; in cellophane for food pkg.; in closure-sealing gaskets for food containers; latex applics.; foamed rubber; textiles; medical; asphalt; processing aid for blending with other rubber; in food-contact articles for repeated use  
**Regulatory:** FDA 21CFR §175.300, 177.1200, 177.1210, 177.2600  
**Manuf./Distrib.:** A. Schulman; Elementis Spec. Perf. Polymers; Firestone Syn. Rubber  
**Trade Names:** Heveatex NR  
 See also Polyisoprene

**Natural smithsonite.** See Zinc carbonate

**NBR.** See Butadiene/acrylonitrile copolymer

**Nekal.** See Sodium dibutyl naphthalene sulfonate

**Neochromium.** See Chromium sulfate, basic

#### Neopentyl glycol diglycidyl ether

CAS 17557-23-2; EINECS/ELINCS 241-536-7  
**Synonyms:** 1,3-Bis(2,3-epoxypropoxy)-2,2-dimethyl propane; Diglycidyl ether of neopentyl glycol; 2,2'-((2,2-Dimethyl-1,3-propanediyl) bis (oxymethylene)) bisoxirane  
**Empirical:** C<sub>11</sub>H<sub>20</sub>O<sub>4</sub>  
**Properties:** M.w. 216.31; dens. 1.040; b.p. 103-107 (1 mm); ref. index 1.4570  
**Toxicology:** LD50 (oral, rat) 4500 mg/kg; low toxicity by ing.; sensitizer; questionable carcinogen; experimental tumorigen; mutagen; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**Uses:** Reactive epoxy diluent for civil engineering applics.; increases impregnation of resin systems, and level of filler loading; used in elec., laminating, casting, tooling, flooring, and coatings  
**Manuf./Distrib.:** Aldrich  
**Trade Names:** Epiol NPG-100

**Neoprene.** See Polychloroprene

**Neoprene rubber.** See Polychloroprene

#### Nickel

CAS 7440-02-0; EINECS/ELINCS 231-111-4  
**Synonyms:** CI 77775; Nickel catalysts; Nickel dust; Nickel particles; Nickel sponge; Raney alloy; Raney nickel  
**Classification:** Metallic element  
**Empirical:** Ni  
**Properties:** Silvery malleable metal; high ductility; insol. in water; at.wt. 58.69; dens. 8.9; m.p. 1452 C; b.p. 2900 C; corrosion resist.; resist. to strong alkalis  
**Toxicology:** ACGIH TLV/TWA) 1 mg(Ni)/m<sup>3</sup>; LDLo (oral, rat) 5 g/kg, (IV, mouse) 50 mg/kg, (subcut., rat) 12,500 µg/kg, (IP, rabbit) 7 mg/kg; poison by ing., IV, IP, subcut. routes; hypersensitivity can cause dermatitis, pulmonary asthma, conjunctivitis; experimental carcinogen, neoplastigen, tumorigen, teratogen, reproductive effects; mutagenic data; TSCA listed  
**Precaution:** Flamm. as dust or fume; powders can ignite spontaneously in air; incompat. with oxidants; attacked sl. by hydrochloric and sulfuric acids, somewhat more by nitric acid; violent reactions possible  
**Uses:** Alloys (low-alloy steel, stainless steel, copper, brass, permanent magnets, elec. resist. alloys); electroplating; electroformed coatings; catalyst for hydrogenation of veg. oils; catalyst for methanation of fuel gases; alkaline storage batteries; fuel cell electrodes; direct food additive; catalyst; food processing aid (Japan); in paper/paperboard in contact with dry food  
**Regulatory:** FDA 21CFR §176.180, 184.1537, GRAS; USDA 9CFR §318 (must be eliminated during processing); Japan approved  
**Manuf./Distrib.:** Aldrich; Alfa Aesar; All Chemie Ltd; Allied-Hunter; Atlantic Equip. Engrs.; Atomergic Chemetals; Carbochem; Cerac; Fluka; GFS; Inco Alloys Int'l.; OM Group; Powmet; Reade Advanced Materials; Sigma; Spectrum Quality Prods.; Tradewinds Int'l. Resources

**Nickel catalysts.** See Nickel

**Nickel dust.** See Nickel

**Nickel particles.** See Nickel

**Nickel sponge.** See Nickel

**Nitrate of ammonia.** See Ammonium nitrate

**Nitre cake.** See Sodium bisulfate

**Nitric acid ammonium salt.** See Ammonium nitrate

**Nitric acid silver (1+) salt.** See Silver nitrate

**Nitrile/butadiene rubber.** See Butadiene/acrylonitrile copolymer

**Nitrile elastomer.** See Butadiene/acrylonitrile copolymer

**Nitrile rubber.** See Butadiene/acrylonitrile copolymer

**Nitriloacetic acid trisodium salt.** See Trisodium NTA

#### Nitrilotriacetic acid

CAS 139-13-9; EINECS/ELINCS 205-355-7  
**Synonyms:** NTA; Aminotriacetic acid; Aminotriethanoic acid; N,N-Bis(carboxymethyl)glycine; Glycine, N,N-bis(carboxymethyl)-; Triglycine; Triglycollamic acid  
**Classification:** Amino carboxylic acid  
**Empirical:** C<sub>6</sub>H<sub>9</sub>NO<sub>6</sub>  
**Formula:** N(CH<sub>2</sub>COOH)<sub>3</sub>  
**Properties:** Wh. cryst. solid; sol. 1.28 g/l in water forming acidic sol'ns.; m.w. 191.16; m.p. 246 C (dec.); flash pt. 340 C; pH 2.3 (sat. sol'n.)  
**Toxicology:** LD50 (oral, rat) 1100 mg/kg, (oral, mouse) 3160 mg/kg; poison by intraperitoneal route; corrosive to skin; confirmed carcinogen with experimental carcinogenic and neoplastigenic data; TSCA listed  
**Environmental:** 70% biodeg.  
**Precaution:** Combustible; corrosive  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>  
**Uses:** Synthesis; chelating and sequestering agent to complex and dissolve calcium and magnesium hardness in water treatment, detergents, pulp and paper processing; eluting agent in purification of rare earth elements; detergent builder  
**Manuf./Distrib.:** Aldrich; Ashland; BASF; Charkit; Chemplex Chems.; Fluka; Hampshire; Lowenstein Dyes & Cosmetics; Monsanto; R.W. Greff; Rhodia; Sigma; Spectrum Quality Prods.

**Nitrilotriacetic acid sodium salt.** See Trisodium NTA

**Nitrilotriacetic acid, trisodium salt.** See Trisodium NTA

**2,2',2''-Nitrilotriethanol.** See Triethanolamine

**Nitrilotrimethanephosphonic acid.** See Aminotrimethylene phosphonic acid

**Nitrilotrimethylenephosphonic acid.** See Aminotrimethylene phosphonic acid

**Nitrilotrimethylphosphonic acid.** See Aminotrimethylene phosphonic acid

**1,1',1''-Nitrilotri-2-propanol.** See Triisopropanolamine

**2,2',2''-Nitrilotris(ethanol).** See Triethanolamine

**Nitrilotris (methylenephosphonic) acid.** See Aminotrimethylene phosphonic acid

**Nitrilotris (methylene) triphosphonic acid.** See Aminotrimethylene phosphonic acid

**Nitrilotris (methylphosphonic acid).** See Aminotrimethylene phosphonic acid

**1,1',1''-Nitrilotris-2-propanol.** See Triisopropanolamine

#### 5-Nitroacenaphthene

CAS 602-87-9; EINECS/ELINCS 210-025-0  
**Synonyms:** 5-NAN; Acenaphthene, 5-nitro-; Acenaphthylene, 1,2-dihydro-5-nitro-; 1,2-Dihydro-5-nitroacenaphthylene; 5-Nitronaphthalene ethylene  
**Empirical:** C<sub>12</sub>H<sub>9</sub>NO<sub>2</sub>  
**Properties:** Yel. powd.; sol. in ligroin, ether; sol. 50-100 mg/ml in acetone, DMSO; sol. < 1 mg/ml in water, 95% ethanol; m.w. 199.22; m.p. 100-104 C  
**Toxicology:** Irritating to eyes, skin, mucous membranes, upper respiratory tract; harmful by inh., ing., skin contact; experimental carcinogen; equivocal tumorigen; may cause bladder tumors; mutation data; TSCA listed  
**Precaution:** Probably combustible; incompat. with strong oxidizing agents, strong bases  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>, NO<sub>x</sub>; emits toxic fumes under fire conditions  
**Storage:** Store in cool, dry place; keep tightly closed  
**Uses:** Chem. intermediate to produce naphthalimide dyes used as fluorescent whitening agents (Japan); prod. of a paper dye  
**Manuf./Distrib.:** Aldrich; Alfa Aesar; Lancaster Synthesis; Supelco; TCI Am.

#### 2-Nitrobutyl bromoacetate

CAS 32815-96-6

**Uses:** Slimicide in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.300

**Nitrocellulose**

CAS 9004-70-0; EINECS/ELINCS 239-069-9; UN No. 2059 (DOT), 2555 (DOT), 2556 (DOT), 2557 (DOT)

**Synonyms:** Celloidin; Celluloid; Cellulose nitrate; Cellulose tetranitrate; Collodion; Collodion cotton; Collodion wool; Colloxylin; Flexible collodion; Guncotton; Nitrocellulose, dry; Nitrocellulose sol'n.; Nitrocellulose, wetted; Nitrocotton; Nitron; Pyroxylin; Pyroxylin plastic; Pyroxylin rods; Soluble guncotton; Xyloidin

**Classification:** Cellulose deriv.

**Empirical:** C<sub>12</sub>H<sub>16</sub>N<sub>4</sub>O<sub>18</sub>

**Formula:** C<sub>12</sub>H<sub>16</sub>(ONO<sub>2</sub>)<sub>4</sub>O<sub>6</sub>

**Properties:** Colorless liq. or wh. amorphous solid; sol. in acetone, methanol, glac. acetic acid; insol. in water, ether-alcohol mixt.; m.w. 504.3; dens. 1.66; b.p. 83 C; flash pt. (CC) 40 F

**Toxicology:** LD50 (oral, rat) > 5 g/kg; very low oral toxicity; severe eye irritant; target organs: kidneys, nerves; TSCA listed

**Precaution:** DOT: Explosive, flamm. liq., flamm. solid; highly dangerous exposed to heat, flame, strong oxidizers; ignites easily; mod. dangerous explosion hazard

**Storage:** Keep in well-closed containers; protect from light and moisture

**Uses:** Thermoplastic resin; film-former; lacquer resin; high explosives; mfg. of collodions; rocket propellant; printing ink base; binder in flexographic inks; in adhesives; leather finishing; molded prods.; mfg. of 'Celluloid'; food-contact paper/paperboard; in food-pkg. adhesives; in food-contact coatings; in cellophane for food pkg.; pharmaceutical creams; embedding sections in microscopy; in electrotechnics; photography; galvanoplasty

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 177.1200, 181.22, 181.30

**Manuf./Distrib.:** Aarbor Int'l.; Acros Org.; Aldrich; Allchem Ind.; BCH Brühl; Bayer; CarboMer; Daicel Chem. Ind.; Fisher Scientific; Fluka; J.H. Calo; Punda Mercantile; SNPE Chimie; San Yuan; Sigma; Unicel; Vanguard Chem. Int'l.

**Trade Names:** Dispercel-A; Dispercel-AS; ParCell™ A; ParCell™ R; ParCell™ S

See also Collodion

**Nitrocellulose, dry.** See Nitrocellulose

**Nitrocellulose sol'n.** See Nitrocellulose

**Nitrocellulose, wetted.** See Nitrocellulose

**Nitrocotton.** See Nitrocellulose

**(2-Nitroethyl) benzene.** See β-Nitrostyrene

**N-[α-(Nitroethyl) benzyl] ethylenediamine**

**Uses:** Slimicide in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.300

**Nitrogen**

CAS 7727-37-9; EINECS/ELINCS 231-783-9; UN No. 1066 (compressed), 1977 (refrig. liq.)

**Synonyms:** Nitrogen, compressed; Nitrogen gas; Nitrogen, refrigerated liquid

**Classification:** Gaseous element

**Definition:** Gas that is 78% of the atmosphere by volume and essential to all living things

**Empirical:** N<sub>2</sub>

**Properties:** Colorless gas, odorless, tasteless; sol. in liq. ammonia, alcohol; sl. sol. in water; at. wt. 14.0067; m.w. 28.01; dens. 1.2506 g/l (0 C), 0.808 g/cm<sup>3</sup> (liq., -195.8 C); m.p. -210 C; b.p. -195.79 C; chemically nonreactive; noncombustible

**Toxicology:** Low toxicity; simple asphyxiant in high concs.; toxic conc. 90 ppm in humans, 250 ppm in mice; narcotic at high conc. and pressure; narcotic effects and the bends are hazards of compressed air atmospheres such as found in underwater diving; TSCA listed

**Precaution:** Combines with oxygen and hydrogen on sparking forming nitric oxide and ammonia resp.

**Uses:** Prod. of ammonia, acrylonitrile, nitrates, cyanamide, cyanides, nitrides; mfg. of explosives; inert purging/blanketing gas; electronics; propellant; bright annealing of steel; cryogenic preservation; inflating tires; fertilizers; hydraulic fluid; source of pressure in oil wells; direct food additive, antioxidant, propellant, aerating agent, processing aid in foods; liq. nitrogen in food refrigeration and freeze drying; propellant, diluent in pharmaceuticals

**Regulatory:** FDA 21CFR §169.115, 169.140, 169.150, 184.1540, GRAS; Japan approved; USP/NF, BP compliance

**Manuf./Distrib.:** Aldrich; MG Ind.; Praxair

**Trade Names Containing:** Dilurit 464 C; Dilurit 953

**Nitrogen, compressed.** See Nitrogen

**Nitrogen gas.** See Nitrogen

**Nitrogen, refrigerated liquid.** See Nitrogen

**Nitron.** See Nitrocellulose

**5-Nitronaphthalene ethylene.** See 5-Nitroacenaphthene

**1-Nitro-2-phenylethylene.** See β-Nitrostyrene

**β-Nitrophenylethylene.** See β-Nitrostyrene

**β-Nitrostyrene**

CAS 102-96-5; EINECS/ELINCS 203-066-0

**Synonyms:** BNS; Benzene, (2-nitroethyl)-; (2-Nitroethyl) benzene; 1-Nitro-2-phenylethylene; β-Nitrophenylethylene; γ-Nitrostyrene; ω-Nitrostyrene; (2-Nitrovinyl) benzene; Styrene, β-nitro-

**Empirical:** C<sub>8</sub>H<sub>9</sub>NO<sub>2</sub>

**Formula:** C<sub>8</sub>H<sub>5</sub>CH:CHNO

**Properties:** Yel. liq. or prisms; sol. < 0.1 g/100 ml in water; m.w. 149.16; sp.gr. 0.971; vapor pressure ≈ 22 mm (20 C); m.p. 58 C; b.p. 250-260 C; flash pt. 8.88 C

**Toxicology:** LDLo (oral, mouse) 710 mg/kg; toxic by inh., ing., skin contact; severe irritant; irritating to eyes, skin, respiratory system; may cause burning sensation, coughing, laryngitis, shortness of breath, headache, nausea, vomiting; exposure can cause lung irritation, chest pain and edema which may be fatal; chronic exposure may cause CNS effects; target organs: bladder, liver, kidneys, brain; TSCA listed

**Precaution:** Flamm.; mod. fire and explosion risk; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, NO<sub>x</sub>; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in cool, dry place under nitrogen; keep away from heat, sparks, open flame

**Uses:** Chain stopper in styrene-type polymerization; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Manuf./Distrib.:** ANGUS; Riedel-deHaën

**γ-Nitrostyrene.** See β-Nitrostyrene

**ω-Nitrostyrene.** See β-Nitrostyrene

**Nitrous acid sodium salt.** See Sodium nitrite

**(2-Nitrovinyl) benzene.** See β-Nitrostyrene

**NMP.** See N-Methyl-2-pyrrolidone

**Nonane.** See n-Nonane

**n-Nonane**

CAS 111-84-2; UN No. 1920 (DOT)

**Synonyms:** Nonane

**Classification:** Sat. aliphatic hydrocarbon

**Empirical:** C<sub>9</sub>H<sub>20</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>

**Properties:** Colorless liq.; gasoline-like odor; misc. with most org. solvs.; sol. in abs. alcohol, ether; insol. in water; m.w. 128.26; sp.gr. 0.714; vapor pressure 10 mm Hg (38 C); m.p. -53.5 C; b.p. 151 C; flash pt. 31 C

**Toxicology:** ACGIH TLV/TWA 200 ppm; LD50 (IV, mouse) 218 mg/kg; toxic; poison by IV route; skin irritant; conc. vapor probably irritating to eyes; inh. of conc. vapor may cause nose/throat irritation, headache, drowsiness, nausea, tremors, difficulty breathing; narcotic in high concs.; very high concs. may cause unconsciousness, death; ing. may cause nausea, vomiting, swelling of abdomen, headache, depression; relatively low oral toxicity unless aspirated into lungs; TSCA listed

**Precaution:** Flamm.; very dangerous fire hazard exposed to heat or flame; explosive as vapor exposed to heat or flame; incompat. with strong oxidizing agents (increases fire and explosion hazard)

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 3; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area out of direct sunlight

**Uses:** Solvent; org. synthesis; component of gasoline and petrol. solvents such as VM&P naphtha and Stod. solvent; mfg. of paraffin prods.; paper processing; rubber industry; synthesis of biodeg. detergents; jet fuel re-search; distillation chaser

*Manuf./Distrib.:* Aldrich; Fluka; Romil Ltd; Sigma

**1-Nonanecarboxylic acid.** See Capric acid  
**3,6,9,12,15,18,21,24,27-Nonaoxonatriacontan-1-ol.** See Laureth-9  
**Non-bronze blue.** See Ferric ferrocyanide  
**Noncarbinol.** See Decyl alcohol

### Nonoxynol

CAS 9016-45-9 (generic); 37205-87-1 (generic); 68412-54-4 (generic)  
*Synonyms:* Glycols, polyethylene, mono (nonylphenyl) ether; Nonylphenol ethoxylates; Nonylphenol, polyoxyethylene ether; Nonyl phenyl polyethylene glycol; Nonyl phenyl polyethylene glycol ether; Polyethylene glycol nonyl phenyl ether; Polyoxyethylene nonylphenol  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $(C_2H_4O)_x \cdot C_{15}H_{24}O$   
*Properties:* Pale yel. to wh.; liq. (4-7 EO), paste (13-15 EO), or solid (> 20 EO); oil-sol. (4-7 EO), rest water-sol.; HLB 8.9-18.2; nonionic  
*Toxicology:* LD50 (oral, rat) 1310 mg/kg, (skin, rabbit) 2 ml/kg; primary irritant; mild skin and severe eye irritant; may cause cardiac changes, nausea, vomiting, reproductive system tumors; TSCA listed  
*Storage:* Keep under argon  
*Uses:* Crude oil demulsifier ingred.; defoamer; emulsifier for oils, solvents, waxes, pesticides; emulsifier/protective colloid in emulsion polymerization; spermicides; surfactant for dishwashing detergents; surfactant/wetting agent/dispersant for household/industrial cleaners; textile scouring agent; solubilizer; emulsifier in mfg. of food-contact articles  
*Trade Names:* Atlas EMJ-C; Disponil® NP 4; Disponil® NP 6; Disponil® NP 10; Disponil® NP 11; Disponil® NP 12; Disponil® NP 20; Disponil® NP 307; Hyonic® PE-90; MAKON® NP-5570  
*Trade Names Containing:* Soygold® 2000

### Nonoxynol-1

CAS 9016-45-9 (generic); 26027-38-3 (generic); 27986-36-3; 37205-87-1 (generic); EINECS/ELINCS 248-762-5  
*Synonyms:* Ethylene glycol nonyl phenyl ether; PEG-1 nonyl phenyl ether; 2-(Nonylphenoxy) ethanol  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{17}H_{26}O_2$   
*Formula:*  $C_9H_{19}C_6H_4OCH_2CH_2OH$   
*Properties:* Yel. to almost colorless liq.; sol. in oil; HLB 4.6; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; latex paints; emulsifier, solubilizer in pharmaceuticals; food-pkg. adhesives; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §175.105, 176.180  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Surfonic® N-10

### Nonoxynol-2

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 27176-93-8 (generic); EINECS/ELINCS 248-291-5  
*Synonyms:* PEG-2 nonyl phenyl ether; POE (2) nonyl phenyl ether; PEG 100 nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{19}H_{28}O_3$   
*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 2$   
*Properties:* Yel. to almost colorless liq.; sol. in oil; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; in metalworking; paints; emulsifier, solubilizer in pharmaceuticals; food-pkg. adhesives; in paper/paperboard in contact with dry foods; defoamer in food-contact paper/paperboard  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemax NP-1.5; Imbentin-N/7 A; Imbentin-N/020 I; Teric™ N2

### Nonoxynol-3

CAS 9016-45-9 (generic); 26027-38-3 (generic); 27176-95-0 (generic); 37205-87-1 (generic); 51437-95-7 (generic); 84562-92-5 (generic)  
*Synonyms:* PEG-3 nonyl phenyl ether; POE (3) nonyl phenyl ether; 2-[2-[2-(Nonylphenoxy)ethoxy]ethoxy]ethanol  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{21}H_{36}O_4$   
*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 3$   
*Properties:* Yel. to almost colorless liq.; sol. in oil; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; latex paints; defoamer in food-contact paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210  
*Manuf./Distrib.:* Fluka; Sigma  
*Trade Names:* Surfonic® N-31.5

### Nonoxynol-4

CAS 7311-27-5; 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 27176-97-2; 68412-54-4 (generic); EINECS/ELINCS 230-770-5  
*Synonyms:* PEG-4 nonyl phenyl ether; POE (4) nonyl phenyl ether; PEG 200 nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{23}H_{40}O_5$   
*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 4$   
*Properties:* Yel. to almost colorless liq.; sol. in oil; HLB 8.9; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; pharmaceutical aids; plasticizer, antistat for plastics; in cosmetics; fat liquoring; cutting oils; agric.; petroleum oils; solvent cleaner; emulsifier in mfg. of food-contact articles; defoamer for food-contact paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400; FDA approved for ophthalmics, topicals, vagina  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Chemax NP-4; DeSonic™ 4N; Imbentin-N/040; MAKON® 4; NP4; POLYSTEP® F-1; Surfonic® N-40; Tergitol® NP-4; Teric™ N4; Trycol® 6961

### Nonoxynol-5

CAS 9016-45-9 (generic); 20636-48-0; 26027-38-3 (generic); 26264-02-8; 37205-87-1 (generic); EINECS/ELINCS 247-555-7  
*Synonyms:* PEG-5 nonyl phenyl ether; POE (5) nonylphenol; POE (5) nonyl phenyl ether; 14-(Nonylphenoxy)-3,6,9,12-tetraoxatetradecan-1-ol  
*Classification:* Ethoxylated alkyl phenol  
*Empirical:*  $C_{25}H_{44}O_6$   
*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 5$   
*Properties:* Yel. to almost colorless liq.; sol. in oil; HLB 10.5; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; paint; pharmaceutical surfactant; solvent cleaner; in food-pkg. adhesives; in food-contact paper/paperboard; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles  
*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Imbentin-N/050; Teric™ N5



**Nonoxynol-6**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 27177-01-1; 27177-05-5 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

*Synonyms:* PEG-6 nonyl phenyl ether; POE (6) nonyl phenyl ether; PEG 300 nonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Empirical:* C<sub>27</sub>H<sub>48</sub>O<sub>7</sub>

*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6

*Properties:* Yel. to almost colorless liq.; HLB 10.9; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; plasticizer, antistat for plastics; prep. of emulsified paints; food and pharmaceutical applics.; solvent cleaner; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemax NP-6; Iconol NP-6; Igepal® CO-530; Imbentin-N/060; MAKON® 6; NP6; POLYSTEP® F-2; Surfonic® N-60; T-Det® N-6; Tergitol® NP-6; Teric™ N6; Trycol® 6962

**Nonoxynol-7**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 27177-03-3; 37205-87-1 (generic); 68412-54-4 (generic); EINECS/ELINCS 248-292-0

*Synonyms:* PEG-7 nonyl phenyl ether; POE (7) nonyl phenyl ether; 20-(Nonylphenoxy)-3,6,9,12,15,18-hexaoxaicosan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:* C<sub>29</sub>H<sub>52</sub>O<sub>8</sub>

*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 7

*Properties:* Yel. to almost colorless liq.; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; antistat, plasticizer for plastics; prod. of food-grade emulsifiers, lubricants, release agents, and binders; pharmaceutical emulsifier, solubilizer; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard; in paper/paperboard in contact with dry foods; food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Imbentin-N/40A; Surfonic® N-70; Tergitol® NP-7

**Nonoxynol-8**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 26571-11-9 (generic); 27177-05-5 (generic); 37205-87-1 (generic); 68412-54-4 (generic); EINECS/ELINCS 248-293-6; 247-816-5

*Synonyms:* PEG-8 nonyl phenyl ether; POE (8) nonyl phenyl ether; PEG 400 nonyl phenyl ether; 23-(Nonylphenoxy)-3,6,9,12,15,18,21-heptaatriaicosan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:* C<sub>31</sub>H<sub>56</sub>O<sub>9</sub>

*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

*Properties:* Yel. to almost colorless liq.; HLB 12.3; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; pigment dispersant, emulsifier for polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); contributes mech. and freeze/thaw stability to latexes; emulsifier, solubilizer in pharmaceuticals; defoamer in food-contact paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Iconol NP-8; Igepal® CO-610; Imbentin-N/30; Imbentin-N/35; MAKON® 8; NP8; POLYSTEP® F-3; Surfonic® N-80; Surfonic® N-85; T-Det® N-8; Tergitol® NP-8; Teric™ N8

**Nonoxynol-9**

CAS 9016-45-9 (generic); 14409-72-4; 26027-38-3 (generic); 26571-11-9 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

*Synonyms:* 26-(Nonylphenoxy)-3,6,9,12,15,18,21,24-octaoxahecosan-1-ol; PEG-9 nonyl phenyl ether; PEG 450 nonyl phenyl ether; POE (9) nonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Empirical:* C<sub>33</sub>H<sub>60</sub>O<sub>10</sub>

*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 9

*Properties:* Colorless to lt. yel. clear visc. liq.; sol. in water, ethanol, ethylene glycol, xylene, corn oil; m.w. 617; dens. 1.06 (25/4 C); solid. pt. 26 F; pour pt. 37 F; flash pt. 535-555 F; cloud pt. 126-133 F (1% aq.); visc. 175-250 cps; nonionic

*Toxicology:* LD50 (oral, rat) 2590 mg/kg, (skin, rabbit) 2830 mg/kg; mod. toxic by ing., skin contact; severe eye and mild skin irritant in humans; may cause human reproductive effects; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; spermicide; plastics antistat; emulsion and suspension polymerization; paints; textiles; pesticides; pharmaceutical surfactant; adjuvant in slimicides in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ablunol NP9; Alkasurf® CO-630; Chemax NP-9; DeSonic™ 9N; Hyonic® NP-90; Iconol NP-9; Igepal® CO-630; Igepal® CO-630/EP; Igepal® NP-9; Imbentin-N/44; Imbentin-N/55; NP9; Rewopal® HV 9; Tergitol® NP-9; Tergitol® NP-9.5; Teric™ N9

**Nonoxynol-10**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 27177-08-8; 27942-26-3; 37205-87-1 (generic); 68412-54-4 (generic); EINECS/ELINCS 248-294-1

*Synonyms:* PEG-10 nonyl phenyl ether; POE (10) nonyl phenyl ether; PEG 500 nonyl phenyl ether; 29-(Nonylphenoxy)-3,6,9,12,15,18,21,24,27-nonaaxanonacosan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:* C<sub>35</sub>H<sub>64</sub>O<sub>11</sub>

*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10

*Properties:* Colorless to lt. amber visc. liq., aromatic odor; sol. in polar org. solvs., water; HLB 13.3; hyd. no. 81-97; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsifier for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); emulsifier, wetting agent, solubilizer for foods and pharmaceuticals; adjuvant in slimicides in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemax NP-10; DeSonic™ 10N; Hyonic® PE-100; Iconol NP-10; Igepal® CO-660; Imbentin-N/52; Imbentin-N/63; MAKON® 10; Nonipax X 100; NP10; POLYSTEP® F-4; Sipol NP-10; Surfonic® N-95; Surfonic® N-100; Surfonic® N-102; T-Det® N-9.5; Tergitol® NP-10; Teric™ N10; Trycol® 6974

**Nonoxynol-11**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

*Synonyms:* PEG-11 nonyl phenyl ether; POE (11) nonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 11

*Properties:* Yel. to almost colorless liq.; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild

skin irritant in humans; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; spermicide; used in concrete mfg.; agric. sprays; solvent cleaners; paints; foods; detergents; adjuvant in slilmicides in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Alkasurf® CO-710; DeSonic™ 11N; Igepal® CO-710; Surfonic® N-110; Tergitol® NP-11; Teric™ N11; Trycol® 6965

foamer in food-contact paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; emulsifier in mfg. of food-contact articles

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210, 178.3400

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Iconol NP 14; Imbentin-N/91; MAKON® 14; POLYSTEP® F-6

#### Nonoxynol-12

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-12 nonyl phenyl ether; POE (12) nonyl phenyl ether; PEG 600 nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12

**Properties:** Yel. to almost colorless liq.; nonionic

**Toxicology:** Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsifier and stabilizer for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B); paints, coatings; foods coemulsifier, detergent, wetting agent; emulsifier, solubilizer in pharmaceuticals; adjuvant in slilmicides in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210, 176.300, 178.3400

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Alkasurf® CO-720; Igepal® CO-720; Imbentin-N/82; MAKON® 12; NP12; POLYSTEP® F-5; Surfonic® N-120; Tergitol® NP-12; Teric™ N12

#### Nonoxynol-15

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-15 nonyl phenyl ether; POE (15) nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 15

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, detergent, wetting agent, dispersant, solubilizer, coupling agent, defoamer for emulsion polymerization, latex carpet, textiles, metalworking, household, industrial, agric., paper, paint, and cosmetics industries; emulsifier, solubilizer in pharmaceuticals; defoamer in food-contact paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210

**Manuf./Distrib.:** Aldrich

**Trade Names:** Chemax NP-15; Imbentin-N/98; Nonipax X 150; Surfonic® N-150; Tergitol® NP-15; Teric™ N15

#### Nonoxynol-18

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-18 nonyl phenyl ether; POE (18) nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 18

**Properties:** Nonionic

**Toxicology:** Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

#### Nonoxynol-13

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-13 nonyl phenyl ether; POE (13) nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 13

**Properties:** Yel. to almost colorless liq.; nonionic

**Toxicology:** Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; in concrete mfg.; agric. sprays; solvent cleaners; paints; detergents; emulsifier, solubilizer in pharmaceuticals; defoamer in food-contact paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; emulsifier in mfg. of food-contact articles

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210, 178.3400

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** DeSonic™ 13N; Imbentin-N/85; Tergitol® NP-13; Teric™ N13

#### Nonoxynol-20

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-20 nonyl phenyl ether; POE (20) nonyl phenyl ether; PEG 1000 nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 20

**Properties:** Pale yel. to off-wh. pastes or waxes; HLB 16.0; nonionic

**Toxicology:** Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; surfactant, detergent, wetting and rewetting agent, emulsifier in cosmetics, textile, leather, paper, paint, and metal processing; emulsifier, solubilizer in pharmaceuticals; food-pkg. adhesives; in paper/paperboard in contact with dry foods

**Regulatory:** FDA 21CFR §175.105, 176.180

**Manuf./Distrib.:** Aldrich; Fluka; Seabrook Ind.; Sigma

**Trade Names:** Chemax NP-20; Disponil® NP 208; Igepal® CO-850; Imbentin-N/200 80%; Surfonic® N-200; Teric™ N20

#### Nonoxynol-14

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-14 nonyl phenyl ether; POE (14) nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 14

**Properties:** Yel. to almost colorless liq.; HLB 14.4; nonionic

**Toxicology:** Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsifier for emulsion polymerization (styrene acrylic, acrylic, vinyl acrylic, S/B, paints, coatings); solubilizer for essential oils and flavors in foods; de-

#### Nonoxynol-23

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

**Synonyms:** PEG-23 nonyl phenyl ether; POE (23) nonyl phenyl ether

**Classification:** Ethoxylated alkyl phenol

**Formula:** C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 23

*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; in food-pkg. adhesives; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §175.105, 176.180  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Nonoxynol-25**

CAS 9016-45-9 (generic)  
*Synonyms:* PEG-25 nonyl phenyl ether; POE (25) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 25  
*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; as detergent, emulsifier, wetting agent, dispersant, stabilizer, defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; post-stabilizer for syn. latexes; emulsifier, solubilizer in pharmaceuticals  
*Trade Names:* Rewopal® HV 25

**Nonoxynol-30**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)  
*Synonyms:* PEG-30 nonyl phenyl ether; POE (30) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 30  
*Properties:* Pale yel. to off-wh. pastes or waxes; HLB 17.1; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; spreading agent; intermediate in synthesis of anionic surfactants; pharmaceutical aids, surfactant; pigment wetting and grinding agent for aq. systems; emulsifier for vinyl acetate and acrylate emulsion polymerization; in latex paints; floor finishes; paper coatings; textiles; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma  
*Trade Names:* Ablunol NP30; Ablunol NP30 70%; Chemax NP-30; Chemax NP-30/70; Igepal® CO-880; Igepal® CO-887; Imbentin-N/300 G; MAKON® 30; POLYSTEP® F-9; POLYSTEP® F-9S; Surfonic® N-300; Surfonic® NB-307; Teric™ N30; Teric™ N30L

**Nonoxynol-34**

CAS 9016-45-9 (generic)  
*Synonyms:* PEG-34 nonyl phenyl ether; POE (34) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier for emulsion polymerization (acrylics and vinyl acetate), paints and coatings; emulsifier in mfg. of food-contact articles  
*Trade Names:* POLYSTEP® F-95B

**Nonoxynol-40**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)  
*Synonyms:* PEG-40 nonyl phenyl ether; POE (40) nonyl phenyl ether; PEG 2000 nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 40  
*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and

fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; in latex paints; floor finishes; paper coatings; textiles; foods; pharmaceuticals; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods  
*Regulatory:* FDA 21CFR §175.105, 176.180, 178.3400  
*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma  
*Trade Names:* Ablunol NP40; Ablunol NP40 70%; Igepal® CO-897; Imbentin-N/400 G; POLYSTEP® F-10; Surfonic® N-400; Surfonic® NB-407; Trycol® 6970

**Nonoxynol-44**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)  
*Synonyms:* PEG-44 nonyl phenyl ether; POE (44) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 44; Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; emulsifier in mfg. of food-contact articles; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180, 178.3400  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Nonoxynol-50**

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)  
*Synonyms:* PEG-50 nonyl phenyl ether; POE (50) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 50  
*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; in latex paints; floor finishes; paper coatings; textiles; foods; pharmaceuticals; emulsifier in mfg. of food-contact articles; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180, 178.3400  
*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma  
*Trade Names:* Ablunol NP50; Ablunol NP50 70%; Igepal® CO-977; Surfonic® N-500

**Nonoxynol-55**

CAS 9016-45-9 (generic)  
*Synonyms:* PEG-55 nonyl phenyl ether; POE (55) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant; o/w emulsifier; solubilizer; detergent; wetting agent; dispersant; emulsion polymerization; agric.; adhesives; pigments; polymers and resins; floor finishes; polishes; food-contact coatings, paper, cellophane, animal glues, polymers; defoamer in food-contact coatings  
*Trade Names:* Surfonic® N-550; Surfonic® NB-557

**Nonoxynol-60**

CAS 9016-45-9 (generic)  
*Synonyms:* PEG-60 nonyl phenyl ether; POE (60) nonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:* C<sub>9</sub>H<sub>19</sub>C<sub>6</sub>H<sub>4</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 60  
*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic  
*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes  
*Uses:* Surfactant; as detergent, emulsifier, wetting agent, dispersant, stabilizer, defoamer; intermediate in synthesis of anionic surfactants  
*Manuf./Distrib.:* Ashland  
*Trade Names:* Imbentin-N/600 G 50%

**Nonoxynol-70**

CAS 9016-45-9 (generic)

*Synonyms:* PEG-70 nonyl phenyl ether; POE (70) nonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 70$

*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; emulsifier/stabilizer for floor waxes and polishes, paints; food-contact coatings, paper, cellophane, animal glues; defoamer in food-contact coatings

*Trade Names:* Surfonic® N-700

#### Nonoxynol-100

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic); 68412-54-4 (generic)

*Synonyms:* PEG-100 nonyl phenyl ether; POE (100) nonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 100$

*Properties:* Pale yel. to off-wh. pastes or waxes; nonionic

*Toxicology:* Moderately toxic by ingestion, skin contact; severe eye and mild skin irritant in humans; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Surfactant; detergent; emulsifier; wetting agent; dispersant; stabilizer; defoamer; intermediate in synthesis of anionic surfactants; emulsion polymerization; stabilizer for syn. latexes; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* Surfonic® N-1000; Surfonic® NB-1007

#### Nonoxynol-120

CAS 9016-45-9 (generic); 26027-38-3 (generic); 37205-87-1 (generic)

*Synonyms:* PEG-120 nonyl phenyl ether; POE (120) nonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_9H_{19}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 120$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier for emulsion polymerization; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### Nonoxynol-7 phosphate

*Properties:* Anionic

*Uses:* {Low foam wetting agent, dispersant, base for mfg. of cleaning agents, dry cleaning formulations, flame retardants, flotation aids

*Trade Names:* Servoxy® VPNZ 7/100

#### Nonoxynol-9 phosphate

CAS 51609-41-7 (generic); 51811-79-1 (generic); 66197-78-2; 68412-53-3 (generic); EINECS/ELINCS 266-231-6

*Synonyms:* PEG-9 nonyl phenyl ether phosphate; 26-(Nonylphenoxy)-3,6,9,12,15,18,21,24-octaohexacosan-1-ol, dihydrogen phosphate; POE (9) nonyl phenyl ether phosphate; Poly(oxy-1,2-ethanediyl),  $\alpha$ -(nonylphenyl)- $\omega$ -hydroxy-, phosphate; PEG 450 nonyl phenyl ether phosphate

*Definition:* Complex mixture of esters of phosphoric acid and nonoxynol-9

*Empirical:*  $C_{33}H_{61}O_{13}P$

*Properties:* Anionic

*Uses:* Emulsifier, lubricant, antistat, detergent, corrosion inhibitor for agric., industrial use; solvent, antisoil redeposition for dry-cleaning; emulsion polymerization; household and industrial detergents; fabric finishes; paints; textile wet processing; metals; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 178.3400

*Trade Names:* Rhodafac® RE-610

#### Nonoxynol-20 phosphate

*Properties:* Anionic

*Uses:* Surfactant for textiles, agric., paper, cleaning, metal processing

*Trade Names:* Servoxy® VPNZ 20/100

**s-Nonyl alcohol.** See 2,6-Dimethyl heptanol-4

**Nonylcarbinol.** See Decyl alcohol

#### Nonyl nonoxynol

CAS 9014-93-1 (generic)

*Synonyms:* Dinonylphenol ethoxylate

*Classification:* Ethoxylated alkyl phenol

*Properties:* Liq./paste; nonionic

*Uses:* Crude oil/lubricant demulsifier component; emulsifier in pesticides; low-foaming surfactant for household/industrial applics.; textile/paper processing aids

#### Nonyl nonoxynol-7

CAS 9014-93-1 (generic)

*Synonyms:* PEG-7 dinonyl phenyl ether; POE (7) dinonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Properties:* Nonionic

*Uses:* Emulsifier for agric., emulsion polymerization; leather fat liquoring; paints; food-pkg. coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings

*Manuf./Distrib.:* Aldrich

*Trade Names:* Surfonic® DNP-70

#### Nonyl nonoxynol-8

CAS 9014-93-1 (generic)

*Synonyms:* PEG-8 dinonyl phenyl ether; POE (8) dinonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 8$

*Properties:* Nonionic

*Uses:* Emulsifier in textile dye carrier applics., insecticides, wax emulsions; foam control agent; spreading agent in pigment printing; post-stabilizer in emulsion polymerization; intermediate; coupling agent, solubilizer for paints, paper, agric., textiles; food-contact coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings

*Manuf./Distrib.:* Aldrich; Seabrook Ind.

*Trade Names:* Chemax DNP-8; Surfonic® DNP-80

#### Nonyl nonoxynol-10

CAS 9014-93-1 (generic)

*Synonyms:* PEG-10 dinonyl phenyl ether; POE (10) dinonyl phenyl ether; PEG 500 dinonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{44}H_{84}O_{11}$

*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 10$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient, emulsifier, solubilizer, coupling agent, pigment dispersant, detergent used in cosmetics, household, textile industry; food-contact coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings

*Manuf./Distrib.:* Aldrich

*Trade Names:* Surfonic® DNP-100

#### Nonyl nonoxynol-14

CAS 9014-93-1 (generic)

*Synonyms:* PEG-14 dinonyl phenyl ether; POE (14) dinonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 14$

*Properties:* Nonionic

*Uses:* Surfactant

*Trade Names:* Surfonic® DNP-140

#### Nonyl nonoxynol-15

CAS 9014-93-1 (generic)

*Synonyms:* PEG-15 dinonyl phenyl ether; POE (15) dinonyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 15$

*Properties:* Nonionic

*Uses:* Detergent, emulsifier, antistat for textiles, leather, metal cleaners, paper, latex, pesticides; coemulsifier for syn. latexes

*Manuf./Distrib.:* Aldrich

*Trade Names:* Chemax DNP-15; Igepal® DM-710

#### Nonyl nonoxynol-16

CAS 9014-93-1 (generic)

## Nonyl nonoxynol-18

*Synonyms:* PEG-16 dinonyl phenyl ether; POE (16) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Properties:* Nonionic  
*Uses:* Raw material for textile and paper auxs.; dispersant

## Nonyl nonoxynol-18

CAS 9014-93-1 (generic)  
*Synonyms:* PEG-18 dinonyl phenyl ether; POE (18) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 18$   
*Properties:* Nonionic  
*Uses:* Emulsifier, detergent, solubilizer, wetting agent, coupling agent for textiles, metalworking, household, industrial, agric., paper, paint, etc.  
*Trade Names:* Chemax DNP-18

## Nonyl nonoxynol-24

CAS 9014-93-1 (generic)  
*Synonyms:* PEG-24 dinonyl phenyl ether; POE (24) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 24$   
*Properties:* Nonionic  
*Uses:* Detergent, emulsifier for textiles, leather, metal cleaners, paper, latex, pesticides, emulsion polymerization, latex stabilization; antistat for textiles  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Igepal® DM-730

## Nonyl nonoxynol-30

CAS 9014-93-1 (generic)  
*Synonyms:* PEG-30 dinonyl phenyl ether; POE (30) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Properties:* Nonionic  
*Uses:* Raw material for textile and paper auxs.; dispersant

## Nonyl nonoxynol-70

CAS 9014-93-1 (generic)  
*Synonyms:* PEG-70 dinonyl phenyl ether; POE (70) dinonylphenol; POE (70) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 70$   
*Properties:* HLB 18.0; nonionic  
*Uses:* O/w emulsifier, solubilizer, detergent for cleaners, emulsion polymerization, hard surf. cleaners, agric., pulp/paper, textiles  
*Trade Names:* Surfonic® DNP-700

## Nonyl nonoxynol-100

CAS 9014-93-1 (generic)  
*Synonyms:* PEG-100 dinonyl phenyl ether; POE (100) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 100$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant for industrial and household cleaning; o/w emulsifier, solubilizer; intermediate for textile auxs.; emulsion polymerization; agric.; pulp/paper processing  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Surfonic® DNP-1000

## Nonyl nonoxynol-150

CAS 9014-93-1 (generic)  
*Synonyms:* PEG-150 dinonyl phenyl ether; POE (150) dinonyl phenyl ether  
*Classification:* Ethoxylated alkyl phenol  
*Formula:*  $(C_9H_{19})_2C_6H_3(OCH_2CH_2)_nOH$ , avg.  $n = 150$   
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Detergent, emulsifier, dispersant, wetter, stabilizer for laundry, household, textile, hard-surface detergents, cosmetics, insecticides, paper, petroleum, paints; food-contact coatings, paper, cellophane; emulsifier in mfg. of food-contact articles; defoamer in food-contact coatings  
*Manuf./Distrib.:* Aldrich; Seabrook Ind.  
*Trade Names:* Chemax DNP-150; Chemax DNP-150/50; Igepal® DM-970 FLK; Surfonic® DNP-1500

## Nonylphenol

CAS 25154-52-3  
*Synonyms:* 2,6-Dimethyl-4-heptylphenol (o and p); Nonyl phenol (mixed

isomers)

*Definition:* A mixture of isomeric monoalkyl phenols

*Empirical:*  $C_{15}H_{24}O$

*Formula:*  $C_8H_{19}C_6H_4OH$

*Properties:* Straw-colored clear visc. liq.; sl. phenolic odor; sol. in benzene, chlorinated solvs., aniline, heptane, aliphatic alcohol, ethylene glycol, most org. solvs.; insol. in water, dil. aq. NaOH; m.w. 220.36; dens. 0.949 (20/4 C); b.p. 293-297 C; flash pt. > 110 C; ref. index 1.5110 (20 C)

*Toxicology:* LD50 (oral, rat) 1620 mg/kg, (skin, rabbit) 2140 mg/kg; mod. toxic by ing. and skin contact; severe eye and skin irritant; TSCA listed

*Precaution:* Combustible exposed to heat or flame  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
*Uses:* Nonionic surfactant intermediate (nonbiodegradable); lube oil additives; stabilizers; curing agents; petroleum demulsifiers; plasticizers; dyestuffs; aromatic oils; fungicides; antioxidants for plastics and rubber; nonreactive epoxy resin diluent; defoamer in food-contact coatings and paper/paper-board

*Regulatory:* FDA 21CFR §176.200, 176.210

*Manuf./Distrib.:* Akzo Nobel Surf. Chem. AB; Akzo Nobel; Aldrich; Allchem Ind.; Ashland; Atofina; Bencorp Int'l.; Cognis/Chems. Group; Degussa-Hüls AG; Dover; Eastech; FRP Services; GE Spec.; Herdillia Chems. Ltd; Huntsman; Indofine; Kalama; Rhodia; Schenectady

**Nonylphenol ethoxylates.** See Nonoxynol

**Nonyl phenol (mixed isomers).** See Nonylphenol

**Nonylphenol, polyoxyethylene ether.** See Nonoxynol

**2-(Nonylphenoxy) ethanol.** See Nonoxynol-1

**2-[2-(Nonylphenoxy)ethoxy]ethoxy]ethanol.** See Nonoxynol-3

**23-(Nonylphenoxy)-3,6,9,12,15,18,21-heptaaoxatricosan-1-ol.** See Nonoxynol-8

**20-(Nonylphenoxy)-3,6,9,12,15,18-hexaoxaicosan-1-ol.** See Nonoxynol-7

**29-(Nonylphenoxy)-3,6,9,12,15,18,21,24,27-nonaooxonacosan-1-ol.** See Nonoxynol-10

**26-(Nonylphenoxy)-3,6,9,12,15,18,21,24-octaoxahehexacosan-1-ol.** See Nonoxynol-9

**26-(Nonylphenoxy)-3,6,9,12,15,18,21,24-octaoxahehexacosan-1-ol, dihydrogen phosphate.** See Nonoxynol-9 phosphate

**14-(Nonylphenoxy)-3,6,9,12-tetraoxatetradecan-1-ol.** See Nonoxynol-5

**Nonyl phenyl polyethylene glycol.** See Nonoxynol

**Nonyl phenyl polyethylene glycol ether.** See Nonoxynol

**Nordhausen acid.** See Sulfuric acid

**Norgine.** See Alginic acid

**Normal hexane.** See Hexane

**Normal propyl alcohol.** See Propyl alcohol

**Norway saltpeter.** See Ammonium nitrate

**Novolac resin.** See Phenolic resin

**Novolak resin.** See Phenolic resin

**NR.** See Natural rubber

**NTA.** See Nitritotriacetic acid; Trisodium NTA

**NTAN<sub>3</sub>.** See Trisodium NTA

**NTF.** See Aminotrimethylene phosphonic acid

**NTMP.** See Aminotrimethylene phosphonic acid

**NTPA.** See Aminotrimethylene phosphonic acid

**Nylon.** See Polyamide

## Nylon 12

CAS 25038-74-8; 24937-16-4

*Synonyms:* PA 12; Azacyclotridecane-2-one, homopolymer; Azacyclotridecane-2-one polyamide; Polyamide 12; Poly (laurolactam)

*Classification:* Thermoplastic; polyamide

*Definition:* Polyamide derived from 12-aminododecanoic acid

*Empirical:*  $(C_{12}H_{23}NO)_n$

*Formula:*  $(NH(CH_2)_{11}CO)_n$

*Properties:* Solid; dens. 1.010; m.p. 175 C; tens. str. 45 MPa; tens. mod. 1400 MPa; elong (@ break) 200%; exc. abrasion resist.; good elec. insulation props.

*Uses:* Thermoplastic resin for inj. molding and extrusion applics.; for extrusion coatings for plastics films, metal foils, and paper; chem.-resist. powd. coatings; automotive fuel/hydraulic hoses; gears; cams; bearings; raw material for pharmaceuticals; absorbent, carrier in personal hygiene prods.; visc. control agent, opacifier in cosmetics; food pkg.; in side seam ce-

ments for food-contact containers  
*Regulatory:* FDA 21CFR §175.300, 177.1500, 177.2260  
*Manuf./Distrib.:* Aldrich; Ashley Polymers; Atofina SA; Daicel-Hüls; Degussa-Hüls AG

**Oceol.** See Oleyl alcohol  
**Ochre.** See Iron oxide yellow  
**9,12-Octadecadienamide, N,N-bis (2-hydroxyethyl)-.** See Linoleamide DEA  
**9,12-Octadecadienoic acid.** See Linoleic acid  
**cis,cis-9,12-Octadecadienoic acid.** See Linoleic acid  
**(Z,Z)-9,12-Octadecadienoic acid.** See Linoleic acid  
**9,12-Octadecadienoic acid, dimer.** See Dillinoleic acid  
**9,12-Octadecadienoic acid, trimer.** See Trilinoleic acid  
**cis,cis-9,12-Octadecadien-1-ol.** See Linoleyl alcohol  
**Octadecanamide.** See Stearamide  
**Octadecanamide, N,N'-1,2-ethanediylbis-.** See Ethylene distearamide  
**Octadecanamide, N,N'-ethylenebis-.** See Ethylene distearamide  
**1-Octadecanamine.** See Stearamine  
**Octadecanamine acetate.** See Stearamine acetate  
**Octadecanaminium, N,N-dimethyl-N-octadecyl-, chloride.** See Distearyl-dimmonium chloride  
**Octadecanoic acid.** See Stearic acid  
**n-Octadecanoic acid.** See Stearic acid  
**Octadecanoic acid, aluminum salt.** See Aluminum stearate; Aluminum tri-stearate  
**Octadecanoic acid, ammonium salt.** See Ammonium stearate  
**Octadecanoic acid, 2,2-bis (hydroxymethyl)-1,3-propanediyl ester.** See Pentaerythrityl distearate  
**Octadecanoic acid butyl ester.** See Butyl stearate  
**Octadecanoic acid calcium salt.** See Calcium stearate  
**Octadecanoic acid, 2-(1-carboxyethoxy)-1-methyl-2-oxoethyl ester, calcium salt.** See Calcium stearoyl lactylate  
**Octadecanoic acid, compd. with 2,2',2''-nitritoltris[ethanol] (1:1).** See TEA-stearate  
**Octadecanoic acid, diester with 1,2,3-propanetriol.** See Glyceryl distearate  
**Octadecanoic acid, 1,2-ethanediyl ester.** See Glycol distearate  
**Octadecanoic acid, 2-ethylhexyl ester.** See Octyl stearate  
**Octadecanoic acid, 12-hydroxy-.** See Hydroxystearic acid  
**Octadecanoic acid, magnesium salt.** See Magnesium stearate  
**Octadecanoic acid, methyl ester.** See Methyl stearate  
**Octadecanoic acid, 1-methyl-1,2-ethanediyl ester.** See Propylene glycol distearate  
**Octadecanoic acid, 1-methylethyl ester.** See Isopropyl stearate  
**Octadecanoic acid, 2-methylpropyl ester.** See Isobutyl stearate  
**Octadecanoic acid, monoester with 1,2-propanediol.** See Propylene glycol stearate  
**Octadecanoic acid, monoester with 1,2,3-propanetriol.** See Glyceryl stearate  
**Octadecanoic acid, 2-[(1-oxooctadecyl) amino] ethyl ester.** See Stearamide MEA-stearate  
**Octadecanoic acid, potassium salt.** See Potassium stearate  
**Octadecanoic acid, 1,2,3-propanetriyl ester.** See Tristearin  
**Octadecanoic acid, sodium salt.** See Sodium stearate  
**Octadecanoic acid, zinc salt.** See Zinc stearate  
**Octadecanol.** See Stearyl alcohol  
**1-Octadecanol.** See Stearyl alcohol  
**n-Octadecanol.** See Stearyl alcohol  
**9-Octadecenamide.** See Oleamide  
**9-Octadecenamide, N,N'-1,2-ethanediylbis-.** See Ethylene dioleamide  
**Octadecene-1**  
 CAS 112-88-9; EINECS/ELINCS 204-012-9  
*Synonyms:* Linear C18 alpha olefin; 1-Octadecene  
*Empirical:* C<sub>18</sub>H<sub>36</sub>  
*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>15</sub>CH:CH<sub>2</sub>  
*Properties:* Colorless liq., mild hydrocarbon odor; sl. sol. in water; m.w. 252.49; sp. gr. 0.792; b.p. 586-615 F; m.p. 63 F; flash pt. (Seta) 312 F  
*Toxicology:* Irritating to skin and eyes; low acute inhalation toxicity; low acute ingestion toxicity, but ingestion may cause vomiting, aspiration of vomitus  
*Precaution:* Combustible  
*Uses:* Organic synthesis; intermediate for surfactants and specialty industrial chemicals (polymers, plasticizers, lubricants, gasoline additives, paper

sizing, PVC lubricants)  
*Manuf./Distrib.:* Albemarle; Aldrich; Fluka; Monomer-Polymer & Dajac Labs; Shell; Sigma  
*Trade Names:* Gulftene® 18

**1-Octadecene.** See Octadecene-1  
**9-Octadecenoic acid.** See Oleic acid  
**9,10-Octadecenoic acid.** See Oleic acid  
**cis-9-Octadecenoic acid.** See Oleic acid  
**cis-Octadec-9-enoic acid.** See Oleic acid  
**9-Octadecenoic acid, (2)-, aluminum salt (3:1).** See Aluminum oleate  
**9-Octadecenoic acid, aluminum salt.** See Aluminum oleate  
**9-Octadecenoic acid, ammonium salt.** See Ammonium oleate  
**9-Octadecenoic acid, 2,2-bis (hydroxymethyl)-1,3-propanediyl ester.** See Pentaerythrityl dioleate  
**9-Octadecenoic acid, butyl ester.** See Butyl oleate  
**9-Octadecenoic acid, compd. with 2,2',2''-nitritoltris[ethanol] (1:1).** See TEA-oleate  
**9-Octadecenoic acid, diester with 1,2,3-propanetriol.** See Glyceryl dioleate  
**9-Octadecenoic acid, 1,2-ethanediyl ester.** See Glycol dioleate  
**9-Octadecenoic acid, 2-[2-(2-hydroxyethoxy) ethoxy] ethoxy] ethyl ester.** See PEG-4 oleate  
**9-Octadecenoic acid, 2-(2-hydroxyethoxy) ethyl ester.** See PEG-2 oleate  
**9-Octadecenoic acid, 2-(hydroxymethyl)-2-[[[1-oxo-9-octadecenyl] oxy] methyl]-1,3-propanediyl ester.** See Pentaerythrityl trioleate  
**9-Octadecenoic acid, 17-hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl ester.** See PEG-6 oleate  
**9-Octadecenoic acid, isodecyl ester.** See Isodecyl oleate  
**9-Octadecenoic acid, methyl ester.** See Methyl oleate  
**(Z)-9-Octadecenoic acid, methyl ester.** See Methyl oleate  
**9-Octadecenoic acid, 1-methylethyl ester.** See Isopropyl oleate  
**9-Octadecenoic acid, monoester with 1,2-propanediol.** See Propylene glycol oleate  
**9-Octadecenoic acid, monoester with 1,2,3-propanetriol.** See Glyceryl oleate  
**9-Octadecenoic acid, oxybis (2,1-ethanediyloxy-2,1-ethanediyl) ester.** See PEG-4 dioleate  
**9-Octadecenoic acid, potassium salt.** See Potassium oleate  
**9-Octadecenoic acid (Z)-, potassium salt.** See Potassium oleate  
**9-Octadecenoic acid, 1,2,3-propanetriyl ester.** See Triolein  
**9-Octadecenoic acid, sodium salt.** See Sodium oleate  
**(Z)-9-Octadecenoic acid, tin (2+) salt.** See Stannous oleate  
**Octadecenol.** See Oleyl alcohol  
**1-Octadecenol.** See Oleyl alcohol  
**Octadec-9-en-1-ol.** See Oleyl alcohol  
**9-Octadecen-1-ol.** See Oleyl alcohol  
**cis-9-Octadecen-1-ol.** See Oleyl alcohol  
**(Z)-9-Octadecen-1-ol.** See Oleyl alcohol  
**9-Octadecen-1-ol, hydrogen sulfate, sodium salt.** See Sodium oleyl sulfate  
**α-9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl), (Z).** See Oleth-20  
**2-[2-(9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl)).** See Oleth-2  
**2-[2-(9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl) ethoxy] ethanol.** See Oleth-2  
**2-[2-(9-Octadecenyl-ω-hydroxypoly (oxy-1,2-ethanediyl) ethoxy] ethanol.** See Oleth-3

**Octadecenyl succinic anhydride**

CAS 19024-74-9; 28777-98-2; EINECS/ELINCS 249-210-6  
*Synonyms:* ODSA; n-ODSA; C18-alkenyl succinic anhydride; Dihydro-3-(octadecenyl)-2,5-furandione; 2,5-Furandione, dihydro-3-(octadecenyl)-; 2-(1-Octadecenyl) succinic anhydride; n-Octadecenyl succinic anhydride  
*Empirical:* C<sub>22</sub>H<sub>38</sub>O<sub>3</sub>  
*Properties:* Yel.-wh. waxy solid; m.w. 350.54; dens. 0.9428 (25 C); m.p. 63-65 C; b.p. 251 C (4 mm); sapon. no. 300-325; flash pt. 210 C  
*Toxicology:* Irritating to eyes, skin, respiratory system  
*Uses:* Curing agent for epoxy resins; corrosion inhibitor, visc. improver for lubricants; intermediate for alkyd or unsat. polyester resins; alkyd resin modifier; in chem. reactions; chem. intermediate for esters, amides, imides, etc.; gellant in greases; surfactant; detergent; paper sizing agent; water repellents  
*Manuf./Distrib.:* ABCR; Aldrich; Alfa Aesar; Cambrex; Dixie; Haltermann GmbH; Humphrey; Milliken; Pfaltz & Bauer; TCI Am.  
*Trade Names:* Milldride® ODSA; ODSA; Pentasize 8  
*Trade Names Containing:* Accosize® 100 Synthetic Size

**2-(1-Octadecenyl) succinic anhydride.** See Octadecenyl succinic anhydride  
**n-Octadecenyl succinic anhydride.** See Octadecenyl succinic anhydride  
**Octadecyl alcohol.** See Stearyl alcohol  
**n-Octadecyl alcohol.** See Stearyl alcohol  
**Octadecylamine.** See Stearamine  
**n-Octadecylamine.** See Stearamine  
**Octadecylamine acetate.** See Stearamine acetate  
**1-Octadecylamine acetate.** See Stearamine acetate  
**4-(Octadecylamino)-4-oxo-2-sulfobutanedioic acid, disodium salt.** See Disodium stearyl sulfo succinate  
**Octadecyl 3,5-bis (1,1-dimethylethyl)-4-hydroxybenzene propanoate.** See Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinamate  
**Octadecyl citrate.** See Stearyl citrate  
**Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinamate**  
 CAS 2082-79-3; EINECS/ELINCS 218-216-0  
*Synonyms:* Octadecyl 3,5-bis (1,1-dimethylethyl)-4-hydroxybenzene propanoate; Octadecyl 3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate; Stearyl-3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate  
*Classification:* Hindered phenol  
*Empirical:*  $C_{38}H_{76}O_3$   
*Formula:*  $[(CH_3)_3C]_2C_6H_4(OH)CH_2CH_2CO_2(CH_2)_{17}CH_3$   
*Properties:* Wh. powd.; sol. in acetone, benzene, chloroform, ethyl acetate, hexane; m.w. 530.9; m.p. 50-52 C; f.p. > 230 F  
*Toxicology:* Irritant  
*Uses:* Antioxidant stabilizer for styrenics, polyolefins, polyamide, PVC, urethane and acrylic coatings, adhesives, elastomers, cellulotics; metal deactivator; replaces BHT in polyolefins; antioxidant, stabilizer in food-grade polymers, acrylic food pkg.; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 177.1010, 178.2010  
*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ciba Spec. Chems./Addit.; GE Spec.  
*Trade Names:* Anox® PP18  
**Octadecyl 3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate.** See Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinamate  
**Octadecyl dimethyl benzyl ammonium chloride.** See Stearalkonium chloride  
**2,2'-(Octadecylimino) bisethanol.** See PEG-2 stearamine  
**Octadecyl methacrylate.** See Stearyl methacrylate  
**N-Octadecyl-N-(sulfosuccinyl) aspartic acid, tetrasodium salt.** See Tetrasodium dicarboxyethyl stearyl sulfo succinate  
**Octadecyl trimethyl ammonium chloride.** See Steartrimonium chloride  
**Octakis (hydroxymethyl) phosphonium sulfate.** See Tetrakis (hydroxymethyl) phosphonium sulfate  
**Octanoic acid.** See Caprylic acid  
**n-Octanoic acid.** See Caprylic acid  
**Octanoic acid, aluminum salt.** See Aluminum caprylate  
**Octanoic acid, methyl ester.** See Methyl caprylate  
**Octanoic acid, 1-methyl-1,2-ethanediyl ester.** See Propylene glycol dicaprylate  
**Octanoic acid, mixed diesters with decanoic acid and propylene glycol.** See Propylene glycol dicaprylate/dicaprate  
**Octanoic acid, monoester with 1,2,3-propanetriol.** See Glycerol caprylate  
**3,6,9,12,15,18,21,24-Octaoxahexacosane-1,26-diol.** See PEG-9  
**3,6,9,12,15,18,21,24-Octaoxahexatriacontan-1-ol.** See Laureth-8  
**Octasodium diethylene triamine penta (methylene phosphonate)**  
*Synonyms:*  $Na_8DTPMP$   
*Uses:* Process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; scale and corrosion inhibitor in aq. systems  
**Octene-1**  
 CAS 111-66-0; EINECS/ELINCS 203-893-7; UN No. 1255  
*Synonyms:* 1-Caprylene; C8 linear alpha olefin; 1-Octene; 1-Octylene  
*Empirical:*  $C_8H_{16}$   
*Formula:*  $CH_3(CH_2)_7CH=CH_2$   
*Properties:* Colorless liq., mild hydrocarbon odor; sol. in alcohol, acetone, ether, petrol. and coal tar solvs., hydrocarbon and chlorinated solvs.; sl. sol. in water; m.w. 112.22; dens. 0.720; f.p. -102.4 C; b.p. 121.27 C; flash pt. (TOC) 21 C; ref. index 1.4088 (20 C)  
*Toxicology:* LC50 (8050 ppm); low acute inhalation toxicity; sl. toxic by ingestion; irritating to eyes and skin; potential anesthesia hazard in en-

closed space

*Precaution:* Flamm. liq.; dangerous fire risk; avoid contact with air or oxygen (explosion danger, adverse effect on subsequent reactions)

*Storage:* Store and handle under nitrogen

*Uses:* Organic synthesis; intermediate for surfactants and specialty industrial chemicals; prod. of oxo alcohols, syn. fatty acids, octyl mercaptans, hydrog. oligomers; comonomer for polyolefins; produces isononyl alcohol for DINP plasticizer mfg.

*Manuf./Distrib.:* Air Prods.; Albemarle; Aldrich; Fluka; Monomer-Polymer & Dajac Labs; Shell; Sigma

*Trade Names:* Gulftene® 8

**1-Octene.** See Octene-1

**Octhilinone.** See 2-n-Octyl-4-isothiazolin-3-one

**Octic acid.** See Caprylic acid

**Octoic acid.** See Caprylic acid

**n-Octoic acid.** See Caprylic acid

**Octoxynol**

CAS 9002-93-1 (generic); 9010-43-9 (generic); EINECS/ELINCS 232-658-1

*Synonyms:* Glycols, polyethylene, mono (p-(1,1,3,3-tetramethylbutyl) phenyl) ether; Octyl phenol EO condensate; Octyl phenol ethoxylates; p-t-Octylphenoxypolyethoxyethanol; PEG octyl phenyl ether; Polyethylene glycol monoether with p-t-octylphenyl; Polyethylene glycol mono (4-octylphenyl) ether; Polyethylene glycol mono (p-t-octylphenyl) ether; Polyethylene glycol mono (4-t-octylphenyl) ether; Polyethylene glycol mono (p-(1,1,3,3-tetramethylbutyl) phenyl) ether; Polyethylene glycol octylphenol ether; Polyethylene glycol p-octylphenyl ether; Polyethylene glycol p-t-octylphenyl ether; Polyethylene glycol p-1,1,3,3-tetramethylbutylphenyl ether; Polyoxyethylene mono (octylphenyl) ether  
*Classification:* Aromatic phenol; ethoxylated alkyl phenol  
*Formula:*  $(C_8H_{17}O)_n \cdot C_{14}H_{27}O$

*Properties:* Pale yel. visc. liq.; faint odor; bitter taste; sol. in benzene, toluene;

misc. with water, alcohol, acetone; insol. in petrol. ether, hexane; dens. 1.0595; HLB 11.0-17.3; ref. index 1.489; pH 7-9; nonionic  
*Toxicology:* LD50 (oral, rat) 1800 mg/kg, (IV, mouse) 1200 mg/kg; mod. toxic by ing. and IV routes; primary irritant; eye and human skin irritant; experimental reproductive effector; human mutagenic data: TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $NO_x$

*Storage:* Store in cool, dry place in tightly closed container away from direct sunlight

*Uses:* Emulsifier for aromatic oils, solvents; nonionic detergent; emulsifier; wetting agent; surfactant/wetting agent for household/industrial cleaners; solubilizer of proteins; penetrant; food pkg., probably as a plasticizer for films; food-pkg. adhesives/paper; emulsifier in mfg. of food-contact articles

*Trade Names:* Disponil® AAP 307

**Octoxynol-1**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 2315-67-5; EINECS/ELINCS 264-520-1

*Synonyms:* Ethylene glycol octyl phenyl ether; PEG-1 octyl phenyl ether; 2-[p-(1,1,3,3-tetramethylbutyl) phenoxy] ethanol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{16}H_{26}O_2$

*Formula:*  $C_8H_{17}C_8H_9OCH_2CH_2OH$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 1800 mg/kg; mod. toxic by ingestion and IV routes; experimental reproductive effects; human mutagenic data; eye and human skin irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $NO_x$   
*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; emulsion polymerization; industrial/household cleaners; agric.; latex stabilizer; topical pharmaceuticals; coupling agent; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180; FDA approved for topicals

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Surfonic® OP-15; Triton® X-15

**Octoxynol-3**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 2315-62-0; 27176-94-9



*Synonyms:* Octyl phenol condensed with 3 moles ethylene oxide; Octylphenol EO (3); PEG-3 octyl phenyl ether; POE (3) octyl phenyl ether; 2-[2-[2-[p-(1,1,3,3-Tetramethylbutyl) phenoxy] ethoxy] ethoxy] ethanol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{20}H_{34}O_4$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 3$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 4000 mg/kg; mod. toxic by ing.; irritating to eyes; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; industrial/household cleaners; emulsion polymerization; agric.; latex stabilizer; emulsifier, solubilizer in pharmaceuticals; coupling agent; food-pkg. adhesives; in paper/paperboard in contact with dry foods; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Surfonic® OP-35; Triton® X-35

#### Octoxynol-5

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 2315-64-2; 27176-99-4

*Synonyms:* Octyl phenol condensed with 5 moles ethylene oxide; Octyl phenol EO (5); 14-(Octylphenoxy)-3,6,9,12-tetraoxatetradecan-1-ol; PEG-5 octyl phenyl ether; POE (5) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{24}H_{40}O_6$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 5$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 3800 mg/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; stabilizer; spermicide; for paints; anti-icing additive for gasoline; emulsifier for foods and pharmaceuticals; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Alkasurf® CA-520; DeLONIC OPE-5; Igepal® CA-520; Surfonic® OP-50; Triton® X-45

#### Octoxynol-7

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 27177-02-2

*Synonyms:* PEG-7 octyl phenyl ether; POE (7) octyl phenyl ether; 20-(Octylphenoxy)-3,6,9,12,15,18-hexaoxaicosan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{28}H_{50}O_8$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 7$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; textile lubricants, agric., latex paint; post-polymerization stabilizer; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Alkasurf® CA-620; DeLONIC OPE-7.5; Igepal® CA-620; Surfonic® OP-70

#### Octoxynol-8

CAS 2638-43-9; 3520-90-9; 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* PEG-8 octyl phenyl ether; PEG 400 octyl phenyl ether; POE (8) octyl phenyl ether; 23-(4-Octylphenoxy)-3,6,9,12,15,18,21-heptaotriacosan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{30}H_{54}O_9$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 8$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant for detergents, foods, pharmaceuticals, agric. formulations, oil-well drilling, leather processing, paints; biodispersant and oil emulsifier in cooling towers, paper and textile processing; surfactant, emulsifier in cosmetics; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Synperonic OP7.5; Synperonic OP8; Triton® X-114

#### Octoxynol-9

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9010-43-9 (generic); 9036-19-5 (generic); 42173-90-0

*Synonyms:* PEG-9 octyl phenyl ether; POE (9) octyl phenyl ether; PEG 450 octyl phenyl ether; 26-(Octylphenoxy)-3,6,9,12,15,18,21,24-octaohexacosan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{32}H_{58}O_{10}$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 9$

*Properties:* Pale yel. clear visc. liq., faint odor, bitter taste; sol. in benzene, toluene; misc. with water, alcohol, acetone; insol. in hexane; dens. 1.059-1.068; hyd. no. 85-101; cloud pt. 63-69 C; pH 6-8; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; foods; topical pharmaceuticals; household/industrial cleaners; emulsion polymerization; paints and coatings; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.210, 178.3400; FDA approved for topicals

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Hyonic® OP-100; Igepal® CA-630; POLYSTEP® OP-9; Serdox® NOP 9; Triton® X-100; Triton® X-120

*Trade Names Containing:* Foambreaker

#### Octoxynol-10

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 2315-66-4; 27177-07-7

*Synonyms:* Octyl phenol EO (10); 29-(Octylphenoxy)-3,6,9,12,15,18,21,24,27-nonaaxanonacosan-1-ol; PEG-10 octyl phenyl ether; PEG 500 octyl phenyl ether; POE (10) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{34}H_{62}O_{11}$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 10$

*Properties:* Pale yel. visc. liq.; misc. with water, alcohol, acetone; sol. in benzene, toluene; m.w. 647; dens. 1.0595 (25/4 C); HLB 13.6; nonionic

*Toxicology:* LD50 (oral, rat) 1800 mg/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; industrial/household cleaners; emulsion polymerization; latex stabilizer; asphalt emulsions; emulsifier, solubilizer in pharmaceuticals; coupling agent; penetrant; food-pkg. adhesives; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemax OP-10; DeLONIC OPE-10; Macol® OP-10 SP; Nonipax OP 10; Surfonic® OP-100; Synperonic OP10; Synperonic OP10.5

#### Octoxynol-11

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 108437-62-3

*Synonyms:* PEG-11 octyl phenyl ether; POE (11) octyl phenyl ether; 32-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3,6,9,12,15,18,21,24,27,30-decaoxadotriacontan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{38}H_{70}O_{12}$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 11$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; emulsifier, solubilizer in pharmaceuticals; in food-pkg. adhesives; in food-contact paper/paperboard; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Synperonic OP11

**Octoxynol-12**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* PEG-12 octyl phenyl ether; POE (12) octyl phenyl ether; PEG 600 octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 12$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; wetting agent; dispersant; spermicide; solubilizer; coupling agent; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Surfonic® OP-120

**Octoxynol-13**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 108437-63-4

*Synonyms:* PEG-13 octyl phenyl ether; POE (13) octyl phenyl ether; 38-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3,6,9,12,15,18,21,24,27,30,33,36-dodecaoxaocatriacontan-1-ol

*Classification:* Ethoxylated alkyl phenol

*Empirical:*  $C_{40}H_{74}O_{14}$

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 13$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; foam stabilizer at high temps., in presence of electrolytes; metal cleaning; industrial, household liq. detergents and cleaners; sanitizers; solubilizer of anionic detergents; hydrotrope; coupling agent; dedusting agent; paints and coatings; paper and textile processing; surfactant for foods and pharmaceuticals; defoamer in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 176.210, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* DeIONIC OPE-12; Triton® X-102

**Octoxynol-16**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* Octyl phenol condensed with 16 moles ethylene oxide; Octyl phenol EO (16); PEG-16 octyl phenyl ether; POE (16) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 16$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2800 mg/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; costabilizer; spermicide; household/industrial cleaners; emulsion polymerization; cosmetics; pharmaceuticals; latex stabilizer; in food-pkg. adhesives; in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Surfonic® OPB-167; Triton® X-165-70%

**Octoxynol-20**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* PEG-20 octyl phenyl ether; POE (20) octyl phenyl ether; PEG 1000 octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 20$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; emulsifier, solubilizer in pharmaceuticals; in food-pkg. adhesives; in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Octoxynol-25**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* PEG-25 octyl phenyl ether; POE (25) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 25$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier for emulsion polymerization, cosmetics, pharmaceuticals; perfume solubilizer; latex post-stabilizer; dyeing assistant; in food-pkg. adhesives; in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.180

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**Octoxynol-30**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 9063-89-2 (generic)

*Synonyms:* PEG-30 octyl phenyl ether; POE (30) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 30$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; foods; pharmaceuticals; industrial/household cleaners; emulsion polymerization; asphalt; latex post-stabilizer; solubilizer, coupling agent; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemax OP-30/70; DeIONIC OPE-30; Igepal® CA-880; Igepal® CA-887; POLYSTEP® OP-3070; Triton® X-305-70%; Trycol® 6975

**Octoxynol-33**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* PEG-33 octyl phenyl ether; POE (33) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 33$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant; emulsifier in cosmetics, mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names Containing:* Abex® VA 50

**Octoxynol-40**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic); 9063-89-2 (generic)

*Synonyms:* PEG-40 octyl phenyl ether; POE (40) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

*Formula:*  $C_8H_{17}C_6H_4(OCH_2CH_2)_nOH$ , avg.  $n = 40$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; foods; pharmaceuticals; emulsion polymerization; industrial/household cleaners; asphalt; latex stabilizer; penetrant; solubilizer, coupling agent; emulsifier in mfg. of food-contact articles; food-pkg. adhesives; in paper/paperboard in contact with dry foods

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.180, 178.3400

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* DeIONIC OPE-40; Disponil® AAP 436; Igepal® CA-890; Igepal® CA-897; POLYSTEP® OP-4070; Surfonic® OPB-407; Triton® X-405-70%; Trycol® 6984

**Octoxynol-70**

CAS 9002-93-1 (generic); 9004-87-9 (generic); 9036-19-5 (generic)

*Synonyms:* PEG-70 octyl phenyl ether; POE (70) octyl phenyl ether

*Classification:* Ethoxylated alkyl phenol

**Formula:**  $C_8H_{17}C_6H_{13}(OCH_2CH_2)_nOH$ , avg.  $n = 7$

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier in cosmetics; detergent; dispersant; spermicide; food emulsifier; household/industrial cleaners; textiles; paints; inks; agric.; latex/emulsion polymerization; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §172.710, 176.180

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Octyl acid phosphate.** See 2-Ethylhexyl phosphate

### Octyl acrylate

CAS 103-11-7; EINECS/ELINCS 203-080-7; UN No. 8027

**Synonyms:** EHA; Acrylic acid, 2-ethylhexyl ester; 2-Ethylhexyl acrylate; 2-Ethylhexyl propenoate; 2-Ethylhexyl 2-propenoate; 1-Hexanol, 2-ethyl-, acrylate; 2-Propenoic acid, 2-ethylhexyl ester; 2-Propenoic acid, octyl ester

**Empirical:**  $C_{11}H_{20}O_2$

**Formula:**  $CH_2=CHCOOCH_2CH(C_2H_5)C_6H_{13}$

**Properties:** Pale yel. clear liq.; pleasant odor; sol. in 95% ethanol, acetone; sol. 10-50 mg/ml in DMSO; insol. in water; m.w. 184.31; dens. 0.8867 (20/20 C); vapor pressure 0.01 mm Hg (20 C); m.p. -90 C; b.p. 214-218 C; flash pt. (OC) 82.2 C

**Toxicology:** LD50 (oral, rat) 5660 mg/kg, (IP, rat) 1670 mg/kg, (skin, rabbit) 8480 mg/kg; mod. toxic by ing. and IP routes; very low toxicity by skin contact; severe skin and eye irritant; experimental tumorigen; TSCA listed

**Precaution:** Flamm.; fire hazard exposed to heat or flame; heat-sensitive; can react with oxidizing materials; hydrolyzes; polymerizes readily

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke

**NFPA:** Health 2; Flammability 2; Reactivity 2

**Storage:** Store refrigerated away from light

**Uses:** Comonomer for acrylic/vinyl resins; monomer for plastics, protective coatings, paper treatment, water-based paints; comonomer for radical polymerization; modifier for flexibility; modifier for oils/alkyds in food-contact coatings

**Regulatory:** FDA 21CFR §175.300

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich; Alfa Aesar; BASF; Celanese; Fluka; G.J. Chem.; ICN Biomed. Research Prods.; Monomer-Polymer & Dajac Labs; Pfaltz & Bauer; Pharmco Prods.; Sartomer; Sigma; Union Carbide; Whyte Chems. Ltd

**Trade Names:** Norsocryl® 2EHA

**Octyldecanol.** See 2-Octyl-1-decanol

**2-Octyl decanol.** See 2-Octyl-1-decanol

### 2-Octyl-1-decanol

CAS 45235-48-1

**Synonyms:** 1-Decanol, 2-octyl; Octyldecanol; 2-Octyl decanol; Octyldecyl alcohol

**Classification:** Aliphatic alcohol

**Empirical:**  $C_{18}H_{36}O$

**Precaution:** Combustible

**Uses:** Intermediate for plasticizers; raw material in the mfg. of alkyl phthalates, phosphoro diethionates, alkyl methacrylate monomers; defoaming agent in drilling muds and fermentation broths; emollient in cosmetics; cosmetic raw material

**Manuf./Distrib.:** Sea-Land; Whyte Chems. Ltd

**Trade Names Containing:** Jarcol™ I-18E; Jarcol™ I-18T

**Octyldecyl alcohol.** See 2-Octyl-1-decanol

### 2-Octyl dodecanoic acid

CAS 40596-46-1; EINECS/ELINCS 254-992-7

**Classification:** Nonaromatic carboxylic acid

**Empirical:**  $C_{20}H_{40}O_2$

**Properties:** M.w. 312.54; dens. 0.846; m.p. 36-40 C

**Toxicology:** May be harmful by inh., ing., or skin absorption; irritating to eyes, skin, respiratory system; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in cool, dry place

**Uses:** Cosmetics; pharmaceuticals; detergents; lubricants; emulsifiers; solvs.;

rubber; plastics; polymers; metal processing; paper coatings; textiles

**Manuf./Distrib.:** Aldrich

**Trade Names:** Jaric I-20

### Octyldodecanol

CAS 5333-42-6; EINECS/ELINCS 226-242-9

**Synonyms:** 1-Dodecanol, 2-octyl-; Isoarachidyl alcohol; Isoeicosyl alcohol; 2-Octyl dodecanol; 2-Octyldodecyl alcohol

**Classification:** Aliphatic alcohol

**Empirical:**  $C_{20}H_{42}O$

**Formula:**  $CH_3(CH_2)_9CHCH_2OHCH_2(CH_2)_6CH_3$

**Properties:** Water-wh. clear liq.; sol. in alcohol, ether; insol. in water; m.w. 298.62; acid no. 0.5 max.; iodine no. 8 max.; sapon. no. 5 max.; hyd. no. 175-190; flash pt. (COC) 180 C

**Toxicology:** Eye and severe skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Carrier for oil-sol. prods.; lubricant, emollient, solvent for cosmetics and pharmaceuticals; pigment dispersant, solubilizer, coupling agent; intermediate for lubricants, emulsifiers, metal processing and textiles; pharmaceutical vehicle

**Regulatory:** FDA approved for topicals, vaginal creams; USP/NF compliance

**Trade Names:** Jarcol™ I-20

**2-Octyl dodecanol.** See Octyldodecanol

**2-Octyldodecyl alcohol.** See Octyldodecanol

**1-Octylene.** See Octene-1

**n-Octylic acid.** See Caprylic acid

### 2-n-Octyl-4-isothiazolin-3-one

CAS 26530-20-1; 12673-72-2

**Synonyms:** Octhilonone; 2-Octyl-3(2H)-isothiazolone

**Empirical:**  $C_{11}H_{19}NOS$

**Properties:** M.w. 213.37

**Toxicology:** LD50 (oral, rat) 550 mg/kg, (dermal, rabbit) 690 mg/kg; mod. toxic by ing. and skin contact; severe eye irritant; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of SO<sub>2</sub> and NO<sub>x</sub>

**Uses:** Antimicrobial, mildewcide, biocide for water treatment, paints, plastics, latexes; fungicide/wound protectant in fruit trees; preservative for fabrics, leather

**Trade Names:** Acticide® DW

**2-Octyl-3(2H)-isothiazolone.** See 2-n-Octyl-4-isothiazolin-3-one

**Octyl methacrylate.** See 2-Ethylhexyl methacrylate

**Octyl-octadecyl dimethyl ethylbenzyl ammonium chlorides.** See Benzalkonium chloride

**Octyl phenol condensed with 3 moles ethylene oxide.** See Octoxynol-3

**Octyl phenol condensed with 5 moles ethylene oxide.** See Octoxynol-5

**Octyl phenol condensed with 16 moles ethylene oxide.** See Octoxynol-16

**Octylphenol EO (3).** See Octoxynol-3

**Octyl phenol EO (5).** See Octoxynol-5

**Octyl phenol EO (10).** See Octoxynol-10

**Octyl phenol EO (16).** See Octoxynol-16

**Octyl phenol EO condensate.** See Octoxynol

**Octyl phenol ethoxylates.** See Octoxynol

**2-[2-[2-Octylphenoxy]ethoxy]ethoxy]ethanesulfonic acid, sodium salt.** See Sodium octoxynol-2 ethane sulfonate

**23-(4-Octylphenoxy)-3,6,9,12,15,18,21-heptaooxatricosan-1-ol.** See Octoxynol-8

**20-(Octylphenoxy)-3,6,9,12,15,18-hexaoxaecosan-1-ol.** See Octoxynol-7

**29-(Octylphenoxy)-3,6,9,12,15,18,21,24,27-nonaaxanonacosan-1-ol.** See Octoxynol-10

**26-(Octylphenoxy)-3,6,9,12,15,18,21,24-octaoxahexacosan-1-ol.** See Octoxynol-9

**p-t-Octylphenoxy polyethoxyethanol.** See Octoxynol

**14-(Octylphenoxy)-3,6,9,12-tetraoxatetradecan-1-ol.** See Octoxynol-5

**Octyl phosphate.** See Trioctyl phosphate

**Octyl sodium sulfate.** See Sodium octyl sulfate

### Octyl stearate

CAS 22047-49-0; EINECS/ELINCS 244-754-0

**Synonyms:** 2-Ethylhexyl octadecanoate; 2-Ethylhexyl stearate; Octade-

## Octyl sulfate sodium salt

canoic acid, 2-ethylhexyl ester; Stearic acid, 2-ethylhexyl ester

**Definition:** Ester of 2-ethylhexyl alcohol and stearic acid

**Empirical:**  $C_{26}H_{52}O_2$

**Formula:**  $CH_3(CH_2)_{16}COOCH_2(CH_2CH_2)CH(CH_2)_3CH_3$

**Properties:** Liq.; m.w. 396.71; cloud pt. 10-15 C

**Toxicology:** Skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Emollient; superfatting oil; EP agent; lubricant for PVC, textile spin finishes, metalworking; plasticizer/solvent for paper coatings, metalworking fluids; emollient, moisturizer, lubricant, spreading agent, detackifier, solubilizer, gloss agent, pigment wetting agent/dispersant for cosmetics, pharmaceutical topicals; textile surfactant

**Manuf./Distrib.:** Seabrook Ind.

**Octyl sulfate sodium salt.** See Sodium octyl sulfate

### Octyl tallate

**Definition:** Ester of 2-ethylhexyl alcohol and tall oil fatty acids

**Properties:** Sp.gr. 0.873; m.p. -10 C; flash pt. (COC) 213 C; ref. index 1.459

**Uses:** Transfer aid on correctable ribbon; penetration and tack agent for computer ribbons, carbon paper; plasticizer for vinyls, ethyl cellulose, SBR

**Manuf./Distrib.:** C.P. Hall; Int'l. Paper

**Trade Names:** Plasthal® R-9

**Odorless kerosene.** See Deodorized kerosene

**Odorless light petroleum hydrocarbons.** See Light petroleum hydrocarbons, odorless

**ODSA.** See Octadecenyl succinic anhydride

**n-ODSA.** See Octadecenyl succinic anhydride

**Oil-furnace black.** See Carbon black

**Oil mist, mineral.** See Mineral oil

**Oil of Palma Christi.** See Castor (Ricinus communis) oil

**Oils, fish, hydrogenated.** See Hydrogenated fish oil

**Oils, palm.** See Palm (Elaeis guineensis) oil

**Oils, palm, hydrogenated.** See Hydrogenated palm oil

**Oils, peanut, hydrogenated.** See Hydrogenated peanut oil

**Oils, peanut, sulfated.** See Sulfated peanut oil

**Oils, rice bran.** See Rice (Oryza sativa) bran oil

**Oils, shark liver, hydrogenated.** See Hydrogenated shark liver oil

**Oils, vegetable.** See Vegetable oil

**Oils, vegetable, hydrogenated.** See Hydrogenated vegetable oil

**Oil of vitriol.** See Sulfuric acid

**Okenite.** See Calcium silicate

**Olea europaea.** See Olive (Olea europaea) oil

**Olea europaea oil.** See Olive (Olea europaea) oil

### Oleamide

CAS 301-02-0; EINECS/ELINCS 206-103-9

**Synonyms:** 9-Octadecenamide; Oleic acid amide; Oleyl amide

**Classification:** Aliphatic amide

**Empirical:**  $C_{18}H_{35}NO$

**Formula:**  $CH_3(CH_2)_7CH:CH(CH_2)_7CONH_2$

**Properties:** Wh. waxy beads or ivory-colored powd.; insol. in water; m.w. 281.49; dens. 0.94; m.p. 72 C; iodine no. 80-95

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Slip/antiblock agent for extrusion of polyethylene; wax additive; slip agent for printing inks; internal lubricant and slip agent for processed plastics, coatings, and films; solubilizer for oil-sol. dyestuffs; builder, foam visc. stabilizer, and foam booster in syn. detergent formulations; water repellent for textiles; opacifier, visc. control agent in cosmetics; in food-pkg. adhesives; release agent in food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 175.300, 178.3860, 178.3910, 179.45, 181.22, 181.28

**Manuf./Distrib.:** Akzo Nobel; Ashland; Chemax; Chemron; Cognis/Chems. Group; Croda Universal Ltd; Ferro; Pilot; Sigma; Uniqema N. Am.; Uniqema; Universal Preserv-A-Chem; Vilax

**Trade Names:** Armid® O; Struktol® TR 121

### Oleamide DEA

CAS 93-83-4; EINECS/ELINCS 202-281-7

**Synonyms:** N,N-Bis(2-hydroxyethyl)-9-octadecenamide; N,N-Bis(2-hydroxyethyl) oleamide; Diethanolamine oleic acid amide; Oleic acid diethanolamide; Oleic diethanolamide

**Definition:** Mixture of ethanolamides of oleic acid

**Empirical:**  $C_{22}H_{43}NO_3$

**Formula:**  $CH_3(CH_2)_7CH:CH(CH_2)_7CON(CH_2CH_2OH)_2$

**Properties:** Amber to brn. liq.; m.w. 369.59

**Toxicology:** TSCA listed

**Uses:** Emollient, superfatting agent, lubricant, foam stabilizer, thickener, emulsifier used in personal care prods., industrial applics.; emulsifier, corrosion inhibitor for sol. cutting oils; emulsifier, thickener for cleaners, household prods.; anti-tack, visc. control agent in cosmetics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2260, 177.2800

**Manuf./Distrib.:** Ashland; McIntyre; Rhodia HPCII

### Oleic acid

CAS 112-80-1; EINECS/ELINCS 204-007-1; FEMA 2815

**Synonyms:** Elaic acid; 9-Octadecenoic acid; cis-9-Octadecenoic acid; cis-Octadec-9-enoic acid; 9,10-Octadecenoic acid; Oleinic acid; Red oil

**Classification:** Aliphatic carboxylic acid; unsaturated fatty acid

**Empirical:**  $C_{18}H_{34}O_2$

**Formula:**  $CH_3(CH_2)_7CH:CH(CH_2)_7COOH$

**Properties:** Colorless liq., odorless; darkens when exposed to oxygen; sol. in alcohol, ether, benzene, chloroform, fixed/volatile oils, oxygenated, chlorinated, and aromatic solvs.; insol. in water; m.w. 282.47; dens. 0.895; vapor pressure 1 mm (176.5 C); m.p. 6 C; b.p. 286 C (100 mm); HLB 1.0; acid no. 196-204; nonionic

**Toxicology:** LD50 (oral, rat) 74 g/kg, (IV, rat) 2400 µg/kg; poison by IV route; mildly toxic by ing.; irritant to skin, mucous membranes; human eye and skin irritant; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed

**Precaution:** Combustible when exposed to heat or flame; incompat. with Al and perchloric acid

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 1; Flammability 1; Reactivity 0

**Storage:** Light-sensitive

**Uses:** Soap base; mfg. of oleates, ointments, polishing compds., lubricants, food-grade additives, Turkey red oil, driers; intermediates for paints; water-proofing textiles; oiling wool; emollient, superfatting agent in cosmetics; flotation frothing agent; emulsifier in cosmetics, metalworking fluids, resins, surf. coatings; activator, plasticizer, softener, lube in rubbers; emulsifier/solubilizer/stabilizer for foods, pharmaceuticals; flume wash water additive for food processing; pharmaceutical solvent; food pkg.; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in food-contact acrylics, cellophane, rubber articles, textiles; in lubricants for incidental food contact

**Regulatory:** FDA 21CFR §172.210, 172.860, 172.862, 173.315 (0.1 ppm max. in wash water), 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910, 182.70, 182.90; FEMA GRAS; FDA approved for inhalants, orals, topicals; USP/NF, BP compliance

**Manuf./Distrib.:** Atrachem; Akzo Nobel; Aldrich; Allchem Ind.; Am. Biorganics; Anar; Arizona; Ashland; Baychem; Brown; Browning; C.P. Hall; Cognis/Chems. Group; Ferro/Keil; Fluka; Genzyme; Hercules; Int'l. Chem. Inc.; J.T. Baker; Penta Mfg.; R.E. Carroll; Rhodia HPCII; Ruger; Schweizerhall; Sea-Land; Sigma; Spectrum Quality Prods.; Uniqema/Oleochems.; Van Waters & Rogers; Welch, Holme & Clark

**Oleic acid aluminum salt.** See Aluminum oleate

**Oleic acid amide.** See Oleamide

**Oleic acid ammonium salt.** See Ammonium oleate

**Oleic acid diethanolamide.** See Oleamide DEA

**Oleic acid glycerol monoester.** See Glycerol oleate

**cis-Oleic acid, methyl ester.** See Methyl oleate

**Oleic acid, methyl ester, cis-.** See Methyl oleate

**Oleic acid, monoester with 1,2-propanediol.** See Propylene glycol oleate

**Oleic acid monoester.** See Glycerol oleate

**Oleic acid potassium salt.** See Potassium oleate  
**Oleic acid, sulfated.** See Sulfated oleic acid  
**Oleic acid, sulfated, potassium salt.** See Potassium oleic sulfate

#### Oleic amidoethylimidazoline

CAS 63441-26-9

Properties: Cationic

Uses: Corrosion inhibition, dispersants, dewatering, emulsification; for oil fields, metal working, paper, lubricants, road making, paints, inks, agric.; bitumen emulsification

Trade Names: Imidazoline 18 DA

**Oleic diethanolamide.** See Oleamide DEA

**Olein.** See Triolein

**Oleic acid.** See Oleic acid

**Oleol.** See Oleyl alcohol

**Oleoilyglycerol.** See Glycerol oleate

**Oleoylmethyltaurine sodium salt.** See Sodium methyl oleoyl taurate

**Oleoyl monoisopropanolamide disodium sulfosuccinate.** See Disodium oleamido MIPA-sulfosuccinate

#### N-Oleoyl-N'-stearoyl ethylenediamine

Synonyms: N-(2-Stearoylaminoethyl) oleamide

Uses: In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

Regulatory: FDA 21CFR§ 176.170, 177.1200

#### Oleth-2

CAS 9004-98-2 (generic); 5274-65-7

Synonyms: (Z)- $\alpha$ -9-Octadecenyl- $\omega$ -hydroxy poly (oxy-1,2-ethanediyl); 2-[2-(9-Octadecyloxy) ethoxy] ethanol; Oleyl alcohol EO (2); PEG-2 oleyl alcohol; PEG-2 oleyl ether; PEG 100 oleyl ether; POE (2) oleyl ether

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{22}H_{42}O_3$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 2$

Properties: HLB 4.9; nonionic

Toxicology: LD50 (oral, rat) 25,800 mg/kg; mildly toxic by ing.; TSCA listed  
 Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Solubilizer, emulsifier, surfactant, dispersant, stabilizer, spreading agent, emollient, lipophilic cosolvent for cosmetics, detergents, fragrance prods., textile, leather, paper, pharmaceutical applics.

Manuf./Distrib.: Aldrich; Fluka; Seabrook Ind.; Sigma

Trade Names: Genapol® O-020

#### Oleth-3

CAS 9004-98-2 (generic); 5274-66-8

Synonyms: PEG-3 oleyl ether; POE (3) oleyl ether; 2-[2-[2-(9-Octadecyloxy)ethoxy]ethoxy]ethanol

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{24}H_{46}O_4$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 3$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emollient, lubricant, emulsifier, solubilizer for cosmetics, topical pharmaceuticals; emulsifier in astringent creams and lotions; superfatting agent in shampoos; dispersant, detergent, stabilizer

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Volpo N3

#### Oleth-5

CAS 9004-98-2 (generic); 5353-27-5

Synonyms: PEG-5 oleyl ether; POE (5) oleyl ether; 3,6,9,12,15-Pentaoxatriacont-24-en-1-ol

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{28}H_{56}O_6$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 5$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier, lubricant, solubilizer for pesticides, cosmetics, pharmaceuticals, floor polishes; dispersant for paints; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Seabrook Ind.; Sigma

Trade Names: Genapol® O-050; Volpo N5

#### Oleth-6

CAS 9004-98-2 (generic)

Synonyms: PEG-6 oleyl ether; POE (6) oleyl ether; PEG 300 oleyl ether

Definition: PEG ether of oleyl alcohol

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 6$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier for mineral oils in cosmetics, detergent and wetting agents in textile industry; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

#### Oleth-7

CAS 9004-98-2 (generic)

Synonyms: PEG-7 oleyl ether; POE (7) oleyl ether

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{32}H_{64}O_8$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 7$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier for emulsion polymerization, cosmetics, mineral oils; lubricant, softener, antistat, detergent in textiles; superfatting agent in hair care preps.; defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

Manuf./Distrib.: Aldrich; Fluka; Sigma

#### Oleth-8

CAS 9004-98-2 (generic); 27040-03-5

Synonyms: PEG-8 oleyl ether; POE (8) oleyl ether; PEG 400 oleyl ether

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{34}H_{68}O_9$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 8$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier in cosmetics; raw material for mfg. of textile, leather, paper auxs.; detergents, emulsifiers, cosmetics; defoamer in food-contact coatings

Regulatory: FDA 21CFR §176.200, 177.2800

Manuf./Distrib.: Aldrich; Fluka; Seabrook Ind.; Sigma

Trade Names: Genapol® O-080; Oxetal O 108

#### Oleth-9

CAS 9004-98-2 (generic)

Synonyms: PEG-9 oleyl ether; POE (9) oleyl ether; PEG 450 oleyl ether

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{36}H_{72}O_{10}$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 9$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Coupling agent, solubilizer, emulsifier, emulsion stabilizer for cosmetics, hair care preps.; emulsion polymerization; textile spin finishes; defoamer in food-contact paper coatings; in food-contact textiles

Regulatory: FDA 21CFR §176.200, 177.2800

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Genapol® O-090

#### Oleth-10

CAS 9004-98-2 (generic); 24871-34-9

Synonyms: Decaethoxy oleyl ether; 3,6,9,12,15,18,21,24,27,30-Decaoxaotetracont-39-en-1-ol; Oleyl alcohol EO (10); PEG-10 oleyl ether; PEG 500 oleyl ether; POE (10) oleyl ether; Polyethylene glycol monooleyl ether; Polyoxyl 10 oleyl ether

Definition: PEG ether of oleyl alcohol

Empirical:  $C_{38}H_{76}O_{11}$

Formula:  $CH_3(CH_2)_7CH=CH(CH_2)_7CH_2(OCH_2CH_2)_nOH$ , avg.  $n = 10$

Properties: Wh. soft semisolid or pale yel. liq., bland odor; sol. in water, alcohol; disp. in min. oil, propylene glycol; acid no. 1.0 max.; iodine no. 23-40; sapon. no. 3 max.; hyd. no. 75-95; nonionic

Toxicology: LD50 (oral, rat) 2700 mg/kg; mod. toxic by ing.; irritating to skin and eyes; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke

## Oleth-12

*Uses:* Emulsifier, surfactant, stabilizer, gellant, wetting agent, solubilizer for cosmetics and toiletries, pharmaceuticals, fragrances; defoamer in food-contact paper coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §176.200, 177.2800; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* Genapol® O-100; Volpo N10

## Oleth-12

CAS 9004-98-2 (generic)

*Synonyms:* PEG-12 oleyl ether; POE (12) oleyl ether; PEG 600 oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 12$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, surfactant in cosmetics; raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics; emulsifier for pharmaceuticals; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Genapol® O-120; Oxetal O 112

## Oleth-15

CAS 9004-98-2 (generic)

*Synonyms:* PEG-15 oleyl ether; POE (15) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 15$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, surfactant in cosmetics; raw material for mfg. of textile, leather, paper auxs., detergents, emulsifiers, cosmetics; emulsifier; dispersant; wetting agent; gellant; scouring agent; solubilizer; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Genapol® O-150

## Oleth-16

CAS 9004-98-2 (generic); 25190-05-0 (generic)

*Synonyms:* PEG-16 oleyl ether; POE (16) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 16$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, surfactant for cosmetics and pharmaceuticals; defoamer in food-contact paper coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Oleth-18

CAS 9004-98-2 (generic)

*Synonyms:* PEG-18 oleyl ether; POE (18) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 18$

*Properties:* Nonionic

*Uses:* Solubilizer for hydroalcoholic cosmetic and toiletries; emulsifier; dispersant; detergent; dyeing assistant; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

## Oleth-20

CAS 9004-98-2 (generic); 25190-05-0 (generic)

*Synonyms:*  $\alpha$ -9-Octadecenyloxy- $\omega$ -hydroxypoly (oxy-1,2-ethanediyl), (Z); Oleyl alcohol EO (20); PEG-20 oleyl ether; PEG 1000 oleyl ether; POE (20) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$

*Properties:* HLB 15.3; nonionic

*Toxicology:* LD50 (oral, rat) 2770 mg/kg; mod. toxic by ing.; irritating to eyes; may cause human reproductive effects; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Surfactant, coupling agent, solubilizer, emulsion stabilizer for cosmetics, pharmaceuticals, polishes, leather, plastics, dye dispersant, metal-working; stabilizer for rubber latex; defoamer in food-contact coatings; in food-pkg. adhesives; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §175.105, 176.180, 176.200, 177.1210, 177.2800; FDA approved for topicals

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* Genapol® O-200; Volpo N20

## Oleth-23

CAS 9004-98-2 (generic)

*Synonyms:* PEG-23 oleyl ether; POE (23) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 23$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, dispersant, solubilizer, detergent, stabilizer, anti-coagulant, dyeing assistant, lubricant used in textiles, cosmetics and processing of animal fibers; emulsifier in fruit coating waxes; defoamer in food-contact coatings; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180, 176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* Genapol® O-230

## Oleth-25

CAS 9004-98-2 (generic)

*Synonyms:* PEG-25 oleyl ether; POE (25) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 25$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Wetting agent, emulsifier for polymerization; stabilizer for latexes; dispersant in PU foam; textile industry; foamer for latex; floor waxes; pharmaceutical emulsions; metal cleaning; leather industry; surfactant in cosmetics; defoamer in food-contact coatings; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180, 176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Oleth-30

CAS 9004-98-2 (generic)

*Synonyms:* PEG-30 oleyl ether; POE (30) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 30$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier in cosmetics; surfactant for mfg. of washing powds., textile auxs.; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.180, 176.200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Oleth-40

CAS 9004-98-2 (generic)

*Synonyms:* PEG-40 oleyl ether; POE (40) oleyl ether; PEG 2000 oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 40$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent, emulsifier, leveling agent, intermediate used for cosmetics, household formulations, silicone emulsification, textile processing; defoamer in food-contact coatings; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180, 176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Oleth-44

CAS 9004-98-2 (generic)

*Synonyms:* PEG-44 oleyl ether; POE (44) oleyl ether

*Definition:* PEG ether of oleyl alcohol

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 44$

*Toxicology:* TSCA listed

*Uses:* Emulsifier; surfactant in cosmetics; defoamer in food-contact paper coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §176.180, 176.200, 177.2800

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Oleth-50

CAS 9004-98-2 (generic)

*Synonyms:* PEG-50 oleyl ether; POE (50) oleyl ether

**Definition:** PEG ether of oleyl alcohol

**Formula:**  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 50$

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, solubilizer, dispersant for cosmetics; defoamer in food-contact coatings; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180, 176.200, 177.2800

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

### Oleth-80

CAS 9004-98-2 (generic)

**Synonyms:** PEG-80 oleyl ether; POE (80) oleyl ether

**Definition:** PEG ether of oleyl alcohol

**Properties:** Nonionic

**Uses:** Surfactant for mfg. of washing powds., textile auxs.; defoamer in food-contact paper coatings

**Regulatory:** FDA 21CFR §176.200

### Oleth-7 phosphate

CAS 39464-69-2 (generic)

**Synonyms:** PEG-7 oleyl ether phosphate; POE (7) oleyl ether phosphate

**Definition:** Complex mixture of esters of phosphoric acid and oleth-7

**Properties:** Anionic

**Uses:** Surfactant for textile, agric., paper, cleaning, metal processing industries

**Trade Names:** Servoxy® VPFZ 7/100

**Oleum abietis.** See Pine (*Pinus palustris*) oil

**Oleum Gossypii seminis.** See Cottonseed (*Gossypium*) oil

**Oleum olivae.** See Olive (*Olea europaea*) oil

**Oleum ricini.** See Castor (*Ricinus communis*) oil

### Oleyl alcohol

CAS 143-28-2; EINECS/ELINCS 205-597-3

**Synonyms:** Octadecenol; 1-Octadecenol; Octadec-9-en-1-ol; 9-Octadecen-1-ol; (Z)-9-Octadecen-1-ol; cis-9-Octadecen-1-ol; Oeol; Oleol; Oleyl fatty alcohol

**Classification:** Unsaturated fatty alcohol

**Empirical:**  $\text{C}_{18}\text{H}_{36}\text{O}$

**Formula:**  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_8\text{OH}$

**Properties:** Colorless to pale yellow, oily visc. liq., faint char. odor, bland taste; sol. in alcohol, ether; insol. in water; m.w. 268.49; dens. 0.84; m.p. 13-19 C; b.p. 207 C (13 mm); acid no. 1 max.; iodine no. 85-95; hyd. no. 205-215; cloud pt.  $\leq 10$  C; flash pt.  $> 110$  C; ref. index 1.4582 (27.5 C); nonionic

**Toxicology:** Human skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Plasticizer, emulsion stabilizer, antifoam, coupler, cosolvent, pigment dispersant, detergent in cutting oils, inks, textile finishing, petrochem., pulp/paper, paints, plastics, food applics., pharmaceuticals, cosmetics, metal cutting lubricant; softener, lubricant in textile processing; mfg. of sulfuric esters used as surfactants; emollient, emulsifier, opacifier, visc. control agent in cosmetics; carrier for medications; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in closure-sealing gaskets for food containers

**Regulatory:** FDA 21CFR §176.170, 176.210, 177.1010, 177.1210, 177.2800, 178.3910; FDA approved for topicals; USP/NF compliance

**Manuf./Distrib.:** Aldrich; Cognis/Chems. Group; Croda Inc; Fluka; Hickson & Welch Ltd; JarChem Ind.; Lanaetex Prods.; M. Michel; R.W. Greeff; Rhodia HPCII; Sea-Land; Sigma; Whyte Chems. Ltd

**Oleyl alcohol EO (2).** See Oleth-2

**Oleyl alcohol EO (10).** See Oleth-10

**Oleyl alcohol EO (20).** See Oleth-20

**Oleyl amide.** See Oleamide

**Oleyl fatty alcohol.** See Oleyl alcohol

### Oleyl hydroxyethyl imidazoline

CAS 95-38-5; 21652-27-7; 27136-73-8; EINECS/ELINCS 202-414-9; 244-501-4; 248-248-0

**Synonyms:** Amine 220; 2-(8-Heptadecenyl)-4,5-dihydro-1H-imidazole-1-ethanol; 2-(8-Heptadecenyl)-2-imidazoline-1-ethanol; 1-(2-Hydroxyethyl)-2-heptadecenylglyoxalidine; 1-Hydroxyethyl-2-heptadecenylglyoxalidine;

1-(2-Hydroxyethyl)-2-heptadecenyl-2-imidazoline; 1-(2-Hydroxyethyl)-2-N-heptadecenyl-2-imidazoline; 1-Hydroxyethyl-2-oleyl imidazoline; Oleyl imidazoline; 2-Oleyl-1-(hydroxyethyl) imidazoline

**Classification:** Heterocyclic compd.

**Empirical:**  $\text{C}_{22}\text{H}_{42}\text{N}_2\text{O}$

**Formula:**  $\text{C}_{17}\text{H}_{33}\text{C}:\text{NC}_2\text{H}_4\text{NC}_2\text{H}_4\text{OH}$

**Properties:** Liq.; cationic; m.w. 350.66; dens. 0.9300 (20/20 C); bulk dens.

7.76 lb/gal (20 C); b.p. 235 C (1 mm); flash pt. (OC) 240 C; cationic

**Toxicology:** LD50 (oral, rat) 3130 mg/kg, (IV, mouse) 88 mg/kg; poison by IV route; mod. toxic by ing.; TSCA listed

**Precaution:** Combustible; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $\text{NO}_x$

**Uses:** Emulsifier, corrosion inhibitor, antistat, wetting agent, flocculant, lubricant used in car wax emulsions, cleaners, paint mfg., agric. applics., syn. coolants; dispersant for clay and pigments in solvent systems; antistat in cosmetics; penetrant; coupling agent; raw material for quat. reactions; leather; metalworking; fungicide; soil stabilizer; demulsifier; recovery of tar from water-gas process emulsions; flotation processes; in lubricants for incidental food-contact use

**Regulatory:** FDA 21CFR §178.3570

**Trade Names:** Burco® Imidazoline O; Imidazoline 18OH; LamChem C-100-O; NopcoGen 22-O; Schercozoline O

**2-Oleyl-1-(hydroxyethyl) imidazoline.** See Oleyl hydroxyethyl imidazoline

**Oleyl imidazoline.** See Oleyl hydroxyethyl imidazoline

**Oleyl methyl tauride.** See Sodium methyl oleyl taurate

**Oleyl monoglyceride.** See Glyceryl oleate

**Olive oil.** See Olive (*Olea europaea*) oil

### Olive (*Olea europaea*) oil

CAS 8001-25-0; EINECS/ELINCS 232-277-0

**Synonyms:** *Olea europaea*; *Olea europaea* oil; Gomenleo oil; Azeite; Olive oil; Oleum olivae

**Definition:** Fixed oil obtained from the ripe fruit of *Olea europaea*, contg. glycerides of oleic acid, palmitic acid, linoleic acid, stearic acid, and arachidic acid

**Properties:** Yel. to lt. greenish, liq., sl. olive odor, sl. char. taste; sl. sol. in alcohol; misc. with ether, chloroform, carbon disulfide; insol. in water; dens. 0.909-0.915 (25/25 C); m.p. -6 C; solid. pt. 17-26 C; iodine no. 79-88; sapon. no. 187-196; flash pt. (CC) 437 F; ref. index 1.466-1.468; becomes rancid on exposure to air

**Toxicology:** LD50 (IV, mouse) 1320 mg/kg; mod. toxic by IP route; human skin irritant; devoid of side effects; TSCA listed

**Precaution:** Combustible exposed to heat or flame; can react with oxidizers; some spontaneous heating

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

**Storage:** Photosensitive

**Uses:** Lubricant, emollient, cosolvent, conditioner in cosmetics, pharmaceuticals; pharmaceutical vehicle, solvent for ointments, liniments; castile soaps; textile soaps; sulfonated oils; salad dressing and other foods; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, GRAS; Japan approved (olive); USP/NF, BP, Ph.Eur., JP compliance

**Manuf./Distrib.:** ABITEC; Aldrich; Alnor Oil; Arista Ind.; BF Goodrich/Textile; Cascade; Charkit; Croda Inc; Croda Oleochems.; F.H. Taussig; Fanning; Fluka; Int'l. Chem. Inc; Int'l. Sourcing; Lipo; Mutchler; Penta Mfg.; Pokonobe Ind.; Ruger; Scher; Sigma; Spectrum Quality Prods.; Thornley; Tri-K Ind.; Universal Preserv-A-Chem; Welch, Holme & Clark

**OMT.** See Sodium methyl oleyl taurate

**One-stage resin.** See Phenolic resin

**Opalwax.** See Hydrogenated castor oil

**OPP.** See *o*-Phenylphenol

**Optal.** See Propyl alcohol

**Orange G.** See Acid orange 10

**Orange II.** See Acid orange 7

**Organosiloxane.** See Silicone

**Organosiloxanes.** See Silicone

**Orthoboric acid.** See Boric acid

**Orthohydroxydiphenyl.** See *o*-Phenylphenol



**Orthophenylphenol.** See *o*-Phenylphenol  
**Orthophosphoric acid.** See Phosphoric acid  
**Orthophosphorous acid.** See Phosphonic acid  
**Orthophosphorus acid.** See Phosphonic acid  
**Oryza sativa.** See Rice (*Oryza sativa*) bran oil; Rice (*Oryza sativa*) starch  
**Oryza sativa starch.** See Rice (*Oryza sativa*) starch  
**1-Oxa-4-azacyclohexane.** See Morpholine  
**Oxacyclopentane.** See Tetrahydrofuran  
**Oxacyclopropane.** See Ethylene oxide  
**3-Oxa-1-heptanol.** See Butoxyethanol  
**Oxalaldehyde.** See Glyoxal  
**Oxane.** See Ethylene oxide  
**Oxazolidine A.** See Dimethyl oxazolidine  
**Oxide of chromium.** See Chromium oxide (ic)  
**Oxidized microcrystalline wax.** See Microcrystalline wax, oxidized  
**Oxidized polyethylene.** See Polyethylene, oxidized  
**Oxidoethane.** See Ethylene oxide  
 **$\alpha,\beta$ -Oxidoethane.** See Ethylene oxide  
**Oxime copper.** See Copper 8-quinolinolate  
**Oxine copper.** See Copper 8-quinolinolate  
**Oxirane.** See Ethylene oxide  
**Oxirane, methyl-, homopolymer.** See Polypropylene glycol  
**Oxirane, methyl, polymer and oxibane, butyl ether.** See PPG-2-buteth-3  
**2-Oxobutane.** See Methyl ethyl ketone  
 **$\alpha$ -Oxidophenylmethane.** See Benzophenone  
**Oxolane.** See Tetrahydrofuran  
**2-[(1-Oxo-octadecyl) amino] ethyl octadecanoate.** See Stearamide MEA-stearate  
 **$\alpha$ -1-(Oxo-octadecyl)- $\omega$ -hydroxypoly (oxy-1,2-ethanediyl).** See PEG stearate  
**5-Oxo-L-proline.** See PCA  
**5-Oxo-DL-proline, sodium salt.** See Sodium PCA  
**Oxosilane.** See Polysiloxane  
**Oxybenzene.** See Phenol  
**2,2'-(Oxybis (2,1-ethanediyl)) bisethanol.** See PEG-4  
**2,2'-(Oxybis (ethyleneoxy)) diethanol.** See PEG-4  
**1,1'-Oxybis-2-propanol.** See Dipropylene glycol  
**Oxybis (tributyltin).** See Tributyltin oxide  
**Oxydi-2,1-ethanediyl dodecanoate.** See PEG-2 dilaurate  
**1,1'-Oxydi-2-propanol.** See Dipropylene glycol  
**1,1'-Oxydipropan-2-ol.** See Dipropylene glycol  
**3,3'-Oxydi-1-propanol dibenzoate.** See Dipropylene glycol dibenzoate  
**Oxydipropyl dibenzoate.** See Dipropylene glycol dibenzoate  
**3,3'-Oxydyl-1-propanol dibenzoate.** See Dipropylene glycol dibenzoate  
**Oxyethylidenediphosphonic acid.** See Etidronic acid  
**Oxymethurea.** See Dimethylol urea  
**Oxymethylene.** See Formaldehyde  
**Oxyphenic acid.** See Pyrocatechol  
**Oxypropylated cellulose.** See Hydroxypropylcellulose  
**Oxy (salicylato) bismuth.** See Bismuth subsalicylate

**Oxystearin**

*Definition:* Mixt. of the glycerides of partially oxidized stearic and other fatty acids

*Properties:* Tan to lt. brn. waxy solid, bland taste; sol. in ether, hexane, chloroform; acid no. 15 max.; iodine no. 15 max.; sapon. no. 225-240; hyd. no. 30-45; ref. index 1.465

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Crystallization inhibitor, release agent in foods; sequestrant; defoamer for beet sugar and yeast processing; in paper/paperboard in contact with aq./fatty foods

*Use Level:* ADI -25 mg/kg (FAO/WHO)

*Regulatory:* FDA 21CFR §172.818 (limitation 0.125% of oils; must conform to FDA specs for fats or fatty acids derived from edible oils), 173.340, 176.170

**Ozocerite.** See Ozokerite

**Ozokerite**

CAS 8021-55-4; 12198-93-5; EINECS/ELINCS 265-134-6

*Synonyms:* Ceresin; Fossil wax; Mineral wax; Ozocerite; Ozokerite wax  
*Classification:* Hydrocarbon wax

*Definition:* Hydrocarbon wax derived from mineral or petroleum sources

*Properties:* Yel.-brown to black or green translucent (pure), noxious odor; sol. in lt. petrol. hydrocarbons, benzene, turpentine, kerosene, ether, carbon disulfide; sl. sol. in alcohol; insol. in water; dens. 0.85-0.95; m.p. 55-110 C (usually 70 C)

*Toxicology:* No known toxicity; skin and eye irritant

*Precaution:* Combustible

*Uses:* Filler for electrical insulation, rubber prods., paints, leather prods., printing inks, floor and furniture polishes, cosmetics, ointments; substitute for carnauba and beeswax; natural chewing gum base; binder, emulsion stabilizer, opacifier, visc. control agent, gellant, thickener, emollient in cosmetics; thickener in pharmaceuticals; food-pkg. adhesives

*Regulatory:* Japan approved; FDA approved for orals

*Manuf./Distrib.:* Eastman; Fanning; Frank B. Ross; ISP; Koster Keunen; Ruger; Strahl & Pitsch; U.S. Synthetics; Whittaker, Clark & Daniels

*Trade Names:* Koster Keunen Ozokerite

**Ozokerite wax.** See Ozokerite

**Ozone**

CAS 10028-15-6

*Synonyms:* Triatomic oxygen

*Classification:* Inorganic gas

*Empirical:* O<sub>3</sub>

*Properties:* Unstable colorless gas or dk. blue liq., pungent char. odor; m.w. 48.00; dens. 2.144 g/l (gas), 1.614 g/ml (liq., -195.4 C); m.p. -193 C; b.p. -111.9 C

*Toxicology:* ACGIH TLV/TWA CL 0.1 ppm; LC50 (inh., rat, 4 h) 4800 ppm; primary irritant; skin, eye, upper respiratory, mucous membrane irritant; human poison by inh., systemic effects (lacrimation, headache, dec. pulse rate, dec. blood pressure, dermatitis, cough, dyspnea, pulmonary changes); questionable carcinogen; experimental neoplastigen, tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

*Precaution:* Powerful highly reactive oxidizing agent; severe explosion hazard in liq. form when shocked, exposed to heat or flame, or in conc. form by reaction with powerful reducing agents; incompat. with rubber

*Uses:* Oxidizer in chem. processes; antimicrobial, color removal, disinfection, taste/odor control for water treatment, bottled drinking water; bleaching waxes, oils, wet paper, textiles; swimming pool disinfectant; prod. of peroxides; bactericide; wastewater disinfection for pulp/paper; removal of chlorine from nitric acid; oxidation of phenols and cyanides; ozonolysis reagent; processing aid for foods (Japan)

*Use Level:* Limitation 0.4 mg/L residual of bottled water

*Regulatory:* FDA 21CFR §184.1563, GRAS; Japan approved

**PA 12.** See Nylon 12

**PAA.** See Peracetic acid; Polyacrylamide; Polyacrylic acid

**PAC.** See Polyaluminum chloride

**Pacific green No. 6491.** See Phthalocyanine green

**Painters naphtha.** See VM&P naphtha

**Palmamide DEA**

*Synonyms:* Amides, palm oil, N,N-bis (2-hydroxyethyl)-

*Definition:* Mixt. of ethanalamides of the fatty acids derived from palm oil

*Formula:* RCON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, where RCO- rep. fatty acids derived from palm oil

*Uses:* Emulsifier, emulsion stabilizer, surfactant, visc. control agent in cosmetics; food pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800

**Palm butter.** See Palm (*Elaeis guineensis*) oil

**Palm (*Elaeis guineensis*) kernel oil**

CAS 8023-79-8; EINECS/ELINCS 232-425-4

*Synonyms:* *Elaeis guineensis*; *Elaeis guineensis* seed oil; Palm kernel oil

*Definition:* Oil obtained from seeds of *Elaeis guineensis*

*Properties:* Ylsh. fatty solid, char. sweet nutty flavor; dens. 0.95 kg/l; m.p. 26-30 C; iodine no. 14-19; sapon. no. 240-250

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Soap ingred.; hard oil for confectionery use; margarine ingred.; coating agent, emulsifier, formulation aid, texturizer in foods; in pharmaceutical waxes; in food-pkg. adhesives; defoamer in food-contact paper coatings,

## Orthophenylphenol

**Orthophenylphenol.** See o-Phenylphenol  
**Orthophosphoric acid.** See Phosphoric acid  
**Orthophosphorous acid.** See Phosphonic acid  
**Orthophosphorus acid.** See Phosphonic acid  
**Oryza sativa.** See Rice (*Oryza sativa*) bran oil; Rice (*Oryza sativa*) starch  
**Oryza sativa starch.** See Rice (*Oryza sativa*) starch  
**1-Oxa-4-azacyclohexane.** See Morpholine  
**Oxacyclopentane.** See Tetrahydrofuran  
**Oxacyclopropane.** See Ethylene oxide  
**3-Oxa-1-heptanol.** See Butoxyethanol  
**Oxalaldehyde.** See Glyoxal  
**Oxane.** See Ethylene oxide  
**Oxazolidine A.** See Dimethyl oxazolidine  
**Oxide of chromium.** See Chromium oxide (ic)  
**Oxidized microcrystalline wax.** See Microcrystalline wax, oxidized  
**Oxidized polyethylene.** See Polyethylene, oxidized  
**Oxidoethane.** See Ethylene oxide  
 **$\alpha,\beta$ -Oxidoethane.** See Ethylene oxide  
**Oxime copper.** See Copper 8-quinolinolate  
**Oxine copper.** See Copper 8-quinolinolate  
**Oxirane.** See Ethylene oxide  
**Oxirane, methyl-, homopolymer.** See Polypropylene glycol  
**Oxirane, methyl, polymer and oxibane, butyl ether.** See PPG-2-buteth-3  
**2-Oxobutane.** See Methyl ethyl ketone  
 **$\alpha$ -Oxodiphenylmethane.** See Benzophenone  
**Oxolane.** See Tetrahydrofuran  
**2-[(1-Oxo-octadecyl) amino] ethyl octadecanoate.** See Stearamide MEA-stearate  
 **$\alpha$ -1-(Oxo-octadecyl)- $\omega$ -hydroxypoly (oxy-1,2-ethanediyl).** See PEG stearate  
**5-Oxo-L-proline.** See PCA  
**5-Oxo-DL-proline, sodium salt.** See Sodium PCA  
**Oxosilane.** See Polysiloxane  
**Oxybenzene.** See Phenol  
**2,2-[Oxybis (2,1-ethanediyl)oxy] bisethanol.** See PEG-4  
**2,2-(Oxybis (ethyleneoxy)) diethanol.** See PEG-4  
**1,1'-Oxybis-2-propanol.** See Dipropylene glycol  
**Oxybis (tributyltin).** See Tributyltin oxide  
**Oxydi-2,1-ethanediyl dodecanoate.** See PEG-2 dilaurate  
**1,1'-Oxydi-2-propanol.** See Dipropylene glycol  
**1,1'-Oxydipropan-2-ol.** See Dipropylene glycol  
**3,3'-Oxydi-1-propanol dibenzoate.** See Dipropylene glycol dibenzoate  
**Oxydipropyl dibenzoate.** See Dipropylene glycol dibenzoate  
**3,3'-Oxydi-1-propanol dibenzoate.** See Dipropylene glycol dibenzoate  
**Oxyethylidenediphosphonic acid.** See Etidronic acid  
**Oxymethurea.** See Dimethylol urea  
**Oxymethylene.** See Formaldehyde  
**Oxyphenic acid.** See Pyrocatechol  
**Oxypropylated cellulose.** See Hydroxypropylcellulose  
**Oxy (salicylato) bismuth.** See Bismuth subsalicylate

### Oxystearin

**Definition:** Mixt. of the glycerides of partially oxidized stearic and other fatty acids

**Properties:** Tan to lt. brn. waxy solid, bland taste; sol. in ether, hexane, chloroform; acid no. 15 max.; iodine no. 15 max.; sapon. no. 225-240; hyd. no. 30-45; ref. index 1.465

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Crystallization inhibitor, release agent in foods; sequestrant; defoamer for beet sugar and yeast processing; in paper/paperboard in contact with aq./fatty foods

**Use Level:** ADI -25 mg/kg (FAO/WHO)

**Regulatory:** FDA 21CFR §172.818 (limitation 0.125% of oils; must conform to FDA specs for fats or fatty acids derived from edible oils), 173.340, 176.170

**Ozocerite.** See Ozokerite

### Ozokerite

CAS 8021-55-4; 12198-93-5; EINECS/ELINCS 265-134-6

**Synonyms:** Ceresin; Fossil wax; Mineral wax; Ozocerite; Ozokerite wax

**Classification:** Hydrocarbon wax

**Definition:** Hydrocarbon wax derived from mineral or petroleum sources

**Properties:** Yel.-brown to black or green translucent (pure), noxious odor; sol. in lt. petrol. hydrocarbons, benzene, turpentine, kerosene, ether, carbon disulfide; sl. sol. in alcohol; insol. in water; dens. 0.85-0.95; m.p. 55-110 C (usually 70 C)

**Toxicology:** No known toxicity; skin and eye irritant

**Precaution:** Combustible

**Uses:** Filler for electrical insulation, rubber prods., paints, leather prods., printing inks, floor and furniture polishes, cosmetics, ointments; substitute for carnauba and beeswax; natural chewing gum base; binder, emulsion stabilizer, opacifier, visc. control agent, gellant, thickener, emollient in cosmetics; thickener in pharmaceuticals; food-pkg. adhesives

**Regulatory:** Japan approved; FDA approved for orals

**Manuf./Distrib.:** Eastman; Fanning; Frank B. Ross; ISP; Koster Keunen; Ruger; Strahl & Pitsch; U.S. Synthetics; Whittaker, Clark & Daniels

**Trade Names:** Koster Keunen Ozokerite

**Ozokerite wax.** See Ozokerite

### Ozone

CAS 10028-15-6

**Synonyms:** Triatomic oxygen

**Classification:** Inorganic gas

**Empirical:** O<sub>3</sub>

**Properties:** Unstable colorless gas or dk. blue liq., pungent char. odor; m.w. 48.00; dens. 2.144 g/l (gas), 1.614 g/ml (liq., -195.4 C); m.p. -193 C; b.p. -111.9 C

**Toxicology:** ACGIH TLV/TWA CL 0.1 ppm; LC50 (inh., rat, 4 h) 4800 ppm; primary irritant; skin, eye, upper respiratory, mucous membrane irritant; human poison by inh., systemic effects (lacrimation, headache, dec. pulse rate, dec. blood pressure, dermatitis, cough, dyspnea, pulmonary changes); questionable carcinogen; experimental neoplastigen, tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

**Precaution:** Powerful highly reactive oxidizing agent; severe explosion hazard in liq. form when shocked, exposed to heat or flame, or in conc. form by reaction with powerful reducing agents; incompat. with rubber

**Uses:** Oxidizer in chem. processes; antimicrobial, color removal, disinfection, taste/odor control for water treatment, bottled drinking water; bleaching waxes, oils, wet paper, textiles; swimming pool disinfectant; prod. of peroxides; bactericide; wastewater disinfection for pulp/paper; removal of chlorine from nitric acid; oxidation of phenols and cyanides; ozonolysis reagent; processing aid for foods (Japan)

**Use Level:** Limitation 0.4 mg/L residual of bottled water

**Regulatory:** FDA 21CFR §184.1563, GRAS; Japan approved

**PA 12.** See Nylon 12

**PAA.** See Peracetic acid; Polyacrylamide; Polyacrylic acid

**PAC.** See Polyaluminum chloride

**Pacific green No. 6491.** See Phthalocyanine green

**Painters naphtha.** See VM&P naphtha

### Palmamide DEA

**Synonyms:** Amides, palm oil, N,N-bis (2-hydroxyethyl)-

**Definition:** Mixt. of ethanalamides of the fatty acids derived from palm oil

**Formula:** RCON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, where RCO- rep. fatty acids derived from palm oil

**Uses:** Emulsifier, emulsion stabilizer, surfactant, visc. control agent in cosmetics; food pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2800

**Palm butter.** See Palm (*Elaeis guineensis*) oil

### Palm (*Elaeis guineensis*) kernel oil

CAS 8023-79-8; EINECS/ELINCS 232-425-4

**Synonyms:** *Elaeis guineensis*; *Elaeis guineensis* seed oil; Palm kernel oil

**Definition:** Oil obtained from seeds of *Elaeis guineensis*

**Properties:** Ylsh. fatty solid, char. sweet nutty flavor; dens. 0.95 kg/l; m.p. 26-30 C; iodine no. 14-19; sapon. no. 240-250

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Soap ingred.; hard oil for confectionery use; margarine ingred.; coating agent, emulsifier, formulation aid, texturizer in foods; in pharmaceutical waxes; in food-pkg. adhesives; defoamer in food-contact paper coatings,

paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, GRAS; BP compliance (fractionated)

**Manuf./Distrib.:** ABITEC; Alba Int'l.; Alnor Oil; Jarchem Ind.; Penta Mfg.; Stevenson Cooper

#### Palm (*Elaeis guineensis*) oil

CAS 8002-75-3; EINECS/ELINCS 232-316-1

**Synonyms:** *Elaeis guineensis* oil; Oils, palm; Palm butter; Palm grease; Palm oil

**Definition:** Natural oil obtained from pulp of the fruit of *Elaeis guineensis*; chiefly palmitin with some stearin, linolein

**Properties:** Yel.-brown buttery, edible solid at R.T.; faint odor of violet; sol. in alcohol, ether, chloroform, carbon disulfide; dens. 0.952; m.p. 26-30 C; iodine no. ≈ 15; sapon. no. ≈ 247; ref. index 1.453-1.459

**Toxicology:** TDL<sub>o</sub> (oral, rat) 55 g/kg; experimental teratogen, reproductive effector; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Soap ingred.; cutting tool lubricant; cosmetics; plasticizer, softener in rubber processing; steel cold-rolling oil; cotton goods finishing; mold release agent; emollient; candles; food shortening, coating agent, emulsifier, lubricant, formulation aid, texturizer; pharmaceutical waxes; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; surf. lubricant in food-contact coatings; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, GRAS

**Manuf./Distrib.:** ABITEC; Aarhus Oliefabrik A/S; Alba Int'l.; Alban Muller; Alnor Oil; Arista Ind.; Charkit; Jarchem Ind.; Lambent Tech.; Natural Oils Int'l.; Penta Mfg.; Sea-Land; Stevenson Cooper; Welch, Holme & Clark

**Palm grease.** See Palm (*Elaeis guineensis*) oil

#### Palmitamide DEA

CAS 7545-24-6; EINECS/ELINCS 231-427-2

**Synonyms:** N,N-Bis (2-hydroxyethyl) hexadecanamide; N,N-Bis (2-hydroxyethyl) hexadecan-1-amide; N,N-Bis (2-hydroxyethyl) palmitamide; Diethanolamine palmitic acid amide; Hexadecanamide, N,N-bis (2-hydroxyethyl)-; Palmitic diethanolamide

**Definition:** Mixture of ethanolamides of palmitic acid

**Empirical:** C<sub>20</sub>H<sub>41</sub>NO<sub>3</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>CON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>

**Uses:** Antistat, visc. control agent in cosmetics; food pkg. adhesives; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.180, 176.210, 177.2260, 177.2800

#### Palmitic acid

CAS 57-10-3; EINECS/ELINCS 200-312-9; FEMA 2832

**Synonyms:** Cetyllic acid; Hexadecanoic acid; n-Hexadecoic acid; Hexadecylic acid; 1-Pentadecanecarboxylic acid

**Classification:** Aliphatic organic compd.; saturated fatty acid

**Definition:** A mixt. of solid organic acids

**Empirical:** C<sub>16</sub>H<sub>32</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>COOH

**Properties:** Wh. crst. scales, sl. char. odor/taste; sol. in hot alcohol, ether, propyl alcohol, chloroform, oxygenated, aromatic, and chlorinated solvs.; sl. sol. in cold alcohol, petrol. ether; insol. in water; m.w. 256.42; dens. 0.853 (62/4 C); m.p. 63-64 C; b.p. 215 C (15 mm); ref. index 1.4273 (80 C)

**Toxicology:** LD50 (IV, mouse) 57 mg/kg; acute poison by IV route; human skin irritant; questionable carcinogen; experimental neoplastigen; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMS:** Health 1; Flammability 1; Reactivity 0

**Uses:** Mfg. of metallic palmitates, lube oils, paints, waterproofing, food-grade additives; intermediate for surfactants, soaps, and cosmetics; texturizer for shampoos, soaps, shaving creams; nondrying oil for surf. coatings; defoamer; lubricant; emollient in cosmetics; grinding agent; emulsifier for food, cosmetics, and polymerization; slip agent for plastics; activator,

dispersant, stabilizer, internal lubricant for rubber compding.; pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in food-contact acrylics, cellophane, rubber articles, textiles; in lubricants for incidental food contact

**Regulatory:** FDA 21CFR §172.210, 172.860, 173.340, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910; must conform to FDA specs for fats or fatty acids derived from edible oils; FEMA GRAS; BP compliance

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Allan; Am. Biorganics; Ashland; Baychem; Brown; Browning; Cognis/Chems. Group; Collaborative Labs/Oleochems.; Condor; Fluka; Genzyme; Grau Aromatics; Jarchem Ind.; Kraft Chem.; Norman, Fox; Penta Mfg.; Protameen; Research Organics; Robeco; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Uniqema/Oleochems.; Universal Preserv-A-Chem; Whyte Chems. Ltd

**Palmitic acid aluminum salt.** See Aluminum palmitate

**Palmitic acid, isobutyl ester.** See Isobutyl palmitate

**Palmitic acid sodium salt.** See Sodium palmitate

**Palmitic acid, zinc salt.** See Zinc palmitate

**Palmitic diethanolamide.** See Palmitamide DEA

**Palmityl alcohol.** See Cetyl alcohol

**Palmityl methacrylate.** See Cetyl methacrylate

**Palmityl trimethyl ammonium chloride.** See Cetrimonium chloride

**Palm kernel oil.** See Palm (*Elaeis guineensis*) kernel oil

**Palm oil.** See Palm (*Elaeis guineensis*) oil

**Palm oil glyceride, hydrogenated.** See Hydrogenated palm glyceride

**Palm oil, hydrogenated.** See Hydrogenated palm oil

#### Palm oil triglycerides

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**PAMAM.** See Polyamidoamine

**PAN resin.** See Polyacrylonitrile

**Paper black T.** See Direct black 38

**Papermakers' alum.** See Aluminum sulfate

**Parachlorometacresol.** See p-Chloro-m-cresol

**Paradioxibenzene.** See Hydroquinone

#### Paraffin

CAS 8002-74-2; EINECS/ELINCS 232-315-6; UN No. 1223; FEMA 3216

**Synonyms:** Hard paraffin; Paraffin wax; Paraffin waxes; Paraffin wax fume; Petroleum wax, crystalline; Poly (methylene) wax

**Classification:** Aliphatic organic compd.; hydrocarbon

**Definition:** Solid mixture of hydrocarbons obtained from petroleum; characterized by relatively large crystals

**Empirical:** C<sub>n</sub>H<sub>2n+2</sub>

**Properties:** Colorless to wh. crst. solid; odorless; tasteless; greasy feel; sol. in benzene, gasoline, chloroform, ether, carbon disulfide, oils; misc. with fats; insol. in water, alcohol; dens. ≈ 0.9; m.p. 50-57 C; flash pt. (CC) 190 C

**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup> (fume); TDL<sub>o</sub> (implant, rat) 120 mg/kg; primary irritant; skin and eye irritant; anesthetic effect; chronic skin exposure can cause dermatitis, abnormal pigmentation, etc.; fumes cause lung damage; questionable carcinogen; experimental tumorigen by implantation; many paraffin waxes contain carcinogens; TSCA listed

**Precaution:** Dangerous fire hazard; will burn above 198 C; burns with luminous flame; when heated, produces irritating fumes

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Storage:** Store away from heat; store in cool, dry place; refrigerate

**Uses:** Candles; paper coating; protective sealant for food prods.; food coatings; plastics lubricants; hot-melt carpet backing; floor polishes; chewing gum base; raising m.p. of ointments; antiozonant for rubber; mfg. of varnishes; in elec. insulators; perfume extraction (from flowers); paper sizing agent; waterproofing agent for textiles, leather, paper, cork, wood; solvent for inks; emollient, visc. control agent, moisturizer, stabilizer for cosmetics; pharmaceuticals (stiffening agent, tablet coating); surf. lubricant in food-contact coatings; in cellophane for food pkg.; wood preservative for agric. prods. pkg.

**Regulatory:** FDA 21CFR §133.181, 172.615, 173.3210, 175.105, 175.210, 175.250, 175.300, 175.320, 176.170, 176.200, 177.1200, 177.2420, 177.2600, 177.2800, 178.3710, 178.3800, 178.3910, 179.45; FEMA GRAS; Canada, Japan approved; FDA approved for implants, orals,

topicals; USP/NF, BP compliance

*Manuf./Distrib.:* Acros Org.; Aldrich; Ashland; Astor Corp.; BP Amoco; Baker Petrolite; Barco Chem. Prods.; Chemcor; ChevronPhillips; Condea Vista; Dussek Campbell; EM Ind.; Exxon; Fisher Scientific; Frank B. Ross; Humphrey; Int'l. Group; Koster Keunen; Michelman; Micro Powders; Mobil; Penreco; Penta Mfg.; Polygon; RTD; Rheox; Ruger; Scheel; Sea-Land; Shamrock Tech.; Shell; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stevenson Cooper; Strahl & Pitsch; U.S. Synthetics; Whittaker, Clark & Daniels

*Trade Names:* Koster Keunen Paraffin Wax; Loxiol® G 23; Loxiol® HOB 7169; Microlube™ N; Octowax 321; Octowax 695; Paracol® 404G; Paracol® 802A; Paracol® 802N; Paracol® 2370; Sequapel® 417; Sequapel® NS; Shamrock Hydrocer EP 91; Suntori WP; TH-44

*Trade Names Containing:* Basophob®; Octowax 437; Ross Beeswax Substitute No. 628/5; Ross Synthetic Candelilla Wax; Sequapel® 414; Shamrock Hydrocer EEP 16; Shamrock Hydrocer EEP 33; Sunsize® 4134  
See also Petroleum wax; Synthetic wax

#### Paraffin, chlorinated

CAS 63449-39-8

*Synonyms:* Chlorosane; Chlorinated paraffin; Chlorosane; Chloroparaffin; Paraffin waxes and hydrocarbon waxes, chlorinated; Wax, chlorinated

*Definition:* Paraffin hydrocarbons treated with chlorine; contains about 50% Cl

*Properties:* Pale to amber, neutral, light viscous oils or soft waxes; sol. in benzene, chloroform, most org. solvs.; sl. sol. in alcohol; insol. in water; dens. 0.900-1.50; nonflamm.

*Toxicology:* LD50 (oral, rat) > 4000 mg/kg (liq. or resinous, 70% Cl); primary irritant; confirmed carcinogen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* In mfg. of textiles, draperies, etc.; solvent for dichloramine-T; high-pressure lubricants; flame retardant in plastics, rubber, adhesives, textiles, inks, paper; leather fat-liquoring agent; plasticizer and flame retardants in paints; plasticizer for PVC, sealants, PVAc, syn. rubber; EP additive in lubricants, metalworking fluids; tackifier for rubbers, adhesives, sealants; in food-pkg. adhesives; textile backcoating; extender in rubber and plastic compds.; in detergents; crosslinking agent in food-contact polysulfide polymer/polyepoxy resins

*Regulatory:* FDA 21CFR §175.105 (for chain lengths of C<sub>10</sub>, C<sub>17</sub>, contg. 40-70% Cl by wt.), 177.1650

*Manuf./Distrib.:* AC Ind.; Allchem Ind.; Atofina; C.P. Hall; Celanese; Charlotte Chem.; Chemcentral; Crompton/Witco; Dover; Eastech; Ferro/Keil; Harwick; Morton Int'l.; Occidental; Punda Mercantile; R.E. Carroll; S & S Chem.; Sea-Land; StanChem; Tosoh; Tri-Iso

*Trade Names:* Chlorez® 700; Chlorez® 700-DF; Chlorez® 700-S; Chlorez® 700-SS; Chlorez® 700-SSNP; Chlorez® 725-S; Chlorez® 760

**Paraffin jelly.** See Petrolatum

**Paraffin oil.** See Mineral oil

#### Paraffin-rosin emulsion

*Uses:* Sizing agent for paper and paperboard, food-pkg. grades of paper/paperboard

**Paraffinum liquidum.** See Mineral oil

**Paraffin wax.** See Paraffin

**Paraffin waxes.** See Paraffin

**Paraffin waxes and hydrocarbon waxes, chlorinated.** See Paraffin, chlorinated

**Paraffin wax fume.** See Paraffin

**Paraform.** See Formaldehyde; Paraformaldehyde

#### Paraformaldehyde

CAS 30525-89-4; EINECS/ELINCS 200-001-8; UN No. 2213 (DOT)

*Synonyms:* P-Formaldehyde; Paraform; Paraformic aldehyde; Polyoxymethylene; Trioxymethylene; Trioxymethylene

*Classification:* A polymer of formaldehyde in which n = 8-100

*Empirical:* (CH<sub>2</sub>O)<sub>n</sub>

*Properties:* Wh. cryst. powd.; formaldehyde odor; sol. in strong alkalis; mod. sol. in hot water (yielding formaldehyde); sl. sol. in cold water; insol. in ethanol; m.w. (30.03)<sub>n</sub>; dens. 0.880; m.p. 132-136°C; flash pt. 158°F

*Toxicology:* LD50 (oral, rat) 800 mg/kg; LDLo (skin, rabbit) 10,000 mg/kg; toxic; mod. toxic by ing.; primary irritant; severe eye and skin irritant;

sensitizer; may cause allergic response; mutagen; TSCA listed

*Precaution:* Flamm. solid; can react with oxidizers; incompat. with liq. oxygen

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic formaldehyde gas

HMIS: Health 3; Flammability 1; Reactivity 0

*Storage:* Moisture-sensitive; store @ 2-8°C under argon or nitrogen

*Uses:* Fungicides; bactericides; disinfectant; adhesives; hardener and water-proofing agent for gelatin contraceptive creams; soil fungicide; seed treatment; mfg. of syn. resins and artificial horn or ivory; as fumigant; resorcinol-formaldehyde resin curing agent; amino/phenolic resin formaldehyde substitute; chloromethylation reagent; formaldehyde-releasing preservative in root canal filling pastes; in food-pkg. adhesives; setting agent for protein in mfg. of paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1210; SARA reportable

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Bencorp Int'l.; Brook-Chem; Browning; Celanese; Chemical; Degussa-Hüls; Fluka; Houghton Chem.; M. Arens; Miljac; Nemesis Int'l.; Perry; Ruger; Sego Int'l.; Sigma; Spectrum Quality Prods.; Storchem; Technichem; Total Spec. Chems.; Tryline; U.S. Chems.; Van Waters & Rogers

**Paraformaldehyde/urea polymer.** See Urea/formaldehyde resin

**Paraformaldehyde/urea resin.** See Urea/formaldehyde resin

**Paraformic aldehyde.** See Paraformaldehyde

**Paranitroaniline red, chlorinated.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**Pararosaniiline, N,N,N',N',N'',N''-hexamethyl-, chloride.** See Basic violet 3

**Pareth-15-3.** See C11-15 pareth-3

**Pareth-15-5.** See C11-15 pareth-5

**Pareth-15-7.** See C11-15 pareth-7

**Pareth-15-9.** See C11-15 pareth-9

**Pareth-15-12.** See C11-15 pareth-12

**Pareth-15-15.** See C11-15 pareth-15

**Pareth-23-7.** See C12-13 pareth-7

**Pareth-25-3.** See C12-15 pareth-3

**Pareth-25-5.** See C12-15 pareth-5

**Pareth-25-6.** See C12-15 pareth-6

**Pareth-25-7.** See C12-15 pareth-7

**Pareth-25-8.** See C12-15 pareth-8

**Pareth-25-9.** See C12-15 pareth-9

**Pareth-25-10.** See C12-15 pareth-10

**Pareth-25-12.** See C12-15 pareth-12

**Pareth-25-13.** See C12-15 pareth-13

**Pareth-25-23.** See C12-15 pareth-23

**Pareth-45-3.** See C14-15 pareth-3

**Pareth-45-4.** See C14-15 pareth-4

**Pareth 45-7.** See C14-15 pareth-7

**Pareth-45-8.** See C14-15 pareth-8

**Pareth-45-11.** See C14-15 pareth-11

**Pareth-91-2.** See C9-11 pareth-2

**Pareth-91-3.** See C9-11 pareth-3

**Pareth-91-4.** See C9-11 pareth-4

**Pareth-91-5.** See C9-11 pareth-5

**Pareth-91-6.** See C9-11 pareth-6

**Pareth-91-8.** See C9-11 pareth-8

**Paris white.** See Calcium carbonate; Whiting

**Patent alum.** See Aluminum sulfate

**Patent blue.** See Acid blue 1

**Patent blue VF.** See Acid blue 1

**PB.** See Polybutene

**PBN.** See Phenyl-β-naphthylamine

**PBNA.** See Phenyl-β-naphthylamine

**PBT.** See Polybutylene terephthalate

**PBTC.** See 2-Phosphono butane tricarboxylic acid-1,2,4

**PBTP.** See Polybutylene terephthalate

**PBT polyester.** See Polybutylene terephthalate

#### PCA

CAS 98-79-3; EINECS/ELINCS 202-700-3

*Synonyms:* 5-Oxo-L-proline; L-Pyrroglutamic acid; Pyrrolidonecarboxylic acid; 2-Pyrrolidone-5-carboxylic acid

*Classification:* Cyclic organic compd.

*Empirical:* C<sub>5</sub>H<sub>7</sub>NO<sub>3</sub>

*Properties:* Wh. crystal, odorless, sl. acidic taste, nonhygroscopic; sol. in water; m.w. 129.11; m.p. 181 C

*Toxicology:* Sl. irritating to skin; very irritating to eyes; TSCA listed

*Uses:* Humectant for cosmetics for skin and hair care, tobacco, cellulose film, paper prods., fiber prods., paints; dyeing agent, softening agent, finishing agent, and antistatic agent; intermediate for synthesis

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ajidew A-100

*Trade Names Containing:* Ajidew SP-100

**PCA-Na.** See Sodium PCA

**PCA Soda.** See Sodium PCA

**PCMC.** See p-Chloro-m-cresol

**PCTFE.** See Chlorotrifluoroethylene polymer

**PE.** See Polyethylene

**PEA.** See 2-Phenoxyethyl acrylate

**Peanut (Arachis hypogaea) oil**

CAS 8002-03-7; EINECS/ELINCS 232-296-4

*Synonyms:* Arachis oil; Arachis hypogaea; Groundnut oil; Indigenous peanut oil; Katchung oil; Earthnut oil; Pecan shell powder; Peanut oil

*Definition:* Refined fixed oil obtained from seed kernels of one or more cultivated varieties of *Arachis hypogaea*

*Properties:* Colorless to pale yel. liq., nutty odor, bland taste; sol. in benzene, ether, chloroform, CCl<sub>4</sub>, oils; misc. with carbon disulfide; sl. sol. in alcohol; insol. in alkalis; dens. 0.916-0.922; solid. pt. -5 C; iodine no. 84-100; sapon. no. 185-195; flash pt. 540 F; ref. index 1.466-1.470

*Toxicology:* TDLo (oral, mouse, 1 yr intermittent) 952 g/kg; human skin irritant, mild allergen; questionable carcinogen; experimental tumorigen; mutagenic data; TSCA listed

*Precaution:* Combustible exposed to heat or flame; can react with oxidizing materials; sl. spontaneous heating

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Light-sensitive

*Uses:* Drying oil for paints; soap ingred.; emollient, solvent in cosmetics; heat transfer medium in laboratory; edible oil; ingred. in margarine, mayonnaise, salad oil, shortening, baked goods; substitute for olive oil; dietary supplement; food coatings; pharmaceutical solvent, vehicle; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2800, 182.70; GRAS; FDA approved for injectables, orals, vaginals; USP/NF, BP compliance

*Manuf./Distrib.:* ABITEC; Alnor Oil; Arista Ind.; Ashland; Berje; Brutanicals; Cascade; Charkit; Croda Inc; Croda Oleochems.; Jarchem Ind.; Maypro Ind.; Natural Oils Int'l.; Penta Mfg.; Pokonobe Ind.; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Tri-K Ind.; Universal Preserv-A-Chem; Welch, Holme & Clark

**Peanut oil.** See Peanut (Arachis hypogaea) oil

**Peanut oil, hydrogenated.** See Hydrogenated peanut oil

**Peanut oil, sulfated.** See Sulfated peanut oil

**Peanut oil triglycerides**

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Pearl alum.** See Aluminum sulfate

**Pearl stearic.** See Stearic acid

**Pebble lime.** See Calcium oxide

**Pecan shell powder.** See Peanut (Arachis hypogaea) oil

**PEEA.** See 2-Phenoxyethyl acrylate; Phenylethylethanolamine

**PEG.** See Polyethylene glycol

**PEG-4**

CAS 112-60-7; 25322-68-3 (generic); EINECS/ELINCS 203-989-9

*Synonyms:* TEG; Bis [2-(2-hydroxyethoxy) ethyl] ether; 2-[2-(2-(2-Hydroxyethoxy) ethoxy) ethoxy] ethanol; Macrogol 200; 2,2'-(Oxybis (2,1-ethanediyloxy)) bisethanol; 2,2'-(Oxybis (ethyleneoxy)) diethanol; PEG 200; POE (4); Tetraethylene glycol; Tetraglycol

*Definition:* Polymer of ethylene oxide

*Empirical:* C<sub>8</sub>H<sub>18</sub>O<sub>5</sub>

*Formula:* H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>4</sub>OH

*Properties:* Colorless to pale straw visc. liq., sl. char. odor; sol. in water; misc. with methanol; insol. in benzene, toluene, gasoline; m.w. 194.23; dens. 1.127 (25/25 C); vapor pressure > 0.001 mm Hg (20 C); f.p. -4 C; b.p. 327.3 C; flash pt. (COC) 185 C; ref. index 1.4577 (20 C); supercools on freezing; nonionic

*Toxicology:* LD50 (oral, rat) 28,900 mg/kg, (IP, mouse) 7500 mg/kg; mildly toxic by ing.; irritating to eyes, skin, respiratory system; reproductive hazard; TSCA listed

*Precaution:* Combustible; can react with oxidizers; solvent action on some plastics

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Lubricant for rubber molds, textile fibers, metalworking fluids; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; in gas chromatography; in lacquers; paints; paper coatings; polishes; solvent for nitrocellulose; plasticizer; binder in ceramic pastes, printing inks; softener for paper tissue; food coating, binder, plasticizer, lubricant, defoamer; pharmaceutical aid; pharmaceutical solvent, vehicle, bulking agent; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §73.1, 172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750; FDA approved for topicals

*Manuf./Distrib.:* Aldrich; Ashland; C.P. Hall; Cognis; Fluka; Harwick; NOF Am.; Ruger; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Union Carbide; Uniqema/ICI Surf. UK

*Trade Names:* Adeka PEG-200; DePEG 200; Nopalcol 200; Poly-G® 200; Teric™ PEG 200

**PEG-6**

CAS 2615-15-8; 25322-68-3 (generic); EINECS/ELINCS 203-989-9; 220-045-1

*Synonyms:* Hexaethylene glycol; Macrogol 300; PEG 300; 3,6,9,12,15-Pentaoxaheptadecane-1,17-diol; Polyethylene glycol 300

*Definition:* Polymer of ethylene oxide

*Empirical:* C<sub>12</sub>H<sub>26</sub>O<sub>7</sub>

*Formula:* H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6

*Properties:* Sp.gr. 1.124-1.127; visc. 5.4-6.4 cSt (99 C); pour pt. -15 to -8 C; flash pt. (COC) 196 C; ref. index 1.463-1.4641 (20 C); pH 4.5-7.5 (5%); nonionic

*Toxicology:* LD50 (oral, rat) 27,500 mg/kg, (IP, rat) 17,000 mg/kg; mildly toxic by ing.; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; plasticizer for cellulose nitrate; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, suppository base, lubricant, solvent; in food-pkg. adhesives

*Use Level:* Limitation zero tolerance (milk)

*Regulatory:* FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; FDA approved for parenterals, ophthalmics, topicals; USP/NF, BP compliance

*Manuf./Distrib.:* Aldrich; Ashland; Cognis; Fluka; Harwick; NOF Am.; Ruger; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Union Carbide; Uniqema/ICI Surf. UK

*Trade Names:* Adeka PEG-300; Carbowax® PEG 300; DePEG 300; Imbentin-PEG/300; Teric™ PEG 300

*Trade Names Containing:* Carbowax® PEG 540 Blend; Lumulse™ PEG 540

**PEG-8**

CAS 5117-19-1; 25322-68-3 (generic); EINECS/ELINCS 225-856-4

*Synonyms:* 3,6,9,12,15,18,21-Heptaoxatricosane-1,23-diol; Macrogol 400; PEG 400; POE (8); Polyethylene glycol 400

*Definition:* Polymer of ethylene oxide

*Empirical:* C<sub>18</sub>H<sub>38</sub>O<sub>9</sub>

**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 8$   
**Properties:** Visc. liq., sl. char. odor, minimal taste; m.w. 380-420; dens. 1.128 (25/25 C); visc. 7.3 cSt (210 F); m.p. 4-8 C; pH 4.5-7.5 (5%); nonionic  
**Toxicology:** LD50 (oral, rat) 30 ml/kg, (IP, rat) 9708 mg/kg, (IV, rat) 7313 mg/kg; low toxicity by ing., IV, IP routes; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**NFPA:** Health 0; Flammability 1; Reactivity 0  
**Storage:** Sl. hygroscopic  
**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; plasticizer for cellulose nitrate; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, suppository base, bulking agent, solvent; in food-pkg. adhesives  
**Use Level:** Limitation zero tolerance (milk)  
**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910, 181.22, 181.30; USP/NF, BP, Ph.Eur. compliance  
**Manuf./Distrib.:** Aldrich; Ashland; C.P. Hall; Cognis; Fluka; Harwick; NOF Am.; Ruger; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Union Carbide; Uniqema/ICI Surf. UK  
**Trade Names:** Adeka PEG-400; DePEG 400; Imbentin-PEG/400; Nopalcol 400; Pluracol® E400 NF; Rhodasurf® E 400; Teric™ PEG 400

**PEG-9**

CAS 3386-18-3; 25322-68-3 (generic); EINECS/ELINCS 222-206-1  
**Synonyms:** PEG 450; POE (9); 3,6,9,12,15,18,21,24-Octaoxahexacosane-1,26-diol  
**Definition:** Polymer of ethylene oxide  
**Empirical:**  $\text{C}_{18}\text{H}_{38}\text{O}_{10}$   
**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 9$   
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical bulking agent, solvent; in food-pkg. adhesives  
**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910  
**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**PEG-12**

CAS 6790-09-6; 25322-68-3 (generic); EINECS/ELINCS 229-859-1  
**Synonyms:** Macrogol 600; PEG 600; POE (12); Polyethylene glycol 600; 3,6,9,12,15,18,21,24,27,3,33-Undeca-oxapentatriacontane-1,35-diol  
**Definition:** Polymer of ethylene oxide  
**Empirical:**  $\text{C}_{24}\text{H}_{50}\text{O}_{13}$   
**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 12$   
**Properties:** Visc. liq., char. odor; m.w. 570-630; dens. 1.128 (25/25 C); m.p. 20-25 C; visc. 10.5 cSt (210 F); pH 4.5-7.5 (5%); nonionic  
**Toxicology:** LD50 (oral, rat) 38,100 mg/kg; low toxicity by ing.; eye irritant; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**NFPA:** Health 0; Flammability 1; Reactivity 0  
**Storage:** Sl. hygroscopic  
**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; plasticizer for cellulose nitrate; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, suppository base, bulking agent, solvent; in food-pkg. adhesives  
**Use Level:** Limitation zero tolerance (milk)  
**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; USP/NF compliance  
**Manuf./Distrib.:** Aldrich; Ashland; C.P. Hall; Fluka; Harwick; NOF Am.; Ruger; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Union Carbide; Uniqema/ICI Surf. UK  
**Trade Names:** Adeka PEG-600; DePEG 600; Imbentin-PEG/600; Nopalcol 600; Pluracol® E600 NF; PogoI® 600; Rhodasurf® E 600; Teric™ PEG 600

**PEG-14**

CAS 25322-68-3 (generic)  
**Synonyms:** POE (14); PEG 700  
**Definition:** Polymer of ethylene oxide  
**Empirical:**  $\text{C}_{28}\text{H}_{58}\text{O}_{15}$   
**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 14$   
**Properties:** Visc. 11.5-13.0 cSt; nonionic  
**Toxicology:** TSCA listed  
**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical bulking agent, solvent; in food-pkg. adhesives  
**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910  
**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**PEG-16**

CAS 25322-68-3 (generic)  
**Synonyms:** PEG 800; POE (16)  
**Definition:** Polymer of ethylene oxide  
**Empirical:**  $\text{C}_{32}\text{H}_{66}\text{O}_{17}$   
**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 16$   
**Properties:** Visc. 12.5-14.5 cSt; nonionic  
**Toxicology:** TSCA listed  
**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical bulking agent, solvent; in food-pkg. adhesives  
**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910  
**Manuf./Distrib.:** Aldrich; Fluka; Seabrook Ind.; Sigma

**PEG-20**

CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9  
**Synonyms:** Macrogol 1000; PEG 1000; POE (20); Polyethylene glycol 1000; Polyglycol 1000  
**Definition:** Polymer of ethylene oxide  
**Empirical:**  $\text{C}_{40}\text{H}_{82}\text{O}_{21}$   
**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$   
**Properties:** Solid; sp.gr. 1.085; visc. 16-19 cSt (99 C); pour pt. 37-40 C; flash pt. (COC) 265 C; pH 4.5-7.5 (5%); nonionic  
**Toxicology:** LD50 (oral, rat) 32 g/kg, (IP, rat) 15,570 mg/kg; LDLo (IV, dog) 3000 mg/kg; mod. toxic by IP, IV routes; mildly toxic by ing.; questionable carcinogen; experimental tumorigen; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes  
**NFPA:** Health 0; Flammability 1; Reactivity 0  
**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; plasticizer for cellulose nitrate; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment and suppository base, bulking agent, solvent, plasticizer, lubricant; in food-pkg. adhesives  
**Use Level:** Limitation zero tolerance (milk)  
**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; USP/NF, BP, Ph.Eur. compliance  
**Manuf./Distrib.:** Aldrich; Ashland; Fluka; Harwick; NOF Am.; Ruger; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Union Carbide; Uniqema/ICI Surf. UK  
**Trade Names:** Adeka PEG-1000; Lumulse™ PEG 1000

**PEG-32**

CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9  
**Synonyms:** Macrogol 1540; PEG 1540; POE (32)  
**Definition:** Polymer of ethylene oxide  
**Empirical:**  $\text{C}_{64}\text{H}_{130}\text{O}_{33}$   
**Formula:**  $\text{H}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 32$   
**Properties:** Wh. powd.; nonionic  
**Toxicology:** LD50 (oral, rat) 44,200 mg/kg; mildly toxic by ingestion; human

skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment base, bulking agent; solvent; solubilizer; emulsifier; in food-pkg. adhesives

**Use Level:** Limitation zero tolerance (milk)

**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; FDA approved for dentals, orals, rectals, topicals; BP compliance

**Manuf./Distrib.:** Aldrich; Fluka; NOF Am.; Sigma

**Trade Names:** Imbentin-PEG/1500 G; Pluracol® E1450

**Trade Names Containing:** Carbowax® PEG 540 Blend; Lumulse™ PEG 540

#### PEG-40

CAS 25322-68-3 (generic)

**Synonyms:** PEG 2000; POE (40)

**Definition:** Polymer of ethylene oxide

**Empirical:** C<sub>80</sub>H<sub>162</sub>O<sub>41</sub>

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 40

**Properties:** Solid; dens. 1.127; visc. 38-49 cSt; ref. index 1.4590 (20 C); nonionic

**Toxicology:** TSCA listed

**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment base, bulking agent; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; FDA approved for parenterals

**Manuf./Distrib.:** Aldrich; NOF Am.

**Trade Names:** Pluracol® E2000

#### PEG-75

CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9

**Synonyms:** Macrogol 4000; PEG 4000; POE (75); Polyethylene glycol 4000; Polyglycol 4000

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 75

**Properties:** Wh. powd. or creamy-wh. flakes; m.w. 3000-3700; dens. 1.212 (25/25 C); visc. 76-110 cSt (210 F); m.p. 54-58 C; pH 4.5-7.5 (5%); nonionic

**Toxicology:** LD50 (oral, rat) 50 g/kg, (IP, rat) 11,550 mg/kg, (subcut., mouse) 18 g/kg, (IV, mouse) 16 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; binder, humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment and suppository base, bulking agent, solvent, plasticizer; in food-pkg. adhesives

**Use Level:** Limitation zero tolerance (milk)

**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; FDA approved for injectables, orals, rectals, topicals, vaginales; USP/NF compliance

**Manuf./Distrib.:** Aldrich; Fluka; Sigma; Spectrum Quality Prods.; Uniqema/ICI Surf. UK

**Trade Names:** Lumulse™ PEG 3350; Teric™ PEG 4000

#### PEG-100

CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9

**Synonyms:** PEG (100); POE (100)

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 100

**Properties:** Nonionic

**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment base, bulking agent, tablet binder; solvent; vehicle; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**PEG (100).** See PEG-100

#### PEG-135

CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9

**Synonyms:** PEG (135); POE (135)

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 135

**Properties:** Nonionic

**Uses:** Humectant, solvent in cosmetics; surfactant intermediate; humectant for printing inks; plasticizer; binder; lubricant; rubber molds; water softener; paper additive; coupling agent in creams and lotions; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**PEG (135).** See PEG-135

#### PEG-150

CAS 25322-68-3 (generic); EINECS/ELINCS 203-989-9

**Synonyms:** Macrogol 6000; PEG 6000; POE (150)

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 150

**Properties:** Powd. or creamy-wh. flakes; water-sol.; m.w. 7000-9000; dens. 1.21 (25/25 C); visc. 470-900 cSt (210 F); m.p. 56-63 C; flash pt. > 887 F; nonionic

**Toxicology:** LDLo (oral, rat) 50 g/kg; LD50 (IP, rat) 6790 mg/kg; mildly toxic by ing.; skin irritant; mutagenic data; TSCA listed

**Precaution:** Combustible exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Uses:** Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; binder, humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment and suppository base, bulking agent, solvent, plasticizer; in food-pkg. adhesives

**Use Level:** Limitation zero tolerance (milk)

**Regulatory:** FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.300, 177.2420, 178.3750, 178.3910

**Manuf./Distrib.:** Aldrich; Fluka; NOF Am.; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Uniqema/ICI Surf. UK

**Trade Names:** Lumulse™ 8000; Pluracol® E8000

#### PEG-180

CAS 25322-68-3 (generic)

**Synonyms:** PEG (180); POE (180)

**Classification:** Polymer of ethylene oxide

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 180

**Properties:** Nonionic

**Uses:** Surfactant; coupling agent in creams and lotions; paper softener and additive; printing ink humectant; plasticizer for starch pastes, PE sheets; binder, lubricant for compressed tablets; lubricant for rubber molds; textile processing; humectant in cosmetics; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §172.21, 172.770, 172.820, 173.31, 173.340, 175.105, 175.300, 178.3750, 178.3910

**PEG (180).** See PEG-180

#### PEG-200

CAS 25322-68-3 (generic)

**Synonyms:** PEG 9000; POE (200)

**Definition:** Polymer of ethylene oxide

**Formula:** H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 200

**Properties:** Solid; nonionic



*Toxicology:* TSCA listed

*Uses:* Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; humectant, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; food coating, binder, plasticizer, lubricant, flavor adjuvant, bodying agent, defoamer; pharmaceutical coating, ointment base, bulking agent, tablet binder; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.210, 172.770, 172.820, 173.310, 173.340, 175.105, 175.300, 178.3750, 178.3910; FDA approved for intramuscular injectables, orals, topicals

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

PEG 200. See PEG-4

PEG 300. See PEG-6

### PEG-350

CAS 25322-68-3 (generic)

*Synonyms:* PEG 20000; POE (350)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 350$

*Uses:* Lubricant for rubber molds, textile fibers, metalworking; in food and food pkg.; binder, solvent in cosmetics; hair preps.; pharmaceutical aid; in gas chromatography; in paints; paper coatings; polishes; ceramics; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.105, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; NOF Am.; Sigma

PEG 400. See PEG-8

PEG 450. See PEG-9

PEG 600. See PEG-12

PEG 700. See PEG-14

PEG 800. See PEG-16

PEG 1000. See PEG-20

PEG 1540. See PEG-32

PEG 2000. See PEG-40

PEG-2000. See PEG-2M

PEG 4000. See PEG-75

PEG-4000. See PEG-4M

PEG-5000. See PEG-5M

PEG 6000. See PEG-150

PEG-6000. See PEG-6M

PEG-7000. See PEG-7M

PEG 9000. See PEG-200

PEG-9000. See PEG-9M

PEG-10000. See PEG-10M

PEG-14000. See PEG-14M

PEG 20000. See PEG-350

PEG-23000. See PEG-23M

PEG-35000. See PEG-35M

PEG-45000. See PEG-45M

PEG-90000. See PEG-90M

PEG-115000. See PEG-115M

PEG (160000). See PEG-160M

PEG 300,000. See PEG-7M

PEG 600,000. See PEG-14M

### PEG-2M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-2000; POE (2000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 2000$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Water-sol. thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; dispersant for vinyl polymerization; mold release agent; agric.; binder, emulsion stabilizer, visc. control agent in cosmetics, pharmaceuticals; tablet coating; emulsifier, dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR N-10

### PEG-4M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-4000; POE (4000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 4000$

*Properties:* Nonionic

*Uses:* Low foam wetting agent in paper pulping; emulsifier for metal degreasing; bottle cleaner defoamer; binder for ceramics, tobacco; in depilatories, agric.; pharmaceuticals, dentals

*Regulatory:* FDA approved for dentals, injectables, orals, rectals, topicals, vaginals; BP compliance

### PEG-5M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-5000; POE (5000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 5000$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg; TSCA listed

*Uses:* Water-sol. thermoplastic resin, thickener, lubricant, binder, flocculant, wet adhesive for agric., paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; dispersant for vinyl polymerization; binder, emulsion stabilizer, visc. control agent in cosmetics; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR N-80; RITA PEO-1

### PEG-6M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-6000; POE (6000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 6000$

*Properties:* Nonionic

*Uses:* Low foam wetting agent in paper pulping; emulsifier for metal degreasing; bottle cleaner defoamer; binder for ceramics; dispersant; cement plasticizer; pharmaceuticals

*Regulatory:* FDA approved for orals, rectals, topicals, vaginals

### PEG-7M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-7000; PEG 300,000; POE (7000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 7000$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Water-sol. thermoplastic resin, thickener, lubricant, binder, flocculant, wet adhesive for agric., elec., paper; binder, emulsion stabilizer, visc. control agent, emollient in cosmetics; dispersant for vinyl polymerization; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR N-750

### PEG-9M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-9000; POE (9000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 9000$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg

*Uses:* Water-sol. thermoplastic resin, thickener, lubricant, binder, flocculant, wet adhesive in papermaking, wastewater treatment, ceramic and glass treatment, adhesive and paint industries; dispersant for vinyl polymerization; binder, emulsion stabilizer, visc. control agent, thickener, suspending agent, friction reducer, coagulant, skin slip agent in cosmetics; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing

alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR 3333; RITA PEO-2

#### PEG-10M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-10000; POE (10000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 10,000$

*Properties:* Nonionic

*Uses:* Low foam wetting agent in paper pulping; emulsifier for metal degreasing; bottle cleaner defoamer; binder for ceramics; in agric., cosmetics, pharmaceuticals

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PEG-14M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-14000; PEG 600,000; POE (14000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 14,000$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Water-sol. thermoplastic resin, thickener, lubricant, binder, flocculant, wet adhesive for ceramics, papermaking; dispersant for vinyl polymerization; binder, emulsion stabilizer, visc. control agent in cosmetics; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR 205; Polyox® WSR N-3000

#### PEG-23M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-23000; POE (23000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 23000$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg

*Uses:* Water-sol. thermoplastic resin, thickener, lubricant, binder, flocculant, wet adhesive in paper mfg., wastewater treatment, ceramic and glass treatment, adhesive and paint industries; dispersant for vinyl polymerization; binder, emulsion stabilizer, visc. control agent in cosmetics; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR N-12K; RITA PEO-3

#### PEG-35M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-35000; POE (35000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 35,000$

*Properties:* Nonionic

*Uses:* Low foam wetting agent in paper pulping; emulsifier for metal degreasing; bottle cleaner defoamer; binder for ceramics; cement plasticizer; in agric., cosmetics, pharmaceuticals

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PEG-45M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-45000; POE (45000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 45,000$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg

*Uses:* Water-sol. thermoplastic resin, thickener, lubricant, binder, flocculant,

wet adhesive in paper mfg., wastewater treatment, ceramic and glass treatment, adhesives, paints; lubricant, emollient, humectant in cosmetics; dispersant for vinyl polymerization; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR N-60K; RITA PEO-8

#### PEG-90M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-90000; POE (90000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 90,000$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, mouse) > 4 g/kg, (skin, rabbit) > 20 g/kg; TSCA listed

*Uses:* Water-sol. thermoplastic resin; thickener; lubricant; binder; flocculant; wet adhesive; dispersant for vinyl polymerization; agric.; mining; construction; paper mfg.; wastewater treatment; ceramic and glass treatment; adhesives; paints; binder, emulsion stabilizer, visc. control agent in cosmetics; foam stabilizer in malt beverages; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR 301; RITA PEO-18

#### PEG-115M

CAS 25322-68-3 (generic)

*Synonyms:* PEG-115000; POE (115000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 115,000$

*Properties:* Nonionic

*Uses:* Water-sol. thermoplastic resin; thickener; film-former; flocculant; dispersant for vinyl polymerization; mining; papermaking; binder, emulsion stabilizer, visc. control agent in cosmetics; foam stabilizer in malt beverages; tablet coating; dispersant, antisetling agent in calamine lotion; lubricant for rubbing alcohol; controlled-release drugs; contact lens fluid; in resinous/polymeric food-contact coatings; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.770, 173.310, 175.300, 178.3910

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Polyox® WSR Coagulant

#### PEG-160M

CAS 25322-68-3 (generic)

*Synonyms:* PEG (160000); POE (160000)

*Definition:* Polymer of ethylene oxide

*Formula:*  $H(OCH_2CH_2)_nOH$ , avg.  $n = 160,000$

*Properties:* Nonionic

*Uses:* Polymer providing lubricity on tack to many formulations; for paper mfg., wastewater treatment, ceramic and glass treatment, adhesives, paints; cosmetic thickener, suspension agent, friction reducer, coagulant, skin slip agent; resist. to bacterial degradation

*Trade Names:* RITA PEO-27

**PEG-4 alkyl C9-11 alcohol.** See C9-11 pareth-4

**PEG-5 alkyl C9-11 alcohol.** See C9-11 pareth-5

**PEG-2 butyl ether.** See Butoxydiglycol

**PEG-1 C12-14 alcohol.** See C12-14 pareth-1

**PEG-2 C12-14 alcohol.** See C12-14 pareth-2

**PEG-3 C12-14 alcohol.** See C12-14 pareth-3

**PEG-4 C12-14 alcohol.** See C12-14 pareth-4

**PEG-5 C10-12 alcohol.** See C10-12 pareth-5

**PEG-5 C12-14 alcohol.** See C12-14 pareth-5

**PEG-6 C12-14 alcohol.** See C12-14 pareth-6

**PEG-6 C12-15 alcohol.** See C12-15 pareth-6

**PEG-7 C12-14 alcohol.** See C12-14 pareth-7

**PEG-7 C12-18 alcohol.** See C12-18 pareth-7

**PEG-8 C12-14 alcohol.** See C12-14 pareth-8

**PEG-9 C12-14 alcohol.** See C12-14 pareth-9

**PEG-9 C12-15 alcohol.** See C12-15 pareth-9

**PEG-10 C12-15 alcohol.** See C12-15 pareth-10

**PEG-11 C12-14 alcohol.** See C12-14 pareth-11

**PEG-12 C12-15 alcohol.** See C12-15 pareth-12

**PEG-13 C12-15 alcohol.** See C12-15 pareth-13

**PEG-17 C12-14 alcohol.** See C12-14 pareth-17

**PEG-22 C12-14 alcohol.** See C12-14 pareth-22

**PEG-23 C12-14 alcohol.** See C12-14 pareth-23

**PEG-23 C12-15 alcohol.** See C12-15 pareth-23

**PEG-2 C9-11 alcohol ether.** See C9-11 pareth-2

**PEG-3 C9-11 alcohol ether.** See C9-11 pareth-3

**PEG-3 C14-15 alcohol ether.** See C14-15 pareth-3

**PEG-4 C14-15 alcohol ether.** See C14-15 pareth-4

**PEG-6 C9-11 alcohol ether.** See C9-11 pareth-6

**PEG-7 C14-15 alcohol ether.** See C14-15 pareth-7

**PEG-8 C14-15 alcohol ether.** See C14-15 pareth-8

**PEG-11 C14-15 alcohol ether.** See C14-15 pareth-11

**PEG-5 C12-15 alkyl ether.** See C12-15 pareth-5

**PEG-8 C12-15 alkyl ether.** See C12-15 pareth-8

#### PEG castor oil

CAS 61791-12-6 (generic)

*Synonyms:* Castor oil ethoxylate

*Properties:* Pale yel. liq. to wh. solid (5-100 EO); HLB 3.8-16.5 (5-100 EO); nonionic

*Toxicology:* Harmful; may cause sensitization by inh. and skin contact

*Storage:* Store and use with adequate ventilation

*Uses:* Emulsifier for cosmetics, pesticides, metalworking fluids, household prods., detergents, dye carriers, textile spin finishes; antistat, dispersant, dyeing aux. in textile processing; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105 (for 4-84 moles EO)

*Manuf./Distrib.:* Sigma

*Trade Names:* Nopalcol 12-CO; Nopalcol 19-CO

#### PEG-2 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* PEG 100 castor oil; POE (2) castor oil

*Definition:* PEG deriv. of castor oil with avg. 2 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient, surfactant, emulsifier, solubilizer, pigment dispersant, detergent in cosmetics, household applics., textiles; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

*Manuf./Distrib.:* Fluka; Sigma

#### PEG-4 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* PEG 200 castor oil; POE (4) castor oil

*Definition:* PEG deriv. of castor oil with avg. 4 moles of EO

*Properties:* Nonionic

*Uses:* Surfactant, w/o emulsifier, coemulsifier for industrial detergents, cosmetics, toiletries, feed, food, textiles, leather, agric., emulsion polymerization, lubricants, silicone and wax emulsions, and metal treatment; in food-pkg. adhesives and resinous/polymeric coatings; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800

#### PEG-5 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (5) castor oil

*Definition:* PEG deriv. of castor oil with avg. 5 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant used as emulsifier, dispersant, solubilizer, visc. control agent for cosmetics, pharmaceuticals, and industrial applics.; emulsifier in lubricants for plastics, metals, textiles; paper; textiles; leather; pigment dispersant in latex paints; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300

*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma

*Trade Names:* Chemax CO-5

#### PEG-6 castor oil

CAS 61791-12-6 (generic)

*Definition:* PEG deriv. of castor oil with avg. 6 moles of EO

*Properties:* Nonionic

*Uses:* Emulsifier, lubricant, dye leveler, antistat, and dispersant for textile applics.; mfg. of PU foams; softener and rewetting agent for paper; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Trade Names:* DeSonic™ 6C

#### PEG-8 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* PEG 400 castor oil; POE (8) castor oil

*Definition:* PEG deriv. of castor oil with avg. 8 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant used as emulsifier, dispersant, solubilizer, visc. control agent for cosmetics, pharmaceuticals, and industrial applics.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* Fluka; Sigma

#### PEG-15 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (15) castor oil

*Definition:* PEG deriv. of castor oil with avg. 15 moles of EO

*Properties:* Nonionic

*Uses:* Surfactant used as emulsifier, lubricant, dispersant, solubilizer, visc. control agent for cosmetics, pharmaceuticals, and industrial applics.; co-emulsifier for herbicides, metalworking, hydraulic fluids, rayon delustrants, paint; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* Fluka; Sigma

*Trade Names:* Surfonic® CO-15

#### PEG-16 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (16) castor oil

*Definition:* PEG deriv. of castor oil with avg. 16 moles of EO

*Properties:* Nonionic

*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paint, paper, textile, and leather industries; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma

*Trade Names:* Chemax CO-16

#### PEG-17 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (17) castor oil

*Definition:* PEG deriv. of castor oil with avg. 17 moles of EO

*Properties:* Nonionic

*Uses:* Textiles; phytopharmaceuticals; leather; paper; cosmetics; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Fluka; Sigma

*Trade Names:* Servirox® OEG 45

#### PEG-20 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* PEG 1000 castor oil; POE (20) castor oil

*Definition:* PEG deriv. of castor oil with avg. 20 moles of EO

*Properties:* Pale yel. oil; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; emulsifier, solubilizer for leather, metal, textile processing, paints, paper, ink, rubber, polishes, pharmaceuticals, and agric. applics; lubricant; emollient; pigment dispersant; textile softener; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* Fluka; Sigma

*Trade Names:* Surfonic® CO-20; T-Det® C-20

**PEG-25 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (25) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 25 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather industries; surfactant, emulsifier in cosmetics; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2800  
*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma  
*Trade Names:* Nonionic GR-25; Surfonic® CO-25

**PEG-26 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (26) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 26 moles of EO  
*Properties:* Nonionic  
*Uses:* Emulsifier, dispersant, solubilizer in textiles, pharmaceuticals, leather, paper, and cosmetics; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105  
*Manuf./Distrib.:* Fluka; Sigma  
*Trade Names:* Servirox® OEG 55

**PEG-28 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (28) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 28 moles of EO  
*Properties:* Nonionic  
*Uses:* Emulsifier; pigment dispersant in textiles, paint, paper, leather; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105  
*Manuf./Distrib.:* Fluka; Sigma

**PEG-30 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (30) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 30 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather; in food-pkg. adhesives; surfactant, emulsifier in cosmetics; emulsifier, wetting agent in pharmaceuticals  
*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2800  
*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma  
*Trade Names:* Alkamuls® EL-620; Chemax CO-30; DePEG 30-CO; DeSonic™ 30C; Surfonic® CO-30; Trylox® 5906

**PEG-33 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (33) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 33 moles of EO  
*Properties:* Nonionic  
*Uses:* Surfactant, emulsifier in cosmetics; solvent, emulsifier for pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800  
*Manuf./Distrib.:* Fluka; Sigma

**PEG-36 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (36) castor oil; PEG 1800 castor oil  
*Definition:* PEG deriv. of castor oil with avg. 36 moles of EO  
*Properties:* Liq.; sol. in water, xylene; nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, softener, lubricant, rewetting agent, dye leveler/assistant, antistat, pigment dispersant in textiles, leather, paper, polyurethane foams, paints; lubricant additive/emulsifier in lubricants for plastics, metals, textiles; surfactant, emulsifier in cosmetics; emulsifier, dispersant, solubilizer in pharmaceuticals; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800  
*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma

*Trade Names:* DeSonic™ 36C

**PEG-40 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (40) castor oil; PEG 2000 castor oil; Polyoxyl 40 castor oil  
*Definition:* PEG deriv. of castor oil with avg. 40 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersant, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather; surfactant, emulsifier in cosmetics; emulsifier, solubilizer, dispersant for vitamins and pharmaceuticals; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800; FDA approved for parenterals  
*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma  
*Trade Names:* Alkamuls® EL-719; Chemax CO-40; DePEG 40-CO; DeSonic™ 40C; Nonionic GR-40; Paxonic CO 40; T-Det® C-40

**PEG-42 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* Castor oil, polyoxyethylated (42 moles EO); PEG (42) castor oil; POE (42) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 42 moles of EO  
*Properties:* Nonionic  
*Uses:* Emulsifier in nitrocellulose coatings for paper/paperboard in contact with aq./fatty foods; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.170, 176.180  
*Trade Names:* Surfonic® CO-42

**PEG (42) castor oil.** See PEG-42 castor oil

**PEG-52 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (52) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 52 moles of EO  
*Properties:* Nonionic  
*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105  
*Manuf./Distrib.:* Fluka; Sigma  
*Trade Names:* Nonionic GR-52

**PEG-54 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (54) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 54 moles of EO  
*Properties:* Nonionic  
*Uses:* Emulsifier, lubricant, dye leveler, antistat, dispersant for textiles; emulsifier for cosmetics, PU foams; softener/rewetter for wet-strength paper; in food-pkg. adhesives, resinous/polymeric coatings; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2800  
*Manuf./Distrib.:* Fluka; Sigma  
*Trade Names:* DeSonic™ 54C

**PEG-60 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (60) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 60 moles of EO  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Surfactant, emulsifier in cosmetics; solubilizer; lubricant; emollient; superfatting agent; antistat; softener; detergent; in food-pkg. adhesives  
*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2800  
*Manuf./Distrib.:* Fluka; Sigma  
*Trade Names:* Paxonic CO 60

**PEG-80 castor oil**

CAS 61791-12-6 (generic)  
*Synonyms:* POE (80) castor oil  
*Definition:* PEG deriv. of castor oil with avg. 80 moles of EO  
*Properties:* Nonionic  
*Uses:* Ofw emulsifier; solubilizer; emulsifier for industrial lubricants, fiber finish; textile/leather lubricant; pigment dispersant in textiles, paint, paper,

leather; softener; dyeing assistant; in food-pkg. adhesives; antistat; emulsion stabilizer

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* Fluka; Sigma

#### PEG-100 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (100) castor oil; PEG (100) castor oil

*Definition:* PEG deriv. of castor oil with avg. 100 moles of EO

*Properties:* Pale yel. solid; sol. in water, ethanol, naphtha, MEK; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, lubricant, emollient in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

*Manuf./Distrib.:* Fluka; Sigma

**PEG 100 castor oil.** See PEG-2 castor oil

**PEG (100) castor oil.** See PEG-100 castor oil

#### PEG-180 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (180) castor oil

*Definition:* PEG deriv. of castor oil with avg. 180 moles of EO

*Properties:* Nonionic

*Uses:* {Emulsifier, dispersant, solubilizer for textiles, pharmaceutical, leather, paper, and cosmetic industries

*Manuf./Distrib.:* Fluka; Sigma

*Trade Names:* Servirox® OEG 90; Servirox® OEG 90/50

#### PEG-200 castor oil

CAS 61791-12-6 (generic)

*Synonyms:* POE (200) castor oil; PEG (200) castor oil

*Definition:* PEG deriv. of castor oil with avg. 200 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather industries; surfactant, emulsifier in cosmetics; emulsifier, dispersant, solubilizer in pharmaceuticals; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300

*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma

**PEG 200 castor oil.** See PEG-4 castor oil

**PEG (200) castor oil.** See PEG-200 castor oil

**PEG 400 castor oil.** See PEG-8 castor oil

**PEG 1000 castor oil.** See PEG-20 castor oil

**PEG 1800 castor oil.** See PEG-36 castor oil

**PEG 2000 castor oil.** See PEG-40 castor oil

**PEG-3 C12,C14,C16 alcohols.** See C12-16 parath-3

**PEG-2 cetyl ether.** See Ceteth-2

**PEG-3 cetyl ether.** See Ceteth-3

**PEG-4 cetyl ether.** See Ceteth-4

**PEG-5 cetyl ether.** See Ceteth-5

**PEG-6 cetyl ether.** See Ceteth-6

**PEG-7 cetyl ether.** See Ceteth-7

**PEG-10 cetyl ether.** See Ceteth-10

**PEG-11 cetyl ether.** See Ceteth-11

**PEG-12 cetyl ether.** See Ceteth-12

**PEG-14 cetyl ether.** See Ceteth-14

**PEG-15 cetyl ether.** See Ceteth-15

**PEG-16 cetyl ether.** See Ceteth-16

**PEG-17 cetyl ether.** See Ceteth-17

**PEG-20 cetyl ether.** See Ceteth-20

**PEG-23 cetyl ether.** See Ceteth-23

**PEG-24 cetyl ether.** See Ceteth-24

**PEG-25 cetyl ether.** See Ceteth-25

**PEG-30 cetyl ether.** See Ceteth-30

**PEG-40 cetyl ether.** See Ceteth-40

**PEG-45 cetyl ether.** See Ceteth-45

**PEG 100 cetyl ether.** See Ceteth-2

**PEG 300 cetyl ether.** See Ceteth-6

**PEG 500 cetyl ether.** See Ceteth-10

**PEG 600 cetyl ether.** See Ceteth-12

**PEG 1000 cetyl ether.** See Ceteth-20

**PEG-2 cetyl/oleyl ether.** See Cetoeth-2

**PEG-3 cetyl/oleyl ether.** See Cetoeth-3

**PEG-6 cetyl/oleyl ether.** See Cetoeth-6

**PEG-8 cetyl/oleyl ether.** See Cetoeth-8

**PEG-10 cetyl/oleyl ether.** See Cetoeth-10

**PEG-13 cetyl/oleyl ether.** See Cetoeth-13

**PEG (13) cetyl/oleyl ether.** See Cetoeth-13

**PEG-25 cetyl/oleyl ether.** See Cetoeth-25

**PEG-2 cetyl/stearyl ether.** See Cetearth-2

**PEG-5 cetyl/stearyl ether.** See Cetearth-5

**PEG-10 cetyl/stearyl ether.** See Cetearth-10

**PEG-11 cetyl/stearyl ether.** See Cetearth-11

**PEG-14 cetyl/stearyl ether.** See Cetearth-14

**PEG-15 cetyl/stearyl ether.** See Cetearth-15

**PEG-18 cetyl/stearyl ether.** See Cetearth-18

**PEG-20 cetyl/stearyl ether.** See Cetearth-20

**PEG-50 cetyl/stearyl ether.** See Cetearth-50

**PEG-60 cetyl/stearyl ether.** See Cetearth-60

**PEG 100 cetyl/stearyl ether.** See Cetearth-2

**PEG 500 cetyl/stearyl ether.** See Cetearth-10

**PEG-8 C12-14 fatty alcohol.** See C12-14 parath-8

**PEG-9 C12-14 fatty alcohol.** See C12-14 parath-9

**PEG-3 C12-15 fatty alcohol ether.** See C12-15 parath-3

**PEG-7 C12-13 fatty alcohol ether.** See C12-13 parath-7

**PEG-7 C12-15 fatty alcohol ether.** See C12-15 parath-7

#### PEG cocamine

CAS 61791-14-8 (generic)

*Synonyms:* Cocoamine ethoxylates

*Formula:*  $RN(CH_2CH_2O)_mH(CH_2CH_2O)_nH$ , R = coco, m+n = 5-15

*Properties:* Liq.; HLB 17.9-19.3 (5-15 EO); cationic/nonionic

*Uses:* Corrosion inhibitor; emulsifier for waxes, sol. oils, pesticides, cleaners, bitumen, silicone oils; antistat for textile spin finishes, paper processing, plastics; wetting agent, dispersant in electrostatic paints, inks, dyes, pigments; food pkg.

#### PEG-2 cocamine

CAS 61791-14-8 (generic)

*Synonyms:* Bis (2-hydroxyethyl) cocamine; Bis (2-hydroxyethyl) cocoamine; PEG 100 coconut amine; POE (2) coconut amine

*Empirical:*  $C_{18}H_{35}NO_2$

*Formula:*  $R-N(CH_2CH_2O)_xH(CH_2CH_2O)_yH$ , R rep. alkyl groups from coconut oil, avg. (x+y) = 2

*Properties:* Liq.; m.w. 273.47; dens. 0.87 kg/l; m.p. -2 C; HLB 10.2; cationic/nonionic

*Toxicology:* TSCA listed

*Uses:* Hydrophilic emulsifier; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; antistat for plastics, food-grade polymers; intermediate for quats.; agric.; metalworking; plastics; textiles; inks; emulsifier in cosmetics

*Trade Names:* Imbentin-CAM/020; Teric™ 12M2

#### PEG-5 cocamine

CAS 61791-14-8 (generic)

*Synonyms:* POE (5) coconut amine

*Definition:* PEG deriv. of cocamine

*Formula:*  $R-N(CH_2CH_2O)_xH(CH_2CH_2O)_yH$ , R rep. alkyl groups from coconut oil, avg. (x+y) = 5

*Properties:* Cationic/nonionic

*Toxicology:* LD50 (oral, rat) 750 mg/kg; mod. toxic by ing.; eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Hydrophilic emulsifier in cosmetics; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; agric.; plastics antistat; intermediate for quats.

*Trade Names:* Teric™ 12M5

#### PEG-10 cocamine

CAS 61791-14-8 (generic)

*Synonyms:* PEG 500 coconut amine; POE (10) coconut amine

*Definition:* PEG deriv. of cocamine

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, R rep. alkyl groups from coconut oil, avg. (x+y) = 10

*Properties:* Cationic/nonionic

*Toxicology:* TSCA listed

*Uses:* Coemulsifier, antistat for textiles and plastics; dispersant; surfactant, emulsifier in industrial lubricants, agric., inks, cosmetics; wetting agent for acid or alkaline metal cleaners, stripping of surf. coatings; oil emulsifier with anticorrosive properties; antistat for syn. fibers with PS

*Trade Names:* Varonic® K-210

#### PEG-15 cocamine

CAS 8051-52-3 (generic); 61791-14-8 (generic)

*Synonyms:* POE (15) coconut amine

*Definition:* PEG deriv. of cocamine

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, R rep. alkyl groups from coconut oil, avg. (x+y) = 15

*Properties:* Cationic/nonionic

*Toxicology:* TSCA listed

*Uses:* Hydrophilic emulsifier; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; agric.; plastics/fiber antistat; intermediate for quats.; wetting agent for metal cleaning, stripping of surf. coatings, textiles, paints, agric., polishes; emulsifier, surfactant in cosmetics; emulsifier for topical pharmaceuticals

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* Teric™ 12M15

#### PEG-8 cocoate

CAS 61791-29-5 (generic)

*Synonyms:* POE (8) monococoate; PEG 400 monococoate

*Definition:* PEG ester of coconut acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids from coconut oil, avg. n = 8

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, thickener for emulsion polymerization, dry-cleaning, leather, paper, emulsions; emulsifier in cosmetics; defoamer in food-contact coatings and paper/paperboard; food-pkg. adhesives; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.200, 176.210, 177.1210, 177.2260, 177.2800

*Trade Names:* Nopalcol 4-C; Nopalcol 4-CH

#### PEG-15 cocoate

CAS 61791-29-5 (generic)

*Synonyms:* POE (15) monococoate

*Definition:* PEG ester of coconut acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids from coconut oil, avg. n = 15

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, detergent, wetting agent, dispersant, suspending agent for textiles, cosmetics, agric., metal and leather treating; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

**PEG-5 coconut alcohol.** See Coceth-5

**PEG-8 coconut alcohol.** See Coceth-8

**PEG-10 coconut alcohol.** See Coceth-10

**PEG-15 coconut alcohol.** See Coceth-15

**PEG-20 coconut alcohol.** See Coceth-20

**PEG 100 coconut amine.** See PEG-2 cocamine

**PEG 500 coconut amine.** See PEG-10 cocamine

**PEG 400 coconut ether.** See Coceth-8

**PEG 500 coconut ether.** See Coceth-10

#### PEG-8 coconut oil esters

*Synonyms:* PEG (400) esters of coconut oil fatty acids

*Definition:* PEG deriv. of coconut oil with avg. 8 moles EO

*Uses:* Defoamer in food-contact coatings; in paper/paperboard in contact with

aq./fatty foods

*Regulatory:* FDA 21CFR §176.170, 176.200

#### PEG-20 corn glycerides

*Synonyms:* PEG 1000 corn glycerides; POE (20) corn glycerides

*Definition:* PEG deriv. of corn glycerides, avg. 20 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier, coemulsifier, superfatting agent, emollient, counterirritant, wetting agent, solubilizer, dispersant for personal care prods., pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

#### PEG-60 corn glycerides

*Synonyms:* PEG 3000 corn glycerides; POE (60) corn glycerides

*Definition:* PEG deriv. of corn glycerides, avg. 60 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier in cosmetics; anti-irritant; wetting agent; fragrance solubilizer; emulsifier, wetting agent for pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

**PEG 1000 corn glycerides.** See PEG-20 corn glycerides

**PEG 3000 corn glycerides.** See PEG-60 corn glycerides

**PEG-4 decyl ether.** See Deceth-4

**PEG 200 decyl ether.** See Deceth-4

**PEG-4 decyl ether phosphate.** See Deceth-4 phosphate

**PEG 200 decyl ether phosphate.** See Deceth-4 phosphate

#### PEG-4 decyl phosphate

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

#### PEG-4 diacrylate

CAS 17831-71-9

*Synonyms:* Acrylic acid, diester with tetraethylene glycol; Acrylic acid, oxybis (ethyleneoxyethylene) ester; PEG 200 diacrylate; 2-Propenoic acid, oxybis (2,1-ethanedioxy-2,1-ethanedioyl) ester; Tetraethylene glycol diacrylate

*Empirical:* C<sub>18</sub>H<sub>22</sub>O<sub>7</sub>

*Formula:* CH<sub>2</sub>=CHCO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>4</sub>OCOCH=CH<sub>2</sub>

*Properties:* M.w. 302.32; b.p. > 120 (0.3 mm)

*Toxicology:* Primary irritant; moderate skin and severe eye irritant; questionable carcinogen; tumorigen; mutagen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Crosslinking agent for radiation-cured coatings, inks, adhesives, textile prods.; reactive diluent; comonomer for crosslinked acrylic resin

*Manuf./Distrib.:* Aldrich; Monomer-Polymer & Dajac Labs

*Trade Names:* SR 268

*Trade Names Containing:* CN 982 P90; Ebecryl® 4830

#### PEG-8 diacrylate

*Uses:* Curing agent; reactive diluent

*Trade Names:* SR 344

**PEG 200 diacrylate.** See PEG-4 diacrylate

**PEG-2 dibenzoate.** See Diethylene glycol dibenzoate

**PEG 100 dibenzoate.** See Diethylene glycol dibenzoate

#### PEG-4 dicocoate

*Synonyms:* PEG 200 dicocoate; Tetraethylene dicocoate

*Properties:* Nonionic

*Uses:* Lubricant for textile and industrial applics.; emulsifier, wetting agent, lubricant, defoamer additive; effluent defoamer; pulp and paper additive

*Manuf./Distrib.:* Seabrook Ind.

#### PEG-8 dicocoate

*Synonyms:* PEG 400 dicocoate; POE (8) dicocoate

*Definition:* PEG diester of coconut acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>O-CRO, avg. n = 8, RCO- rep. fatty acids from coconut oil

*Uses:* Emulsifier, thickener, emollient for cosmetics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2260, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

**PEG 200 dicocoate.** See PEG-4 dicocoate

**PEG 400 dicocoate.** See PEG-8 dicocoate

**PEG-3 di-2-ethylhexanoate.** See PEG-3 di-2-ethylhexoate

#### PEG-4 di (2-ethylhexanoate)

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

#### PEG-3 di-2-ethylhexoate

CAS 94-28-0; EINECS/ELINCS 202-319-2

*Synonyms:* Bis (ethylhexanoate) triethylene glycol; PEG-3 di-2-ethylhexanoate; Triethylene glycol di-2-ethylhexanoate; Triethylene glycol di-2-ethylhexoate

*Empirical:* C<sub>22</sub>H<sub>42</sub>O<sub>6</sub>

*Formula:* C<sub>7</sub>H<sub>15</sub>OCOCH<sub>2</sub>(CH<sub>2</sub>OCH<sub>2</sub>)<sub>2</sub>CH<sub>2</sub>OCOC<sub>7</sub>H<sub>15</sub>

*Properties:* Lt. colored liq.; insol. in water; m.w. 402.64; dens. 0.9679 (20/20 C); vapor pressure 5.8 mm Hg (200 C); b.p. 385 C; flash pt. (COC) 216 C; ref. index 1.4450

*Toxicology:* LD50 (oral, rat) 31 g/kg, (oral, mouse) > 3200 mg/kg; mild skin irritant; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and fumes

*Uses:* Plasticizer for rubber, plastics, adhesives; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210

*Manuf./Distrib.:* Aldrich; C.P. Hall; Ferro/Keil; Harwick; Inolex

#### PEG-2 dilaurate

CAS 9005-02-1 (generic); 6281-04-5; EINECS/ELINCS 228-486-1

*Synonyms:* PEG 100 dilaurate; POE (2) dilaurate; Oxydi-2,1-ethanediyl dodecanoate

*Definition:* PEG diester of lauric acid

*Empirical:* C<sub>28</sub>H<sub>54</sub>O<sub>5</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 2

*Properties:* Sp.gr. 0.960; m.p. 9-11 C; nonionic

*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; plasticizer for cellulose; emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

*Manuf./Distrib.:* Crompton/Witco

#### PEG-4 dilaurate

CAS 9005-02-1 (generic)

*Synonyms:* PEG (4) dilaurate; PEG 200 dilaurate; POE (4) dilaurate; Polyoxyl 4 dilaurate

*Definition:* PEG diester of lauric acid

*Empirical:* C<sub>32</sub>H<sub>62</sub>O<sub>7</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 4

*Properties:* Sol. in alcohol; sol. warm in veg. and min. oils; disp. in water; nonionic

*Toxicology:* TSCA listed

HMS: Health 1; Flammability 1; Reactivity 0

*Uses:* Surfactant used as emulsifier, dispersant, solubilizer, visc. control agent, defoamer, lubricant, wetting agent, cosolvent for cosmetics, pharmaceuticals, plastics, textiles, metalworking, agric., food, water treatment; in food-pkg. adhesives; adjuvant in mfg. of paper/paperboard in contact with aq./fatty/dry foods; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210; FDA approved for topicals

*Manuf./Distrib.:* Mosselman NV; Ruger

**PEG (4) dilaurate.** See PEG-4 dilaurate

#### PEG-6 dilaurate

CAS 9005-02-1 (generic)

*Synonyms:* PEG 300 dilaurate; POE (6) dilaurate

*Definition:* PEG diester of lauric acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 6

*Properties:* HLB 6.3; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

#### PEG-8 dilaurate

CAS 9005-02-1 (generic)

*Synonyms:* PEG 400 dilaurate; POE (8) dilaurate

*Definition:* PEG diester of lauric acid

*Empirical:* C<sub>40</sub>H<sub>78</sub>O<sub>11</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 8

*Properties:* Sol. in alcohol; sol. warm in veg. and min. oils; disp. in water; sp.gr. 1.030; m.p. 15 C; HLB 10.4; flash pt. (COC) 249 C; ref. index 1.459; nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, solubilizer, cosolvent, dispersant, wetting agent, lubricant, softener, release agent, coupling agent used in personal care prods., pharmaceutical, industrial applics., agric. chemical sprays, industrial and textile lubricants; plasticizer; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2260, 177.2800, 178.3520

*Manuf./Distrib.:* C.P. Hall; Inolex; Mosselman NV; Ruger; Velsicol

#### PEG-12 dilaurate

CAS 9005-02-1 (generic)

*Synonyms:* PEG 600 dilaurate; POE (12) dilaurate

*Definition:* PEG diester of lauric acid

*Empirical:* C<sub>48</sub>H<sub>94</sub>O<sub>15</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 12

*Properties:* Nonionic

*Toxicology:* TSCA listed

HMS: Health 1; Flammability 1; Reactivity 0

*Uses:* Dispersant and emulsifier for metalworking lubricants, fiber lubricants and softeners, solubilizers, defoamers, antislats, cosmetics, pharmaceuticals, plastics, agric., and chemical intermediates; cosolvent; emollient; opacifier; spreading agent; thickener; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

#### PEG-20 dilaurate

CAS 9005-02-1 (generic)

*Synonyms:* PEG 1000 dilaurate; POE (20) dilaurate

*Definition:* PEG diester of lauric acid

*Empirical:* C<sub>64</sub>H<sub>126</sub>O<sub>23</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 20

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Dispersant, emulsifier, wetting agent, cosolvent, solubilizer, thickener, emollient, opacifier, spreading agent in cosmetics, pharmaceuticals, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

#### PEG-32 dilaurate

CAS 9005-02-1 (generic)

*Synonyms:* PEG 1540 dilaurate; POE (32) dilaurate

*Definition:* PEG diester of lauric acid

*Empirical:* C<sub>88</sub>H<sub>174</sub>O<sub>35</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>, avg. n = 32

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; defoamer in food-contact



paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

**PEG 100 dilaurate.** See PEG-2 dilaurate

**PEG 200 dilaurate.** See PEG-4 dilaurate

**PEG 300 dilaurate.** See PEG-6 dilaurate

**PEG 400 dilaurate.** See PEG-8 dilaurate

**PEG 600 dilaurate.** See PEG-12 dilaurate

**PEG 1000 dilaurate.** See PEG-20 dilaurate

**PEG 1540 dilaurate.** See PEG-32 dilaurate

#### PEG-2 dilaurate SE

CAS 9005-02-1 (generic)

*Definition:* PEG diester of lauric acid

*Properties:* Anionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

#### PEG-3 dimethacrylate

CAS 109-16-0; 102770-39-8; EINECS/ELINCS 203-652-6

*Synonyms:* TEDMA; TEGMA; TGM3; 2-Propenoic acid, 2-methyl-, 1,2-ethanediylobis (oxy-2,1-ethanediy) ester; Triethylene glycol dimethacrylate

*Empirical:* C<sub>14</sub>H<sub>22</sub>O<sub>6</sub>

*Formula:* [H<sub>2</sub>C=C(CH<sub>3</sub>)CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>]<sub>2</sub>

*Properties:* Colorless liq.; ester-like odor; m.w. 286.32; b.p. 162 C (1.2 mm)

*Toxicology:* LD50 (oral, rat) 10,837 mg/kg, (oral, mouse) 10,750 mg/kg; sl. toxic by ing.; mutagen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Uses:* Crosslinking agent for acrylic/vinyl resins; PVC plastisol comonomer (reduces initial visc. and oil extractability, and improves ultimate hardness, heat distort., hot tear strength, and stain resistance); adhesion promoter; hardener

*Manuf./Distrib.:* Aldrich; CPS; Fluka; Monomer-Polymer & Dajac Labs; Rohm Tech; Sigma

*Trade Names:* SR 205

#### PEG-4 dimethacrylate

CAS 109-17-1; 25852-47-5 (generic)

*Synonyms:* Methacrylic acid, diester with tetraethylene glycol; PEG 200 dimethacrylate; 2-Propenoic acid, 2-methyl-, oxybis (2,1-ethanediyloxy-2,1-ethanediy) ester; Tetraethylene glycol dimethacrylate

*Empirical:* C<sub>16</sub>H<sub>26</sub>O<sub>7</sub>

*Formula:* CH<sub>2</sub>C(CH<sub>3</sub>)CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>4</sub>OCOC(CH<sub>3</sub>)CH<sub>2</sub>

*Properties:* M.w. 330.42; dens. 1.080; b.p. 220 (1.0 mm); flash pt. > 110 C; ref. index 1.4630

*Toxicology:* Skin irritant; mutagenic data: TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

*Storage:* Light-sensitive

*Uses:* Crosslinking agent used in castings, plastisols, coatings, fibers, papers, etc.; resin modifier; crosslinked acrylic resin comonomer

*Manuf./Distrib.:* Aldrich; Monomer-Polymer & Dajac Labs

*Trade Names:* Bisomer PEG 200DMA; SR 209

**PEG 200 dimethacrylate.** See PEG-4 dimethacrylate

#### PEG dimethyl ether

CAS 24991-55-7 (generic)

*Synonyms:* Dimethoxy polyethylene glycol; Glycols, polyethylene, dimethyl ether; α,ω-Methoxypoly (ethylene oxide); Polyethylene glycol dimethyl ether; Poly (oxy-1,2-ethanediy), α-methyl-ω-methoxy-

*Formula:* (C<sub>2</sub>H<sub>4</sub>O)<sub>n</sub>C<sub>2</sub>H<sub>5</sub>O

*Toxicology:* TDLo (oral, male rabbit, 1 day pre-mating) 2500 mg/kg; reproductive effector; TSCA listed

*Uses:* Solvent; brake fluid component

*Trade Names:* Polyglyme

**PEG-7 dinonyl phenyl ether.** See Nonyl nonoxynol-7

**PEG-8 dinonyl phenyl ether.** See Nonyl nonoxynol-8

**PEG-10 dinonyl phenyl ether.** See Nonyl nonoxynol-10

**PEG-14 dinonyl phenyl ether.** See Nonyl nonoxynol-14

**PEG-15 dinonyl phenyl ether.** See Nonyl nonoxynol-15

**PEG-16 dinonyl phenyl ether.** See Nonyl nonoxynol-16

**PEG-18 dinonyl phenyl ether.** See Nonyl nonoxynol-18

**PEG-24 dinonyl phenyl ether.** See Nonyl nonoxynol-24

**PEG-30 dinonyl phenyl ether.** See Nonyl nonoxynol-30

**PEG-70 dinonyl phenyl ether.** See Nonyl nonoxynol-70

**PEG-100 dinonyl phenyl ether.** See Nonyl nonoxynol-100

**PEG-150 dinonyl phenyl ether.** See Nonyl nonoxynol-150

**PEG 500 dinonyl phenyl ether.** See Nonyl nonoxynol-10

#### PEG-3 dioctoate

*Synonyms:* Triethylene glycol dioctoate

*Uses:* Emulsifier, lubricant, antistat, defoamer for metalworking, textile lubricants, plastics, paper; cosmetic emollient and pearlescent

#### PEG-2 dioleate

CAS 9005-07-6 (generic); 52668-97-0 (generic)

*Synonyms:* Diethylene glycol dioleate; POE (2) dioleate; PEG 100 dioleate

*Definition:* PEG diester of oleic acid

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

*Manuf./Distrib.:* A.P.

#### PEG-4 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic); 134141-38-1

*Synonyms:* 9-Octadecenoic acid, oxybis (2,1-ethanediyloxy-2,1-ethanediy) ester; PEG 200 dioleate; POE (4) dioleate

*Definition:* PEG diester of oleic acid

*Empirical:* C<sub>44</sub>H<sub>82</sub>O<sub>7</sub>

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg; TSCA listed

*Uses:* Surfactant, emulsifier, coemulsifier, thickener, solubilizer, cosolvent, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, food, agric., plastics, etc.; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §173.340, 175.105, 175.300, 176.210

*Manuf./Distrib.:* Ruger

#### PEG-6 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)

*Synonyms:* PEG 300 dioleate; POE (6) dioleate

*Definition:* PEG diester of oleic acid

*Empirical:* C<sub>48</sub>H<sub>90</sub>O<sub>9</sub>

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg; TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

#### PEG-8 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)

*Synonyms:* PEG 400 dioleate; POE (8) dioleate

*Definition:* PEG diester of oleic acid

*Empirical:* C<sub>52</sub>H<sub>98</sub>O<sub>11</sub>

*Properties:* Sol. in veg. and min. oils; partly sol. in alcohol; disp. in water; nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg; TSCA listed

*Uses:* Emulsifier, solubilizer, cosolvent, lubricant, dispersant, defoamer, anti-corrosive, wetting agent for cosmetics, pharmaceuticals, textiles, metalworking, agric., plastics, foods, water treatment; defoamer for beet sugar and yeast processing; defoamer in food-contact coatings; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §173.340, 175.105, 175.300, 176.170, 176.200, 176.210, 177.1210, 177.2260, 177.2800

*Manuf./Distrib.:* Mosselman NV; Ruger; Seabrook Ind.

#### PEG-12 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic); 85736-49-8; EINECS/ELINCS 288-459-5

*Synonyms:* PEG 600 dioleate; POE (12) dioleate

*Definition:* PEG diester of oleic acid

*Properties:* Sol. in alcohol, veg. and min. oils; disp. in water; m.p. 15-20 C; nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg; TSCA listed

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emulsifier; dispersant; additive for cutting oils; component of paper defoamers, softeners, lubricants; emulsifier in cosmetics; pharmaceuticals; foods; agric.; plastics; solvent and solventless coatings; lubricant for textile spin finishes; thickener; superfatting agent; leveling agent; defoamer for beet sugar and yeast processing; cosolvent; food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §173.340, 175.105, 175.300, 176.200, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Mosselman NV; Ruger; Seabrook Ind.

*Trade Names:* Nopalcol 6-DO; Pegospense® 600 DO

#### PEG-20 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)

*Synonyms:* PEG 1000 dioleate; POE (20) dioleate

*Definition:* PEG diester of oleic acid

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg; TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, cosolvent, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfumes, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

#### PEG-32 dioleate

CAS 9005-07-6 (generic); 52688-97-0 (generic)

*Synonyms:* PEG 1540 dioleate; POE (32) dioleate

*Definition:* PEG diester of oleic acid

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 1900 mg/kg; TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

**PEG 100 dioleate.** See PEG-2 dioleate

**PEG 200 dioleate.** See PEG-4 dioleate

**PEG 300 dioleate.** See PEG-6 dioleate

**PEG 400 dioleate.** See PEG-8 dioleate

**PEG 600 dioleate.** See PEG-12 dioleate

**PEG 1000 dioleate.** See PEG-20 dioleate

**PEG 1540 dioleate.** See PEG-32 dioleate

#### PEG-2 dioleate SE

CAS 9005-07-6 (generic)

*Definition:* PEG diester of oleic acid

*Properties:* Anionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

#### PEG-2 distearate

CAS 109-30-8; 9005-08-7 (generic); EINECS/ELINCS 203-663-6

*Synonyms:* POE (2) distearate; PEG 100 distearate; Diethylene glycol distearate

*Definition:* PEG diester of stearic acid

*Empirical:* C<sub>40</sub>H<sub>78</sub>O<sub>5</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>, avg. n = 2

*Properties:* Sp.gr. 0.96; m.p. 48 C; nonionic

*Toxicology:* TSCA listed

*Uses:* W/o emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; plasticizer for cellulose; emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-

contact textiles

*Regulatory:* FDA 21CFR §73.1, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* CasChem; Crompton/Witco; Ruger

#### PEG-4 distearate

CAS 142-20-1; 9005-08-7 (generic)

*Synonyms:* POE (4) distearate; PEG 200 distearate

*Definition:* PEG diester of stearic acid

*Empirical:* C<sub>44</sub>H<sub>86</sub>O<sub>7</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>, avg. n = 4

*Properties:* M.p. 35-37 C; HLB 5.0; flash pt. > 110 C; nonionic

*Toxicology:* TSCA listed

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emollient, detergent, emulsifier, opacifier, visc. builder for cosmetics; lubricant and softener for textiles; pharmaceuticals; food; agric.; plastics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

*Manuf./Distrib.:* Aldrich; Ruger; Sigma

#### PEG-6 distearate

CAS 9005-08-7 (generic)

*Synonyms:* POE (6) distearate; PEG 300 distearate

*Definition:* PEG diester of stearic acid

*Empirical:* C<sub>48</sub>H<sub>90</sub>O<sub>9</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>, avg. n = 6

*Properties:* M.p. 35-37 C; flash pt. > 110 C; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, water treatment, other industries; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

*Manuf./Distrib.:* Aldrich; Seabrook Ind.; Sigma

#### PEG-8 distearate

CAS 9005-08-7 (generic)

*Synonyms:* POE (8) distearate; PEG 400 distearate

*Definition:* PEG diester of stearic acid

*Empirical:* C<sub>52</sub>H<sub>102</sub>O<sub>11</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>, avg. n = 8

*Properties:* M.p. 35-37 C; HLB 7.2; flash pt. > 110 C; nonionic

*Toxicology:* TSCA listed

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emulsifier, opacifier, and thickener for cosmetics, pharmaceuticals, and industrial emulsions; lubricant and softener in textiles; plasticizer for plastics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2260, 177.2800

*Manuf./Distrib.:* Aldrich; Ruger; Seabrook Ind.; Sigma

#### PEG-12 distearate

CAS 9005-08-7 (generic)

*Synonyms:* POE (12) distearate; PEG 600 distearate

*Definition:* PEG diester of stearic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>, avg. n = 12

*Properties:* M.p. 35-37 C; flash pt. > 110 C; nonionic

*Toxicology:* TSCA listed

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emollient, detergent, emulsifier, visc. builder for cosmetics, pharmaceuticals, food, agric., textiles, metalworking; plasticizer for plastics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Aldrich; Ruger; Seabrook Ind.; Sigma

#### PEG-20 distearate

CAS 9005-08-7 (generic)

*Synonyms:* POE (20) distearate; PEG 1000 distearate

*Definition:* PEG diester of stearic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>, avg. n = 20

*Properties:* M.p. 35-37 C; flash pt. > 110 C; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfumes, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Aldrich; Ruger; Sigma

#### PEG-32 distearate

CAS 9005-08-7 (generic)

*Synonyms:* POE (32) distearate; PEG 1540 distearate

*Definition:* PEG diester of stearic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_{16}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OCO}(\text{CH}_2)_{16}\text{CH}_3$ , avg.  $n = 32$

*Properties:* M.p. 35-37 °C; flash pt. > 110 °C; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Aldrich; Ruger; Sigma

PEG 100 distearate. See PEG-2 distearate

PEG 200 distearate. See PEG-4 distearate

PEG 300 distearate. See PEG-6 distearate

PEG 400 distearate. See PEG-8 distearate

PEG 600 distearate. See PEG-12 distearate

PEG 1000 distearate. See PEG-20 distearate

PEG 1540 distearate. See PEG-32 distearate

#### PEG-2 distearate SE

CAS 9005-08-7 (generic)

*Definition:* PEG diester of stearic acid

*Properties:* Anionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

#### PEG-8 ditallate

CAS 61791-01-3 (generic)

*Synonyms:* POE (8) ditallate; PEG 400 ditallate

*Definition:* PEG diester of tall oil acid

*Formula:*  $\text{RCO}-(\text{OCH}_2\text{CH}_2)_n\text{OCOR}$ , RCO- rep. tall oil fatty radicals, avg.  $n = 8$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Industrial detergent; emulsifier in cosmetics; solubilizer for mineral oils, fats, solvs.; for latex paints; metalworking fluids; industrial lubricants; textile specialties; paper; water treatment; pharmaceuticals; household prods.; lubricant; EP agent; dispersant; opacifier; visc. control agent; defoamer; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* Pegospense® 400 DOT

#### PEG-12 ditallate

CAS 61791-01-3 (generic)

*Synonyms:* PEG 600 ditallate; POE (12) ditallate

*Definition:* PEG diester of tall oil acid

*Formula:*  $\text{RCO}-(\text{OCH}_2\text{CH}_2)_n\text{OCOR}$ , RCO- rep. tall oil fatty radicals, avg.  $n = 12$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier and solubilizer for mineral oils, fats, solvs.; emulsifier in cosmetics; latex paints; metalworking fluids; industrial lubricants; textile specialties; water treatment; paper; pharmaceuticals; household prods.; lubricant; EP agent; emulsifier; dispersant; opacifier; visc. control agent; defoamer; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* Pegospense® 600 DOT

PEG 400 ditallate. See PEG-8 ditallate

PEG 600 ditallate. See PEG-12 ditallate

#### PEG-12 ditallowate

*Definition:* PEG diester of tallow acid

*Properties:* Nonionic

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, thickener for emulsion polymerization, dry-cleaning, leather, paper, emulsions

*Trade Names:* Nopalcol 6-DTW

#### PEG-8 di/triricinoleate

*Synonyms:* POE (8) di-tri-ricinoleate; PEG 400 di-tri-ricinoleate

*Definition:* PEG ester of a mixture of dimer and trimer acids derived from ricinoleic acid

*Properties:* Nonionic

*Uses:* Dispersant, emulsifier for o/w emulsions; emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in closure-sealing gaskets for food containers; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.1210, 177.2800

PEG 400 di-tri-ricinoleate. See PEG-8 di/triricinoleate

PEG-4 dodecyl phenyl ether. See Dodoxynol-4

PEG-5 dodecyl phenyl ether. See Dodoxynol-5

PEG-6 dodecyl phenyl ether. See Dodoxynol-6

PEG-7 dodecyl phenyl ether. See Dodoxynol-7

PEG-9 dodecyl phenyl ether. See Dodoxynol-9

PEG-10 dodecyl phenyl ether. See Dodoxynol-10

PEG-12 dodecyl phenyl ether. See Dodoxynol-12

PEG 300 dodecyl phenyl ether. See Dodoxynol-6

PEG 450 dodecyl phenyl ether. See Dodoxynol-9

PEG 600 dodecyl phenyl ether. See Dodoxynol-12

PEG (400) esters of coconut oil fatty acids. See PEG-8 coconut oil esters

PEG-4 2-ethylhexanoate. See PEG-4 octanoate

#### PEG-40 glyceryl cocoate

CAS 68201-46-7 (generic)

*Synonyms:* POE (40) glyceryl cocoate; PEG 2000 glyceryl cocoate

*Definition:* PEG ether of glyceryl cocoate

*Formula:*  $\text{RCOOCH}_2\text{CHOHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 40$

*Properties:* Nonionic

*Uses:* Emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

PEG 2000 glyceryl cocoate. See PEG-40 glyceryl cocoate

#### PEG-12 glyceryl dioleate

CAS 57107-97-8

*Synonyms:* PEG 600 glyceryl dioleate; POE (12) glyceryl dioleate

*Definition:* PEG ether of glyceryl dioleate

*Uses:* Emulsifier in cosmetics; codispersant for bath oils; hair conditioner; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

PEG 600 glyceryl dioleate. See PEG-12 glyceryl dioleate

#### PEG-12 glyceryl laurate

CAS 59070-56-3 (generic); 51248-32-9 (generic)

*Synonyms:* PEG 600 glyceryl monolaurate; POE (12) glyceryl laurate; POE (12) glyceryl monolaurate

*Definition:* PEG ether of glyceryl laurate

*Formula:*  $\text{CH}_3(\text{CH}_2)_{10}\text{COOCH}_2\text{COHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 12$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Solubilizer and emulsifier for cosmetics, pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

#### PEG-20 glyceryl laurate

CAS 59070-56-3 (generic); 51248-32-9 (generic)

*Synonyms:* PEG 1000 glyceryl monolaurate; POE (20) glyceryl laurate; POE (20) glyceryl monolaurate

*Definition:* PEG ether of glyceryl laurate

*Formula:*  $\text{CH}_3(\text{CH}_2)_{10}\text{COOCH}_2\text{COHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$

*Properties:* Nonionic

## PEG 600 glyceryl monolaurate

*Toxicology:* TSCA listed

*Uses:* Solubilizer for essential oils in aq./alcoholic systems, for foods, pharmaceuticals; dispersant; antistat; emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

**PEG 600 glyceryl monolaurate.** See PEG-12 glyceryl laurate

**PEG 1000 glyceryl monolaurate.** See PEG-20 glyceryl laurate

**PEG-20 glyceryl monooleate.** See PEG-20 glyceryl oleate

**PEG 1000 glyceryl monooleate.** See PEG-20 glyceryl oleate

**PEG 1000 glyceryl monoricinoleate.** See PEG-20 glyceryl ricinoleate

## PEG-15 glyceryl oleate

CAS 68889-49-6 (generic)

*Synonyms:* POE (15) glyceryl monooleate; POE (15) glyceryl oleate

*Definition:* PEG ether of glyceryl oleate

*Formula:*  $\text{CH}(\text{CH}_2)_7\text{CH}_2\text{CH}(\text{CH}_2)_7\text{COOCH}_2\text{CHOHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 15$

*Properties:* Nonionic

*Uses:* Hydrophilic emulsifier and dispersant for cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

## PEG-20 glyceryl oleate

CAS 68889-49-6 (generic); 51192-09-7 (generic)

*Synonyms:* PEG-20 glyceryl monooleate; PEG 1000 glyceryl monooleate; POE (20) glyceryl oleate

*Definition:* PEG ether of glyceryl oleate

*Formula:*  $\text{CH}_3[\text{CH}(\text{CH}_2)_7]_2\text{COOCH}_2\text{CHOHCH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier in cosmetics; prep. of o/w emulsions; solubilizer for flavors, perfumes, vitamin oils; dispersant; antistat; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

## PEG-15 glyceryl ricinoleate

CAS 51142-51-9 (generic); 39310-72-0

*Synonyms:* POE (15) glyceryl monoricinoleate

*Definition:* PEG ether of glyceryl ricinoleate

*Toxicology:* TSCA listed

*Uses:* Emulsifier in cosmetics; prep. of o/w emulsions; solubilizer for flavors, perfumes, vitamin oils; dispersant; antistat; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

## PEG-20 glyceryl ricinoleate

CAS 51142-51-9 (generic)

*Synonyms:* POE (20) glyceryl monoricinoleate; PEG 1000 glyceryl monoricinoleate

*Definition:* PEG ether of glyceryl ricinoleate

*Toxicology:* TSCA listed

*Uses:* Solubilizer, emulsifier for cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2800

## PEG hydrogenated castor oil

CAS 61788-85-0 (generic)

*Synonyms:* Castor oil, hydrogenated, ethoxylated; POE hydrogenated castor oil

*Definition:* PEG deriv. of hydrogenated castor oil

*Properties:* Nonionic

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, thickener for emulsion polymerization, dry cleaning, leather, min. oil emulsions, paper industry, wall-tile mastics, solvent emulsions, aq. systems; solubilizer

*Manuf./Distrib.:* Nihon Surfactant

*Trade Names:* Nopalcol 12-COH

## PEG-5 hydrogenated castor oil

CAS 61788-85-0 (generic)

*Synonyms:* POE (5) hydrogenated castor oil

*Definition:* PEG deriv. of hydrogenated castor oil with avg. 5 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Lubricant additive; emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersant, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather; surfactant, emulsifier in cosmetics; emulsifier, hydrotrope in pharmaceuticals

*Trade Names:* Chemax HCO-5

## PEG-16 hydrogenated castor oil

CAS 61788-85-0 (generic)

*Synonyms:* POE (16) hydrogenated castor oil

*Definition:* PEG deriv. of hydrogenated castor oil with avg. 16 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paint, paper, textiles, and leather industries; emulsifier, surfactant in cosmetics; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800

*Trade Names:* Chemax HCO-16

## PEG-20 hydrogenated castor oil

CAS 61788-85-0 (generic)

*Synonyms:* POE (20) hydrogenated castor oil

*Definition:* PEG deriv. of hydrogenated castor oil with avg. 20 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, plasticizer, hydrotrope, lubricant, wetting agent, dispersant, binder, thickener for emulsion polymerization, dry-cleaning, leather, paper, emulsions, cosmetics, and pharmaceuticals; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800

*Trade Names:* Nopalcol 10-COH

## PEG-25 hydrogenated castor oil

CAS 61788-85-0 (generic)

*Synonyms:* POE (25) hydrogenated castor oil

*Definition:* PEG deriv. of hydrogenated castor oil with avg. 25 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Lubricant additive; emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather industries; surfactant, emulsifier in cosmetics; emulsifier, solubilizer in pharmaceuticals; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* Chemax HCO-25

## PEG-200 hydrogenated castor oil

CAS 61788-85-0 (generic)

*Synonyms:* POE (200) hydrogenated castor oil; PEG (200) hydrogenated castor oil

*Definition:* PEG deriv. of hydrogenated castor oil with avg. 200 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Lubricant additive, emulsifier in lubricants for plastics, metals, textiles; clay and pigment dispersants, rewetting agent, softener, dyeing assistant for paints, paper, textiles, and leather industries; emulsifier, surfactant in cosmetics

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* Chemax HCO-200/50

**PEG (200) hydrogenated castor oil.** See PEG-200 hydrogenated castor oil

## PEG-60 hydrogenated tallowate

*Formula:*  $\text{R-N}(\text{CH}_2\text{CH}_2\text{O})_x\text{H}(\text{CH}_2\text{CH}_2\text{O})_y\text{H}$ , R rep. alkyl groups from hydrog. tallow, avg.  $(x+y) = 60$

*Properties:* Nonionic

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, thickener for emulsion polymerization, dry-cleaning, leather, paper, emulsions  
*Trade Names:* Nopalcol 30-TWH

**PEG-4 isodecyl ether.** See Isodeceth-4

**PEG-6 isodecyl ether.** See Isodeceth-6

**PEG-7 isodecyl ether.** See Isodeceth-7

**PEG 200 isodecyl ether.** See Isodeceth-4

**PEG 300 isodecyl ether.** See Isodeceth-6

**PEG-3 isododecyl ether.** See Isolaureth-3

**PEG-6 isododecyl ether.** See Isolaureth-6

**PEG-10 isododecyl ether.** See Isolaureth-10

**PEG-3 isolauryl ether.** See Isolaureth-3

**PEG-6 isolauryl ether.** See Isolaureth-6

**PEG-10 isolauryl ether.** See Isolaureth-10

**PEG 300 isolauryl ether.** See Isolaureth-6

**PEG 500 isolauryl ether.** See Isolaureth-10

#### **PEG-6 isolauryl thioether**

CAS 9004-83-5 (generic)

*Synonyms:* POE (6) isolauryl thioether; PEG 300 isolauryl thioether

*Definition:* PEG ether of a branched chain dodecyl mercaptan

*Empirical:* C<sub>24</sub>H<sub>50</sub>O<sub>6</sub>S

*Formula:* C<sub>17</sub>H<sub>25</sub>S-(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H, avg. n = 6

*Properties:* Nonionic

*Uses:* Detergent, emulsifier, wetting agent for metal cleaning, steel processing, textile treatment, cosmetics, agric. formulations, wood pulp and paper industries

*Trade Names:* Alcodet® 260

#### **PEG-8 isolauryl thioether**

CAS 9004-83-5 (generic)

*Synonyms:* PEG 400 isolauryl thioether; POE (8) isolauryl thioether

*Definition:* PEG ether of a branched chain dodecyl mercaptan

*Empirical:* C<sub>28</sub>H<sub>58</sub>O<sub>8</sub>S

*Formula:* C<sub>17</sub>H<sub>25</sub>S-(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H, avg. n = 8

*Properties:* Nonionic

*Uses:* Wetting agent; metal cleaning; heavy duty detergent; inhibitor in steel processing; scouring of textiles; agric. formulations; antiskinning agent for paints; emulsifier in cosmetics; hair prods.; wood and paper industry

*Trade Names:* Alcodet® SK

#### **PEG-10 isolauryl thioether**

CAS 9004-83-5 (generic); 13081-34-0

*Synonyms:* POE (10) isolauryl thioether; PEG 500 isolauryl thioether

*Definition:* PEG ether of a branched chain dodecyl mercaptan

*Empirical:* C<sub>32</sub>H<sub>66</sub>O<sub>10</sub>S

*Formula:* C<sub>17</sub>H<sub>25</sub>S-(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H, avg. n = 10

*Properties:* Nonionic

*Uses:* Detergent, emulsifier, wetting agent for metal cleaning, steel processing, textile treatment, cosmetics, agric. formulations, wood pulp and paper industries

*Trade Names:* Alcodet® 218

**PEG 300 isolauryl thioether.** See PEG-6 isolauryl thioether

**PEG 400 isolauryl thioether.** See PEG-8 isolauryl thioether

**PEG 500 isolauryl thioether.** See PEG-10 isolauryl thioether

**PEG-7 isotridecyl ether.** See Isotrideceth-7

**PEG-9 isotridecyl ether.** See Isotrideceth-9

#### **PEG-75 lanolin**

CAS 8039-09-6; 61790-81-6 (generic)

*Synonyms:* POE (75) lanolin; PEG 4000 lanolin; Polyoxyl 75 lanolin

*Definition:* PEG deriv. of lanolin with avg. 75 moles of EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, emollient for cosmetics, pharmaceutical emulsions; solvent, emollient, superfatting agent, conditioner for skin and hair care prods., household detergents; solubilizer; wetting agent; dispersant

*Regulatory:* FDA approved for topicals

*Trade Names:* Solan E

#### **PEG-150 lanolin**

CAS 61790-81-6 (generic)

*Synonyms:* PEG (6000) lanolin; POE (150) lanolin

*Definition:* PEG deriv. of lanolin with avg. 150 moles of EO

*Uses:* Emulsifier in cosmetics; emollient; superfatting agent; conditioner; solubilizer; plasticizer

*Trade Names:* Solan X

**PEG 4000 lanolin.** See PEG-75 lanolin

**PEG (6000) lanolin.** See PEG-150 lanolin

#### **PEG-2 laurate**

CAS 141-20-8; 9004-81-3 (generic); EINECS/ELINCS 205-468-1

*Synonyms:* Diethylene glycol laurate; Diethylene glycol monolaurate; Diglycol laurate; Dodecanoic acid 2-(2-hydroxyethoxy) ethyl ester; 2-(2-Hydroxyethoxy) ethyl laurate; PEG (2) laurate; PEG 100 monolaurate; POE (2) laurate

*Definition:* PEG ester of lauric acid

*Empirical:* C<sub>16</sub>H<sub>32</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 2

*Properties:* Pale yel. oily liq.; sol. in methanol, ethanol, benzene, toluene, chlorinated hydrocarbons, acetone, ethyl acetate, cottonseed oil; sl. sol. in petrol. naphtha; pract. insol. in water; m.w. 288.43; sp.gr. 0.9572 (25/4 C); m.p. 17-18 C; b.p. 270 C (some decomp.); HLB 6.2; nonionic

*Toxicology:* TSCA listed

*Uses:* W/o emulsifier, dispersant, antistat, defoamer for textiles, paper processing, cutting oils, polishes, emulsion cleaners, emulsion polymerization, rubber latex, wool lubricants, paints; emulsifier in cosmetics; plasticizer; in food-pkg. adhesives; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, 178.3910

*Manuf./Distrib.:* ABITEC; Cognis/Chems. Group; Crompton/Witco; Inolex; Lonza; Stepan; Uniqema

*Trade Names:* Cithrol DGML N/E; Lumulse™ DGL; Nopalcol 1-L

**PEG (2) laurate.** See PEG-2 laurate

#### **PEG-4 laurate**

CAS 9004-81-3 (generic); 10108-24-4

*Synonyms:* 2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethyl dodecanoate; PEG 200 monolaurate; POE (4) monolaurate

*Definition:* PEG ester of lauric acid

*Empirical:* C<sub>20</sub>H<sub>40</sub>O<sub>6</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4

*Properties:* Sol. in alcohol; sol. warm in veg. and min. oils; disp. in water; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, lubricant, dispersant, leveling agent, coupling agent, solubilizer, wetting agent, thickener, defoamer in cosmetics, pharmaceuticals, textiles, plastics, paints, other industrial uses; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 178.3910

*Manuf./Distrib.:* Mosselman NV; Ruger

#### **PEG-5 laurate**

CAS 9004-81-3 (generic)

*Synonyms:* POE (5) monolaurate

*Definition:* PEG ester of lauric acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 5

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier and coupling agent; defoamer in water-based coatings; visc. depressant in vinyl plastic sol'ns.; control additive in hair rinse formulations; paper softener

#### **PEG-6 laurate**

CAS 2370-64-1; 9004-81-3 (generic); EINECS/ELINCS 219-136-9

*Synonyms:* 17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl dodecanoate; PEG 300 monolaurate; POE (6) monolaurate

*Definition:* PEG ester of lauric acid

*Empirical:* C<sub>24</sub>H<sub>48</sub>O<sub>8</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Hydrophilic emulsifier in cosmetics; lubricant component and scrooping agent for textile fibers and yarns; visc. control agent for plastisols; emulsi-

fier, thickener, solubilizer, emollient, spreading and wetting agent in pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 178.3910

**PEG-8 laurate**

CAS 9004-81-3 (generic); 35179-86-3; 37318-14-2; EINECS/ELINCS 253-458-0

*Synonyms:* 23-Hydroxy-3,6,9,12,15,18,21-heptaooxatricos-1-yl dodecanoate; PEG 400 monolaurate; POE (8) lauric acid monoester; POE (8) monolaurate

*Definition:* PEG ester of lauric acid

*Empirical:* C<sub>28</sub>H<sub>56</sub>O<sub>10</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

*Properties:* Sol. in alcohol; partly sol. in veg. and min. oils; insol. in water; HLB 12.8-13.1; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, lubricant, dispersant, leveling agent, solubilizer, visc. control agent, defoamer in cosmetics, pharmaceuticals, textiles, paints, other industrial uses; antiblock in vinyls; plasticizer; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.; in twine for tying meat

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.1210, 177.2260, 177.2800, 178.3520, 178.3760, 178.3910

*Manuf./Distrib.:* Mosselman NV; Ruger

*Trade Names:* DeTHOX ACID L-9; Nopalcol 4-L

**PEG-12 laurate**

CAS 9004-81-3 (generic)

*Synonyms:* PEG 600 monolaurate; POE (12) monolaurate

*Definition:* PEG ester of lauric acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12

*Properties:* Sol. in water, alcohol, veg. oils; partly sol. in min. oils; m.p. 20-25 C; nonionic

*Toxicology:* TSCA listed

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emulsifier, lubricant, dispersant, leveling agent, solubilizer in cosmetics, pharmaceuticals, textiles, paints, and other industrial uses; plastics antistat; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2260, 177.2800, 178.3910

*Manuf./Distrib.:* Mosselman NV; Ruger

*Trade Names:* Nopalcol 6-L

**PEG-20 laurate**

CAS 9004-81-3 (generic)

*Synonyms:* PEG 1000 monolaurate; POE (20) monolaurate

*Definition:* PEG ester of lauric acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 20

*Properties:* Insol. in water; HLB 16.5; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, thickener, solubilizer, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, food, agric., plastics; solubilizer for perfumes; dye assistant; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800, 178.3910

*Manuf./Distrib.:* Ruger

**PEG-32 laurate**

CAS 9004-81-3 (generic)

*Synonyms:* PEG 1540 monolaurate; POE (32) monolaurate

*Definition:* PEG ester of lauric acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 32

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles; in surf. lubricants for mfg. of food-

contact metallic articles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800, 178.3910

*Manuf./Distrib.:* Ruger

**PEG-2 laurate SE**

CAS 141-20-8; 9004-81-3 (generic)

*Synonyms:* Diethylene glycol monolaurate self-emulsifying; PEG 100 monolaurate self-emulsifying; POE (2) monolaurate self-emulsifying

*Definition:* Self-emulsifying grade of PEG-2 laurate containing some sodium and/or potassium laurate

*Properties:* Anionic

*Uses:* Spreading agent, w/o emulsifier, dispersant, lubricant, opacifier, emulsion stabilizer, emollient, visc. builder, antistat in cosmetics, textiles, paints, adhesives, paper processing, cutting oils, polishes, rubber latex; defoamer for process applics.; indirect food additive

*Trade Names:* Pegosperse® 100 L

**PEG-3 lauryl ether.** See Laureth-3

**PEG-4 lauryl ether.** See Laureth-4

**PEG-8 lauryl ether.** See Laureth-8

**PEG-9 lauryl ether.** See Laureth-9

**PEG-12 lauryl ether.** See Laureth-12

**PEG-23 lauryl ether.** See Laureth-23

**PEG 200 lauryl ether.** See Laureth-4

**PEG 600 lauryl ether.** See Laureth-12

**PEG (1-4) lauryl ether sulfate, ammonium salt.** See Ammonium laureth sulfate

**PEG-12 lauryl ether sulfate, ammonium salt.** See Ammonium laureth-12 sulfate

**PEG (12) lauryl ether sulfate, ammonium salt.** See Ammonium laureth-12 sulfate

**PEG (1-4) lauryl ether sulfate, sodium salt.** See Sodium laureth sulfate

**PEG (12) lauryl ether sulfate, sodium salt.** See Sodium laureth-12 sulfate

**PEG 600 lauryl ether sulfate, sodium salt.** See Sodium laureth-12 sulfate

**PEG 1000 monocetyl ether.** See Ceteth-20

**PEG monocetyloleylether.** See Cetoeth

**PEG 400 monococoate.** See PEG-8 cocoate

**PEG-9 monododecyl ether.** See Laureth-9

**PEG 100 monolaurate.** See PEG-2 laurate

**PEG 200 monolaurate.** See PEG-4 laurate

**PEG 300 monolaurate.** See PEG-6 laurate

**PEG 400 monolaurate.** See PEG-8 laurate

**PEG 600 monolaurate.** See PEG-12 laurate

**PEG 1000 monolaurate.** See PEG-20 laurate

**PEG 1540 monolaurate.** See PEG-32 laurate

**PEG 100 monolaurate self-emulsifying.** See PEG-2 laurate SE

**PEG 200 monoocanoate.** See PEG-4 octanoate

**PEG 100 monooleate.** See PEG-2 oleate

**PEG 200 monooleate.** See PEG-4 oleate

**PEG 300 monooleate.** See PEG-6 oleate

**PEG 400 monooleate.** See PEG-8 oleate

**PEG 450 monooleate.** See PEG-9 oleate

**PEG 500 monooleate.** See PEG-10 oleate

**PEG 600 monooleate.** See PEG-12 oleate

**PEG 1000 monooleate.** See PEG-20 oleate

**PEG 1540 monooleate.** See PEG-32 oleate

**PEG 1800 monooleate.** See PEG-36 oleate

**PEG 4000 monooleate.** See PEG-75 oleate

**PEG 6000 monooleate.** See PEG-150 oleate

**PEG 100 monooleate self-emulsifying.** See PEG-2 oleate SE

**PEG 1000 monopalmitate.** See PEG-20 palmitate

**PEG 600 monoricinoleate.** See PEG-12 ricinoleate

**PEG 100 monostearate.** See PEG-2 stearate

**PEG (100) monostearate.** See PEG-100 stearate

**PEG 200 monostearate.** See PEG-4 stearate

**PEG 300 monostearate.** See PEG-6 stearate

**PEG 400 monostearate.** See PEG-8 stearate

**PEG 600 monostearate.** See PEG-12 stearate

**PEG 1000 monostearate.** See PEG-20 stearate

**PEG 1540 monostearate.** See PEG-32 stearate

**PEG 2000 monostearate.** See PEG-40 stearate

**PEG 100 monostearate self-emulsifying.** See PEG-2 stearate SE

PEG (5) monotallate. See PEG-5 tallate  
 PEG 200 monotallate. See PEG-4 tallate  
 PEG 300 monotallate. See PEG-6 tallate  
 PEG 400 monotallate. See PEG-8 tallate  
 PEG 500 monotallate. See PEG-10 tallate  
 PEG 600 monotallate. See PEG-12 tallate  
 PEG 1000 monotallate. See PEG-20 tallate

**PEG-8 myristate**

*Synonyms:* PEG 400 myristate; POE (8) myristate  
*Definition:* PEG ester of myristic acid  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{12}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 8$   
*Uses:* Emulsifier in cosmetics; food pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2260, 177.2800

**PEG-20 myristate**

*Synonyms:* PEG 1000 myristate; POE (20) myristate  
*Definition:* PEG ester of myristic acid  
*Formula:*  $\text{CH}_3(\text{CH}_2)_{12}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$   
*Uses:* Emulsifier, surfactant in cosmetics; resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

PEG 400 myristate. See PEG-8 myristate

PEG 1000 myristate. See PEG-20 myristate

PEG-1 nonyl phenyl ether. See Nonoxynol-1

PEG-2 nonyl phenyl ether. See Nonoxynol-2

PEG-3 nonyl phenyl ether. See Nonoxynol-3

PEG-4 nonyl phenyl ether. See Nonoxynol-4

PEG-5 nonyl phenyl ether. See Nonoxynol-5

PEG-6 nonyl phenyl ether. See Nonoxynol-6

PEG-7 nonyl phenyl ether. See Nonoxynol-7

PEG-8 nonyl phenyl ether. See Nonoxynol-8

PEG-9 nonyl phenyl ether. See Nonoxynol-9

PEG-10 nonyl phenyl ether. See Nonoxynol-10

PEG-11 nonyl phenyl ether. See Nonoxynol-11

PEG-12 nonyl phenyl ether. See Nonoxynol-12

PEG-13 nonyl phenyl ether. See Nonoxynol-13

PEG-14 nonyl phenyl ether. See Nonoxynol-14

PEG-15 nonyl phenyl ether. See Nonoxynol-15

PEG-18 nonyl phenyl ether. See Nonoxynol-18

PEG-20 nonyl phenyl ether. See Nonoxynol-20

PEG-23 nonyl phenyl ether. See Nonoxynol-23

PEG-25 nonyl phenyl ether. See Nonoxynol-25

PEG-30 nonyl phenyl ether. See Nonoxynol-30

PEG-34 nonyl phenyl ether. See Nonoxynol-34

PEG-40 nonyl phenyl ether. See Nonoxynol-40

PEG-44 nonyl phenyl ether. See Nonoxynol-44

PEG-50 nonyl phenyl ether. See Nonoxynol-50

PEG-55 nonyl phenyl ether. See Nonoxynol-55

PEG-60 nonyl phenyl ether. See Nonoxynol-60

PEG-70 nonyl phenyl ether. See Nonoxynol-70

PEG 100 nonyl phenyl ether. See Nonoxynol-2

PEG-100 nonyl phenyl ether. See Nonoxynol-100

PEG-120 nonyl phenyl ether. See Nonoxynol-120

PEG 200 nonyl phenyl ether. See Nonoxynol-4

PEG 300 nonyl phenyl ether. See Nonoxynol-6

PEG 400 nonyl phenyl ether. See Nonoxynol-8

PEG 450 nonyl phenyl ether. See Nonoxynol-9

PEG 500 nonyl phenyl ether. See Nonoxynol-10

PEG 600 nonyl phenyl ether. See Nonoxynol-12

PEG 1000 nonyl phenyl ether. See Nonoxynol-20

PEG 2000 nonyl phenyl ether. See Nonoxynol-40

PEG-9 nonyl phenyl ether phosphate. See Nonoxynol-9 phosphate

PEG 450 nonyl phenyl ether phosphate. See Nonoxynol-9 phosphate

PEG-4 nonyl phenyl ether sulfate, ammonium salt. See Ammonium nonoxynol-4 sulfate

PEG-30 nonyl phenyl ether sulfate, ammonium salt. See Ammonium no-

noxynol-30 sulfate

PEG 200 nonyl phenyl ether sulfate, ammonium salt. See Ammonium nonoxynol-4 sulfate

PEG-2 octadecylamine. See PEG-2 stearamine

PEG-10 octadecylamine. See PEG-10 stearamine

**PEG-4 octanoate**

*Synonyms:* PEG-4 2-ethylhexanoate; PEG 200 monoctanoate; POE (4) monoctanoate

*Definition:* PEG ester of 2-ethylhexanoic acid

*Empirical:*  $\text{C}_{16}\text{H}_{32}\text{O}_5$

*Formula:*  $\text{CH}_3(\text{CH}_2)_3\text{CHCH}_2\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{H}$ , avg.  $n = 4$

*Uses:* Emulsifier in cosmetics; food pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

PEG octyl phenyl ether. See Octoxynol

PEG-1 octyl phenyl ether. See Octoxynol-1

PEG-3 octyl phenyl ether. See Octoxynol-3

PEG-5 octyl phenyl ether. See Octoxynol-5

PEG-7 octyl phenyl ether. See Octoxynol-7

PEG-8 octyl phenyl ether. See Octoxynol-8

PEG-9 octyl phenyl ether. See Octoxynol-9

PEG-10 octyl phenyl ether. See Octoxynol-10

PEG-11 octyl phenyl ether. See Octoxynol-11

PEG-12 octyl phenyl ether. See Octoxynol-12

PEG-13 octyl phenyl ether. See Octoxynol-13

PEG-16 octyl phenyl ether. See Octoxynol-16

PEG-20 octyl phenyl ether. See Octoxynol-20

PEG-25 octyl phenyl ether. See Octoxynol-25

PEG-30 octyl phenyl ether. See Octoxynol-30

PEG-33 octyl phenyl ether. See Octoxynol-33

PEG-40 octyl phenyl ether. See Octoxynol-40

PEG-70 octyl phenyl ether. See Octoxynol-70

PEG 400 octyl phenyl ether. See Octoxynol-8

PEG 450 octyl phenyl ether. See Octoxynol-9

PEG 500 octyl phenyl ether. See Octoxynol-10

PEG 600 octyl phenyl ether. See Octoxynol-12

PEG 1000 octyl phenyl ether. See Octoxynol-20

**PEG-2 oleamine**

CAS 13127-82-7; 25307-17-9; 26635-93-8 (generic)

*Synonyms:* Bis-2-hydroxyethyl oleamine; Bis (2-hydroxyethyl) oleylamine; N,N-Di (2-hydroxyethyl) oleylamine; PEG-2 oleyl amine; PEG 100 oleyl amine; POE (2) oleyl amine

*Definition:* PEG amine of oleic acid

*Empirical:*  $\text{C}_{22}\text{H}_{45}\text{NO}_2$

*Properties:* Visc. liq.; m.w. 355.61; HLB 9.9

*Toxicology:* TSCA listed

*Uses:* Hydrophilic emulsifier, dispersant, wetting agent, corrosion inhibitor for agric., leather, metalworking, plastics; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; intermediate for quats.; emulsifier for wax, sol. oils, cosmetics, pesticides, cleaners, bitumen, silicone oils; antistat for textile spin finishes, paper processing, plastics, food-grade polymers; wetting agent, dispersant for electrostatic paints, inks, dyes, and pigments

*Trade Names:* Imbentin-OAM/020

**PEG-20 oleamine**

CAS 71786-60-2 (generic)

*Synonyms:* POE (20) oleyl amine

*Definition:* PEG amine of oleic acid

*Uses:* Surfactant for prod. of acid cleaners, textile auxs.

*Trade Names:* Imbentin-OAM/200

**PEG-2 oleate**

CAS 106-12-7; 9004-96-0 (generic); EINECS/ELINCS 203-364-0

*Synonyms:* Diethylene glycol monooleate; Diglycol oleate; 2-(2-Hydroxyethoxy) ethyl oleate; 9-Octadecenoic acid, 2-(2-hydroxyethoxy) ethyl ester; PEG 100 monooleate; POE (2) monooleate

*Definition:* PEG ester of oleic acid

*Empirical:*  $\text{C}_{22}\text{H}_{42}\text{O}_4$

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 2$

*Properties:* Amber liq.; m.w. 370.58; m.p. < 0 C; HLB 5.2; nonionic

*Toxicology:* TSCA listed



## PEG-4 oleate

*Uses:* Low-foaming emulsifier, dispersant, antistat for cosmetics, textile lubricants, paper processing, cutting oils, emulsion paints, polishes, emulsion cleaners, rubber latex, wool lubricants, pesticides; leather softener; lubricant for paints, adhesives; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* A.P.; ABITEC; Cognis/Chems. Group; Crompton/Witco; Inolex; Lipo; Lonza; Uniqema

*Trade Names:* Lumulse™ DGO

## PEG-4 oleate

CAS 9004-96-0 (generic); 10108-25-5; EINECS/ELINCS 233-293-0

*Synonyms:* 9-Octadecenoic acid, 2-[2-[2-(2-hydroxyethoxy) ethoxy] ethoxy] ethyl ester; PEG 200 monooleate; POE (4) monooleate

*Definition:* PEG ester of oleic acid

*Empirical:* C<sub>26</sub>H<sub>50</sub>O<sub>6</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4

*Properties:* Sol. in alcohol; partly sol. in veg. and min. oils; disp. in water; nonionic

*Toxicology:* TSCA listed

*Uses:* Wetting agent, penetrant, spreading agent, defoamer, detergent, emulsifier, solubilizer, thickener, dispersant, textile aux., softener, lubricant for textiles, cosmetics, metalworking, food, pharmaceuticals, agric., plastics; solvent in metal cleaning, degreasing; in food-pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

*Manuf./Distrib.:* Mosselman NV; Ruger

*Trade Names:* Teric™ OF4

## PEG-6 oleate

CAS 9004-96-0 (generic); 60344-26-5

*Synonyms:* POE (6) monooleate; PEG 300 monooleate; 9-Octadecenoic acid, 17-hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl ester

*Definition:* PEG ester of oleic acid

*Empirical:* C<sub>30</sub>H<sub>58</sub>O<sub>8</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6

*Properties:* Sol. in alcohol, min. oils; disp. in water; m.p. 0°C; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, lubricant, antifoam, dispersant for cosmetics, food, pharmaceuticals, agric., plastics, textiles; chemical intermediate; solvent for lipids; in food-pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

*Manuf./Distrib.:* Mosselman NV

*Trade Names:* Teric™ OF6

## PEG-8 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (8) monooleate; PEG 400 monooleate

*Definition:* PEG ester of oleic acid

*Empirical:* C<sub>34</sub>H<sub>66</sub>O<sub>10</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

*Properties:* Dk. red oil; sol. in alcohol; disp. in water; misc. with cottonseed oil; nonionic

*Toxicology:* LD50 (IV, mouse) 1080 mg/kg; mod. toxic by IV route; eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Emulsifier, dispersant, lubricant, chemical intermediate, solubilizer, solvent, visc. control agent for cosmetics, pharmaceuticals, food, agric., plastics, coatings; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.200, 177.1200, 177.1210, 177.2260, 177.2800

*Manuf./Distrib.:* Mosselman NV; Ruger

*Trade Names:* Cithrol A; DeTHOX ACID O-9; Nopalcol 4-O; Teric™ OF8

## PEG-9 oleate

CAS 9004-96-0 (generic)

*Synonyms:* PEG 450 monooleate; POE (9) monooleate

*Definition:* PEG ester of oleic acid

*Empirical:* C<sub>36</sub>H<sub>70</sub>O<sub>11</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 9

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent, dispersant, emulsifier, lubricant, softener, wetting agent for cosmetics, dairy industry, cleaners, metal cleaning, leather processing, agricultural oils; in food-pkg. adhesives; resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 177.2260, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

## PEG-10 oleate

CAS 9004-96-0 (generic)

*Synonyms:* PEG 500 monooleate; POE (10) monooleate; POE (10) oleic acid

*Definition:* PEG ester of oleic acid

*Empirical:* C<sub>38</sub>H<sub>74</sub>O<sub>12</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, detergent, emulsifier, lubricant, dispersant, defoamer for textiles, ceramics, chem. tech. industries; emulsifier in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 177.2260, 177.2800

*Trade Names:* Trydet 2676

## PEG-11 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (11) monooleate

*Definition:* PEG ester of oleic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 11

*Uses:* Emulsifier in cosmetics; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

## PEG-12 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (12) monooleate; PEG 600 monooleate

*Definition:* PEG ester of oleic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12

*Properties:* Sol. in water, alcohol; sol. warm in veg. and min. oils; m.p. 20°C; nonionic

*Toxicology:* TSCA listed

*Uses:* Dispersant, emulsifier, solubilizer, detergent, dye leveling agent for cosmetic and industrial applics.; plastics antistat; emulsifier for pharmaceuticals; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.200, 177.1200, 177.2260, 177.2800

*Manuf./Distrib.:* Mosselman NV; Ruger

## PEG-13 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (13) monooleate

*Definition:* PEG ester of oleic acid

*Uses:* Emulsifier for cosmetics; lubricant, softener, antistat, emulsifier, detergent, pigment wetting agent, stabilizer, visc. control agent, mold release agent in textiles; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

## PEG-14 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (14) monooleate

*Definition:* PEG ester of oleic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CHCH(CH<sub>2</sub>)<sub>7</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 14

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant in cutting oils, degreasing solvs., metal cleaners; dyeing assistant; emulsifier in cosmetics; textile processing; defoamer and leveling agent in latex paints; dye leveler; lubricant; softener; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in food-

contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 177.2260, 177.2800

*Trade Names:* DeTHOX ACID O-14

#### PEG-15 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (15) monooleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 15$

*Properties:* Nonionic

*Uses:* Raw material for finishing agents in the syn. fiber industry; emulsifier for cosmetics, crude and veg. oils; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.200, 176.210, 177.2260, 177.2800

#### PEG-16 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (16) monooleate

*Definition:* PEG ester of oleic acid

*Properties:* Nonionic

*Uses:* O/w emulsifier for cosmetics, lubricants, pesticides; leveling agent in dyes and latex paints; detergent for metal cleaners; dispersant; lubricant; softener; antistat; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

*Trade Names:* DeTHOX ACID O-16

#### PEG-20 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (20) monooleate; PEG 1000 monooleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$

*Properties:* HLB 15.4; nonionic

*Toxicology:* LD50 (IV, mouse) 500 mg/kg; mod. toxic by IV route; skin and eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Raw material for finishing agents in the syn. fiber industry; nonionic surfactant, emulsifier, thickener, solubilizer, solvent, emollient, opacifier, wetting agent, dispersant for cosmetics, pharmaceuticals, food, agric., plastics, paints, etc.; defoamer in food-contact paper coatings; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.200, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

#### PEG-23 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (23) monooleate; POE (23) oleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 23$

*Properties:* Nonionic

*Uses:* Surfactant, emulsifier for cosmetics; lubricant, softener, antistat, detergent, pigment wetting agent, stabilizer, visc. control agent, mold release agent in textiles; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

#### PEG-24 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (24) monooleate

*Definition:* PEG ester of oleic acid

*Properties:* Nonionic

*Uses:* Surfactant for cosmetics and industrial applics.; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

#### PEG-32 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (32) monooleate; PEG 1540 monooleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 32$

*Properties:* Dk. red oil; sol. in alcohol; disp. in water; misc. with cottonseed oil; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spread-

ing agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.200, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger

#### PEG-36 oleate

CAS 9004-96-0 (generic)

*Synonyms:* PEG 1800 monooleate; POE (36) monooleate

*Definition:* PEG ester of oleic acid

*Uses:* Surfactant, emulsifier in cosmetics; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.200, 177.2260, 177.2800

#### PEG-40 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (40) monooleate

*Definition:* PEG ester of oleic acid

*Properties:* Nonionic

*Uses:* Surfactant for cosmetics and industrial applics.; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

#### PEG-75 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (75) monooleate; PEG 4000 monooleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 75$

*Properties:* Dk. red oil; sol. in alcohol; disp. in water; misc. with cottonseed oil; nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; defoamer in food-contact paper coatings; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.200

*Manuf./Distrib.:* Ruger

#### PEG-100 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (100) monooleate

*Definition:* PEG ester of oleic acid

*Properties:* Nonionic

*Uses:* Surfactant for cosmetics and industrial applics.; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

#### PEG-150 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (150) monooleate; PEG 6000 monooleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 150$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Strongly hydrophilic emulsifier, surfactant, stabilizer, lubricant, solubilizer, emollient, wetting agent, dispersant for cosmetics, pharmaceuticals, food, agric., plastics; defoamer in food-contact paper coatings; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.200

*Manuf./Distrib.:* Ruger

#### PEG-200 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (200) monooleate

*Definition:* PEG ester of oleic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CHCH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 200$

*Properties:* Nonionic

*Uses:* Spreading agent, defoamer, dispersant; emulsifier for kerosene and mineral oil; defoamer in food-contact paper coatings

*Regulatory:* FDA 21 CFR §176.200

#### PEG-300 oleate

CAS 9004-96-0 (generic)

*Synonyms:* POE (300) monooleate

*Definition:* PEG ester of oleic acid

*Properties:* Nonionic

*Uses:* Wetting agent, lubricant, opacifier, antistat, dispersant, o/w emulsifier, scouring and detergent aid, defoamer, plasticizer, rust inhibitor, visc. modifier, antifog for cosmetics and pharmaceuticals, lubricating and cutting oils; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

#### PEG-2 oleate SE

CAS 106-12-7; 9004-96-0 (generic)

*Synonyms:* Diethylene glycol monooleate self-emulsifying; PEG 100 monooleate self-emulsifying; POE (2) monooleate self-emulsifying

*Definition:* Self-emulsifying grade of PEG-2 oleate containing some sodium and/or potassium oleate

*Properties:* Anionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; w/o and aux. o/w emulsifier for latex and aq. paints; emulsifier in cosmetics

**PEG-2 oleyl alcohol.** See Oleth-2

**PEG-2 oleyl amine.** See PEG-2 oleamine

**PEG 100 oleyl amine.** See PEG-2 oleamine

**PEG-2 oleyl ether.** See Oleth-2

**PEG-3 oleyl ether.** See Oleth-3

**PEG-5 oleyl ether.** See Oleth-5

**PEG-6 oleyl ether.** See Oleth-6

**PEG-7 oleyl ether.** See Oleth-7

**PEG-8 oleyl ether.** See Oleth-8

**PEG-9 oleyl ether.** See Oleth-9

**PEG-10 oleyl ether.** See Oleth-10

**PEG-12 oleyl ether.** See Oleth-12

**PEG-15 oleyl ether.** See Oleth-15

**PEG-16 oleyl ether.** See Oleth-16

**PEG-18 oleyl ether.** See Oleth-18

**PEG-20 oleyl ether.** See Oleth-20

**PEG-23 oleyl ether.** See Oleth-23

**PEG-25 oleyl ether.** See Oleth-25

**PEG-30 oleyl ether.** See Oleth-30

**PEG-40 oleyl ether.** See Oleth-40

**PEG-44 oleyl ether.** See Oleth-44

**PEG-50 oleyl ether.** See Oleth-50

**PEG-80 oleyl ether.** See Oleth-80

**PEG 100 oleyl ether.** See Oleth-2

**PEG 300 oleyl ether.** See Oleth-6

**PEG 400 oleyl ether.** See Oleth-8

**PEG 450 oleyl ether.** See Oleth-9

**PEG 500 oleyl ether.** See Oleth-10

**PEG 600 oleyl ether.** See Oleth-12

**PEG 1000 oleyl ether.** See Oleth-20

**PEG 2000 oleyl ether.** See Oleth-40

**PEG-7 oleyl ether phosphate.** See Oleth-7 phosphate

#### PEG-20 palmitate

CAS 9004-94-8 (generic)

*Synonyms:* POE (20) monopalmitate; PEG 1000 monopalmitate

*Definition:* PEG ester of palmitic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 20$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

#### PEG/PPG-17/6 copolymer

CAS 9003-11-6 (generic)

*Definition:* Random copolymer produced by interaction of 17 moles ethylene oxide with 6 moles of propylene oxide

*Toxicology:* TSCA listed

*Uses:* Solvent in cosmetics; lubricant for antiperspirants; emollient; bodying agent; lubricant for textile spin finishes; intermediate for prep. of resins,

plasticizers, modifiers, and surfactants; demulsifier; food-pkg. adhesives, animal glues; defoamer in food-contact paper/paperboard

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 75-H-450

#### PEG/PPG-35/9 copolymer

CAS 9003-11-6 (generic)

*Definition:* Random copolymer produced by interaction of 35 moles ethylene oxide with 9 moles propylene oxide

*Toxicology:* TSCA listed

*Uses:* Emollient in cosmetics; lubricant for textile spin finishes; intermediate in prep. of resins, plasticizers, modifiers, surfactants; demulsifier; food-pkg. adhesives, paper, cellophane, animal glues; defoamer in food-contact coatings, paper; in lubricants for incidental food contact

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 75-H-1400

#### PEG/PPG-125/30 copolymer

CAS 9003-11-6 (generic)

*Definition:* Random copolymer produced by interaction of 35 moles ethylene oxide with 9 moles of propylene oxide

*Toxicology:* TSCA listed

*Uses:* Emollient in cosmetics; lubricant for textile spin finishes; intermediate in prep. of resins, plasticizers, modifiers, surfactants; demulsifier; food-pkg. adhesives, paper, cellophane, animal glues; defoamer in food-contact coatings, paper; in lubricants for incidental food contact

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 75-H-90000

#### PEG-8 ricinoleate

CAS 9004-97-1 (generic); 42426-59-5 (generic)

*Synonyms:* PEG 400 ricinoleate; POE (8) ricinoleate

*Definition:* PEG ester of ricinoleic acid

*Empirical:*  $\text{C}_{34}\text{H}_{66}\text{O}_{11}$

*Formula:*  $\text{CHCH}_2\text{COHH}(\text{CH}_2)_5\text{CH}_3\text{CH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 8$

*Properties:* Sol. in alcohol; partly sol. in veg. and min. oils; insol. in water; m.p. 2 C; nonionic

*Uses:* Surfactant, emulsifier, wetting agent, plasticizer for cosmetics, pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in closure-sealing gaskets for food containers; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.1210, 177.2800

*Manuf./Distrib.:* Mosselman NV

#### PEG-12 ricinoleate

CAS 9004-97-1 (generic)

*Synonyms:* PEG 600 monoricinoleate; POE (12) monoricinoleate

*Definition:* PEG ester of ricinoleic acid

*Formula:*  $\text{CHCH}_2\text{COHH}(\text{CH}_2)_5\text{CH}_3\text{CH}(\text{CH}_2)_7\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 12$

*Properties:* Nonionic

*Uses:* Emulsifier, plasticizer, lubricant, wetting agent, dispersant, binder, thickener for emulsion polymerization, dry-cleaning, leather, paper, emulsions; defoamer for beet sugar and yeast processing; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §173.340, 176.200

*Trade Names:* Nopalcol 6-R

**PEG 400 ricinoleate.** See PEG-8 ricinoleate

#### PEG-15 rosinate

*Synonyms:* POE (15) ester of rosin

*Properties:* Nonionic

*Uses:* Emulsifier, detergent for acid cleaners; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210

**PEG-11 sat. C16-18 alcohol.** See C16-18 parath-11

**PEG 400 sesquilarate.** See PEG-8 sesquilarate

#### PEG-8 sesquilarate

*Synonyms:* PEG 400 sesquilarate; POE (8) sesquilarate

*Definition:* Mixt. of PEG mono and diesters of lauric acid with avg. 8 moles EO

*Uses:* Emulsifier in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2260, 177.2800

#### PEG-8 sesquioleate

*Synonyms:* PEG 400 sesquioleate; POE (8) sesquioleate

*Definition:* Mixture of the PEG mono and diesters of oleic acid with avg. 8 moles EO

*Properties:* Nonionic

*Uses:* Emulsifier in cosmetics; wetting agent; emollient; textile softener; lubricant; defoamer; stabilizer; visc. control agent; pigment wetting agent; mold release agent; agric. formulations; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in closures with sealing gaskets for food containers; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2260, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

PEG 400 sesquioleate. See PEG-8 sesquioleate

#### PEG-40 sorbitan hexaoleate

CAS 9011-29-4; 57171-56-9 (generic)

*Synonyms:* PEG-40 sorbitol hexaoleate; PEG 2000 sorbitol hexaoleate; POE (40) sorbitol hexaoleate

*Definition:* Oleic acid hexaester of ethoxylated sorbitol with avg. 40 moles EO

*Properties:* HLB 10.2; nonionic

*Uses:* Surfactant, o/w emulsifier for metal lubricants, textiles, cosmetics, polymerization; coupling agent; lubricant; plasticizer; solubilizer; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

PEG-4 sorbitan laurate. See Polysorbate 21

PEG-20 sorbitan laurate. See Polysorbate 20

#### PEG-40 sorbitan laurate

CAS 9005-64-5 (generic)

*Synonyms:* PEG 2000 sorbitan laurate; POE (40) sorbitan laurate

*Definition:* Ethoxylated sorbitan ester of lauric acid with avg. 40 moles EO

*Uses:* Emulsifier in cosmetics; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PEG-80 sorbitan laurate

CAS 9005-64-5 (generic)

*Synonyms:* PEG (80) sorbitan monolaurate; POE (80) sorbitan monolaurate

*Definition:* Ethoxylated sorbitan ester of lauric acid with avg. 80 moles EO

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, wetting agent, dispersant, mild cleanser for cosmetics, shampoos, baby prods., pharmaceuticals, agric., paints, pulp/paper, etc.; counterirritant; foaming agent; food emulsifier, dispersant; solubilizer for essential oils; visc. modifier; antistat; stabilizer; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Lumisorb™ PSML-80

PEG 2000 sorbitan laurate. See PEG-40 sorbitan laurate

PEG (80) sorbitan monolaurate. See PEG-80 sorbitan laurate

PEG (3) sorbitan monooleate. See PEG-3 sorbitan oleate

PEG 300 sorbitan monooleate. See PEG-6 sorbitan oleate

PEG 300 sorbitan monostearate. See PEG-6 sorbitan stearate

#### PEG-3 sorbitan oleate

CAS 9005-65-6 (generic)

*Synonyms:* PEG (3) sorbitan monooleate; POE (3) sorbitan monooleate

*Definition:* Ethoxylated sorbitan ester of oleic acid with avg. 3 moles EO

*Empirical:* C<sub>30</sub>H<sub>56</sub>O<sub>8</sub>

*Uses:* Emulsifier in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings; in food-contact paper/paperboard; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §73.1001, 172.515, 172.623, 173.340, 175.105, 175.300, 176.180, 178.3400, 573.860

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

PEG-5 sorbitan oleate. See Polysorbate 81

#### PEG-6 sorbitan oleate

CAS 9005-65-6 (generic)

*Synonyms:* PEG 300 sorbitan monooleate; POE (6) sorbitan oleate

*Definition:* Ethoxylated sorbitan ester of oleic acid with avg. 6 moles EO

*Empirical:* C<sub>36</sub>H<sub>68</sub>O<sub>11</sub>

*Properties:* Nonionic

*Toxicology:* Moderately toxic by intravenous route; mildly toxic by ingestion; TSCA listed

*Uses:* Emulsifier, solubilizer for cosmetics, pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

PEG-20 sorbitan oleate. See Polysorbate 80

#### PEG-40 sorbitan peroleate

*Synonyms:* POE (40) sorbitan peroleate; PEG 2000 sorbitan peroleate; POE (40) sorbitol septaoleate

*Definition:* Mixture of oleic acid esters of sorbitol condensed with avg. 40 moles EO

*Properties:* Nonionic

*Uses:* Surfactant, emulsifier in cosmetics; emulsifier, solubilizer, antistat, lubricant for bath oils, textiles; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

PEG 2000 sorbitan peroleate. See PEG-40 sorbitan peroleate

PEG-4 sorbitan stearate. See Polysorbate 61

#### PEG-6 sorbitan stearate

CAS 9005-67-8 (generic)

*Synonyms:* PEG 300 sorbitan monostearate; POE (6) sorbitan monostearate

*Definition:* Ethoxylated sorbitan ester of stearic acid with avg. 6 moles EO

*Empirical:* C<sub>36</sub>H<sub>70</sub>O<sub>12</sub>

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, solubilizer for cosmetics, pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

PEG-20 sorbitan stearate. See Polysorbate 60

#### PEG-40 sorbitan stearate

CAS 9005-67-8 (generic)

*Synonyms:* PEG 2000 sorbitan stearate; POE (40) sorbitan stearate

*Definition:* Ethoxylated sorbitan ester of stearic acid with an avg. of 40 moles EO

*Uses:* Surfactant, emulsifier in cosmetics; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.210

PEG 2000 sorbitan stearate. See PEG-40 sorbitan stearate

#### PEG-40 sorbitan tetraoleate

CAS 63089-86-1 (generic)

*Synonyms:* POE (40) sorbitan tetraoleate; PEG 2000 sorbitan tetraoleate

*Definition:* Tetraester of oleic acid and a PEG ether of sorbitol, avg. 40 moles EO

*Formula:* (C<sub>3</sub>H<sub>6</sub>O · C<sub>2</sub>H<sub>4</sub>O)<sub>x</sub>

*Properties:* Nonionic

*Toxicology:* Moderately toxic by ingestion and intraperitoneal route

*Uses:* Emulsifier, solubilizer, superfatting agent in pharmaceuticals, cosmetics, emulsion polymerization, agric., printing inks; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**PEG 2000 sorbitan tetraoleate.** See PEG-40 sorbitan tetraoleate

**PEG-20 sorbitan trioleate.** See Polysorbate 85

**PEG-20 sorbitan tristearate.** See Polysorbate 65

**PEG-40 sorbitol hexaoleate.** See PEG-40 sorbitan hexaoleate

**PEG 2000 sorbitol hexaoleate.** See PEG-40 sorbitan hexaoleate

**PEG 100 soya amine.** See PEG-2 soyamine

**PEG 500 soya amine.** See PEG-10 soyamine

#### PEG-2 soyamine

CAS 61791-24-0 (generic)

*Synonyms:* POE (2) soya amine; PEG 100 soya amine; Bis (2-hydroxyethyl) soya amine

*Classification:* Ethoxylated amine

*Definition:* PEG amine of soya acid

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, R rep. alkyl groups from soy, avg. (x+y)=2

*Properties:* Cationic/nonionic

*Toxicology:* LD50 (oral, rat) 1500 mg/kg; mod. toxic by ingestion; eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Emulsifier, surfactant in cosmetics; wetting agent; dispersant; antistat; lubricant; leather dressings; metal cleaning compds.; fiber lubricants; in the bldg. industry; plastics antistat

*Trade Names:* Teric™ 16M2

#### PEG-10 soyamine

CAS 61791-24-0 (generic)

*Synonyms:* POE (10) soya amine; PEG 500 soya amine

*Definition:* PEG amine of soya acid

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, R rep. alkyl groups from soy, avg. (x+y)=10

*Toxicology:* Moderately toxic by ingestion; eye irritant; TSCA listed

*Uses:* Wetting agent, dispersant, emulsifier, antistat in leather dressing compds.; fiber lubricant; wax emulsions for fiber board pkg. and particle board for bldg. industry; plastics antistat; emulsifier, surfactant in cosmetics

*Trade Names:* Teric™ 16M10

#### PEG-15 soyamine

CAS 61791-24-0 (generic)

*Synonyms:* POE (15) soya amine

*Definition:* PEG amine of soya acid

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, R rep. alkyl groups from soy, avg. (x+y)=15

*Toxicology:* Moderately toxic by ingestion; eye irritant; TSCA listed

*Uses:* Desizing agent; emulsifier, surfactant in cosmetics; emulsifier in agric., waxes and oils, leather processing, and metal cleaning industries; water repellent and wet spinning assistant in textiles; plastics antistat

*Trade Names:* Teric™ 16M15

#### PEG stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Synonyms:* Stearylamine ethoxylates

*Formula:* R(CH<sub>2</sub>CH<sub>2</sub>O)<sub>m</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H, R = stearyl, m+n = 2-15

*Properties:* Liqs.; HLB 15-19 (5-30 EO)

*Uses:* Corrosion inhibitor; emulsifier for waxes, sol. oils, pesticides, cleaners, bitumen, silicone oils; antistat for textile spin finishes, paper processing, plastics; wetting/dispersing agent for electrostatic paints, inks, dyes, pigments

#### PEG-2 stearamine

CAS 9003-93-4 (generic); 10213-78-2; 26635-92-7 (generic); EINECS/ELINCS 233-520-3

*Synonyms:* N,N-Bis (2-hydroxyethyl) octadecylamine; Bis-2-hydroxyethyl stearamine; Bis-2-hydroxyethyl stearylamine; N,N-Bis (2-hydroxyethyl) stearyl amine; 2,2'-(Octadecylimino) bisethanol; PEG-2 octadecylamine; PEG-2 stearyl amine; PEG 100 stearyl amine

*Definition:* PEG deriv. of stearyl amine

*Empirical:* C<sub>22</sub>H<sub>46</sub>NO<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, avg. (x+y)=2

*Properties:* Cationic/nonionic

*Uses:* Hydrophilic emulsifier, antistat in cosmetics, textiles, metal buffing, rubber compds., agric.; lubricant for fiberglass; intermediate for quats.; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; antistat in plastics and food pkg.

*Regulatory:* FDA 21CFR §178.3130

*Manuf./Distrib.:* Crompton/Witco

*Trade Names:* Teric™ 18M2

#### PEG-5 stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Synonyms:* POE (5) stearyl amine

*Definition:* PEG deriv. of stearyl amine

*Empirical:* C<sub>28</sub>H<sub>59</sub>NO<sub>5</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, avg. (x+y)=5

*Uses:* Hydrophilic emulsifier, antistat for cosmetics, textiles, metal, plastics, agric.; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; intermediate for quats.

*Trade Names:* Imbentin-SAM/050; Teric™ 18M5

#### PEG-10 stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Synonyms:* POE (10) stearyl amine; PEG-10 octadecylamine; PEG 500 stearyl amine

*Definition:* PEG amine of stearic acid

*Empirical:* C<sub>38</sub>H<sub>79</sub>NO<sub>10</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, avg. (x+y)=10

*Uses:* Emulsifier, dispersant used in textile processing, agric., paper, leather; softener, antistat for plastics; antistat, emulsifier in cosmetics

*Trade Names:* Teric™ 18M10

#### PEG-20 stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Synonyms:* POE (20) stearyl amine

*Definition:* PEG amine of stearic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, avg. (x+y)=20

*Toxicology:* TSCA listed

*Uses:* Wetting agent, dispersant; emulsion stabilizer; emulsifier used in agric. toxicants and processing of textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases

*Trade Names:* Teric™ 18M20

#### PEG-25 stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Uses:* Base material for chemo-tech. prods.; solubilizer, detergent for industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, metal treatment, plastics, petroleum/mining industries, paper processing; detergent for textile auxiliaries

*Trade Names:* Imbentin-SAM/250

#### PEG-30 stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Synonyms:* POE (30) stearyl amine

*Definition:* PEG amine of stearic acid

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, avg. (x+y)=30

*Toxicology:* TSCA listed

*Uses:* Wetting agent, dispersant; emulsion stabilizer; emulsifier used in agric. toxicants and processing of textiles, paper, leather and bldg. board; corrosion inhibitor in lubricants and greases

*Trade Names:* Teric™ 18M30

#### PEG-40 stearamine

CAS 9003-93-4 (generic); 26635-92-7 (generic)

*Uses:* Detergent for industrial cleaners, textile auxs.

*Trade Names:* Imbentin-SAM/400

#### PEG stearate

CAS 9004-99-3 (generic)

*Synonyms:* Glycols, polyethylene, monostearate; α-1-(Oxooctadecyl)-ω-hydroxypoly (oxy-1,2-ethanediyl); Polyethylene glycol monostearate; Polyethylene glycols monostearate; Polyethylene glycol stearate; Poly (oxy-1,2-ethanediyl), α-(1-oxooctadecyl)-ω-hydroxy-; Polyoxyethylene monostearate

*Definition:* PEG ester of stearic acid

*Formula:* (C<sub>2</sub>H<sub>4</sub>O)<sub>n</sub> • C<sub>18</sub>H<sub>36</sub>O<sub>2</sub>

*Properties:* Wh. or yel. paste to solid; insol. in water (@ < 8 EO); m.p. 31-

33 C; HLB 7.5-18.0 (4-100 EO); nonionic

**Toxicology:** LD50 (oral, rat) 53 ml/kg; very sl. toxic by ing.; may cause GI changes, liver changes, spleen changes; questionable carcinogen; experimental tumorigen, reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Surfactant for textile scouring, hard surf. cleaners, metal cleaners, concrete cleaners; emulsifier for pesticides, metalworking fluids; foam booster/antiredeposition agent in shampoos; emulsifier/thickener in cosmetics; antistat for textile spin finishes, paper tissue

#### PEG-1 stearate. See Glycol stearate

#### PEG-2 stearate

CAS 106-11-6; 9004-99-3 (generic); 85116-97-8; EINECS/ELINCS 203-363-5; 285-550-1

**Synonyms:** Diethylene glycol, monoester with stearic acid; Diethylene glycol monostearate; Diethylene glycol stearate; Diglycol monostearate; Diglycol stearate; Glyco stearin; 2-(2-Hydroxyethoxy) ethyl ester stearic acid; 2-(2-Hydroxyethoxy) ethyl stearate; PEG 100 monostearate; Polyoxyl 2 stearate; Stearic acid, 2-(2-hydroxyethoxy) ethyl ester

**Definition:** PEG ester of stearic acid

**Empirical:** C<sub>22</sub>H<sub>44</sub>O<sub>4</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 2

**Properties:** Wh. wax-like solid; faint fatty odor; sol. in hot alcohol, oils; m.w. 372.66; m.p. 45-55 C; HLB 4.3; nonionic

**Toxicology:** LD50 (IP, mouse) 200 mg/kg; poison by IV, IP routes; mildly toxic by ing.; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Uses:** Emulsifier, plasticizer, lubricant, wetting agent, binder, thickener, dispersant, antistat, opacifier, pearlescent, stabilizer used in cosmetics, pharmaceuticals, dry-cleaning, leather, textile industries, paper processing, rubber; metal drawing lubricants; protective coating for hygroscopic materials (tablets); mold release lubricant for die casting; binder for ceramics and grinding wheels; defoamer in food-contact coatings

**Regulatory:** FDA 21CFR §175.300, 176.200, 176.210, 177.2800; FDA approved for topicals

**Manuf./Distrib.:** ABITEC; Cognis/Chems. Group; Crompton/Witco; Inolex; Lipo; Lonza; Ruger; Sigma; Stepan

**Trade Names:** Cithrol DGMS N/E; Lumulse™ DGS

**Trade Names Containing:** Lumulse™ DGS-N

#### PEG-4 stearate

CAS 106-07-0; 9004-99-3 (generic); EINECS/ELINCS 203-358-8

**Synonyms:** 2-[2-[2-(2-Hydroxyethoxy) ethoxy] ethoxy] ethyl octadecanoate; PEG 200 monostearate; POE (4) stearate

**Definition:** PEG ester of stearic acid

**Empirical:** C<sub>26</sub>H<sub>52</sub>O<sub>6</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 4

**Properties:** Sol. in alcohol; partly sol. in min. oils; disp. warm in water; m.p. 30-40 C; HLB 8.0; nonionic

**Toxicology:** Poison by IV, IP route; mildly toxic by ing.; TSCA listed

**Uses:** Emulsifier, lubricant, dispersant, leveling agent, solubilizer, thickener, softener in cosmetics, textiles, paints, agric., plastics, food, pharmaceuticals; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.210

**Manuf./Distrib.:** Mosselman NV; Ruger; Sigma

#### PEG-6 stearate

CAS 9004-99-3 (generic); 10108-28-8

**Synonyms:** 17-Hydroxy-3,6,9,12,15-pentaoxaheptadec-1-yl octadecanoate; PEG 300 monostearate; POE (6) stearate

**Definition:** PEG ester of stearic acid

**Empirical:** C<sub>30</sub>H<sub>60</sub>O<sub>8</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6

**Properties:** Sol. in alcohol; sol. warm in veg. and min. oils; disp. in water; nonionic

**Toxicology:** Poison by IV, IP route; mildly toxic by ing.; TSCA listed

**Uses:** Waxy emulsifier for oils and fats in industrial lubricants; softener and lubricant in textiles and leather; emulsifier in cosmetics, pharmaceuticals,

food, agric., plastics; base for cosmetic lotions; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.210

**Manuf./Distrib.:** Mosselman NV; Ruger; Sigma

#### PEG-8 stearate

CAS 9004-99-3 (generic); 70802-40-3

**Synonyms:** 23-Hydroxy-3,6,9,12,15,18,21-heptaooxatricos-1-yl octadecanoate; Macrogol stearate 400; Macrogol ester 400; PEG 400 monostearate; POE (8) stearate; Polyoxyl 8 stearate

**Definition:** PEG ester of stearic acid

**Empirical:** C<sub>34</sub>H<sub>68</sub>O<sub>10</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

**Properties:** Sol. in alcohol; partly sol. in veg. and min. oils; disp. warm in water; HLB 11.1-11.7; nonionic

**Toxicology:** Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

**HMIS:** Health 0; Flammability 1; Reactivity 0

**Uses:** Emulsifier, lubricant, dispersant, leveling agent in cosmetics, pharmaceuticals, textiles, paints, other industrial uses; surfactant, humectant in cosmetics; plastics antistat; emulsifier in bakery prods.; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings; in cellophane for food pkg.; in surf. lubricants for mfg. of food-contact metallic articles

**Use Level:** ADI 0-25 mg/kg body wt.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2260, 177.2800, 178.3910; Europe listed; UK approved; FDA approved for topicals

**Manuf./Distrib.:** Mosselman NV; Ruger; Seabrook Ind.; Sigma

**Trade Names:** Alkamuls® S-8; DeTHOXACID S-8; Emerest® 2640; Nopalcol 4-S; Pegospense® 400 MS

#### PEG-12 stearate

CAS 9004-99-3 (generic)

**Synonyms:** PEG 600 monostearate; POE (12) stearate

**Definition:** PEG ester of stearic acid

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12

**Properties:** Sol. in alcohol; partly sol. in veg. and min. oils; m.p. 35 C; HLB 13.6; nonionic

**Toxicology:** Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

**HMIS:** Health 0; Flammability 1; Reactivity 0

**Uses:** Emulsifier, lubricant, dispersant, defoamer, leveling agent, visc. modifier in cosmetics, textiles, paints, food, agric., plastics, pharmaceuticals; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1200, 177.2260, 177.2800

**Manuf./Distrib.:** Mosselman NV; Ruger; Sigma

**Trade Names:** Nopalcol 6-S

#### PEG-20 stearate

CAS 9004-99-3 (generic)

**Synonyms:** PEG 1000 monostearate; POE (20) stearate; Polyoxyl 20 stearate

**Definition:** PEG ester of stearic acid

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CO(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 20

**Properties:** Sol. in ethanol; partly sol. in propylene glycol; disp. in glycerin; insol. in water; m.p. 39.5-42.5 C; sapon. no. 40-50; nonionic

**Toxicology:** Poison by IV, IP routes; mildly toxic by ing.; TSCA listed

**HMIS:** Health 0; Flammability 1; Reactivity 0

**Uses:** Surfactant, emulsifier, humectant, thickener, solubilizer, emollient, opacifier, wetting agent, dispersant for cosmetics, pharmaceuticals, food, agric., plastics, paints; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

**Regulatory:** FDA 21CFR §175.300, 176.210, 177.2260, 177.2800; FDA approved for orals

**Manuf./Distrib.:** Ruger; Sigma

#### PEG-32 stearate

CAS 9004-99-3 (generic)

*Synonyms:* PEG 1540 monostearate; PEG 1540 stearate; POE (32) monostearate

*Definition:* PEG ester of stearic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_{16}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 32$

*Properties:* Nonionic

*Toxicology:* Poison by IV, IP route; mildly toxic by ing.; TSCA listed

*Uses:* Surfactant, emulsifier, solubilizer, thickener, emollient, opacifier, spreading agent, wetting agent, dispersant for cosmetics, pharmaceuticals, perfume, food, agric., plastics, other industries; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Ruger; Sigma

#### PEG-40 stearate

CAS 9004-99-3 (generic); 31791-00-2

*Synonyms:* Macrogol stearate 2000; PEG 2000 monostearate; POE (40) monostearate; POE (40) stearate; Polyoxyl 40 stearate; Stearethate 40

*Definition:* PEG ester of stearic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_{16}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 40$

*Properties:* Wh. to cream waxy solid; nearly odorless to faint fatty odor; sol. in water, ether, alcohol, acetone; insol. in min. and veg. oils; m.p. 37-47°C; HLB 16.9; acid no. 2 max.; sapon. no. 25-35; hyd. no. 25-40; nonionic

*Toxicology:* LD50 (oral, rat) 53 ml/kg; poison by IV, IP routes; mildly toxic by ing.; TSCA listed

*Uses:* Emulsifier, stabilizer, antigellant, lubricant for cosmetics, creams/lotions, ointments, shampoos, deodorants, makeup; food emulsifier, defoamer; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Use Level:* ADI 0-25 mg/kg (EU)

*Regulatory:* FDA 21CFR §173.340, 175.105, 175.300, 176.200, 176.210, 177.2260, 177.2800; Europe listed; UK approved; FDA approved for dentals, ophthalmics, orals, otics, topicals; USP/NF compliance

*Manuf./Distrib.:* Seabrook Ind.; Sigma

#### PEG-100 stearate

CAS 9004-99-3 (generic)

*Synonyms:* PEG (100) monostearate; POE (100) stearate

*Definition:* PEG ester of stearic acid

*Formula:*  $\text{CH}_3(\text{CH}_2)_{16}\text{CO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 100$

*Properties:* Nonionic

*Toxicology:* Poison by intravenous, intraperitoneal route; mildly toxic by ingestion; TSCA listed

*Uses:* Surfactant, emulsifier, emollient for cosmetics, hair preps., creams and lotions; solubilizer for bath oils and fragrances; in foods and pharmaceuticals; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings

*Regulatory:* FDA 21CFR §175.300, 176.210

*Manuf./Distrib.:* Seabrook Ind.; Sigma

#### PEG 1540 stearate. See PEG-32 stearate

#### PEG-2 stearate SE

CAS 106-11-6; 9004-99-3 (generic)

*Synonyms:* Diethylene glycol monostearate self-emulsifying; PEG 100 monostearate self-emulsifying; POE (2) monostearate self-emulsifying

*Definition:* Self-emulsifying grade of PEG-2 stearate

*Properties:* HLB 5.4; anionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, dispersant, antistat for textiles, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants; emulsifier in cosmetics; protective coating for hygroscopic materials (tablets)

*Trade Names Containing:* Lumulse™ DGS-C

#### PEG-2 stearyl amine. See PEG-2 stearamine

#### PEG 100 stearyl amine. See PEG-2 stearamine

#### PEG 500 stearyl amine. See PEG-10 stearamine

#### PEG-2 stearyl ether. See Steareth-2

#### PEG-10 stearyl ether. See Steareth-10

#### PEG-20 stearyl ether. See Steareth-20

#### PEG 100 stearyl ether. See Steareth-2

#### PEG 500 stearyl ether. See Steareth-10

#### PEG 1000 stearyl ether. See Steareth-20

#### PEG tallate

CAS 61791-00-2 (generic)

*Synonyms:* Polyethylene glycol monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:*  $\text{RCO}(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , R = tall oil,  $n = 3-10$

*Properties:* Liq. to waxy solid; nonionic

*Uses:* Low-foaming surfactant for hard surf. cleaners; paper desliming aid; emulsifier and wetting agent in pesticides

#### PEG-4 tallate

CAS 61791-00-2 (generic)

*Synonyms:* PEG 200 monotallate; POE (4) monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:*  $\text{RCO}-(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , RCO- rep. fatty acids from tall oil, avg.  $n = 4$

*Properties:* Liq.; nonionic

*Toxicology:* TSCA listed

*Uses:* Detergent, emulsifier, lubricant, softener, wetting agent in cosmetics, pharmaceuticals, cleaners, dyeing, metal cleaning, leather processing; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210

#### PEG-5 tallate

CAS 61791-00-2 (generic)

*Synonyms:* PEG (5) monotallate; POE (5) monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:*  $\text{RCO}-(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , RCO- rep. fatty acids from tall oil, avg.  $n = 5$

*Properties:* Nonionic

*Uses:* Wetting agent and dispersant for oil-based systems; emulsifier, detergent, grinding aid for wet milling of pigments and resins; mfg. of lubricants for metal and textile industries, solvent cleaners, and powd. detergents; emulsifier in cosmetics; lubricant; softener; coupling agent; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300

*Trade Names:* Surfonic® TOFA-5; Teric™ T5

#### PEG-6 tallate

CAS 61791-00-2 (generic)

*Synonyms:* PEG 300 monotallate; POE 300 monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Properties:* Nonionic

*Uses:* Emulsifier for min. oil; codetergent for industrial use

*Trade Names:* Surfonic® TOFA-6

#### PEG-8 tallate

CAS 61791-00-2 (generic)

*Synonyms:* POE (8) monotallate; PEG 400 monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:*  $\text{RCO}-(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , RCO- rep. fatty acids from tall oil, avg.  $n = 8$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier for cosmetics, pharmaceuticals, textiles, leather, industrial use; lubricant; dye assistant; leveling agent for polyester; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in closure-sealing gaskets for food containers; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210, 177.1210, 177.2800

*Trade Names:* DeTHOX ACID TO-8.5

#### PEG-10 tallate

CAS 61791-00-2 (generic)

*Synonyms:* POE (10) monotallate; PEG 500 monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid



*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids from tall oil, avg. n = 10

*Properties:* Nonionic

*Uses:* Emulsifier, surfactant for built detergent systems, industrial lubricants and degreasers; emulsifier in cosmetics; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300, 177.2800

*Trade Names:* Surfonic® TOFA-X10; Teric™ T10

#### PEG-12 tallate

CAS 61791-00-2 (generic)

*Synonyms:* POE (12) monotallate; PEG 600 monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids from tall oil, avg. n = 12

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, dispersant, defoamer for cosmetics, pharmaceuticals, household prods., textiles, leather, paper, coatings, water treatment, metalworking fluids, plastics; leveling agent for polyester; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.2800

#### PEG-14 tallate

CAS 61791-00-2 (generic)

*Synonyms:* POE (14) monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids derived from tall oil, avg. n = 14

*Properties:* Nonionic

*Uses:* Emulsifier, wetting agent, dispersant for acid cleaners, textiles, metalworking, cosmetics; emulsifier in defoamers; visc. control agent in plastisols; lubricant in skin preps.; food-pkg. adhesives, coatings, paper, textiles, animal glue; defoamer in food-contact paper/paperboard

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* DeTHOX ACID TO-14

#### PEG-16 tallate

CAS 61791-00-2 (generic)

*Synonyms:* POE (16) monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids from tall oil, avg. n = 16

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Foam detergent, emulsifier, lubricant, dye assistant, detergent for home laundry, textile scouring, rug shampoos; emulsifier in cosmetics; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with dry foods; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.180, 176.210, 177.2800

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* DeTHOX ACID TO-16.5

#### PEG-20 tallate

CAS 61791-00-2 (generic)

*Synonyms:* POE (20) monotallate; PEG 1000 monotallate

*Classification:* Ethoxylated fatty acid ester

*Definition:* PEG ester of tall oil acid

*Formula:* RCO-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, RCO- rep. fatty acids from tall oil, avg. n = 20

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, detergent, emulsifier, lubricant, softener for cosmetics, textiles, leather, metal cleaning; defoamer in food-contact paper/paperboard; in resinous/polymeric food-contact coatings; in food-contact textiles

*Regulatory:* FDA 21CFR §175.300, 176.180, 176.210, 177.2800

*Trade Names:* Surfonic® TOFA-20

#### PEG-2 tallowamine

CAS 61791-44-4 (generic); 90367-28-5 (generic)

*Synonyms:* Bis (2-hydroxyethyl) tallowamine; POE (2) tallowamine

*Definition:* PEG amine of tallow

*Empirical:* C<sub>22</sub>H<sub>47</sub>NO<sub>2</sub>

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, where R rep. alkyl groups derived from tallow and avg. (x+y) = 2

*Properties:* Liq./paste; m.w. 357.63; dens. 0.92 kg/l; m.p. 23 C; HLB 9.8; cationic

*Uses:* Hydrophilic emulsifier, wetting agent, antistat, anticorrosive for agric., leather, textiles, metalworking, plastics; intermediate for quats.; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; lubricant, softener, scouring aid, dye leveler and antistat for textiles; in syn. latex paints; emulsifier for latex, dyes, and oils; antistat for food pkg.

*Regulatory:* FDA 21CFR §178.3130

*Trade Names:* Imbentin-TAM/020

#### PEG-5 tallowamine

CAS 61791-44-4 (generic)

*Synonyms:* POE (5) tallowamine

*Definition:* PEG amine of tallow

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, where R rep. alkyl groups derived from tallow and avg. (x+y) = 5

*Uses:* Hydrophilic emulsifier, wetting agent, antistat, anticorrosive for agric., leather, textiles, metalworking, plastics; intermediate for quats.; textile dyeing agent, dye leveler, antiprecipitant, stripping agent; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §178.3910

*Trade Names:* Imbentin-TAM/050

#### PEG-20 tallowamine

CAS 61790-82-7 (generic); 61791-44-4 (generic); 90367-28-5 (generic)

*Synonyms:* POE (20) tallowamine

*Definition:* PEG amine of tallow

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, where R rep. alkyl groups derived from tallow and avg. (x+y) = 20

*Properties:* HLB 15.5; cationic

*Uses:* Hydrophilic emulsifier, wetting agent, antistat, anticorrosive for agric., leather, textiles, metalworking, plastics; intermediate for quats.; textile dyeing agent, dye leveler, antiprecipitant, stripping agent

*Manuf./Distrib.:* Seabrook Ind.

*Trade Names:* Imbentin-TAM/200 N

#### PEG-35 tallowamine

CAS 61791-44-4 (generic)

*Synonyms:* POE (35) tallowamine

*Definition:* PEG amine of tallow

*Formula:* R-N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, where R rep. alkyl groups derived from tallow and avg. (x+y) = 35

*Uses:* Solubilizer, cleaning agent for industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, metal treatment, plastics, petroleum/mining industries, paper processing

*Trade Names:* Imbentin-TAM/350

#### PEG-10 tallow aminopropylamine

CAS 61790-85-0 (generic)

*Synonyms:* PEG 500 tallow aminopropylamine; PEG-10 N-tallow-1,3-diaminopropane; PEG-10 tallow propylenediamine; POE (10) tallow aminopropylamine

*Classification:* Ethoxylated diamine

*Formula:* RN(CH<sub>2</sub>CH<sub>2</sub>O)<sub>2</sub>H(CH<sub>2</sub>)<sub>3</sub>N(CH<sub>2</sub>CH<sub>2</sub>O)<sub>x</sub>H(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H, R = alkyl groups from tallow, avg. (x+y+z) = 10

*Uses:* Emulsifier in cosmetics; emulsifier, dispersant, wetting agent used in coating preparation on paperboard; corrosion inhibitor

*Manuf./Distrib.:* Sigma

*Trade Names:* Ethoduomeen® T/20

#### PEG-25 tallow aminopropylamine

*Classification:* Ethoxylated diamine

*Uses:* Solubilizer, cleaning agent for industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, metal treatment, plastics, petroleum/mining industries, paper processing

*Trade Names:* Imbentin-DT/250

**PEG 500 tallow aminopropylamine.** See PEG-10 tallow aminopropylamine  
**PEG-10 N-tallow-1,3-diaminopropane.** See PEG-10 tallow aminopropylamine  
**PEG-6 tallow ether.** See Talloweth-6

**PEG 300 tallow ether.** See Talloweth-6

**PEG-10 tallow propylenediamine.** See PEG-10 tallow aminopropylamine

**PEG tetramethyl decynediol**

CAS 9014-85-1 (generic)

*Synonyms:* Ethylene oxide adduct of 2,4,7,9-tetramethyl-5-decyn-4,7-diol; Tetramethyl decynediol ethoxylate; 2,4,7,9-Tetramethyl-5-decyn-4,7-diol ethoxylate

*Classification:* Nonionic surfactants

*Formula:*  $\text{CH}_3(\text{CH}_2)_2\text{CHCH}_2\text{COH}(\text{OCH}_2\text{CH}_2)_m\text{CH}_3(\text{CH}_2)_2\text{CHCH}_2\text{COH}(\text{OCH}_2\text{CH}_2)_n$

*Uses:* Defoamer; wetting agent for electroplating, metal cleaning, adhesives, paper coatings; surfactant in food-contact coatings

*Regulatory:* FDA 21CFR §175.300

**PEG-1.3 tetramethyl decynediol**

*Properties:* Nonionic

*Uses:* Wetting agent, defoamer, dispersant for aq. coatings, inks, adhesives, agric., electroplating, oil field chems., paper coatings, food-pkg. adhesives/coatings/paper

*Trade Names:* Surfynol® 420

**PEG-3.5 tetramethyl decynediol**

CAS 9014-85-1 (generic)

*Properties:* Nonionic

*Uses:* Defoamer, rewetting, and leveling agent for paperboard coatings, agric. formulations, water-based industrial finishes; metal cleaning and plating bath additive; food-pkg. adhesives/coatings/paper

*Trade Names:* Surfynol® 440

**PEG-10 tetramethyl decynediol**

CAS 9014-85-1 (generic)

*Properties:* Nonionic

*Uses:* Wetting agent, defoamer for aq. coatings, inks, adhesives; surfactant for emulsion polymerization; electroplating additive; food-pkg. adhesives, coatings, paper, closure-sealing gaskets for food containers; defoamer in food-contact coatings

*Trade Names:* Surfynol® 465

**PEG-30 tetramethyl decynediol**

CAS 9014-85-1 (generic)

*Properties:* Nonionic

*Uses:* Wetting agent, defoamer for aq. coatings, inks, adhesives, agric., electroplating, oil field chems., paper coatings, emulsion polymerization; food-pkg. adhesives, coatings, paper, closure-sealing gaskets for food containers; defoamer in food-contact coatings

*Trade Names:* Surfynol® 485

**PEG-3 tridecyl ether.** See Trideceth-3

**PEG (3) tridecyl ether.** See Trideceth-3

**PEG-4 tridecyl ether.** See Trideceth-4

**PEG-5 tridecyl ether.** See Trideceth-5

**PEG-6 tridecyl ether.** See Trideceth-6

**PEG-7 tridecyl ether.** See Trideceth-7

**PEG-8 tridecyl ether.** See Trideceth-8

**PEG-9 tridecyl ether.** See Trideceth-9

**PEG-10 tridecyl ether.** See Trideceth-10

**PEG-11 tridecyl ether.** See Trideceth-11

**PEG-12 tridecyl ether.** See Trideceth-12

**PEG-14 tridecyl ether.** See Trideceth-14

**PEG-15 tridecyl ether.** See Trideceth-15

**PEG-18 tridecyl ether.** See Trideceth-18

**PEG-20 tridecyl ether.** See Trideceth-20

**PEG-23 tridecyl ether.** See Trideceth-23

**PEG-25 tridecyl ether.** See Trideceth-25

**PEG-29 tridecyl ether.** See Trideceth-29

**PEG-30 tridecyl ether.** See Trideceth-30

**PEG-40 tridecyl ether.** See Trideceth-40

**PEG-50 tridecyl ether.** See Trideceth-50

**PEG 100 tridecyl ether.** See Trideceth-2

**PEG-100 tridecyl ether.** See Trideceth-100

**PEG-150 tridecyl ether.** See Trideceth-150

**PEG 300 tridecyl ether.** See Trideceth-6

**PEG 400 tridecyl ether.** See Trideceth-8

**PEG 450 tridecyl ether.** See Trideceth-9

**PEG 500 tridecyl ether.** See Trideceth-10

**PEG 600 tridecyl ether.** See Trideceth-12

**PEG 1000 tridecyl ether.** See Trideceth-20

**PEG-6 tridecyl ether phosphate.** See Trideceth-6 phosphate

**PEG-10 tridecyl ether phosphate.** See Trideceth-10 phosphate

**PEG 300 tridecyl ether phosphate.** See Trideceth-6 phosphate

**PEG 500 tridecyl ether phosphate.** See Trideceth-10 phosphate

**PEG-3 trimethylolpropane triacrylate**

*Uses:* Monomer for electronics coating, wood/paper coatings, flooring, solder masks, dry films, adhesives, inks, paints, photopolymers; curing agent

*Trade Names:* SR 454; SR 454HP

*Trade Names Containing:* CN 963 E80; CN 970 E60; CN 982 E75

**PEG-6 trimethylolpropane triacrylate**

*Uses:* Monomer for acrylics, adhesives, coatings, electronics, inks, paints, photopolymers

*Trade Names:* SR 499

**PEG-9 trimethylolpropane triacrylate**

*Uses:* Monomer for acrylics, adhesives, coatings, electronics, inks, paints, photopolymers

*Trade Names:* SR 502

**PEG-15 trimethylolpropane triacrylate**

*Uses:* Monomer for acrylics, adhesives, coatings, electronics, inks, paints, photopolymers

*Trade Names:* SR 9035

**PEG (3) undecyl ether.** See Undeceth-3

**PEG (5) undecyl ether.** See Undeceth-5

**PEG (6) undecyl ether.** See Undeceth-6

**PEG (7) undecyl ether.** See Undeceth-7

**PEG (8) undecyl ether.** See Undeceth-8

**PEG (11) undecyl ether.** See Undeceth-11

**PEI.** See Polyethylenimine

**PEI-15**

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 15

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg. n = 15

*Toxicology:* TSCA listed

*Uses:* Visc. control agent in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**PEI-30**

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 30

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg. n = 30

*Toxicology:* TSCA listed

*Uses:* Visc. control agent in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

**PEI-275**

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 275

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg. n = 275

*Uses:* Visc. control agent in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

**PEI-700**

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 700

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg.  $n = 700$

*Toxicology:* TSCA listed

*Uses:* Visc. control agent in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

#### PEI-1000

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 1000

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg.  $n = 1000$

*Uses:* Visc. control agent in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

#### PEI-1400

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 1400

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg.  $n = 1400$

*Toxicology:* TSCA listed

*Uses:* Visc. control agent in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PEI-1500

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 1500

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg.  $n = 1500$

*Toxicology:* TSCA listed

*Uses:* Visc. control agent in cosmetics; surface modifier for cosmetic powds.; skin softener/protectant/conditioner; complexing agent for heavy metal ions; food-pkg. adhesives; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PEI-1750

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 1750

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg.  $n = 1750$

*Toxicology:* TSCA listed

*Uses:* Visc. control agent in cosmetics; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PEI-2500

CAS 9002-98-6 (generic)

*Synonyms:* Polyethylenimine 2500

*Definition:* Polymer of ethylenimine

*Formula:*  $(\text{CH}_2\text{CH}_2\text{NH})_n$ , avg.  $n = 2500$

*Uses:* Visc. control agent in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in food-contact paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

**1,4,7,10,13-Pentaazatridecane.** See Tetraethylenepentamine

**Pentacarboxymethyl diethylenetriamine.** See Pentelic acid

**Pentachlorophenolate sodium.** See Sodium pentachlorophenate

**Pentachlorophenol, sodium salt.** See Sodium pentachlorophenate

**Pentachlorophenoxy sodium.** See Sodium pentachlorophenate

**Pentachlorophenyl chloride.** See Hexachlorobenzene

**1-Pentadecanecarboxylic acid.** See Palmitic acid

**7-Pentadecanecarboxylic acid.** See 2-Hexyl decanoic acid

#### Pentadecyl methacrylate

CAS 6140-74-5

*Uses:* Additive for lubricating oil, paint, adhesives; modifier for fibers; coating agent for paper

*Trade Names:* Blemmer PMA

**Pentaerythritol ester of rosin.** See Pentaerythritol rosinate

**Pentaerythritol hydrogenated rosinate.** See Pentaerythritol hydrogenated rosinate

**Pentaerythritol rosinate.** See Pentaerythritol rosinate

**Pentaerythritol tetraacrylate.** See Pentaerythritol tetraacrylate

**Pentaerythritol tetracocoate.** See Pentaerythritol tetracocoate

**Pentaerythritol tetrakis (3,5-di-*t*-butyl)-4-hydroxyhydrocinnamate.** See Pentaerythritol tetrakis [3-(3',5'-di-*t*-butyl-4-hydroxyphenyl) propionate]

**Pentaerythritol tetrakis [3-(3',5'-di-*t*-butyl-4-hydroxyphenyl) propionate].** See Pentaerythritol tetrakis [3-(3',5'-di-*t*-butyl-4-hydroxyphenyl) propionate]

**Pentaerythritol tetralaurate.** See Pentaerythritol tetralaurate

**Pentaerythritol tetraoleate.** See Pentaerythritol tetraoleate

**Pentaerythritol tetrastearate.** See Pentaerythritol tetrastearate

**Pentaerythritol triacrylate.** See Pentaerythritol triacrylate

#### Pentaerythritol dioleate

CAS 25151-96-6; EINECS/ELINCS 246-665-2

*Synonyms:* 2,2-Bis (hydroxymethyl)-1,3-propanediyl dioleate; 9-Octadecenoic acid, 2,2-bis (hydroxymethyl)-1,3-propanediyl ester

*Definition:* Diester of pentaerythritol and oleic acid

*Empirical:*  $\text{C}_{41}\text{H}_{76}\text{O}_6$

*Formula:*  $\text{RCO}-\text{OCH}_2\text{C}(\text{CH}_2\text{OH})_2\text{CH}_2\text{O}-\text{RCO}$ , RCO- rep. oleic acid radical

*Uses:* Emollient in cosmetics; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

#### Pentaerythritol distearate

CAS 13081-97-5; EINECS/ELINCS 235-991-0

*Synonyms:* Octadecanoic acid, 2,2-bis (hydroxymethyl)-1,3-propanediyl ester

*Definition:* Diester of pentaerythritol and stearic acid

*Empirical:*  $\text{C}_{41}\text{H}_{80}\text{O}_6$

*Formula:*  $\text{RCO}-\text{OCH}_2\text{C}(\text{CH}_2\text{OH})_2\text{CH}_2\text{O}-\text{OCR}$ , where RCO- rep. stearic acid radical

*Properties:* Nonionic

*Uses:* Surfactant, emulsifier for cosmetics, general industrial use; defoamer in food-contact paper/paperboard; antioxidant/stabilizer in food-contact polymers

*Regulatory:* FDA 21CFR §176.210, 178.2010

#### Pentaerythritol hydrogenated rosinate

CAS 64365-17-9; EINECS/ELINCS 264-848-5

*Synonyms:* Pentaerythritol hydrogenated rosinate

*Definition:* Ester of pentaerythritol and hydrogenated acids from rosin

*Uses:* Thermoplastic resin as tackifier for adhesives; in protective and barrier-type coatings; film-former in cosmetics; defoamer in food-contact paper/paperboard; in food-contact animal glue; in wood preservatives for food contact

*Regulatory:* FDA 21CFR §176.210, 178.3120, 178.3800, 178.3870

*Trade Names:* Pentalyn® H

#### Pentaerythritol rosinate

CAS 8050-26-8; EINECS/ELINCS 232-479-9

*Synonyms:* Pentaerythritol rosinate; Pentaerythritol ester of rosin; Rosin acids and rosin acids, esters with pentaerythritol; Rosin pentaerythritol ester

*Classification:* Thermoplastic resin

*Definition:* Ester of rosin acids with the polyol, pentaerythritol

*Properties:* Amber hard solid; sol. in acetone, benzene; insol. in water; soften. pt. (R&B) 110-115 C

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Tackifier for rubbers, lacquers, ink vehicles, varnishes, adhesives; extender for shellac in water-based inks, paints, coatings, paper coatings, adhesives, wax emulsions; film-former in cosmetics; masticatory substance in chewing gum; in food-contact articles and coatings

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.300, 176.170, 176.210, 176.2600, 178.3120, 178.3800, 178.3870

## Pentaerythrityl tetraacrylate

Trade Names: Pentalyne® 856; Pentalyne® A; Zonester® 100

### Pentaerythrityl tetraacrylate

CAS 4986-89-4

Synonyms: Pentaerythritol tetraacrylate

Empirical: C<sub>17</sub>H<sub>20</sub>O<sub>8</sub>

Formula: C[CH<sub>2</sub>OCOCH=CH<sub>2</sub>]<sub>4</sub>

Properties: M.w. 352.34; dens. 1.190; m.p. 18 C; flash pt. > 110 C; ref. index 1.4870 (20 C)

Uses: Crosslinking agent in adhesives, coatings, inks, textile prods., photoresists, castings; reactive diluent for radiation-cured inks, lacquers

Manuf./Distrib.: Aldrich

Trade Names: SR 295

### Pentaerythrityl tetracocoate

Synonyms: Pentaerythritol tetracocoate

Definition: Tetraester of pentaerythritol and coconut fatty acid

Uses: Emollient in cosmetics; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §175.300, 176.210

### Pentaerythrityl tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]

CAS 6683-19-8; EINECS/ELINCS 229-722-6

Synonyms: Benzenepropanoic acid, 3,5-bis (1,1-dimethylethyl)-4-hydroxy-; 2,2-Bis [(3-(3,5-bis (1,1-dimethylethyl)-4-hydroxyphenyl)-1-oxopropoxy) methyl]-1,3-propanediyl ester; Pentaerythritol tetrakis (3,5-di-t-butyl)-4-hydroxyhydrocinnamate; Pentaerythritol tetrakis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate]; Tetrakis [methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate)] methane; Tetrakis [methylene-3(3',5'-di-t-butyl-4-hydroxyphenyl) propionate] methane

Classification: Sterically hindered phenol

Empirical: C<sub>73</sub>H<sub>108</sub>O<sub>12</sub>

Formula: [HOC<sub>6</sub>H<sub>2</sub>[C(CH<sub>3</sub>)<sub>3</sub>]<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>]<sub>4</sub>C

Properties: Wh. powd.; sol. in acetone, benzene, chloroform, ethyl acetate; insol. in water; m.w. 1177.7; dens. 1.05 (20 C); m.p. 110-125 C; flash pt. 299 C

Toxicology: LD50 (mammal) 10 g/mg; TSCA listed

Uses: Antioxidant for cellulose, polyamides, polyesters, polyolefins, POM, PU, PS, rubbers, adhesives, lubricants, oils, latex, varnishes; in food-pkg. adhesives; in side seam cements for food-contact containers; antioxidant/stabilizer for food-grade polymers; stabilizer in food-contact PU resins; antioxidant in lubricants for incidental food-contact use; in surf. lubricants for mfg. of food-contact metallic articles

Regulatory: FDA 21CFR §175.105, 175.300, 177.1680, 178.2010, 178.3570, 178.3910

Manuf./Distrib.: Aldrich; Ciba Spec. Chems./Addit.

Trade Names: BNX® 1010; Irganox® 1010; Naugard® 10

### Pentaerythrityl tetralaurate

CAS 13057-50-6; EINECS/ELINCS 235-946-5

Synonyms: 2,2-Bis [(1-oxododecyl) oxy] methyl]-1,3-propanediyl dodecanoate; Dodecanoic acid, 2,2-bis [(1-oxododecyl) oxy] methyl-1,3-propanediyl ester; Pentaerythritol tetralaurate

Definition: Tetraester of pentaerythritol and lauric acid

Empirical: C<sub>53</sub>H<sub>100</sub>O<sub>8</sub>

Uses: Emulsifier, emollient, conditioner, antistat for personal care prods., pharmaceutical topicals; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

### Pentaerythrityl tetraoleate

CAS 19321-40-5; 68604-44-4; EINECS/ELINCS 242-960-5; 271-694-2

Synonyms: 2,2-Bis [(1-oxo-9-octadecenyl) oxy] methyl]-1,3-propanediyl 9-octadecenoate; Pentaerythritol tetraoleate

Definition: Tetraester of pentaerythritol and oleic acid

Empirical: C<sub>77</sub>H<sub>140</sub>O<sub>8</sub>

Formula: C[CH<sub>2</sub>OCO(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>]<sub>4</sub>

Properties: M.w. 1193.96

Uses: Emollient, thickener, visc. control agent for cosmetics, plastics, lubricants, cutting oils; chemical intermediate; corrosion inhibitors; chemical synthesis; lubricant for hot rolling, forming, and drawing lubricants; emollient, thickener, visc. control agent, pigment dispersant for cosmetic creams/lotions, bath preps.; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

Manuf./Distrib.: Hatco; Inolex

### Pentaerythrityl tetrastearate

CAS 115-83-3; 8045-34-9; 91050-82-7; EINECS/ELINCS 204-110-1; 293-029-5

Synonyms: 2,2-Bis [(1-oxooctadecyl) oxy] methyl]-1,3-propanediyl octadecanoate; Pentaerythritol tetrastearate

Definition: Tetraester of pentaerythritol and stearic acid

Empirical: C<sub>77</sub>H<sub>148</sub>O<sub>8</sub>

Formula: C[CH<sub>2</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>]<sub>4</sub>

Properties: Ivory-colored hard, high melting wax; m.w. 1202.02; m.p. 62 C; soften. pt. 67 C; acid no. 1; essentially neutral

Toxicology: TSCA listed

Precaution: Combustible

Uses: Processing aid, lubricant for rubbers, plastics; polishes; coatings; textile finishes; lubricant wax; emulsifier for nat. waxes in cosmetics; emollient, visc. control agent in cosmetics; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.; adjuvant for PC food-pkg. resins

Regulatory: FDA 21CFR §175.105, 176.170, 176.210, 177.1200, 177.1580, 178.2010

Manuf./Distrib.: AC Ind.; Chem. Group; Hercules; Hexagon Enterprises; Jarchem Ind.; Lambent Tech.; Lipo; Lonza; SCI Int'l. USA

### Pentaerythrityl triacrylate

CAS 3524-68-3; EINECS/ELINCS 222-540-8

Synonyms: PETA; Acrylic acid, pentaerythritol triester; Pentaerythritol triacrylate; 2-Propenoic acid-2-(hydroxymethyl)-2-(((1-oxo-2-propenyl) oxy) methyl)-1,3-propanediyl ester

Empirical: C<sub>14</sub>H<sub>18</sub>O<sub>7</sub>

Formula: (H<sub>2</sub>C:CHCO<sub>2</sub>CH<sub>2</sub>)<sub>3</sub>CCH<sub>2</sub>OH

Properties: M.w. 298.30; dens. 1.167 (20C); ref. index 1.143 (20C); flash pt. > 110C

Toxicology: LD50 (oral, rat) 2460 µl/kg, (skin, rabbit) 4 ml/kg; harmful liq.; mod. toxic by ing. and skin contact; severe eye irritant; avoid skin contact; handle with gloves; questionable carcinogen; experimental tumorigen; mutagen; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Storage: Hygroscopic; light-sensitive

Uses: Crosslinking agent used in adhesives, coatings, inks, textile prods., photoresists, castings, modifiers for polyester, fiberglass, or polymers; reactive diluent for radiation-cured inks, lacquers, photosensitive resins

Manuf./Distrib.: Aldrich; Fluka; Monomer-Polymer & Dajac Labs; Sartomer; UCB Radcure

Trade Names: SR 444

### Pentaerythrityl trioleate

CAS 39874-62-9; EINECS/ELINCS 254-664-3

Synonyms: 2-(Hydroxymethyl)-2-[(oleoyloxy) methyl]-1,3-propanediyl dioleate; 9-Octadecenoic acid, 2-(hydroxymethyl)-2-[[[(1-oxo-9-octadecenyl) oxy] methyl]-1,3-propanediyl ester

Definition: Triester of pentaerythritol and oleic acid

Empirical: C<sub>59</sub>H<sub>108</sub>O<sub>7</sub>

Properties: Nonionic

Uses: Emollient in cosmetics; w/o emulsifier; plasticizer for PU foams; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210

### Pentanedial. See Glutaral

### 1,5-Pentanedial. See Glutaral

### Pentane-1,5-dial. See Glutaral

### Pentanedioic acid, dimethyl ester. See Dimethyl glutarate

### 2,4-Pentanediol, 2-methyl. See Hexylene glycol

### 1,5-Pentanedione. See Glutaral

### Pentanol-1. See n-Amyl alcohol

### 1-Pentanol. See n-Amyl alcohol

### Pentan-1-ol. See n-Amyl alcohol

### n-Pentanol. See n-Amyl alcohol

### 2-Pentanol acetate. See s-Amyl acetate

### 3,6,9,12,15-Pentaoxahentriacontan-1-ol. See Ceteth-5

### 3,6,9,12,15-Pentaoxaheptadecane-1,17-diol. See PEG-6

### 3,6,9,12,15-Pentaoxatriacont-24-en-1-ol. See Oleth-5

### Pentaphenate. See Sodium pentachlorophenate

### Pentapotassium triphosphate. See Potassium triphosphate

**Pentapotassium tripolyphosphate.** See Potassium tripolyphosphate

**Pentassium aminotrimethylene phosphonate**

CAS 2235-43-0; EINECS/ELINCS 218-791-8

*Synonyms:* Na<sub>5</sub>ATMP; Aminotri (methylenephosphonic acid) pentasodium salt; Pentasodium nitrilotris (methylenephosphonate); Pentasodium [nitrilotris (methylene) trisphosphonate]; Phosphonic acid, (nitrilotris (methylene)) tri-, pentasodium salt

*Classification:* Organic compd.

*Empirical:* C<sub>3</sub>H<sub>12</sub>NO<sub>9</sub>P<sub>3</sub> • 5Na

*Properties:* M.w. 414.02

*Toxicology:* LD50 (oral, rat) 17,800 mg/kg, (skin, rabbit) > 15,800 mg/kg; low toxicity by ing. and skin contact; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub> and PO<sub>x</sub>

*Uses:* Dispersant, scale inhibitor, deflocculant, sequestrant for cooling water treatment, boiler and oil field treatment, process waters, I&I cleaners, metal cleaners, bottle washing, paper, textiles; chelating agent in cosmetics

*Trade Names:* Dequest® 2006

**Pentassium (carboxylatomethyl) iminobis (ethylenetriolo) tetraacetate.**

See Pentasodium pentetate

**Pentassium diethylene triamine pentaacetate.** See Pentasodium pentetate

**Pentassium diethylene triamine pentamethylene phosphonate**

*Synonyms:* Diethylenetriamine penta (methylene phosphonic acid), pentasodium salt; Phosphonic acid, [(phosphonomethyl) imino] bis [2,1-ethanediyl nitrilobis (methylene)] tetrakis, pentasodium salt

*Empirical:* C<sub>9</sub>H<sub>21</sub>N<sub>3</sub>O<sub>15</sub>P<sub>5</sub>Na<sub>7</sub>

*Properties:* M.w. 727; sp. gr. 1.38-1.40; f.p. -13 C

*Uses:* Sequestrant; dispersant; scale inhibitor

*Trade Names:* Dequest® 2066C2

**Pentassium DTPA.** See Pentasodium pentetate

**Pentassium ethylene diamine tetramethylene phosphonate**

CAS 7651-99-2

*Synonyms:* Ethylene diamine tetra (methylene phosphonic acid), pentasodium salt; Na<sub>5</sub> EDTMPA; Sodium EDTMPA

*Empirical:* C<sub>6</sub>H<sub>15</sub>N<sub>2</sub>O<sub>12</sub>P<sub>4</sub>Na<sub>5</sub>

*Properties:* Wh. to pale yel. clear liq.; m.w. 546; sp. gr. 1.30; f.p. -14 C; pH 6-8 (1%)

*Uses:* Sequestrant; dispersant; scale inhibitor

*Trade Names:* Dequest® 2046

**Pentassium nitrilotris (methylenephosphonate).** See Pentasodium aminotrimethylene phosphonate

**Pentassium [nitrilotris (methylene) trisphosphonate].** See Pentasodium aminotrimethylene phosphonate

**Pentassium pentetate**

CAS 140-01-2; EINECS/ELINCS 205-391-3

*Synonyms:* DTPAN; DTPANa<sub>5</sub>; Na<sub>5</sub>DTPA; N,N-Bis[2-[bis (carboxymethyl) amino] ethyl] glycine, pentasodium salt; Diethylenetriaminepentaacetic acid, pentasodium salt; Pentasodium (carboxylatomethyl) iminobis (ethylenetriolo) tetraacetate; Pentasodium diethylene triamine pentaacetate; Pentasodium DTPA; Pentetate pentasodium; Sodium DTPA

*Classification:* Inorganic salt

*Empirical:* C<sub>14</sub>H<sub>18</sub>N<sub>3</sub>Na<sub>5</sub>O<sub>10</sub>

*Formula:* C<sub>14</sub>H<sub>18</sub>N<sub>3</sub>O<sub>10</sub> • 5Na

*Properties:* M.w. 503.25

*Toxicology:* Mod. irritating to skin and mucous membranes; ing. can cause violent purging; TSCA listed

*Uses:* Chelating agent/sequestrant for cosmetics, detergents, textiles, polymerization, paper deinking, water treatment, metal finishing, pulp/paper, photography, chem. cleaning, enhanced oil recovery, pharmaceuticals, food-contact paper/paperboard; reagent for wood pulp pretreatment; drug stabilization; antibiotic mfg.; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 176.150; FDA approved for intravenous

*Trade Names:* Trilon® C Liq.; Trilon® PC; Versenex 80

**Pentassium triphosphate**

CAS 7758-29-4; 13573-18-7; EINECS/ELINCS 213-837-7; 231-694-5

*Synonyms:* STP; STPP; Pentasodium tripolyphosphate; Sodium triphos-

phate; Sodium tripolyphosphate; Triphosphoric acid pentasodium salt; Triphosphoric acid sodium salt; Tripolyphosphate

*Classification:* Inorganic phosphate salt

*Definition:* Exists in two crystal modifications, depending on production conditions: high-temp. modification (STP-I), low-temp. modification (STP-II)

*Empirical:* Na<sub>5</sub>O<sub>10</sub>P<sub>3</sub>

*Formula:* Na<sub>5</sub>(PO<sub>3</sub>OPO<sub>2</sub>OPO<sub>3</sub>)

*Properties:* Wh. gran. or fine powd.; odorless; sol. 20 g/100 ml water; m.w. 367.91; bulk dens. ≈ 1.0 kg/l (powd.), ≈ 0.8 kg/l (gran.); m.p. dec. 552-622 C; pH 9.7-9.9 (1%)

*Toxicology:* LD50 (oral, rat) 6.5 g/kg, (skin, rabbit) > 7940 mg/kg, (IP, rat) 525 mg/kg, (subcut., mouse) 900 mg/kg; poison by IV route; mod. toxic by ing., subcut., IP routes; mod. irritating to skin, mucous membranes; ing. can cause violent purging; TSCA listed

*Precaution:* Incompat. with strong acids (may react violently); hydrolyzes to phosphate under acidic conditions; hydrolyzes slowly in neutral aq. sol'n.

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of PO<sub>x</sub> and Na<sub>2</sub>O

*Storage:* Sl. hygroscopic; store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials, in dust-tight containers; avoid generating mist

*Uses:* Peptizing agent; emulsifier; preservative; texturizer; corrosion/scale control; in water softening, drinking water treatment; boiler water additive for food processing; softener/conditioner (cleaners, textile processing); starch crosslinking agent; builder, sequestrant, dispersant for detergents; deflocculant for paper, ceramics, oil drilling; dye dispersant in textiles; buffering agent, chelating agent in cosmetics; food additive (sequestrant, hog/poultry scald agent, texturizer); curing agent for processed meats; food pkg.

*Use Level:* Limitation 5% (pickle for meat prods.), 0.5% (meat prods.), 0.5% (total poultry prod.); ADI 0-70 mg/kg (EU, total phosphates)

*Regulatory:* FDA 21CFR §172.892, 173.310, 182.70, 182.90, 182.1810, 182.6810, GRAS; USDA 9CFR §318.7, 381.147; Europe listed; UK approved

*Manuf./Distrib.:* ADA Int'l.; Albright & Wilson Am.; Aldrich; BCH Brühl; Browning; FMC Foret; FMC; Fluka; Kemira Kemi AB; Monsanto; Rhodia; Sal Chem.; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; Varsal Instruments

*Trade Names:* Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P

**Pentassium tripolyphosphate.** See Pentasodium triphosphate

**Pentetate pentasodium.** See Pentasodium pentetate

**Pentetic acid**

CAS 67-43-6; EINECS/ELINCS 200-652-8

*Synonyms:* DTPA; N,N-Bis [2-[bis (carboxymethyl) amino] ethyl] glycine; N-Carboxymethyliminobis (ethylenetriolo) tetra (acetic acid); Diethylene triamine pentaacetic acid; Pentacarboxymethyl diethylenetriamine; 1,1,4,7,7-Diethylenetriaminepentaacetic acid

*Classification:* Substituted amine

*Empirical:* C<sub>14</sub>H<sub>23</sub>N<sub>3</sub>O<sub>10</sub>

*Formula:* HOOCCH<sub>2</sub>N[CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>2</sub>COOH)<sub>2</sub>]<sub>2</sub>

*Properties:* Wh. cryst. solid; sol. in hot water; sl. sol. in cold water; m.w. 393.35; m.p. 230 C (dec.)

*Toxicology:* LD50 (oral, mouse) 4840 mg/kg; moderately toxic by intraperitoneal route; mildly toxic by ingestion and others; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>

*Uses:* Chelating agent for cosmetics, detergents (stabilizing peroxides); microbiological control for water treatment, cutting fluids, sec. recovery; textiles; scale control/removal; rare earth separations

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Masquol® DTPA Liq.

**2-Pentyl acetate.** See s-Amyl acetate

**Pentyl alcohol.** See n-Amyl alcohol

**n-Pentyl alcohol.** See n-Amyl alcohol

**PEO.** See Polyethylene glycol

**Peracetic acid**

CAS 79-21-0; EINECS/ELINCS 201-186-8; UN No. 3149 (DOT)

*Synonyms:* PAA; Acetyl hydroperoxide; Ethaneperoxic acid; Peroxyacetic acid

*Classification:* Nonaromatic carboxylic acids

*Empirical:* C<sub>2</sub>H<sub>3</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>COOOH

*Properties:* Colorless liq.; strong acrid odor; sol. in water, alcohol, sulfuric acid, oxygenated solvs.; m.w. 76.06; dens. 1.15 (20 C); f.p. -30 C; b.p. 105 C; flash pt. 40.5 C; ref. index 1.3876

*Toxicology:* LD50 (oral, rat) 1540 µl/kg, (oral, mouse) 210 mg/kg; poison by ing.; mod. toxic by inh. and skin contact; strong irritant to skin, mucous membranes; inh. can cause coughing, burning sensation; ing. causes burning, irritation; tumorigen; TSCA listed

*Environmental:* No environmental hazards; rapidly dec. to acetic acid, oxygen, and water; non-bioaccumulative

*Precaution:* Flamm.; strong oxidizing agent; dangerous in contact with organic materials; explodes on heating above 110 C; incompat. with strong oxidizers, reducing agents, heavy metal salts

*Hazardous Decomp. Prods.:* Oxygen (enhances combustion); heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Store in original container in cool, dry, ventilated area; keep container closed when not in use

*Uses:* Bleaching textiles, paper, oils, waxes, starch; polymerization catalyst; bactericide and fungicide, esp. in food processing; biocide in paper prod.; epoxidation of fatty acid esters and epoxy resin precursors; reagent in making caprolactam, synthetic glycerol; disinfectant for food/beverage equipment, hospitals, veterinary; antiseptic, oxidant in pharmaceuticals; starch modifier in pulp/paper; laundry cleaning/bleaching/disinfecting; oxygen source

*Manuf./Distrib.:* Aldrich; Belinka; Brenntag (UK) Ltd.; Degussa-Hüls Ltd; FMC Foret; Fluka; Kleencare Hygiene; Lambson Ltd; Resource Chem. Ltd; Solvay Interlox UK

*Trade Names Containing:* Pericide® FX

**Perchlorobenzene.** See Hexachlorobenzene

**Perchlorodihomocubane.** See Perchloropentacyclodecane

#### Perchloropentacyclodecane

CAS 2385-85-5; UN No. 2761

*Synonyms:* Bichlorendo; Dechlorane; Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta (c,d) pentalene; Dodecachlorooctahydro-1,3,4-metheno-2H-cyclobuta (c,d) pentalene; 1,1a,2,2,3,3a,4,5,5,5a,5b,6-Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta (cd) pentalene; Dodecachloropentacyclodecane; Hexachlorocyclopentadiene dimer; 1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene dimer; Mirex; Perchlorodihomocubane

*Empirical:* C<sub>10</sub>Cl<sub>12</sub>

*Properties:* Wh. cryst. powd.; odorless; sol. in aliphatic amines; sol. 14.3% in xylene, 15.3% in dioxane, 12.2% in benzene, 7.2% in CCl<sub>4</sub>; sol. 10-50 mg/ml in DMSO, acetone; sol. 1-10 mg/ml in 95% ethanol; sol. < 1 mg/ml in water; m.w. 545.55; vapor pressure 0.000003 mm Hg (25 C); m.p. 485 C (dec.); b.p. 485 C (1 atm), subl. with decomp.; nonflamm.

*Toxicology:* LD50 (oral, rat) 235 mg/kg, (skin, rabbit) 800 mg/kg; LC50 (inh., bird) 1400 ppm; poison by ing.; mod. toxic by inh. and skin contact; may cause CNS stimulation, tremors, convulsions, hepatic injury, testicular atrophy, reduced sperm prod., rashes, mental changes, congestion, edema, ataxia, anuria, respiratory failure, GI irritation, wt. loss, etc.; possible human carcinogen; experimental carcinogen, tumorigen, teratogen, reproductive effector; mutagenic data

*Environmental:* Can bioaccumulate

*Precaution:* Supports combustion; may react with strong oxidizers; reacts with lithium and t-butyl alcohol; sensitive to exposure to sunlight; keep away from food

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>, hydrogen chloride gas, chlorine, CCl<sub>4</sub>, phosgene

*Storage:* Store under ambient temps.; protect from light; keep away from oxidizing materials

*Uses:* Flame retardant for plastics, rubber, thermoplastic, thermosetting, and elastomeric resin systems, paints, paper, adhesives, textiles, and elec. goods; in antifouling paints; in rodenticides; antioxidant, flame retardant in stabilized polymers, ablative compositions, anthelmintic compositions, lubricants; formerly as insecticide for fire ants; pesticide

#### Perfluoroalkyl acrylate copolymer

CAS 92265-81-1

*Uses:* Oil/water repellent in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

#### Perfluorooctanesulfonyl fluoride

CAS 307-35-7; EINECS/ELINCS 206-200-6

*Classification:* Nonaromatic sulfur-oxygen compd.

*Empirical:* C<sub>8</sub>F<sub>18</sub>O<sub>2</sub>S

*Properties:* M.w. 502.12; dens. 1.824; b.p. 154-155 C; ref. index 1.3010

*Toxicology:* Corrosive; TSCA listed

*Storage:* Moisture-sensitive

*Uses:* Intermediate in prep. of monomers and surfactants for textile treatment, paper sizes, inert fluids

*Manuf./Distrib.:* Aldrich

*Trade Names:* Fluorad® FX-8

**Periclase.** See Magnesium oxide

#### Periodic acid

CAS 10450-60-9

*Empirical:* H<sub>5</sub>IO<sub>6</sub>

*Properties:* Wh. cryst.; sol. in water, alcohol; sl. sol. in ether; m.w. 227.94; m.p. 122 C; loses 2H<sub>2</sub>O @ 100 C; dec. @ 130 C forming I<sub>2</sub>O<sub>5</sub>, H<sub>2</sub>O and O<sub>2</sub>

*Toxicology:* Irritant

*Precaution:* Dangerous in contact with organic materials; oxidizer; corrosive

*Storage:* Hygroscopic

*Uses:* Oxidizing agent for org. material, pharmaceuticals; increases wet strength of paper, photographic paper; cleaning agent for silk screen stencils; in org. synthesis

*Manuf./Distrib.:* Aldrich; Allan; Atomergic Chemetals; EM Ind.; Fluka; Nipa Labs; Sigma; Spectrum Quality Prods.; Wm. Blythe Ltd

**Permanent red 4R.** See Pigment red 3

**Permanent red R.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**Permanent white.** See Barium sulfate; Zinc oxide

**Permanent yellow, lead free.** See Pigment yellow 74

**Peroxyacetic acid.** See Peracetic acid

**Peroxydicarbonic acid, bis (1-methylethyl) ester.** See Diisopropyl perdicarbonate

**Peroxydisulfuric acid diammonium salt.** See Ammonium persulfate

**Peroxydisulfuric acid dipotassium salt.** See Potassium persulfate

**Peroxydisulfuric acid, disodium salt.** See Sodium persulfate

**Persian orange.** See Acid orange 7

**PETA.** See Pentaerythryl triacrylate

**Petrohol.** See Isopropyl alcohol

#### Petrolatum

CAS 8009-03-8 (NF); 8027-32-5 (USP); EINECS/ELINCS 232-373-2

*Synonyms:* Mineral grease (petrolatum); Mineral jelly; Paraffin jelly; Petrolatum amber; Petrolatum white; Petroleum jelly; Vaseline; White petrolatum; White soft paraffin

*Classification:* Petroleum hydrocarbons

*Definition:* Semisolid mixture of hydrocarbons obtained from petroleum

*Properties:* Ylsh. to lt. amber or wh. semisolid, unctuous mass; pract. odorless and tasteless; sol. in benzene, chloroform, ether, petrol. ether, oils; pract. insol. in water; insol. in alcohol; dens. 0.820-0.865 (60/25 C); m.p. 38-54 C; soften. pt. 65-70 C; ref. index 1.460-1.474 (60 C)

*Toxicology:* LD50 (IP, mouse) > 50 g/kg; can cause allergic skin reactions in hypersensitive persons; generally nontoxic; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Laxative; dispersant; as ointment base, emollient, antistat, solvent in pharmaceuticals, cosmetics; leather grease; shoe polish; rust preventives; plastics, rubber, textiles lubricant; cable lubricants; elec. insulation impregnation wax; detackifier in printing inks; protective food coatings; release agent/lubricant in bakery prods., confectionery; chewing gum ingred.; defoamer in beet sugar and yeast processing; pharmaceutical ointment base, filler, emollient, skin protectant; adhesive diluent; in food-pkg. adhesives, pressure-sensitive adhesives; release agent and surf. lubricant in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard

*Use Level:* Limitation 0.15% (with wh. min. oil, bakery prods.), 0.2%

(confections), 0.02% (dehydrated fruits/vegetables), 0.1% (egg white solids)

**Regulatory:** FDA 21CFR §172.880, 172.884, 173.340, 175.105, 175.125, 175.300, 176.170, 176.200, 176.210, 177.2600, 177.2800, 178.3570, 178.3700, 178.3910, 573.720; FDA approved for ophthalmics, orals, topicals, otics; USP/NF, BP compliance

**Manuf./Distrib.:** Am. Int'l.; Ashland; BP Amoco; Barco Chem. Prods.; C.P. Hall; Charkit; Crompton/Witco; Exxon; Harcros; Jarchem Ind.; Magie Bros. Oil; Mobil; Penreco; RTD; Ruger; Sea-Land; Sinochem Tianjin; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stevenson Cooper; Strahl & Pitsch; Universal Preserv-A-Chem

**Trade Names:** Penreco Amber; Penreco Blond; Penreco Cream; Penreco Lily; Penreco Red; Penreco Regent; Penreco Royal; Penreco Snow; Penreco Super; Penreco Ultima; Petrolatum RPB; Tech Pet F™

**Petrolatum amber.** See Petrolatum

**Petrolatum liquid.** See Mineral oil

**Petrolatum white.** See Petrolatum

**Petroleum asphalt.** See Asphalt

**Petroleum benzin.** See Naphtha

**Petroleum bitumen.** See Asphalt

**Petroleum-derived naphtha.** See Naphtha

**Petroleum distillate.** See Petroleum distillates

**Petroleum distillate light.** See Petroleum distillates

#### Petroleum distillates

CAS 8002-05-9; 64742-14-9; 64742-47-8; 64742-56-9; EINECS/ELINCS 232-298-5; UN No. 1268 (DOT)

**Synonyms:** Petroleum distillate; Petroleum distillate light

**Classification:** Petroleum hydrocarbons

**Definition:** Mixture of volatile hydrocarbons obtained from petroleum

**Toxicology:** OSHA PEL TWA 400 ppm; TDLo (parenteral, man) 57 mg/kg; human systemic effects by parenteral route (cough, dyspnea, nausea, vomiting); mildly toxic by inh., ing.; mod. skin/eye irritant; skin contact may cause defatting; vapor inh. can cause CNS depression, headache, unconsciousness; TSCA listed

**Precaution:** Combustible exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Hydrocarbon processing solvent, foam control agent in waterless hand cleaners, polishes, fruit and veg. processing, cleaning oils; antifoamer, solvent in cosmetics; vehicle for pesticides; diluent for agric. sprays; fuel conditioner; food pkg. paper, rubber articles; defoamer in food-contact paper/paperboard

**Trade Names:** Cynol® 760 Softener; Exxsol® D 40; Exxsol® D 60; Exxsol® D 80; Exxsol® D 110; Exxsol® D 130; PD-25; PD-28; Penreco 2251 Oil; Penreco 2263 Oil

**Trade Names Containing:** Hartfloc® A-414

**Petroleum distillates (naphtha).** See Naphtha

**Petroleum ether.** See Naphtha; VM&P naphtha

**Petroleum jelly.** See Petrolatum

**Petroleum naphtha.** See Naphtha; VM&P naphtha

**Petroleum oil.** See Mineral oil; Naphtha

**Petroleum pitch.** See Asphalt

**Petroleum roofing tar.** See Asphalt

**Petroleum spirit.** See Naphtha; VM&P naphtha

**Petroleum spirits.** See Mineral spirits; VM&P naphtha

**Petroleum sulfonates, sodium salts.** See Sodium petroleum sulfonate

**Petroleum sulfonic acid, monosodium salt.** See Sodium petroleum sulfonate

**Petroleum thinner.** See VM&P naphtha

#### Petroleum wax

UN No. 1223 (DOT)

**Synonyms:** Microcrystalline wax; Petroleum wax, synthetic; Refined petroleum wax

**Classification:** Petroleum hydrocarbon

**Definition:** Hydrocarbon derived from petroleum; three types: paraffin waxes, microcrystalline waxes, and petrolatum waxes

**Properties:** Translucent wax, odorless, tasteless; very sl. sol. in org. solvs.; insol. in water; m.p. 48-93 C

**Toxicology:** TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricant for formulating PVC and elec. wire and cable compds.; antiscumming protectant for elastomers; masticatory substance in chewing gum; protective food coatings; defoamer for beet sugar and yeast processing; defoamer in food-contact coatings and paper/paperboard; in flavoring microcapsules; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.; in food-contact crosslinked polyesters; plasticizer in food-contact rubber articles for repeated use; in food-contact textiles; component of nonfood articles for food-contact use; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §172.230, 172.615, 172.886 (1050 ppm max. of poly(alkylacrylate) as an antioxidant), 172.888, 173.340, 175.105, 176.170, 176.200, 176.210, 177.1210, 177.2420, 177.2600, 177.2800, 178.3710, 178.3720, 178.3850, 178.3910

**Manuf./Distrib.:** Aldrich; Crompton/Witco; Exxon; Koster Keunen; Mobil; Penreco; Shell

See also Microcrystalline wax; Paraffin; Synthetic wax

**Petroleum wax, crystalline.** See Paraffin

**Petroleum wax, microcrystalline.** See Microcrystalline wax

#### Petroleum wax, oxidized

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Petroleum wax, synthetic.** See Petroleum wax

**PF.** See Phenolic resin

**PGME.** See Methoxyisopropanol

**PGMEA.** See Propylene glycol methyl ether acetate

**PGML.** See Propylene glycol laurate

**PGMS.** See Propylene glycol stearate

**Phenamine blue 2B.** See Direct blue 6

**Phenamine brown MB.** See Direct brown 2

**Phenamine scarlet 3B.** See Direct red 39

**1-Phenanthrenecarboxylic acid, 1,2,3,4,4a,4b,5,6,10,10a-decahydro-1,4a-dimethyl-7-(1-methylethyl)-, sodium salt, (1R-(1 $\alpha$ ,4 $\alpha$ ,4b $\alpha$ ,10 $\alpha$ )).** See Sodium rosinate

**Phenazo black OB.** See Direct black 80

**Phenic acid.** See Phenol

#### Phenol

CAS 108-95-2; EINECS/ELINCS 203-632-7; UN No. 1671 (solid), 2312 (fused), 2821 (sol'n.); FEMA 3223

**Synonyms:** Benzenol; Carboic acid; Hydroxybenzene; Liquid phenol; Monohydroxybenzene; Monophenol; Oxybenzene; Phenic acid; Phenol alcohol; Phenyl hydrate; Phenyl hydroxide; Phenylic acid; Phenylic alcohol

**Classification:** Aromatic organic compd.; carboic acid

**Empirical:** C<sub>6</sub>H<sub>6</sub>O

**Formula:** C<sub>6</sub>H<sub>5</sub>OH

**Properties:** Colorless to lt. pink needle-shaped cryst.; char. odor of coal tar and wood; burning taste; sol. in alcohol, glycerin, chloroform, ether, water; misc. with oxygenated and chlorinated solvs.; sl. sol. in min. oil; m.w. 94.11; dens. 1.07; m.p. 40-42 C; b.p. 182 C; flash pt. 79 C; darkens on exposure to lt., air

**Toxicology:** ACGIH TLV/TWA 5 ppm (skin); LD50 (oral, rat) 317 mg/kg, (subcut., rat) 460 mg/kg, (IV, mouse) 112 mg/kg, (skin, rabbit) 850 mg/kg; poison by ing., subcut., IV, IP routes; human poison by ing.; mod. toxic by skin contact; severe eye/skin irritant; ing. of even sm. amts. may cause vomiting, circulatory collapse, paralysis, convulsions, coma, grnsh. urine, necrosis of mouth and GI tract; death results from respiratory failure; may cause serious skin burns; possible carcinogen; human mutagen; TSCA listed

**Precaution:** Combustible; vapor is flamm.; DOT: poisonous material; explosive and violent reactions possible; polymerizes violently when combined with isocyanates

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 4; Flammability 2; Reactivity 0

**Storage:** Hygroscopic; deliq.; moisture- and light-sensitive; store frozen

**Uses:** Phenolic adhesives and resins; epoxy resins; pesticide intermediates; paints; lubricant additives; chem. deriv. intermediates; as fuel oil sludge



inhibitors; as solvent; selective solvent in lubricating oil dearomatization; as rubber chemicals; isocyanate blocking agent; antimicrobial preservative for pharmaceuticals; antimicrobial, denaturant, deodorant agent in cosmetics; disinfectant anesthetic for skin; deodorant soaps; mouthwash; preservative in food-pkg. adhesives; adjuvant for PC food-pkg. resins; in food-contact paper/paperboard; in closures with sealing gaskets for food containers

*Use Level:* 0.5% (topicals), 0.2-5% (parenterals)

*Regulatory:* FDA 21CFR §175.105, 175.300, 175.380, 175.390, 176.170, 177.1210, 177.1580, 177.2410, 27CFR §21.65, 21.151; FEMA GRAS; FDA approved for injectables, parenterals, topicals; USP/NF, BP, Ph.Eur. compliance; SARA reportable

*Manuf./Distrib.:* AMRESO; Aldrich; Allchem Ind.; Aristech; Ashland; Barker Ind.; Chemical; Dakota Gasification; Dow; Fluka; GE Plastics; Georgia Gulf; Herdillia Chems. Ltd; Honeywell Perf. Polymers; Int'l. Chem. Inc; Integra; J.T. Baker; Kalama; Kessler; Miljac; PMC Spec.; Penta Mfg.; Phenolchemie; R.W. Greeff; Research Organics; Rhodia; Royale Pigments & Chems.; Ruger; Shell; Sigma; Spectrum Quality Prods.; Sunoco; Texaco; U.S. Chems.; Van Waters & Rogers

**Phenol alcohol.** See Phenol

**Phenol-formaldehyde.** See Phenolic resin

**Phenol-formaldehyde resin.** See Phenolic resin

**Phenol-furfural resin.** See Phenolic resin

### Phenolic resin

CAS 9003-35-4

*Synonyms:* PF; Alkyl-phenol formaldehyde resin; Phenol-formaldehyde; Phenol-formaldehyde resin; Phenol-furfural resin; A-stage resin; One-stage resin; Resole; Resole resin; Resol resin; Novolac resin; Novolak resin; Two-stage resin

*Definition:* Heat-cured thermosetting resin from condensation of phenol or substituted phenol with aldehydes such as formaldehyde, acetaldehyde, and furfural

*Properties:* Gray to blk. hard solid when cured; noncombustible

*Precaution:* Dec. by oxidizing acids

*Uses:* Thermosetting resin for applics. requiring heat resistance; molded and cast articles; exhaust duct systems, wiring devices, switch gears, ovens, toasters, pot handles, elec. devices, coil bobbins; coatings; machine housings; bonding powds.; laminating and impregnating; plywood and glass-fiber composites; ablative coatings; binder for oil-well sands; thermal/acoustic insulation; brake linings; tackifier, plasticizer, hardening and reinforcing agent for rubber; in food-pkg. adhesives; in food-contact coatings; in resin-bonded filters for food contact; plasticizer in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 175.300(b)(3)(vi), 177.2260, 177.2410, 177.2600

*Manuf./Distrib.:* 3M/Spec. Chems.; Akrochem; Akzo Nobel; Am. Gilsonite; Arakawa USA; Arizona; Ashland; Atofina; BP Chems. Ltd; Bakelite GmbH; Borden; Cardolite; Chemical; Chems. Inc; Ciba Spec. Chems./Addit.; Degussa-Hüls AG; Dujodwala Resins & Terpenes; Eastech; Encal Spec.; FRP Services; Fabricchem; Focus; Georgia-Pacific Resins; Int'l. Chem. Inc; Int'l. Paper; Loos & Dilworth; Monomer-Polymer & Dajac Labs; Nemesis Int'l.; Neste Resins; PMC Spec.; Raschig; Seegott; Solutia; Tembec

*Trade Names Containing:* GPRI™ 4000; GPRI™ 7550; GPRI™ 7590; GPRI™ 7597; GPRI™ BKS-2600; GPRI™ BKS-2900; GPRI™ BKS-2901

**Phenol, 4-methoxy-.** See Hydroquinone monomethyl ether

**Phenol, pentachloro-, potassium salt.** See Potassium pentachlorophenate

**Phenol, 2,4,5-trichloro-, sodium salt.** See Sodium-2,4,5-trichlorophenate

**Phenomercuric acetate.** See Phenylmercuric acetate

### Phenothiazine

CAS 92-84-2; EINECS/ELINCS 202-196-5

*Synonyms:* PTZ; Dibenzoparathiazine; Dibenzothiazine; Dibenzo-1,4-thiazine; Phenothiazine; Thiodiphenylamine

*Empirical:* C<sub>12</sub>H<sub>9</sub>NS

*Formula:* C<sub>12</sub>H<sub>9</sub>NHC<sub>2</sub>H<sub>5</sub>S

*Properties:* Grayish-green to greenish-yel. powd., gran., or flakes; sl. odor; tasteless; sol. in benzene, ether, hot acetic acid, 21% in acetone, 15% in ethyl amyl ketone, 11% in ethyl acetate, aromatic solvs.; sl. sol. in

alcohol, min. oils; pract. insol. in water, chloroform, petrol. ether; m.w. 199.26; m.p. 185 C; subl. @ 130 C (1 mm Hg); b.p. 371 C

*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup> (skin); LD50 (oral, mouse) 5000 mg/kg, (IV, mouse) 178 mg/kg; poison by IV route; toxic by ing. and inh.; mod. toxic to humans by ing.; ing. may lead to headache, jaundice, or hemolytic anemia; may cause liver damage; can cause skin irritation and photosensitization; experimental reproductive effector; TSCA listed

*Precaution:* Dangerous; incompat. with acid or acid fumes

*Hazardous Decomp. Prods.:* Heated to decomp. or on contact with acid or acid fumes, emits highly toxic fumes of SO<sub>x</sub> and NO<sub>x</sub>

*Uses:* Antioxidant for lubricants, rubber, waxes; monomer stabilizer; insecticide; mfg. of dyes; polymerization inhibitor for acrylic ester monomers; chain transfer agent in rubber prod.; polymerization control agent in food-pkg. adhesives; food and feed additive; treatment of food-producing animals; mfg. of chlorpromazine and related antipsychotic drugs; anthelmintic drug; antioxidant in dry rosin size in mfg. of paper/paperboard in contact with aq./fatty foods; in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.2600

*Manuf./Distrib.:* AC Ind.; Aldrich; Alemark; Clariant; Fluka; Schweizerhall; Sigma; Spectrum Quality Prods.

*Trade Names Containing:* Rohamere® 6852-0

**2-Phenoxyethanol acrylate.** See 2-Phenoxyethyl acrylate

**Phenoxyethyl acrylate.** See 2-Phenoxyethyl acrylate

### 2-Phenoxyethyl acrylate

CAS 48145-04-6

*Synonyms:* PEA; PEEA; 2-Phenoxyethanol acrylate; Phenoxyethyl acrylate; Phenyl 'Cellosolve' acrylate; 2-Propenoic acid, 2-phenoxyethyl ester

*Classification:* Monomer

*Empirical:* C<sub>11</sub>H<sub>12</sub>O<sub>3</sub>

*Properties:* M.w. 192.22; b.p. 103-104 (0.6 mm)

*Toxicology:* LD50 (oral, rat) 4660 µl/kg, (skin, rabbit) 2540 µl/kg; mod. toxic by skin contact; mildly toxic by ing.; primary skin irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Reactive diluent for radiation-hardenable systems, inks, lacquers, coatings, adhesives; visc. index improver

*Manuf./Distrib.:* CPS; Monomer-Polymer & Dajac Labs

*Trade Names Containing:* CN 120 M50; CN 980 M50

### Phenoxy resin

*Definition:* High m.w. thermoplastic copolymer of bisphenol A and epichlorohydrin

*Empirical:* (C<sub>10</sub>H<sub>20</sub>O<sub>3</sub>)<sub>n</sub>

*Formula:* —[OC<sub>6</sub>H<sub>4</sub>C(CH<sub>3</sub>)<sub>2</sub>C<sub>6</sub>H<sub>4</sub>OCH<sub>2</sub>CH(OH)CH<sub>2</sub>]<sub>n</sub>—

*Properties:* Sol. in MEK

*Toxicology:* TSCA listed

*Uses:* Coatings and adhesives; blow-molded containers, pipe, ventilating ducts, and other molded parts; plastics modifier; food-contact adhesives, coatings, paper, closure-sealing gaskets for food containers

*Manuf./Distrib.:* Aldrich; Eastech; Matteson-Ridolfi; Sigma; Union Carbide

*Trade Names:* PAPHEN® PKFE; PAPHEN® PKHC®; PAPHEN® PKHH; PAPHEN® PKHJ; PAPHEN® PKHM-301; PAPHEN® PKHW-35

*Trade Names Containing:* PAPHEN® PKHS-40

**Phenthiazine.** See Phenothiazine

### Phenyl acid phosphate

CAS 701-64-4

*Uses:* Catalyst used in coatings, chem. reactions; coupling agents and solubilizers in heavy-duty liq. detergents; curing agents in solder fluxes; binder for foundry prods; in food-contact paper/paperboard; polymerization catalyst in melamine-formaldehyde-modified alkyd coatings for food contact

*Regulatory:* FDA 21CFR §176.170

*Manuf./Distrib.:* Albright & Wilson Am.

*Trade Names Containing:* Albrite® PA-75

**3-[[4-(Phenylamino) phenyl] azo] benzenesulfonic acid monosodium salt.** See Acid yellow 36

**3-(4-Phenylaminophenylazo) benzenesulfonic acid, sodium salt.** See Acid

yellow 36

**N-Phenylaniline.** See Diphenylamine**1-Phenylazo-2-naphthol-6,8-disulfonic acid, disodium salt.** See Acid orange 10**5-(Phenylazo) toluene-3,4-diamine monohydrochloride.** See Basic orange 1**N-Phenylbenzeneamine.** See Diphenylamine**4-Phenylbenzophenone.** See p-Phenylbenzophenone**p-Phenylbenzophenone**

CAS 2128-93-0; EINECS/ELINCS 218-345-2

*Synonyms:* Benzophenone, 4-phenyl-; 4-Benzoylbiphenyl; p-Benzoylbiphenyl; 4-Biphenyl phenyl ketone; p-Biphenyl phenyl ketone; Biphenyl-4-yl-phenylmethanone; ((1,1'-Biphenyl)-4-yl) phenylmethanone; 4-Diphenylphenyl ketone; Methanone, (1,1'-biphenyl)-4-yl phenyl-; 4-Phenylbenzophenone; Phenyl p-biphenyl ketone

*Classification:* Aromatic ketone*Empirical:* C<sub>19</sub>H<sub>14</sub>O*Properties:* Pinkish-beige to lt. brn. powd.; m.w. 258.32; m.p. 100-103 C; b.p. 419-420 C*Toxicology:* LD (IP, mouse) > 2 g/kg; TSCA listed*Precaution:* Avoid incompat. materials, strong oxidizers*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, irritating and toxic fumes and gases*Storage:* Store in cool, dry place; keep container closed when not in use*Uses:* Photoinitiator for radiation-cured lacquers and printing inks*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Salor*Trade Names:* Trigonal® 12**Phenyl p-biphenyl ketone.** See p-Phenylbenzophenone**Phenyl 'Cellosolve' acrylate.** See 2-Phenoxyethyl acrylate**N-Phenyl-4-((2,5-dichlorophenyl) azo)-3-hydroxy-2-naphthalenecarboxamide.** See Pigment red 2**p-Phenylenedicarbonyl dichloride.** See Terephthaloyl chloride**o-Phenylenediol.** See Pyrocatechol**Phenylethylethanolamine**

CAS 92-50-2; EINECS/ELINCS 202-160-9

*Synonyms:* PEEA; Ethanol, 2-(ethylphenylamino)-; 2-(N-Ethylanilino) ethanol; N-Ethyl-N-(2-hydroxyethyl) aniline; Ethyl (β-hydroxyethyl) aniline; 2-(Ethylphenylamino) ethanol; Ethyl phenyl ethanolamine; N,N-Ethylphenylethanolamine; N-Ethyl-N-phenylethanolamine; N-(2-Hydroxyethyl)-N-ethylaniline

*Classification:* Aromatic amine*Empirical:* C<sub>10</sub>H<sub>13</sub>NO*Formula:* C<sub>6</sub>H<sub>5</sub>N(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>C<sub>2</sub>H<sub>4</sub>OH*Properties:* Solid; sol. in alcohol, acetone, benzene; very sl. sol. in water; m.w. 165.26; dens. 1.104 (20/20 C); m.p. 37.2 C; b.p. 268 C (740 mm)*Toxicology:* LD50 (oral, rat) 1640 mg/kg, (oral, mouse) 2360 mg/kg; harmful; irritating to eyes, skin, respiratory system; TSCA listed*Precaution:* Combustible*Uses:* Dye intermediate; polyester cure promoter; solvents; chemical intermediates; laboratory reagent; organic synthesis; coupling agent for dyes for syn. fibers; cure promoter for polyester resins; photosensitive chemical for paper coatings*Manuf./Distrib.:* Aldrich**Phenyl hydrate.** See Phenol**Phenyl hydroxide.** See Phenol**1-Phenyl-2-hydroxy-2-methyl-propan-1-one.** See 2-Hydroxy 2-methyl 1-phenyl 1-propanone**Phenylic acid.** See Phenol**Phenylic alcohol.** See Phenol**Phenyl ketone.** See Benzophenone**Phenylmercuri acetate.** See Phenylmercuric acetate**Phenylmercuric acetate**

CAS 62-38-4; EINECS/ELINCS 200-532-5; UN No. 1674 (DOT)

*Synonyms:* PMA; PMAC; PMAS; (Acetato) phenylmercury; (Acetoxymercuri) benzene; Acetoxyphenylmercury; Mercuriphenyl acetate; Mercury, (acetato) phenyl-; Phenomercuric acetate; Phenylmercuri acetate; Phenylmercury acetate

*Classification:* Metallo-organic compd.*Empirical:* C<sub>8</sub>H<sub>8</sub>HgO<sub>2</sub>*Formula:* C<sub>8</sub>H<sub>8</sub>HgOCOCH<sub>3</sub>*Properties:* Wh. to cream prisms or clear sol'n.; odorless; sol. in 600 parts water; sol. in alcohol, benzene, acetone, glacial acetic acid; m.w. 336.75; m.p. 148-150 C*Toxicology:* LD50 (oral, rat) 22 mg/kg, (IP, mouse) 13 mg/kg; ACGIH TLV/TWA 0.1 mg(Hg)/m<sup>3</sup> (skin); toxic by ingestion, inhalation, IV, IP, subcut., skin absorption; strong irritant; eye and severe human skin irritant; TSCA listed*Environmental:* Toxic to fish; nontoxic to bees*Precaution:* Inactivated by sulfides, thioglycolates*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Hg

NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* Light-sensitive*Uses:* Fungicide, mildewcide for paints, cosmetics, agric. seed dressing; preservative in paints, cosmetics; herbicide; insecticide; slimicide in paper mills; laboratory reagent; antimicrobial preservative, antibacterial, antifungal in pharmaceuticals; spermicide*Use Level:* 0.0065%; 0.001% (parenterals); 0.002-0.004% (ophthalmics)*Regulatory:* USA EPA reg., limited to eye cosmetics/pharmaceuticals; USP/NF compliance; SARA reportable; Europe listed*Manuf./Distrib.:* Aldrich; Allchem Ind.; Atomergic Chemetals; Cosan; EM Ind.; Noah; Ruger; Spectrum Quality Prods.; W.A. Cleary**Phenylmercury acetate.** See Phenylmercuric acetate**Phenylmethane.** See Toluene**Phenyl methyl ethanolamine.** See 2-(N-Methylanilino) ethanol**Phenylmethyl 4-hydroxybenzoate.** See Benzylparaben**Phenyl-2-naphthylamine.** See Phenyl-β-naphthylamine**Phenyl-β-naphthylamine**

CAS 135-88-6; EINECS/ELINCS 205-223-9

*Synonyms:* PBN; PBNA; Anilino-naphthalene; 2-Anilino-naphthalene; N-2-Naphthylaniline; β-Naphthylphenylamine; 2-Naphthylphenylamine; Phenyl-2-naphthylamine; N-Phenyl-2-naphthylamine; N-Phenyl-β-naphthylamine

*Empirical:* C<sub>16</sub>H<sub>13</sub>N*Formula:* C<sub>10</sub>H<sub>7</sub>NHC<sub>6</sub>H<sub>5</sub>*Properties:* Lt. gray powd. or rhombic cryst.; very sol. in hot alcohol, ether, acetone; sol. in hot benzene; insol. in water; m.w. 219.30; dens. 1.24; m.p. 107-108 C; b.p. 395.5 C*Toxicology:* LD50 (oral, rat) 8730 mg/kg; TDLo (subcut., mouse) 464 mg/kg; mod. toxic by ing.; irritant; experimental carcinogen, neoplastigen, and tumorigen; suspected human carcinogen; human mutagenic data; TSCA listed*Precaution:* Combustible*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>*Uses:* Rubber antioxidant, lubricant, inhibitor (butadiene); antioxidant for lubricants; in food-pkg. adhesives; antioxidant in dry rosin size in mfg. of paper/paperboard in contact with aq./fatty foods; antioxidant in food-contact rubber articles for repeated use; antioxidant in mineral oil lubricants for incidental food-contact use*Regulatory:* FDA 21CFR §175.105, 176.170, 177.2600, 178.3570*Manuf./Distrib.:* Aldrich; Fluka; Sigma**N-Phenyl-2-naphthylamine.** See Phenyl-β-naphthylamine**N-Phenyl-β-naphthylamine.** See Phenyl-β-naphthylamine**Phenyl perchloryl.** See Hexachlorobenzene**2-Phenylphenol.** See o-Phenylphenol**o-Phenylphenol**

CAS 90-43-7; EINECS/ELINCS 201-993-5

*Synonyms:* OPP; o-Biphenylol; 2-Biphenylol; (1,1'-Biphenyl)-2-ol; o-Diphenylol; 2-Hydroxybiphenyl; o-Hydroxybiphenyl; 2-Hydroxydiphenyl; o-Hydroxydiphenyl; Orthohydroxydiphenyl; Orthophenylphenol; 2-Phenylphenol; o-Xenol

*Classification:* Substituted aromatic compd.*Empirical:* C<sub>12</sub>H<sub>10</sub>O*Formula:* C<sub>6</sub>H<sub>5</sub>C<sub>6</sub>H<sub>4</sub>OH*Properties:* Nearly wh. or lt. buff crystals, mild char. sweetish odor; sol. in alcohol, sodium hydroxide sol'n., aq. alkali, oxygenated solvs.; insol. in water; m.w. 170.22; dens. 1.217 (25/25 C); m.p. 56-58 C; b.p. 280-284 C*Toxicology:* LD50 (oral, rat) 2.48 g/kg, (IP, mouse) 50 mg/kg; poison by IP route; mod. toxic by ing., others; irritating to eyes, skin; experimental

teratogen, reproductive effects; human mutagenic data; TSCA listed  
*Uses:* Intermediate for dyes, germicides, fungicides, rubber chemicals; dye carrier; biocide for adhesives, paper, building prods., leather; laboratory reagent; disinfectant; antiseptic; cosmetic preservative; antibacterial preservative for foods; agric. fungicide; in rubber industry; preservative in food-pkg. adhesives; defoamer in food-contact paper/paperboard; fungicide for finish coating materials for poly(phenyleneterephthalamide) resin food pkg.; antioxidant in food-contact rubber articles for repeated use

*Use Level:* 0.05-0.5%

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.1632, 177.2600; USA EPA reg.; SARA reportable; Japan approved; Europe listed 0.2% max. as phenol; UK approved

*Manuf./Distrib.:* Aceto; Aldrich; Ashland; Coalite Chems.; Fluka; Howard Hall; Nipa Labs; Sigma

*Trade Names:* Nipacide® OPP

**2-Phenylphenol sodium salt.** See Sodium o-phenylphenate

**o-Phenylphenol sodium salt.** See Sodium o-phenylphenate

**Phenyl p-tolyl ketone.** See 4-Methylbenzophenone

### Phenyltrimethoxysilane

CAS 2996-92-1; EINECS/ELINCS 221-066-9

*Synonyms:* Trimethoxyphenylsilane; (Trimethoxysilyl) benzene

*Classification:* Silane

*Empirical:* C<sub>9</sub>H<sub>14</sub>O<sub>3</sub>Si

*Formula:* C<sub>6</sub>H<sub>5</sub>Si(OCH<sub>3</sub>)<sub>3</sub>

*Properties:* Colorless liq.; sol. in oxygenated, chlorinated, and aromatic solvs.; insol. in water; m.w. 198.30; dens. 1.062 (20/4 C); vapor pressure 20 mm (108 C); b.p. 211 C; flash pt. 86 C; ref. index 1.472 (20 C); dielec. const. 4.44

*Toxicology:* LD50 (IV, mouse) 180 mg/kg; poison by IV route; skin, eyes, and respiratory tract irritant; TSCA listed

*Precaution:* Combustible liq.

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMS: Health 3; Flammability 2; Reactivity 1

*Storage:* Moisture-sensitive; store under nitrogen

*Uses:* Coupling agent for plastics; release agent; lubricant; blocking agent; chemical intermediate; surf. treatment for paints, inks, adhesives; in polymers to be applied to powds., glass, paper, and fabrics

*Manuf./Distrib.:* Aldrich; Archimica Florida; Fluka; Gelest; Sivento

**Philosopher's wool.** See Zinc oxide

**Phlogopite.** See Mica

**Phosphate, sodium hexameta-** See Sodium hexametaphosphate

**Phosphinic acid, compd. with 2-(4-thiazolyl)-1H-benzimidazole (1:1).** See Thiabendazole hypophosphite salt

### Phosphinopolycarboxylic acid

*Uses:* Scale inhibitor and dispersant for water treatment (boiler and cooling water, pulp and papermaking systems); food-contact paper/paperboard

*Trade Names:* Acumer® 4161

### Phosphonic acid

CAS 13598-36-2; EINECS/ELINCS 237-066-7; UN No. 2834 (DOT)

*Synonyms:* Orthophosphorous acid; Orthophosphorus acid; Phosphorous acid; Phosphorous acid, ortho-; Phosphorus trihydroxide; Trihydroxyphosphine

*Classification:* Acid

*Empirical:* H<sub>3</sub>O<sub>3</sub>P

*Properties:* Wh. or yls. cryst. mass, garlic-like taste; very sol. in alcohol, water; m.w. 82.00; dens. 1.651; m.p. 73 C; b.p. 200 C (dec.)

*Toxicology:* LD50 (oral, rat) 1895 mg/kg, (oral, mouse) 2172 mg/kg; harmful; mod. toxic by ing.; corrosive; causes burns; TSCA listed

*Precaution:* DOT: Corrosive material; absorbs oxygen very readily with formation of orthophosphoric acid

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of PO<sub>2</sub> and phosphine which may ignite

*Storage:* Very hygroscopic and deliq.; air-sensitive; store under nitrogen

*Uses:* Intermediate for mfg. of diphosphonic acids and phosphite salts used as pesticides, chelates, plastic additives, water treatment chems.; restricts color formation in esterification and condensation reactions (in small quantities); resin decolorization agent; chemical reducing agent; analysis (testing for mercury)

*Trade Names Containing:* Bekaperg 834

**Phosphonic acid, ((bis(2-(bis (phosphonomethyl) amino) ethyl) amino methyl)-, sodium salt.** See Sodium diethylenetriamine penta (methylene phosphonate)

**Phosphonic acid, (1,2-ethanediybis (nitrilobis (methylene))) tetrakis-** See Ethylenediaminetetra (methylene phosphonic acid)

**Phosphonic acid, [1,6-hexanediybis [nitrilobis (methylene)]] tetrakis potassium salt.** See Potassium hexamethylene diamine tetra (methylene phosphonate)

**Phosphonic acid, (1-hydroxyethylidene) bis-, tetrasodium salt.** See Tetrasodium etidronate

**Phosphonic acid, (nitrilotris (methylene)) tri-** See Aminotrimethylene phosphonic acid

**Phosphonic acid, (nitrilotris (methylene)) tri-, pentasodium salt.** See Pentasodium aminotrimethylene phosphonate

**Phosphonic acid, (((phosphonomethyl)imino) bis (2,1-ethanediylnitrilobis (methylene))) tetrakis-, sodium salt.** See Sodium diethylenetriamine penta (methylene phosphonate)

**Phosphonic acid, [[[phosphonomethyl) imino] bis [2,1-ethanediylnitrilobis (methylene)]] tetrakis-** See Diethylene triamine pentamethylene phosphonic acid

**Phosphonic acid, [(phosphonomethyl) imino] bis [2,1-ethanediylnitrilobis (methylene)] tetrakis, pentasodium salt.** See Pentasodium diethylene triamine pentamethylene phosphonate

**Phosphonium, tetrakis (hydroxymethyl)-, sulfate (2:1).** See Tetrakis (hydroxymethyl) phosphonium sulfate

### 2-Phosphono butane tricarboxylic acid-1,2,4

CAS 37971-36-1

*Synonyms:* PBTC; 1,2,4-Butanetricarboxylic acid, 2-phosphono-; 2-Phosphonobutane-1,2,4-tricarboxylic acid

*Empirical:* C<sub>7</sub>H<sub>11</sub>O<sub>8</sub>P

*Properties:* M.w. 270.13

*Uses:* Corrosion and scale inhibitor in cooling systems; deflocculant for ceramic slips and oil drilling sludges; stabilizer for pigment suspensions; formulation of cleaning agents; pickling and cleaning agent for oxidized metal surfs.; sequestrant; dispersant

*Trade Names:* Dequest® 7000

**2-Phosphonobutane-1,2,4-tricarboxylic acid.** See 2-Phosphono butane tricarboxylic acid-1,2,4

**[[[(Phosphonomethyl) imino] bis [ethane-2,1-diylnitrilobis (methylene)] tetrakisphosphonic acid.** See Diethylene triamine pentamethylene phosphonic acid

### Phosphoric acid

CAS 7664-38-2; EINECS/ELINCS 231-633-2; UN No. 1805 (DOT); FEMA 2900

*Synonyms:* Orthophosphoric acid; Phosphoric acid, pure

*Classification:* Inorganic mineral acid

*Empirical:* H<sub>3</sub>O<sub>4</sub>P

*Formula:* H<sub>3</sub>PO<sub>4</sub>

*Properties:* Colorless liq. or rhombic crystals, odorless; sol. in water, alcohol; misc. with many org. solvs.; m.w. 97.99; dens. 1.70 (20/4 C); vapor pressure 0.0285 mm (20 C); m.p. 42.4 C; b.p. 158 C; starts to dec. above 200 C forming polyphosphoric acids

*Toxicology:* ACGIH TLV/TWA 1 mg/m<sup>3</sup>; STEL 3 mg/m<sup>3</sup>; LD50 (oral, rat) 1530 mg/kg, (skin, rabbit) 2740 mg/kg; mod. toxic by skin contact; human poison by ing.; corrosive irritant to eyes, skin, mucous membranes; systemic irritant by inh.; common air contaminant; TSCA listed

*Environmental:* Environmentally hazardous

*Precaution:* DOT: Corrosive material; strong acid; mixts. with nitromethane are explosive; incompat. with alkalis; corrosive to many metals; violent reaction possible with sodium tetrahydroborate

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of PO<sub>2</sub>, NFPA: Health 3; Flammability 0; Reactivity 0

*Uses:* In mfg. of inorganic phosphates, fertilizers, detergents, chemical polishing, paints, priming metals, petroleum refining; acid catalyst; as acidulant, flavor, antioxidant, sequestrant in food; pharmaceutical acid, buffering agent in cosmetics; in dental cements; in analytical chem.; corrosion/scale control in drinking water treatment; bonding agent (ceramics); metal cleaning; electropolishing; dil. as tonic for treatment of nausea/vomiting; in resin-

bonded filters for food contact; in resinous/polymeric food-contact coatings  
*Use Level:* ADI 0-70 mg/kg (EU)

*Regulatory:* FDA 21CFR §131.144, 133, 175.300, 177.2260, 178.3520, 182.1073, GRAS; USDA 9CFR §318.7, 381.147 (0.01% max. in lard, shortening, poultry fat); FEMA GRAS; SARA reportable; Japan approved; Europe listed; UK approved; FDA approved for parenterals, intramuscular injectables, orals, topicals, vagina; USP/NF, BP, Ph.Eur. compliance  
*Manuf./Distrib.:* Agrium; Albright & Wilson Am.; Albright & Wilson UK; Aldrich; Amyl; Arch Chems.; Ashland; Bill Chems. Ltd; Coyne; FMC Foret; FMC; Farleyway Chem. Ltd; Fisher Scientific; Fluka; General Chem.; Houghton Chem.; Mallinckrodt Baker; Monsanto; Occidental; Oriental Chem. Ind.; Rasa Ind.; Rhodia HPCII; Ruger; Schaefer Tech.; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; Tekchem; Varsal Instruments

*Trade Names:* Degal S

- Phosphoric acid, aluminum salt (1:1).** See Aluminum orthophosphate
- Phosphoric acid, butyl ester.** See Butyl acid phosphate
- Phosphoric acid diammonium salt.** See Ammonium phosphate, dibasic
- Phosphoric acid dipotassium salt.** See Potassium phosphate dibasic
- Phosphoric acid disodium salt.** See Sodium phosphate dibasic anhydrous
- Phosphoric acid isooctyl ester.** See Isooctyl acid phosphate
- Phosphoric acid, monomethyl ester.** See Methyl acid phosphate
- Phosphoric acid, pure.** See Phosphoric acid
- Phosphoric acid tributyl ester.** See Tributyl phosphate
- Phosphoric acid, tri-n-butyl ester.** See Tributyl phosphate
- Phosphoric acid, trilauryl ester.** See Trilauryl phosphate
- Phosphoric acid, triphenyl ester.** See Triphenyl phosphate
- Phosphoric acid, tris (2-ethylhexyl) ester.** See Trioctyl phosphate
- Phosphoric acid trisodium salt.** See Sodium phosphate tribasic
- Phosphorous acid.** See Phosphonic acid
- Phosphorous acid, cyclic neopentetetrayl bis (2,4-di-t-butylphenyl) ester.** See Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphate
- Phosphorous acid, ortho-.** See Phosphonic acid
- Phosphorus trihydroxide.** See Phosphonic acid
- Phthalic acid, bis (2-ethylhexyl) ester.** See s-Dioctyl phthalate
- Phthalic acid, diallyl ester.** See Diallyl phthalate
- o-Phthalic acid, diallyl ester.** See Diallyl phthalate
- Phthalic acid, dicyclohexyl ester.** See Dicyclohexyl phthalate
- Phthalic acid, didecyl ester.** See Didecyl phthalate
- Phthalic acid, dihexyl ester.** See Dihexyl phthalate
- Phthalic acid, diisobutyl ester.** See Diisobutyl phthalate
- Phthalic acid, diisononyl ester.** See Diisononyl phthalate
- Phthalic acid, diisooctyl ester.** See Diisooctyl phthalate
- Phthalic acid, dioctyl ester.** See s-Dioctyl phthalate
- Phthalocyanine blue.** See Copper phthalocyanine blue
- Phthalocyanine brilliant green.** See Phthalocyanine green

**Phthalocyanine green**

CAS 1328-53-6; EINECS/ELINCS 215-524-7  
*Synonyms:* Brilliant green phthalocyanine; CI 74260; Copper phthalocyanine green; Cyanine green toner; Pacific green No. 6491; Phthalocyanine brilliant green; Pigment green 7; Pigment green phthalocyanine; Polychloro copper phthalocyanine; Thalo green No. 1  
*Classification:* Phthalocyanine color  
*Empirical:* C<sub>32</sub>Cl<sub>16</sub>CuN<sub>8</sub>  
*Properties:* Grn. powd.; sol. in conc. H<sub>2</sub>SO<sub>4</sub>; sol. (mg/ml): < 1 mg in water, DMSO, 95% ethanol, acetone (21 C); m.w. 1127.21  
*Toxicology:* Mutagen; TSCA listed  
*Precaution:* Probably combustible  
*Storage:* Refrigerate  
*Uses:* Colorant for paints/coatings, plastics, printing inks, lacquers, leather and book cloth, paper surfacing, chalks, colored pencils, food-contact polymers, hair dyes  
*Regulatory:* FDA 21CFR §178.3297  
*Manuf./Distrib.:* Aarbor Int'l.; Aceto; Ashland; Ciba Spec. Chems./Colors; Landers-Segal Color; Mitsui & Co. USA; Rainbow; Revelli; Robert I. Webber; Royale Pigments & Chems.; Southern Texas Chem.; Wego Chem. & Min.

- p-Phthaloyl chloride.** See Terephthaloyl chloride
- p-Phthaloyl dichloride.** See Terephthaloyl chloride
- PIB.** See Polyisobutene

- Pigment black 6.** See Carbon black
- Pigment black 7.** See Carbon black
- Pigment black 9.** See Bone black
- Pigment black 10.** See Carbon, activated
- Pigment black 11.** See Iron oxide black
- Pigment blue 15.** See Copper phthalocyanine blue

**Pigment blue 15:3**

*Synonyms:* CI 74160:3  
*Classification:* Copper phthalocyanine color  
*Empirical:* C<sub>32</sub>H<sub>16</sub>CuN<sub>8</sub>  
*Uses:* Colorant for coatings, inks, plastics  
*Trade Names:* Ponalith™ Supra Blue HM Liq.

- Pigment blue 27.** See Ferric ferrocyanide
- Pigment blue 29.** See Ultramarine blue
- Pigment brown 6.** See Ferric oxide
- Pigment brown 7.** See Ferric oxide
- Pigment green 7.** See Phthalocyanine green
- Pigment green 12.** See Acid green 1
- Pigment green 17.** See Chromium oxide (ic)
- Pigment green phthalocyanine.** See Phthalocyanine green
- Pigment metal 1.** See Aluminum

**Pigment red 2**

CAS 6041-94-7  
*Synonyms:* CI 12310; CI pigment red 2; N-Phenyl-4-((2,5-dichlorophenyl)azo)-3-hydroxy-2-naphthalenecarboxamide  
*Empirical:* C<sub>23</sub>H<sub>15</sub>Cl<sub>2</sub>N<sub>3</sub>O<sub>2</sub>  
*Properties:* Ylsh. red to dk. red powd.; sol. < 1 mg/ml in water, DMSO, 95% ethanol, acetone; m.w. 187.67; m.p. 310-311 C  
*Precaution:* Probably combustible  
*Storage:* Store refrigerated  
*Uses:* Pigment in paints, printing inks, alkyd resin enamels, lacquers, emulsion paints, paper, linoleum, plastics, vinyl prods., rubber, textile printing pastes  
*Manuf./Distrib.:* Zhuhai Skyhigh Chems.

**Pigment red 3**

CAS 2425-85-6; EINECS/ELINCS 219-372-2  
*Synonyms:* CI 12120; CI pigment red 3; D&C Red No. 35; Fast red A; Independence red; Lake red 4R; 1-((4-methyl-2-nitrophenyl)azo)-2-naphthalenol; 2-Naphthalenol, 1-((4-methyl-2-nitrophenyl)azo)-; Permanent red 4R; Pigment scarlet; Scarlet pigment RN; Toluidine red; Toluidine toner  
*Empirical:* C<sub>17</sub>H<sub>13</sub>N<sub>3</sub>O<sub>3</sub>  
*Properties:* Ylsh.-red to red powd.; sol. < 1 mg/ml in water, DMSO, 95% ethanol, methanol, acetone, toluene; sl. sol. in benzene; m.w. 307.33; m.p. 270-272 C  
*Toxicology:* LD50 (oral, rat) > 10 g/kg; harmful by ing., inh., or skin absorp.; may cause irritation; may be absorbed thru skin; prolonged/repeated exposure may cause allergic reactions in sensitive individuals; may cause pronounced coloring of skin and blockage of the upper respiratory tract; risk of irreversible effects; possible carcinogen; mutagenic data; target organs: bone marrow, kidneys, liver, spleen, thyroid, adrenal medulla; TSCA listed  
*Precaution:* Probably combustible; sensitive to moisture and temps. over 150 C

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of CO, CO<sub>2</sub>, NO<sub>x</sub>; emits toxic fumes under fire conditions  
*Storage:* Store refrigerated; keep tightly closed; store under inert atmosphere if possible; protect from moisture  
*Uses:* Dye in paints, printing inks, emulsion paints, wallpaper, linoleum, carbon papers, student-grade artist materials, syn. resin lacquers and leather finishes, inks for foil and tinplate printing, paper coating and dyeing, typewriter ribbons, rubber, celluloid, cellulose acetate, P/F, U/F, styrene, protein plastics, and textile printing  
*Manuf./Distrib.:* Acros Org.; Aldrich; ICN Biomed. Research Prods.

**Pigment red 4.** See 1-[(2-Chloro-4-nitrophenyl)azo]-2-naphthalenol

**Pigment red 81**

CAS 12224-98-5  
*Synonyms:* CI 45160 lake; 9-(2-Ethoxycarbonyl) phenyl-3,6-bis (ethylamino)-

2,7-dimethylxanthylum molybdatetungstatephosphate; 2-((6-Ethylamino)-3-ethylimino-2,7-dimethyl-3H-xanthene-9-yl) benzoic acid, ethyl ester with molybdenum tungsten hydroxide oxide phosphate; Molybdenum tungsten hydroxide oxide phosphate, compd. with ethyl 2-(6-ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthene-9-yl) benzoate; Molybdotungstophosphoric acid, compd. with ethyl 2-(6-(ethylamino)-3-(ethylimino)-2,7-dimethyl-3H-xanthene-9-yl) benzoate

**Empirical:**  $C_{28}H_{31}N_3O_3 \cdot x$  (unspecified)

**Properties:** Dk. pink powd.; very sol. in aliphatic petrol., esters, xylene, 5% HCl, linseed oil, oleic acid; sol. 1-5 mg/ml in water; sol. < 1 mg/ml in DMSO, 95% ethanol, acetone; sl. sol. in Cellosolve, ketones, NC solvs.

**Precaution:** Probably combustible

**Storage:** Store refrigerated

**Uses:** Pigment in printing inks, paper coating/staining, crayons, colored pencils, typewriter ribbons, copying papers, enamels, lacquers, emulsion paints, plastics, vinyl prods., textile printing

**Manuf./Distrib.:** Zhuhai Skyhigh Chems.

**Pigment red 101.** See Ferric oxide; Iron oxide red

**Pigment red 102.** See Ferric oxide; Iron oxide red

**Pigment red 122.** See Pigment violet 19

**Pigment scarlet.** See Pigment red 3

#### Pigment violet 19

CAS 1047-16-1; EINECS/ELINCS 213-879-2

**Synonyms:** CI 46500; 5,12-Dihydroquino [2,3-b] acridine-7,14-dione; Pigment red 122; Quinacridone; Quinacridone red; Quinacridone violet; Quino (2,3-b) acridine-7,14-dione, 5,12-dihydro-

**Classification:** Quinacridone colorant

**Empirical:**  $C_{20}H_{12}N_2O_2$

**Properties:** Reddish-brn. cryst.; insol. in water; m.w. 312.33

**Toxicology:** May be harmful by inh., ing., or skin absorption; causes eye/skin/mucous membrane/upper respiratory tract irritation; TSCA listed

**Precaution:** Avoid heat, sunlight, high temps.; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Decomp. may produce toxic fumes of  $CO$ ,  $CO_2$ ,  $NO_x$ ; fire may produce irritating or poisonous gases

**Storage:** Store in a cool, dry place; keep tightly closed

**Uses:** Colorant/pigment for plastics, paints/coatings, inks, enamels, lacquers; colorant in food-contact polymers, hair dyes

**Regulatory:** FDA 21CFR §178.3297

**Manuf./Distrib.:** Dojindo Labs

**Trade Names:** Ponolith™ Supra Red CD Liq.

#### Pigment violet 23

CAS 6358-30-1; EINECS/ELINCS 228-767-9

**Synonyms:** CI 51319; Carbazole violet; 8,18-Dichloro-5,15-diethyl-5,15-dihydrodiindolo [3,2-b:3',2'-m] triphenodioxazine; Dioxazine violet RL

**Classification:** Oxazine color

**Empirical:**  $C_{34}H_{22}Cl_2N_2O_2$

**Properties:** M.w. 589.49

**Toxicology:** TSCA listed

**Uses:** Colorant/pigment for plastics, paints/coatings, inks, lacquers, hair dyes

**Trade Names:** Ponolith™ Supra Violet EB Liq.

**Pigment white 4.** See Zinc oxide

**Pigment white 5.** See Lithopone

**Pigment white 6.** See Titanium dioxide

**Pigment white 7.** See Zinc sulfide

**Pigment white 11.** See Antimony trioxide

**Pigment white 18.** See Calcium carbonate; Calcium monocarbonate; Whiting

**Pigment white 19.** See Kaolin

**Pigment white 21.** See Barium sulfate

**Pigment white 25.** See Calcium sulfate dihydrate

**Pigment white 26.** See Talc

**Pigment white 27.** See Silica, fumed

#### Pigment yellow 14

CAS 5468-75-7

**Synonyms:** Benzidine yellow AAOT; Benzidine yellow G; Butanamide, 2,2'-((3,3'-dichloro (1,1'-biphenyl)-4,4'-diyl) bis (azo)) bis (N-(2-methylphenyl)-3-oxo-; CI 21095; 2,2'-((3,3'-Dichloro (1,1'-biphenyl)-4,4'-diyl) bis (azo)) bis (N-(2-methylphenyl)-3-oxobutamide; Radiant yellow

**Empirical:**  $C_{34}H_{30}Cl_2N_4O_4$

**Properties:** M.w. 657.60

**Toxicology:** LD50 (oral, rat) > 5 g/kg; low toxicity by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of  $NO_x$  and  $Cl^-$

**Uses:** Colorant/pigment for printing inks, resins, plastics, rubber

**Trade Names:** Octotint 150

#### Pigment yellow 65

**Synonyms:** Arylamide yellow RN; CI 11740

**Empirical:**  $C_{18}H_{18}N_4O_6$

**Properties:** M.w. 386.36

**Uses:** Colorant/pigment for emulsion paints, papers, inks

**Trade Names:** Ponolith™ Supra Yellow RD Liq.

#### Pigment yellow 74

CAS 6358-31-2

**Synonyms:** CI 11741; CI pigment yellow 74; Dalamar yellow; Luna yellow; 2-((2-Methoxy-4-nitrophenyl) azo)-N-(2-methoxyphenyl)-3-oxobutanamide; Permanent yellow, lead free; Ponolith yellow Y

**Empirical:**  $C_{18}H_{18}N_4O_6$

**Properties:** Bright yel. powd.; sol. < 1 mg/ml in water, DMSO, 95% ethanol, methanol, acetone, toluene; m.w. 386.37; m.p. 293 C (tech.); considerable tendency to sublime when heated to m.p.

**Toxicology:** May be harmful by inh., ing., or skin absorp.; may cause irritation; prolonged/repeated exposure may cause allergic reactions in sensitive individuals

**Precaution:** Probably combustible

**Storage:** Store at ambient temps.

**Uses:** Pigment in paints, emulsion paints, toy enamels, printing inks; pigment for coloring and tinting of paper

**Manuf./Distrib.:** Sigma

#### Pigment yellow 150

**Synonyms:** CI 12764

**Classification:** Azo colorant

**Uses:** Colorant for plastics, coatings, papers, inks

**Trade Names:** Ponolith™ Supra Yellow GY Liq.

**Pine balsam.** See Turpentine

**Pine gum.** See Turpentine

**Pine oil.** See Pine (*Pinus palustris*) oil

#### Pine (*Pinus palustris*) oil

CAS 8002-09-3; UN No. 1272 (DOT)

**Synonyms:** Oleum abietis; Pine oil; Yarmor; Yarmor pine oil

**Definition:** Volatile oil obtained from distillation of the species *Pinus*

**Properties:** Colorless to pale yel. liq., penetrating pine odor; sol. in org. solvs.; insol. in water; dens. 0.86; b.p. 200-220 C; flash pt. (CC) 172 F

**Toxicology:** LD50 (oral, rat) 3200 mg/kg, (skin, rabbit) 5 g/kg; mod. toxic by ing.; mildly toxic by skin contact; irritating to eyes, skin, mucous membranes; weak allergen; human systemic effects by ing. (excitement, ataxia, headache); large doses may cause CNS depression; TSCA listed

**Precaution:** Flamm. exposed to heat or flame; can react with oxidizers; mod. spontaneous heating

**NFPA:** Health 0; Flammability 2; Reactivity 0

**Uses:** Odorant; disinfectant; sanitizer ingred.; penetrant; wetting agent; solvent; flotation frothing agent; preservative (textiles, papers); nonreactive epoxy resin diluent; laboratory reagent; fragrance ingred.; natural flavoring agent for foods; in food-pkg. adhesives; in paper/paperboard in contact with dry food; defoamer in food-contact coatings and paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §172.510, 175.105, 176.180, 176.200, 176.210, 177.2800; 27CFR §21.65, 21.151

**Manuf./Distrib.:** Alfa Chem; Allchem Ind.; Andrea Aromatics; Arizona; Ashland; Berje; Charabot USA; Dujodwala Resins & Terpenes; George Uhe; Givaudan-Roure; Harcros; Hercules; J.H. Calo; Langley-Smith Ltd; Lebermuth; MelChem; Millennium Spec. Chems.; Penta Mfg.; Polarome Int'l.; Ruger; Schaefer Tech.; Sea-Land; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; T&R Chem.; Technichem; U.S. Synthetics; Ultra Int'l.; Wego Chem. & Min.; Welch, Holme & Clark

#### Pine (*Pinus palustris*) tar oil

FEMA 2907

**Synonyms:** Tar oil; Tar oil, wood

*Definition:* Volatile oil from steam distillation of pine tar, *Pinus palustris* or other spp.

*Properties:* Almost colorless liq. when freshly distilled; turns dk. reddish-brn.; strong odor and taste; sol. in ether, chloroform, alcohol, carbon disulfide; dens. 0.862-0.872; flash pt. 62.2 C

*Precaution:* Combustible

*Uses:* Paints, varnishes, stains; waterproofing paper; rubber reclaiming; ore flotation; cattle dips; insecticides; natural flavoring agent in foods and pharmaceuticals

*Use Level:* 2.0 ppm (ice cream, ices), 10 ppm (candy)

*Regulatory:* FDA 21CFR §172.515; FEMA GRAS

**Pine rosin.** See Rosin

**Plaster of Paris.** See Calcium sulfate; Calcium sulfate hemihydrate

**Plastics, epoxy.** See Epoxy resin

**Plastic sponge.** See Polyurethane, thermoplastic

**Platy talc.** See Talc

**Pliofilm.** See Rubber hydrochloride

**PMA.** See Phenylmercuric acetate; Propylene glycol methyl ether acetate

**PMAA, sodium salt.** See Sodium polymethacrylate

**PMAC.** See Phenylmercuric acetate

**PM acetate.** See Propylene glycol methyl ether acetate

**PMAS.** See Phenylmercuric acetate

**PMM.** See Polymethyl methacrylate

**PMMA.** See Polymethyl methacrylate

**POE (4).** See PEG-4

**POE (8).** See PEG-8

**POE (9).** See PEG-9

**POE (12).** See PEG-12

**POE (14).** See PEG-14

**POE (16).** See PEG-16

**POE (20).** See PEG-20

**POE (32).** See PEG-32

**POE (40).** See PEG-40

**POE (75).** See PEG-75

**POE (100).** See PEG-100

**POE (135).** See PEG-135

**POE (150).** See PEG-150

**POE (180).** See PEG-180

**POE (200).** See PEG-200

**POE (350).** See PEG-350

**POE (2000).** See PEG-2M

**POE (4000).** See PEG-4M

**POE (5000).** See PEG-5M

**POE (6000).** See PEG-6M

**POE (7000).** See PEG-7M

**POE (9000).** See PEG-9M

**POE (10000).** See PEG-10M

**POE (14000).** See PEG-14M

**POE (23000).** See PEG-23M

**POE (35000).** See PEG-35M

**POE (45000).** See PEG-45M

**POE (90000).** See PEG-90M

**POE (115000).** See PEG-115M

**POE (160000).** See PEG-160M

**POE (6) alkyl (13) ether.** See Trideceth-6

**POE (17) C12-14 alkyl.** See C12-14 pareth-17

**POE (2) castor oil.** See PEG-2 castor oil

**POE (4) castor oil.** See PEG-4 castor oil

**POE (5) castor oil.** See PEG-5 castor oil

**POE (8) castor oil.** See PEG-8 castor oil

**POE (15) castor oil.** See PEG-15 castor oil

**POE (16) castor oil.** See PEG-16 castor oil

**POE (17) castor oil.** See PEG-17 castor oil

**POE (20) castor oil.** See PEG-20 castor oil

**POE (25) castor oil.** See PEG-25 castor oil

**POE (26) castor oil.** See PEG-26 castor oil

**POE (28) castor oil.** See PEG-28 castor oil

**POE (30) castor oil.** See PEG-30 castor oil

**POE (33) castor oil.** See PEG-33 castor oil

**POE (36) castor oil.** See PEG-36 castor oil

**POE (40) castor oil.** See PEG-40 castor oil

**POE (42) castor oil.** See PEG-42 castor oil

**POE (52) castor oil.** See PEG-52 castor oil

**POE (54) castor oil.** See PEG-54 castor oil

**POE (60) castor oil.** See PEG-60 castor oil

**POE (80) castor oil.** See PEG-80 castor oil

**POE (100) castor oil.** See PEG-100 castor oil

**POE (180) castor oil.** See PEG-180 castor oil

**POE (200) castor oil.** See PEG-200 castor oil

**POE (10) cetyl alcohol.** See Ceteth-10

**POE (2) cetyl ether.** See Ceteth-2

**POE (3) cetyl ether.** See Ceteth-3

**POE (4) cetyl ether.** See Ceteth-4

**POE (5) cetyl ether.** See Ceteth-5

**POE (6) cetyl ether.** See Ceteth-6

**POE (7) cetyl ether.** See Ceteth-7

**POE (10) cetyl ether.** See Ceteth-10

**POE (11) cetyl ether.** See Ceteth-11

**POE (12) cetyl ether.** See Ceteth-12

**POE (14) cetyl ether.** See Ceteth-14

**POE (15) cetyl ether.** See Ceteth-15

**POE (16) cetyl ether.** See Ceteth-16

**POE (17) cetyl ether.** See Ceteth-17

**POE (20) cetyl ether.** See Ceteth-20

**POE (23) cetyl ether.** See Ceteth-23

**POE (24) cetyl ether.** See Ceteth-24

**POE (25) cetyl ether.** See Ceteth-25

**POE (30) cetyl ether.** See Ceteth-30

**POE (40) cetyl ether.** See Ceteth-40

**POE (45) cetyl ether.** See Ceteth-45

**POE (2) cetyl/oleyl ether.** See Cetoeth-2

**POE (3) cetyl/oleyl ether.** See Cetoeth-3

**POE (6) cetyl/oleyl ether.** See Cetoeth-6

**POE (8) cetyl/oleyl ether.** See Cetoeth-8

**POE (10) cetyl/oleyl ether.** See Cetoeth-10

**POE (25) cetyl/oleyl ether.** See Cetoeth-25

**POE (2) cetyl/stearyl ether.** See Cetareth-2

**POE (5) cetyl/stearyl ether.** See Cetareth-5

**POE (10) cetyl/stearyl ether.** See Cetareth-10

**POE (11) cetyl/stearyl ether.** See Cetareth-11

**POE (14) cetyl/stearyl ether.** See Cetareth-14

**POE (15) cetyl/stearyl ether.** See Cetareth-15

**POE (18) cetyl/stearyl ether.** See Cetareth-18

**POE (20) cetyl/stearyl ether.** See Cetareth-20

**POE (50) cetyl/stearyl ether.** See Cetareth-50

**POE (60) cetyl/stearyl ether.** See Cetareth-60

**POE (2) coconut amine.** See PEG-2 cocamine

**POE (5) coconut amine.** See PEG-5 cocamine

**POE (10) coconut amine.** See PEG-10 cocamine

**POE (15) coconut amine.** See PEG-15 cocamine

**POE (5) coconut ether.** See Coceth-5

**POE (8) coconut ether.** See Coceth-8

**POE (10) coconut ether.** See Coceth-10

**POE (15) coconut ether.** See Coceth-15

**POE (20) coconut ether.** See Coceth-20

**POE (20) corn glycerides.** See PEG-20 corn glycerides

**POE (60) corn glycerides.** See PEG-60 corn glycerides

**POE (4) decyl ether.** See Deceth-4

**POE (4) decyl ether phosphate.** See Deceth-4 phosphate

**POE (2) dibenzoate.** See Diethylene glycol dibenzoate

**POE (8) dicocoate.** See PEG-8 dicocoate

**POE (2) dilaurate.** See PEG-2 dilaurate

**POE (4) dilaurate.** See PEG-4 dilaurate

**POE (6) dilaurate.** See PEG-6 dilaurate

**POE (8) dilaurate.** See PEG-8 dilaurate

**POE (12) dilaurate.** See PEG-12 dilaurate

**POE (20) dilaurate.** See PEG-20 dilaurate

**POE (32) dilaurate.** See PEG-32 dilaurate

**POE (70) dinonylphenol.** See Nonyl nonoxynol-70

**POE (7) dinonyl phenyl ether.** See Nonyl nonoxynol-7

**POE (8) dinonyl phenyl ether.** See Nonyl nonoxynol-8

**POE (10) dinonyl phenyl ether.** See Nonyl nonoxynol-10

**POE (14) dinonyl phenyl ether.** See Nonyl nonoxynol-14

POE (15) dinonyl phenyl ether. See Nonyl nonoxynol-15  
 POE (16) dinonyl phenyl ether. See Nonyl nonoxynol-16  
 POE (18) dinonyl phenyl ether. See Nonyl nonoxynol-18  
 POE (24) dinonyl phenyl ether. See Nonyl nonoxynol-24  
 POE (30) dinonyl phenyl ether. See Nonyl nonoxynol-30  
 POE (70) dinonyl phenyl ether. See Nonyl nonoxynol-70  
 POE (100) dinonyl phenyl ether. See Nonyl nonoxynol-100  
 POE (150) dinonyl phenyl ether. See Nonyl nonoxynol-150  
 POE (2) dioleate. See PEG-2 dioleate  
 POE (4) dioleate. See PEG-4 dioleate  
 POE (6) dioleate. See PEG-6 dioleate  
 POE (8) dioleate. See PEG-8 dioleate  
 POE (12) dioleate. See PEG-12 dioleate  
 POE (20) dioleate. See PEG-20 dioleate  
 POE (32) dioleate. See PEG-32 dioleate  
 POE (2) distearate. See PEG-2 distearate  
 POE (4) distearate. See PEG-4 distearate  
 POE (6) distearate. See PEG-6 distearate  
 POE (8) distearate. See PEG-8 distearate  
 POE (12) distearate. See PEG-12 distearate  
 POE (20) distearate. See PEG-20 distearate  
 POE (32) distearate. See PEG-32 distearate  
 POE (8) ditallate. See PEG-8 ditallate  
 POE (12) ditallate. See PEG-12 ditallate  
 POE (8) di-tri-ricinoleate. See PEG-8 di/tricinoleate  
 POE (4) dodecyl phenyl ether. See Dodoxynol-4  
 POE (5) dodecyl phenyl ether. See Dodoxynol-5  
 POE (6) dodecyl phenyl ether. See Dodoxynol-6  
 POE (7) dodecyl phenyl ether. See Dodoxynol-7  
 POE (9) dodecyl phenyl ether. See Dodoxynol-9  
 POE (10) dodecyl phenyl ether. See Dodoxynol-10  
 POE (12) dodecyl phenyl ether. See Dodoxynol-12  
 POE (15) ester of rosin. See PEG-15 rosinate  
 POE (40) glyceryl cocoate. See PEG-40 glyceryl cocoate  
 POE (12) glyceryl dioleate. See PEG-12 glyceryl dioleate  
 POE (12) glyceryl laurate. See PEG-12 glyceryl laurate  
 POE (20) glyceryl laurate. See PEG-20 glyceryl laurate  
 POE (12) glyceryl monolaurate. See PEG-12 glyceryl laurate  
 POE (20) glyceryl monolaurate. See PEG-20 glyceryl laurate  
 POE (15) glyceryl monooleate. See PEG-15 glyceryl oleate  
 POE (15) glyceryl monoricinoleate. See PEG-15 glyceryl ricinoleate  
 POE (20) glyceryl monoricinoleate. See PEG-20 glyceryl ricinoleate  
 POE (15) glyceryl oleate. See PEG-15 glyceryl oleate  
 POE (20) glyceryl oleate. See PEG-20 glyceryl oleate  
 POE hydrogenated castor oil. See PEG hydrogenated castor oil  
 POE (5) hydrogenated castor oil. See PEG-5 hydrogenated castor oil  
 POE (16) hydrogenated castor oil. See PEG-16 hydrogenated castor oil  
 POE (20) hydrogenated castor oil. See PEG-20 hydrogenated castor oil  
 POE (25) hydrogenated castor oil. See PEG-25 hydrogenated castor oil  
 POE (200) hydrogenated castor oil. See PEG-200 hydrogenated castor oil  
 POE (4) isodecyl ether. See Isodeceth-4  
 POE (6) isodecyl ether. See Isodeceth-6  
 POE (7) isodecyl ether. See Isodeceth-7  
 POE (3) isododecyl ether. See Isolaureth-3  
 POE (6) isododecyl ether. See Isolaureth-6  
 POE (10) isododecyl ether. See Isolaureth-10  
 POE (3) isolauryl ether. See Isolaureth-3  
 POE (6) isolauryl ether. See Isolaureth-6  
 POE (10) isolauryl ether. See Isolaureth-10  
 POE (6) isolauryl thioether. See PEG-6 isolauryl thioether  
 POE (8) isolauryl thioether. See PEG-8 isolauryl thioether  
 POE (10) isolauryl thioether. See PEG-10 isolauryl thioether  
 POE (7) isotridecyl ether. See Isotrideceth-7  
 POE (9) isotridecyl ether. See Isotrideceth-9  
 POE (75) lanolin. See PEG-75 lanolin  
 POE (150) lanolin. See PEG-150 lanolin  
 POE (2) laurate. See PEG-2 laurate  
 POE (8) lauric acid monoester. See PEG-8 laurate  
 POE (4) lauryl alcohol. See Laureth-4  
 POE (4) lauryl ether. See Laureth-4  
 POE (8) lauryl ether. See Laureth-8  
 POE (9) lauryl ether. See Laureth-9

POE (12) lauryl ether. See Laureth-12  
 POE (23) lauryl ether. See Laureth-23  
 POE (1-4) lauryl ether sulfate, ammonium salt. See Ammonium laureth sulfate  
 POE (12) lauryl ether sulfate, ammonium salt. See Ammonium laureth-12 sulfate  
 POE (8) monococoate. See PEG-8 cocoate  
 POE (15) monococoate. See PEG-15 cocoate  
 POE (4) monolaurate. See PEG-4 laurate  
 POE (5) monolaurate. See PEG-5 laurate  
 POE (6) monolaurate. See PEG-6 laurate  
 POE (8) monolaurate. See PEG-8 laurate  
 POE (12) monolaurate. See PEG-12 laurate  
 POE (20) monolaurate. See PEG-20 laurate  
 POE (32) monolaurate. See PEG-32 laurate  
 POE (2) monolaurate self-emulsifying. See PEG-2 laurate SE  
 POE (4) monooleate. See PEG-4 octanoate  
 POE (2) monooleate. See PEG-2 oleate  
 POE (4) monooleate. See PEG-4 oleate  
 POE (6) monooleate. See PEG-6 oleate  
 POE (8) monooleate. See PEG-8 oleate  
 POE (9) monooleate. See PEG-9 oleate  
 POE (10) monooleate. See PEG-10 oleate  
 POE (11) monooleate. See PEG-11 oleate  
 POE (12) monooleate. See PEG-12 oleate  
 POE (13) monooleate. See PEG-13 oleate  
 POE (14) monooleate. See PEG-14 oleate  
 POE (15) monooleate. See PEG-15 oleate  
 POE (16) monooleate. See PEG-16 oleate  
 POE (20) monooleate. See PEG-20 oleate  
 POE (23) monooleate. See PEG-23 oleate  
 POE (24) monooleate. See PEG-24 oleate  
 POE (32) monooleate. See PEG-32 oleate  
 POE (36) monooleate. See PEG-36 oleate  
 POE (40) monooleate. See PEG-40 oleate  
 POE (75) monooleate. See PEG-75 oleate  
 POE (100) monooleate. See PEG-100 oleate  
 POE (150) monooleate. See PEG-150 oleate  
 POE (200) monooleate. See PEG-200 oleate  
 POE (300) monooleate. See PEG-300 oleate  
 POE (2) monooleate self-emulsifying. See PEG-2 oleate SE  
 POE (20) monopalmitate. See PEG-20 palmitate  
 POE (12) monoricinoleate. See PEG-12 ricinoleate  
 POE (32) monostearate. See PEG-32 stearate  
 POE (40) monostearate. See PEG-40 stearate  
 POE (2) monostearate self-emulsifying. See PEG-2 stearate SE  
 POE (4) monotallate. See PEG-4 tallate  
 POE (5) monotallate. See PEG-5 tallate  
 POE (8) monotallate. See PEG-8 tallate  
 POE (10) monotallate. See PEG-10 tallate  
 POE (12) monotallate. See PEG-12 tallate  
 POE (14) monotallate. See PEG-14 tallate  
 POE (16) monotallate. See PEG-16 tallate  
 POE (20) monotallate. See PEG-20 tallate  
 POE 300 monotallate. See PEG-6 tallate  
 POE (8) myristate. See PEG-8 myristate  
 POE (20) myristate. See PEG-20 myristate  
 POE (5) nonylphenol. See Nonoxynol-5  
 POE (2) nonyl phenyl ether. See Nonoxynol-2  
 POE (3) nonyl phenyl ether. See Nonoxynol-3  
 POE (4) nonyl phenyl ether. See Nonoxynol-4  
 POE (5) nonyl phenyl ether. See Nonoxynol-5  
 POE (6) nonyl phenyl ether. See Nonoxynol-6  
 POE (7) nonyl phenyl ether. See Nonoxynol-7  
 POE (8) nonyl phenyl ether. See Nonoxynol-8  
 POE (9) nonyl phenyl ether. See Nonoxynol-9  
 POE (10) nonyl phenyl ether. See Nonoxynol-10  
 POE (11) nonyl phenyl ether. See Nonoxynol-11  
 POE (12) nonyl phenyl ether. See Nonoxynol-12  
 POE (13) nonyl phenyl ether. See Nonoxynol-13  
 POE (14) nonyl phenyl ether. See Nonoxynol-14  
 POE (15) nonyl phenyl ether. See Nonoxynol-15



- POE (18) nonyl phenyl ether. See Nonoxynol-18  
 POE (20) nonyl phenyl ether. See Nonoxynol-20  
 POE (23) nonyl phenyl ether. See Nonoxynol-23  
 POE (25) nonyl phenyl ether. See Nonoxynol-25  
 POE (30) nonyl phenyl ether. See Nonoxynol-30  
 POE (34) nonyl phenyl ether. See Nonoxynol-34  
 POE (40) nonyl phenyl ether. See Nonoxynol-40  
 POE (44) nonyl phenyl ether. See Nonoxynol-44  
 POE (50) nonyl phenyl ether. See Nonoxynol-50  
 POE (55) nonyl phenyl ether. See Nonoxynol-55  
 POE (60) nonyl phenyl ether. See Nonoxynol-60  
 POE (70) nonyl phenyl ether. See Nonoxynol-70  
 POE (100) nonyl phenyl ether. See Nonoxynol-100  
 POE (120) nonyl phenyl ether. See Nonoxynol-120  
 POE (9) nonyl phenyl ether phosphate. See Nonoxynol-9 phosphate  
 POE (4) nonyl phenyl ether sulfate, ammonium salt. See Ammonium nonoxynol-4 sulfate  
 POE (30) nonyl phenyl ether sulfate, ammonium salt. See Ammonium nonoxynol-30 sulfate  
 POE (3) octyl phenyl ether. See Octoxynol-3  
 POE (5) octyl phenyl ether. See Octoxynol-5  
 POE (7) octyl phenyl ether. See Octoxynol-7  
 POE (8) octyl phenyl ether. See Octoxynol-8  
 POE (9) octyl phenyl ether. See Octoxynol-9  
 POE (10) octyl phenyl ether. See Octoxynol-10  
 POE (11) octyl phenyl ether. See Octoxynol-11  
 POE (12) octyl phenyl ether. See Octoxynol-12  
 POE (13) octyl phenyl ether. See Octoxynol-13  
 POE (16) octyl phenyl ether. See Octoxynol-16  
 POE (20) octyl phenyl ether. See Octoxynol-20  
 POE (25) octyl phenyl ether. See Octoxynol-25  
 POE (30) octyl phenyl ether. See Octoxynol-30  
 POE (33) octyl phenyl ether. See Octoxynol-33  
 POE (40) octyl phenyl ether. See Octoxynol-40  
 POE (70) octyl phenyl ether. See Octoxynol-70  
 POE (23) oleate. See PEG-23 oleate  
 POE (10) oleic acid. See PEG-10 oleate  
 POE (2) oleyl amine. See PEG-2 oleamine  
 POE (20) oleyl amine. See PEG-20 oleamine  
 POE (2) oleyl ether. See Oleth-2  
 POE (3) oleyl ether. See Oleth-3  
 POE (5) oleyl ether. See Oleth-5  
 POE (6) oleyl ether. See Oleth-6  
 POE (7) oleyl ether. See Oleth-7  
 POE (8) oleyl ether. See Oleth-8  
 POE (9) oleyl ether. See Oleth-9  
 POE (10) oleyl ether. See Oleth-10  
 POE (12) oleyl ether. See Oleth-12  
 POE (15) oleyl ether. See Oleth-15  
 POE (16) oleyl ether. See Oleth-16  
 POE (18) oleyl ether. See Oleth-18  
 POE (20) oleyl ether. See Oleth-20  
 POE (23) oleyl ether. See Oleth-23  
 POE (25) oleyl ether. See Oleth-25  
 POE (30) oleyl ether. See Oleth-30  
 POE (40) oleyl ether. See Oleth-40  
 POE (44) oleyl ether. See Oleth-44  
 POE (50) oleyl ether. See Oleth-50  
 POE (80) oleyl ether. See Oleth-80  
 POE (7) oleyl ether phosphate. See Oleth-7 phosphate  
 POE/POP copolymer. See EO/PO block polymer or copolymer  
 POE (2) POP (2) monobutyl ether. See PPG-2-buteth-2  
 POE (3) POP (2) monobutyl ether. See PPG-2-buteth-3  
 POE (5) POP (3) monobutyl ether. See PPG-3-buteth-5  
 POE (7) POP (5) monobutyl ether. See PPG-5-buteth-7  
 POE (10) POP (7) monobutyl ether. See PPG-7-buteth-10  
 POE (12) POP (9) monobutyl ether. See PPG-9-buteth-12  
 POE (16) POP (12) monobutyl ether. See PPG-12-buteth-16  
 POE (20) POP (15) monobutyl ether. See PPG-15-buteth-20  
 POE (26) POP (26) monobutyl ether. See PPG-26-buteth-26  
 POE (27) POP (24) monobutyl ether. See PPG-24-buteth-27  
 POE (30) POP (20) monobutyl ether. See PPG-20-buteth-30  
 POE (35) POP (28) monobutyl ether. See PPG-28-buteth-35  
 POE (45) POP (33) monobutyl ether. See PPG-33-buteth-45  
 POE (8) ricinoleate. See PEG-8 ricinoleate  
 POE (8) sesquilaruate. See PEG-8 sesquilaruate  
 POE (8) sesquioleate. See PEG-8 sesquioleate  
 POE (40) sorbitan laurate. See PEG-40 sorbitan laurate  
 POE (4) sorbitan monolaurate. See Polysorbate 21  
 POE (20) sorbitan monolaurate. See Polysorbate 20  
 POE (80) sorbitan monolaurate. See PEG-80 sorbitan laurate  
 POE (3) sorbitan monooleate. See PEG-3 sorbitan oleate  
 POE (5) sorbitan monooleate. See Polysorbate 81  
 POE (20) sorbitan monooleate. See Polysorbate 80  
 POE (20) sorbitan monopalmitate. See Polysorbate 40  
 POE (4) sorbitan monostearate. See Polysorbate 61  
 POE (6) sorbitan monostearate. See PEG-6 sorbitan stearate  
 POE (20) sorbitan monostearate. See Polysorbate 60  
 POE (6) sorbitan oleate. See PEG-6 sorbitan oleate  
 POE (40) sorbitan peroleate. See PEG-40 sorbitan peroleate  
 POE (40) sorbitan stearate. See PEG-40 sorbitan stearate  
 POE (40) sorbitan tetraoleate. See PEG-40 sorbitan tetraoleate  
 POE (20) sorbitan trioleate. See Polysorbate 85  
 POE (20) sorbitan tristearate. See Polysorbate 65  
 POE (40) sorbitol hexaoleate. See PEG-40 sorbitan hexaoleate  
 POE (40) sorbitol septaoleate. See PEG-40 sorbitan peroleate  
 POE (2) soya amine. See PEG-2 soyamine  
 POE (10) soya amine. See PEG-10 soyamine  
 POE (15) soya amine. See PEG-15 soyamine  
 POE (4) stearate. See PEG-4 stearate  
 POE (6) stearate. See PEG-6 stearate  
 POE (8) stearate. See PEG-8 stearate  
 POE (12) stearate. See PEG-12 stearate  
 POE (20) stearate. See PEG-20 stearate  
 POE (40) stearate. See PEG-40 stearate  
 POE (100) stearate. See PEG-100 stearate  
 POE (1) stearic acid. See Glycol stearate  
 POE (10) stearyl alcohol. See Steareth-10  
 POE (20) stearyl alcohol. See Steareth-20  
 POE (5) stearyl amine. See PEG-5 stearamine  
 POE (10) stearyl amine. See PEG-10 stearamine  
 POE (20) stearyl amine. See PEG-20 stearamine  
 POE (30) stearyl amine. See PEG-30 stearamine  
 POE stearyl ether. See Steareth  
 POE (2) stearyl ether. See Steareth-2  
 POE (10) stearyl ether. See Steareth-10  
 POE (20) stearyl ether. See Steareth-20  
 POE (2) tallowamine. See PEG-2 tallowamine  
 POE (5) tallowamine. See PEG-5 tallowamine  
 POE (20) tallowamine. See PEG-20 tallowamine  
 POE (35) tallowamine. See PEG-35 tallowamine  
 POE (10) tallow aminopropylamine. See PEG-10 tallow aminopropylamine  
 POE (6) tallow ether. See Talloweth-6  
 POE (4) tridecyl alcohol. See Trideceth-4  
 POE (8) tridecyl alcohol. See Trideceth-8  
 POE (2) tridecyl ether. See Trideceth-2  
 POE (3) tridecyl ether. See Trideceth-3  
 POE (4) tridecyl ether. See Trideceth-4  
 POE (5) tridecyl ether. See Trideceth-5  
 POE (6) tridecyl ether. See Trideceth-6  
 POE (7) tridecyl ether. See Trideceth-7  
 POE (8) tridecyl ether. See Trideceth-8  
 POE (9) tridecyl ether. See Trideceth-9  
 POE (10) tridecyl ether. See Trideceth-10  
 POE (11) tridecyl ether. See Trideceth-11  
 POE (12) tridecyl ether. See Trideceth-12  
 POE (14) tridecyl ether. See Trideceth-14  
 POE (15) tridecyl ether. See Trideceth-15  
 POE (18) tridecyl ether. See Trideceth-18  
 POE (20) tridecyl ether. See Trideceth-20  
 POE (23) tridecyl ether. See Trideceth-23  
 POE (25) tridecyl ether. See Trideceth-25  
 POE (29) tridecyl ether. See Trideceth-29  
 POE (30) tridecyl ether. See Trideceth-30

POE (40) tridecyl ether. See Trideceth-40

POE (50) tridecyl ether. See Trideceth-50

POE (100) tridecyl ether. See Trideceth-100

POE (150) tridecyl ether. See Trideceth-150

POE (6) tridecyl ether phosphate. See Trideceth-6 phosphate

POE (10) tridecyl ether phosphate. See Trideceth-10 phosphate

POE (3) undecyl ether. See Undeceth-3

POE (5) undecyl ether. See Undeceth-5

POE (6) undecyl ether. See Undeceth-6

POE (7) undecyl ether. See Undeceth-7

POE (8) undecyl ether. See Undeceth-8

POE (11) undecyl ether. See Undeceth-11

Pogy oil. See Menhaden oil

Poloxalene. See Poloxamer 188

#### Poloxamer 101

CAS 9003-11-6 (generic)

Synonyms: Methyl oxirane polymers; Polyethylenepolypropylene glycols, polymers

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CH}(\text{CH}_3)\text{CH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 2$ ,  $y = 16$ ,  $z = 2$

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; water treatment; paints; latexes; surfactant for pharmaceuticals; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §176.210; USP/NF compliance

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Pluronic® L31

#### Poloxamer 105

CAS 9003-11-6 (generic)

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 11$ ,  $y = 16$ ,  $z = 11$

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; water treatment; paints; latexes; surfactant for pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.

Regulatory: FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Nonionic 1035-L; Pluronic® L35

#### Poloxamer 108

CAS 9003-11-6 (generic)

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 46$ ,  $y = 16$ ,  $z = 46$

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; water treatment; paints; surfactant for pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in closures with sealing gaskets for food containers

Regulatory: FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Pluronic® F38; Pluronic® F68LF; Pluronic® L62D; Pluronic® L62LF

#### Poloxamer 122

CAS 9003-11-6 (generic)

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 5$ ,  $y = 21$ ,  $z = 5$

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.

Regulatory: FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

Manuf./Distrib.: Aldrich; Fluka; Sigma

#### Poloxamer 123

CAS 9003-11-6 (generic)

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 7$ ,  $y = 21$ ,  $z = 7$

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; water treatment; paints; latexes; surfactant for pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.

Regulatory: FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Pluronic® L43

#### Poloxamer 124

CAS 9003-11-6 (generic)

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 11$ ,  $y = 21$ ,  $z = 11$

Properties: Colorless liq., mild odor; sol. in water, alcohol, IPA, propylene glycol, xylene; m.w. 2090-2360; m.p. 16 C; pH 5.0-7.5 (1 in 40); nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; paints; paper; pharmaceuticals; metalworking; agric.; water treatment; surfactant in pharmaceuticals; in food-pkg. adhesives

Regulatory: FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Nonionic 1044-L; Pluronic® L44

#### Poloxamer 181

CAS 9003-11-6 (generic); 53637-25-5

Classification: Polyoxyethylene, polyoxypropylene block polymer

Formula:  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 3$ ,  $y = 30$ ,  $z = 3$

Properties: Nonionic

Toxicology: LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

Uses: Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; paints; paper; agric.; foods; pharmaceuticals; water treatment; provides solvency, low odor, low irritation, low toxicity to personal care prods.; defoamer in food-contact coatings and paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; in cellophane for food pkg.

Regulatory: FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

Manuf./Distrib.: Aldrich; Fluka; Sigma

Trade Names: Acclaim® 3201; Chemal BP 261; Dow EP530; Nonionic 1061-L; Pluronic® L61; Synperonic PE/L61

#### Poloxamer 182

CAS 9003-11-6 (generic)

Classification: Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 8$ ,  $y = 30$ ,  $z = 8$

*Properties:* Low-foaming liq.; m.w. 2450; dens. 1.035; cloud pt. 22 C (10% aq.); flash pt. > 110 C; nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; emulsion polymerization; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; emulsifier, solubilizer, wetting agent in pharmaceuticals; food-pkg. adhesives; in paper/paperboard in contact with dry food; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemal BP-262; Nonionic 1062-L; Pluronic® L62

#### Poloxamer 183

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 10$ ,  $y = 30$ ,  $z = 10$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; solubilizer, stabilizer in flavor concs.; food processing aid; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### Poloxamer 184

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 13$ ,  $y = 30$ ,  $z = 13$

*Properties:* Dens. 1.018; flash pt. > 110 C; nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; emulsion polymerization; resin plasticizer; defoamer in paper coatings; water treatment; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Antarox® L-64; Nonionic 1064-L; Pluronic® L64

#### Poloxamer 185

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 19$ ,  $y = 30$ ,  $z = 19$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### Poloxamer 188

CAS 9003-11-6 (generic)

*Synonyms:* Poloxalene

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 75$ ,  $y = 30$ ,  $z = 75$

*Properties:* Wh. flakeable solid, nearly odorless; sol. in water, alcohol; m.w. 8350; m.p. 50 C min.; cloud pt. > 100 C (10% aq.); pH 5.0-7.5 (1 in 40); nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; latex stabilizer; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints; surfactant for pharmaceuticals; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210; FDA approved for intravenous, orals; BP compliance

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Nonionic 1068-F; Pluronic® F68

#### Poloxamer 212

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 8$ ,  $y = 35$ ,  $z = 8$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; solubilizer, stabilizer for flavors; food processing aid; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### Poloxamer 215

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 24$ ,  $y = 35$ ,  $z = 24$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; solubilizer, stabilizer in flavors; food processing aid; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in closures with sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### Poloxamer 217

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_3\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 52$ ,  $y = 35$ ,  $z = 52$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer, antistat, demulsifier, detergent, wetting agent, gellant, emulsifier, dispersant, dye leveler in textiles, agric., paints, adhesives, water treatment; solubilizer, stabilizer in food concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; defoamer in food-contact coatings and paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; in cellophane for food pkg.; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Nonionic 1077-F; Pluronic® F77

**Poloxamer 231**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Empirical:*  $(C_3H_6O \cdot C_2H_4O)_x$ *Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 6$ ,  $y = 39$ ,  $z = 6$ *Properties:* Nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg, (IP, rat) 1140 mg/kg; mod. toxic by ing., IP route; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment; paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Pluronic® L81; Synperonic PE/L81**Poloxamer 234**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 22$ ,  $y = 39$ ,  $z = 22$ *Properties:* Nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment; paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Pluronic® P84**Poloxamer 235**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 27$ ,  $y = 39$ ,  $z = 27$ *Properties:* Nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment; paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Pluronic® P85**Poloxamer 237**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 62$ ,  $y = 39$ ,  $z = 62$ *Properties:* Wh. prilled or cast solid, odorless to mild odor; sol. in water, alcohol; sparingly sol. in IPA, xylene; m.w. 6840-8830; m.p. 49 C; pH 5.0-7.5 (1 in 40); nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; surfactant for personal care applics., pulp/paper, pharmaceuticals, metal-

working, lubricants, textiles, agric., paints, adhesives, water treatment; solubilizer, stabilizer in flavor concs.; food processing aid; defoamer in food-contact coatings and paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; in cellophane for food pkg.; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Antarox® PGP 23-7; Nonionic 1087-F; Pluronic® F87**Poloxamer 238**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 97$ ,  $y = 39$ ,  $z = 97$ *Properties:* Dens. 1.018; flash pt. > 110 C; nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; latex stabilizer; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Nonionic 1088-F; Pluronic® F88**Poloxamer 282**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 10$ ,  $y = 47$ ,  $z = 10$ *Properties:* Nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Pluronic® L92**Poloxamer 284**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 21$ ,  $y = 47$ ,  $z = 21$ *Properties:* Nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in closures with sealing gaskets for food containers*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210*Manuf./Distrib.:* Aldrich; Fluka; Sigma**Poloxamer 288**

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer*Formula:*  $HO(CH_2CH_2O)_x(CCH_2HCH_2O)_y(CH_2CH_2O)_zH$ , avg.  $x = 122$ ,  $y = 47$ ,  $z = 122$ *Properties:* Nonionic*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion,

intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Pluronic® F98

#### Poloxamer 331

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 7$ ,  $y = 54$ ,  $z = 7$

*Properties:* Colorless liq.; sol. in alcohol; very sl. sol. in water; m.w. 3800; dens. 1.018 (25/25 C); visc. 756 cp; cloud pt. 11 C (10% aq.); nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; in food-pkg. adhesives

*Use Level:* Limitation 0.05% (scald baths for poultry), 5 g/hog (in dehairing machines), 0.5% on wt. of flour (dough)

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210; 9CFR §381.147; FDA approved for orals

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Chemal BP-2101; Pluronic® L101; Synperonic PE/L101

#### Poloxamer 333

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 20$ ,  $y = 54$ ,  $z = 20$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Pluronic® P103

#### Poloxamer 334

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 31$ ,  $y = 54$ ,  $z = 31$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Pluronic® P104

#### Poloxamer 335

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 38$ ,  $y = 54$ ,  $z = 38$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Pluronic® P105

#### Poloxamer 338

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 128$ ,  $y = 54$ ,  $z = 128$

*Properties:* Wh. prilled or cast solid, odorless to mild odor; sol. in water, alcohol; sparingly sol. in propylene glycol; m.w. 12,700-17,400; m.p. 57 C; pH 5.0-7.5 (1 in 40); nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; defoamer in food-contact coatings and paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; in cellophane for food pkg.; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Nonionic 1108-F; Pluronic® F108

#### Poloxamer 401

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 6$ ,  $y = 67$ ,  $z = 6$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals

*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Pluronic® L121; Synperonic PE/L121

#### Poloxamer 402

CAS 9003-11-6 (generic)

*Classification:* Polyoxyethylene, polyoxypropylene block polymer

*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 13$ ,  $y = 67$ ,  $z = 13$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stab-

## Poloxamer 403

lizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals  
*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Poloxamer 403

CAS 9003-11-6 (generic)  
*Classification:* Polyoxyethylene, polyoxypropylene block polymer  
*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 21$ ,  $y = 67$ ,  $z = 21$   
*Properties:* Nonionic  
*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed  
*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; in food-pkg. adhesives; lubricant for agric., cosmetics, metal cleaning, pulp/paper, textile scouring, water treatment, paints, latexes; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals  
*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210  
*Manuf./Distrib.:* Aldrich; Fluka; Sigma  
*Trade Names:* Pluronic® P123

## Poloxamer 407

CAS 9003-11-6 (generic)  
*Classification:* Polyoxyethylene, polyoxypropylene block polymer  
*Formula:*  $\text{HO}(\text{CH}_2\text{CH}_2\text{O})_x(\text{CCH}_2\text{HCH}_2\text{O})_y(\text{CH}_2\text{CH}_2\text{O})_z\text{H}$ , avg.  $x = 98$ ,  $y = 67$ ,  $z = 98$   
*Properties:* Wh. prilled or cast solid, odorless to mild odor; sol. in water and alcohol; m.w. 9840-14,600; m.p.  $\approx 56$  C; pH 5.0-7.5 (1 in 40); nonionic  
*Toxicology:* LD50 (oral, rat) 2300 mg/kg; moderately toxic by ingestion, intraperitoneal route; TSCA listed  
*Uses:* Surfactant, emulsifier in cosmetics; food additive; defoamer; antistat; demulsifier; detergent; wetting agent; gellant; dispersant; dye levelers; for paints; metal cleaning; water treatment; textile scouring; solubilizer, stabilizer in flavor concs.; food processing aid; emulsifier, solubilizer, wetting agent in pharmaceuticals; defoamer in food-contact coatings and paper/paperboard; food-pkg. adhesives; in paper/paperboard in contact with dry foods; in cellophane for food pkg.; in closure-sealing gaskets for food containers  
*Regulatory:* FDA 21CFR §172.808, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.1210  
*Manuf./Distrib.:* Aldrich; Fluka; Ruger; Sigma  
*Trade Names:* Nonionic 1127-F; Pluronic® F127

## Poloxamine 701

CAS 11111-34-5 (generic)  
*Definition:* Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for cosmetics and pharmaceuticals; demulsifier in petrol. industry; detergent ingred.; antistat for polyethylene and resin molding powds.; polymerization; used in latex-based paints, aq.-based syn. cutting fluids and vulcanization of rubber  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Synperonic T/701  
*See also* EO/PO ethylenediamine block copolymer

## Poloxamine 1301

CAS 11111-34-5 (generic)  
*Definition:* Polyoxyethylene, polyoxypropylene block polymer of ethylene diamine  
*Properties:* Nonionic  
*Toxicology:* TSCA listed  
*Uses:* Emulsifier, thickener, wetting agent, dispersant, solubilizer, stabilizer for cosmetics and pharmaceuticals; demulsifier in petrol. industry; detergent ingred.; antistat for polyethylene and resin molding powds.  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Synperonic T/1301

*See also* EO/PO ethylenediamine block copolymer

## Polyacrolein-sodium bisulfite adduct

*Uses:* Starch modifier in mfg. of paper/paperboard in contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §176.170

## Polyacrylamide

CAS 9003-05-8  
*Synonyms:* PAA; Acrylamide homopolymer; Acrylamide, polymers; 2-Propenamamide, homopolymer  
*Definition:* Polyamide of acrylic monomers contg. not more than 0.2% acrylamide monomer  
*Empirical:*  $(\text{C}_3\text{H}_5\text{NO})_x$   
*Formula:*  $[\text{CH}_2\text{CHCONH}]_x$   
*Properties:* Wh. solid; water-sol. high polymer; m.w. 10,000-18,000,000; dens. 1.302  
*Toxicology:* LD50 (oral, mouse) 12,950 mg/kg, (IP, rat) 3600 mg/kg; mod. toxic by IP route; low toxicity by ing.; TSCA listed  
*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes  
*Uses:* Thickener, dispersant, antiprecipitant, solubilizer, binder, sizing agent, flocculant, suspending agent, crosslinking agent, filtering aid, lubricant used in adhesives, agric., cement, coatings, cosmetics, detergents, latex mfg., plaster, printing inks, water treatment; film-former in imprinting gelatin capsules, cosmetics; antistat in cosmetics; flocculant in beet or cane sugar juice clarification; washing/lye peeling of fruits/vegetables; retention aid during wet end processing and in wet strength additives to paper/pulp mfg.; in antibiotic gels; food-pkg. adhesives; in paper/paperboard in contact with dry foods  
*Regulatory:* FDA 21CFR §172.255, 173.10, 173.315 (10 ppm in wash water), 175.105, 176.180; BP compliance (gel)  
*Manuf./Distrib.:* AMRESKO; Aldrich; Allchem Ind.; Callaway; Ciba Spec. Chems./Water Treatment; Complex Quimica SA; Cytac Ind.; Dow; Expo Chem.; Fluka; Monomer-Polymer & Dajac Labs; Rhodia HPCII  
*Trade Names:* Ambond® 1505; Ambond® 1590; Cartaretin® 5CP Powd.; Cartaretin® 10AE Liq.; Cartaretin® 10AP Powd.; Cartaretin® 10CE Liq.; Cartaretin® 10CP Powd.; Cartaretin® 20AE Liq.; Cartaretin® 20AP Powd.; Cartaretin® 20CE Liq.; Cartaretin® 30AE Liq.; Cartaretin® 30AP Powd.; Cartaretin® 30CP Powd.; Cartaretin® 40CE Liq.; Cydrain® 145 Drainage Aid; Eldorado PA-755; Floclair® DA-7; Floclair® DA-15; Floclair® DA-30; Floclair® DK-20; Floclair® DK-40; Floclair® DK-65; Floclair® DK-65 H; Floclair® DK-65 L; Floclair® DK-65 S; Floclair® DK-90; Floclair® VP 3678; MPD-7; MS-290; MSG-329; Polyflex® 300 Retention Aid; Polymin® KE 78 PF; Polymin® KE 84; Polymin® PR 266 L; Polymin® PR 973; Polymin® PR 8578; QEMI DSR 8117A; Qemifloc CEPG 164; Torez Resin P-215-A; Tramfloc™ 290  
*Trade Names Containing:* Accurac® 105 Retention Aid

## Poly [acrylamide-acrylic acid-N-(dimethylaminomethyl) acrylamide]

CAS 53800-41-2  
*Uses:* Drainage aid, retention aid, dry str. agent in mfg. of paper/paperboard in contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §176.170

**Poly (acrylamide-co-acrylic acid).** *See* Acrylic acid/acrylamide copolymer

**Poly (acrylamide-co-diallyldimethyl ammonium chloride).** *See* Polyquaternium-7

**Polyacrylamide, hydrolyzed.** *See* Acrylic acid/acrylamide copolymer

**Polyacrylate.** *See* Polyacrylic acid

## Polyacrylic acid

CAS 9003-01-4 (generic)  
*Synonyms:* PAA; Acrylic acid homopolymer; Acrylic acid polymer; Acrylic acid, polymers; Acrylic acid resin; Acrylic polymer; Acrylic polymer resins; Acrylic resin; Atactic poly(acrylic acid); Polyacrylate; Poly (acrylic acid); 2-Propenoic acid, homopolymer; Propenoic acid polymer; Propenoic acid, polymers, homopolymer  
*Definition:* Polymer of acrylic acid  
*Empirical:*  $(\text{C}_3\text{H}_4\text{O}_2)_x$   
*Formula:*  $[\text{CH}_2\text{CHCOOH}]_x$   
*Properties:* M.w. 50,000-250,000; dens. 1.02 kg/l; anionic  
*Toxicology:* LD50 (oral, rat) 2500 mg/kg, (IP, mouse) 39 mg/kg, (IV, mouse) 70 mg/kg; poison by IV and IP routes; mod. toxic by ing.; tumorigen;

possible carcinogen; mutagen; target organs: blood, bone marrow; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and fumes

**Storage:** Hygroscopic

**Uses:** Emulsifier; thickener; suspending agent; coupler; moisturizer; emollient; sequestrant; thickener; gellant; for latexes; emulsion paints; drilling muds; photosensitive emulsions; water treatment; adhesives; dispersant (heavy-duty laundry cleaners); nickel plating reagent; glass coatings; hydrazine rocket fuel binder; polyamide/polyester textile sizing; stabilizer (PS, methyl methacrylate organosols); binder, emulsion stabilizer, film-former, visc. control agent in cosmetics; topical pharmaceuticals; food-pkg. adhesives; in resinous/polymeric food-contact coatings and coatings for polyolefin films; in paper/paperboard in contact with dry foods

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.180

**Manuf./Distrib.:** ABCR; Alco; Aldrich; BFGoodrich; CPS; Callaway; Ciba Spec. Chems./Water Treatment; Hampshire; Johnston Polymer; Nat'l. Starch & Chem.; Polacryl; Prosel S.A. de C.V.; Rhodia HPCI; Synthron  
**Trade Names:** Acriflow 050-S; Acumer® 1020; Acumer® 1510; Alcogum® L-15; Alcosperse® 404; Carbopol® 907; Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-752 Polymer; Orlene® 1340

**Trade Names Containing:** Carbopol® ETD 2001; Carbopol® ETD 2020; Carbopol® ETD 2050; Good-Rite® K-7028 Polymer; Good-Rite® K-7028N Polymer; Good-Rite® K-7058 Polymer; Good-Rite® K-7058N Polymer; Good-Rite® K-7600N Polymer

See also Acrylic resin; Carbomer

**Poly (acrylic acid).** See Polyacrylic acid

**Poly (acrylic acid-acrylamide).** See Acrylic acid/acrylamide copolymer

**Poly (acrylic acid), ammonium salt.** See Ammonium polyacrylate

**Polyacrylic acid, sodium salt.** See Sodium polyacrylate

#### Polyacrylonitrile

CAS 25014-41-9; EINECS/ELINCS 262-706-7

**Synonyms:** Acrylic fiber; Acrylonitrile homopolymer; Acrylonitrile polymer; Acrylonitrile, polymeric; Acrylonitrile, polymers; PAN resin; Poly (acrylonitrile), fibers; 2-Propenenitrile, homopolymer

**Classification:** Thermoplastic polymer

**Definition:** Polymer of acrylonitrile; high impermeability to gases

**Empirical:** (C<sub>3</sub>H<sub>3</sub>N)<sub>x</sub>

**Properties:** M.w. 25,000-1,000,000; dens. 1.184; ref. index 1.5140

**Toxicology:** LD50 (oral, rat) > 3 g/kg; LC (inh., rat) > 25 g/m<sup>3</sup>; poison by inh.; may cause changes in liver and adrenal wt., fatty liver degeneration, acute renal failure, acute tubular necrosis, thyroid hypofunction; cancer suspect agent; TSCA listed

**Storage:** Keep tightly closed in cool area

**Uses:** Mfg. of synthetic fibers, bottles and sheet, moldings, shoe soles, wall panels; fibers for textiles, household furnishings, industrial applics.; food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.180

**Manuf./Distrib.:** Acros Org.; Aldrich; Complex Quimica SA

**Poly (acrylonitrile-butadiene-styrene).** See Acrylonitrile/butadiene/styrene copolymer

**Poly (acrylonitrile-co-butadiene-co-styrene).** See Acrylonitrile/butadiene/styrene copolymer

**Poly (acrylonitrile), fibers.** See Polyacrylonitrile

#### Polyaluminum chloride

CAS 1327-41-9; EINECS/ELINCS 215-477-2

**Synonyms:** PAC; Aluminum chlorhydroxide; Aluminum chloride basic; Aluminum chloride hydroxide; Aluminum chlorohydrate; Aluminum chlorohydroxide; Aluminum hydroxychloride; Basic aluminum chloride; Polyaluminum hydroxychloride; Polyhydroxoaluminum chloride

**Definition:** Basic aluminum chloride with OH:Al ratio of 0.5-2.5

**Formula:** Al<sub>2</sub>(OH)<sub>n</sub>Cl, n = 1-5

**Uses:** Coagulant and flocculant for industrial water, wastewater, potable water treatment, sewage/plant effluent treatment, paper processing applics.; alum replacement in alkaline papermaking processes; fire-resist. ceramic paste binder; alumina fiber raw material; catalyst raw material; textile finishing agent; food-contact applics.

**Manuf./Distrib.:** Holland; Sal Chem.

**Trade Names:** Aquapac™; Ekoflock™; Hyper+Ion™ 1050; PAC-300;

Sachtoklar® 37; Sachtoklar® 39

**Trade Names Containing:** Aquacoll 30 PA; Hyper+Ion™ 1050A; Sachtofloc® 46.3; Sachtofloc® 46.6; Sachtofloc® 46.12; Sachtofloc® 46.18; Sachtofloc® 46.24; Sachtofloc® 46.60; TurboCLEAR™ PC-1

See also Aluminum chlorohydrate

#### Polyaluminum chlorosulfate

**Uses:** Coagulant and flocculant for industrial and potable water treatment

**Manuf./Distrib.:** Gulbrandsen Mfg.

**Trade Names:** WAC® Paper

#### Polyaluminum hydroxide chloride sulfate

CAS 39290-78-3; EINECS/ELINCS 254-400-7

**Empirical:** Al(OH)<sub>2</sub>Cl(SO<sub>4</sub>)<sub>2</sub>

**Uses:** Coagulant in wastewater treatment; flocculant, fixing agent, alum replacement for neutral sizing process of paper and cardboard mfg.

**Trade Names:** Paper-PAC-N®

**Polyaluminum hydroxychloride.** See Polyaluminum chloride

**Polyaluminum silicate sulfate.** See Aluminum hydroxide sulfate

#### Polyamide

CAS 25038-54-4; 9012-24-2

**Synonyms:** Nylon

**Classification:** Polymer

**Definition:** A high m.w. polymer in which amide linkages (-CONH) occur along the molecular chain; may be either natural or synthetic

**Empirical:** (C<sub>2</sub>H<sub>4</sub>NO)<sub>x</sub>

**Properties:** M.w. 22,000-45,000; dens. 1.20; m.p. 283-319 C

**Toxicology:** Poison by inhalation; tumorigen; TSCA listed

**Uses:** Natural polyamides include casein, soybean and peanut proteins, zein; synthetic polyamides typified by various nylons; used for paints; plastics; textile fibers; adhesives; epoxy curing agent, hardener, emulsifier; thixotrope; in side seam cements for food-contact containers; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.300, 177.1200

**Manuf./Distrib.:** Acros Org.; Aldrich; Arizona; Ashley Polymers; Atofina; Avachem; BASF; Bayer; Chemcentral; Ciba Spec. Chems./Addit.; Cray Valley; D.B. Becker; DSM Chem. N. Am.; Degussa-Hüls AG; Diamines & Chems. Ltd; Dujodwala Resins & Terpenes; EMS-AM. GRILON; Eastech; Georgia-Pacific Resins; Henkel Adhesives; Int'l. Paper; K&S Ind.; Lawter Int'l.; Matteson-Ridolfi; Monomer-Polymer & Dajac Labs; Monsanto; Reichhold; Rit-Chem; Samson; Ticona; Wego Chem. & Min.; Zimmer AG

**Trade Names:** Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® MOC-3066; Amres® X-184; Ancamide® 220; Araldite® HZ 340; Prox® AC 553 L; Prox® V P 137; Reactopaque® 100; Reactopaque® 150; Reactopaque® 175; Torez Resin P-1012; Torez Resin P-1025; Unicrepe® C77

**Trade Names Containing:** Ancamide® 220-IPA-73; Ancamide® 220-X-70; Ancamide® 700-B-75

**Polyamide 12.** See Nylon 12

#### Polyamideamine-epichlorohydrin resin

**Uses:** Wet str. agent for paper and board mfg.

**Trade Names:** Giluton 1100/28 N; Giluton HP; Giluton NL 15

#### Polyamide/epichlorohydrin polymer

**Uses:** Wool shrinkproofing, antistat finishing; printing pretreatment; crosslinking agent for polymers; also gives water resist. to starch-based adhesives and coatings; flocculant, setting aid, clarifier for industrial processing and wastewater; retention aid, flocculant in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Trade Names:** Delfloc® 763; Hercules® 2043; Polycup® 172; Polycup® 1884

#### Polyamide-ethyleneimine-epichlorohydrin resin

CAS 115340-77-7

**Uses:** In paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §176.180

**Polyamide-polyamine-epichlorohydrin resin.** See Adipic acid/dimethylamino-hydroxypropyl diethylenetriamine copolymer



## Polyamidoamine

### Polyamidoamine

*Synonyms:* PAMAM

*Uses:* Retention aid, drainage aid for paper and board mfg., fiber recovery, backwater clarification; linking agent; carrier for biological and chemical materials, cosmetic actives; crosslinking agent for polymers (epoxies, nylons); controlled release agent; modifier; nucleating agent; catalyst; water resist. aid, adhesion aid for ink jet inks and toners onto paper, glass, plastic, and metal substrates; reduces surfactant irritancy in personal care cleansers; adsorbent producing monolayer film layers for use as chem. sensor to detect hazardous chem. vapors or as corrosion inhibitors; size standard for analytical instruments, membrane prod., silica gel

*Trade Names:* Cartaretin® F Liq.

*Trade Names Containing:* Polymin® 978 L

### Polyamidoamine-epichlorohydrin

*Uses:* For increasing wet and dry strength of papers

*Trade Names:* Luresin®

### Poly (2-aminoethyl acrylate nitrate-co-2-hydroxypropyl acrylate)

*Synonyms:* 2-Aminoethyl acrylate nitrate/2-hydroxypropyl acrylate copolymer

*Uses:* Drainage aid, retention aid in mfg. of paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §176.170, 176.180

### Polyaspartic acid homopolymer, sodium salt

*Uses:* Antiscalant; CO<sub>2</sub> corrosion inhibitor; dispersant for min. slurries; controls redeposition of soil in laundry

*Trade Names:* Donlar C-20C; Donlar C-30D; Donlar C-50D

### Polyaziridine. See Polyethylenimine

### Polybutadiene

CAS 9003-17-2; 69102-90-5

*Synonyms:* BR; Atactic butadiene polymer; Buta-1,3-diene; Butadiene homopolymer; 1,3-Butadiene, homopolymer; Butadiene oligomer; Butadiene polymer; 1,3-Butadiene, polymers; Butadiene resin; Butadiene rubber; cis-Polybutadiene; Poly-1,3-butadiene; Polybutadiene latex; Polybutadiene resin; Polybutadiene rubber

*Classification:* Polymer; elastomer; latex

*Empirical:* (C<sub>4</sub>H<sub>6</sub>)<sub>n</sub>

*Formula:* (CH<sub>2</sub>CH=CHCH<sub>2</sub>)<sub>n</sub>

*Properties:* M.w. 1000-233,000

*Toxicology:* Liq. is hazardous by ing. and inh.; skin irritant; TSCA listed

*Precaution:* Combustible; may explode > 337 C

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Thermoplastic elastomer for tire industry, footwear, molded goods, conveyor belts, drive belts, bumpers, shock absorber pads; blending ingred. in SBR; impact modifier, additive for plastics; coating resin in liq. form; latex as binder in paper sizing; drying oil in food-contact coatings; adjuvant in vinylidene chloride coatings for food-contact cellophane; in closure-sealing gaskets for food containers; in food-contact articles for repeated use; food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.180, 177.1200, 177.1210, 177.2600

*Manuf./Distrib.:* A. Schulman; ABCR; Acros Org.; Aldrich; Ameripol Synpol; Atofina; BASF; ChevronPhillips; Firestone Syn. Rubber; Goodyear; Huntsman; Lyondell; Monomer-Polymer & Dajac Labs; Reichhold/Emulsion Polymers; Revertex Chems. Ltd; Ricon Resins; Scientific Polymer Prods.

### Poly-1,3-butadiene. See Polybutadiene

### cis-Polybutadiene. See Polybutadiene

### Polybutadiene latex. See Polybutadiene

### Polybutadiene/polystyrene copolymer. See Styrene/butadiene polymer

### Polybutadiene resin. See Polybutadiene

### Polybutadiene rubber. See Polybutadiene

### 1,2-Polybutadiene-styrene-divinyl benzene terpolymer

*Uses:* Thermosetting resin for glass and paper laminates, radomes, prepregs

### Polybutene

CAS 9003-28-5; 9003-29-6

*Synonyms:* PB; Butene, homopolymer; 1-Butene, homopolymer; Butene polymer; Butene, polymers; Polybutene resin; Poly-1-butene; Polybutene-

1; Poly-1-butene resin; Polybutenes; Polybutylene; Polybutylene resin; Polymerized 1-butene

*Classification:* Polymer

*Definition:* A semicrystalline thermoplastic formed by polymerization of 1-butene

*Empirical:* (C<sub>4</sub>H<sub>8</sub>)<sub>n</sub>

*Formula:* [CH<sub>2</sub>CH(C<sub>2</sub>H<sub>5</sub>)]<sub>n</sub>

*Properties:* Colorless visc. liq.; misc. with min. oil; insol. in water; m.w. 500-75,000; dens. 0.910; pour pt. -60 to 50 C

*Toxicology:* May asphyxiate; TSCA listed

*Precaution:* Combustible

*Uses:* Thermoplastic resin; tackifier, strengthener, and extender in adhesives; plasticizer for rubber; vehicle and fugitive binder for coatings; cling additive for LLDPE stretch wrap films; reactive intermediate for specialty chemicals; visc. modifier in lubricating oils; visc. index improvers; polymer modifier; insulating agent; cable insulation; lubricant; metalworking oils; compressor oils; binder, visc. control agent in cosmetics; plasticizer (pharmaceuticals); in food-pkg. adhesives and pressure-sensitive adhesives; plasticizer in food-contact rubber articles for repeated use; in lubricants for incidental food-contact use

*Regulatory:* FDA 21CFR §175.105, 175.125, 177.1570, 177.2600, 178.3570

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Allchem Ind.; Ashland; BP Amoco; BP Chems. Ltd; Chemcentral; D.B. Becker; FRP Services; H.M. Royal; Harcros; Loos & Dilworth; Lubrizol; Monomer-Polymer & Dajac Labs; NOF; Nichem; Punda Mercantile; S & S Chem.; Sanyo Corp. of Am.; Shell; Soltex; Van Waters & Rogers; Vilax

*Trade Names:* Amoco® H-15; Amoco® L-14; Amoco® L-50; Indopol® H-100; Indopol® H-1500; Indopol® L-10

### Polybutene-1. See Polybutene

### Poly-1-butene. See Polybutene

### Polybutene, hydrogenated. See Hydrogenated polybutene

### Polybutene resin. See Polybutene

### Poly-1-butene resin. See Polybutene

### Polybutenes. See Polybutene

### Polybutylene. See Polybutene

### Polybutylene resin. See Polybutene

### Polybutylene terephthalate

CAS 26062-94-2

*Synonyms:* PBT; PBTP; PTMT; 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol; Poly (tetramethylene terephthalate); PBT polyester

*Classification:* Organic compd.

*Definition:* Crystalline thermoplastic polyester resin formed in a transesterification reaction between 1,4-butanediol and dimethyl terephthalate; good heat stability, mech. props., elec. insulation, surf. finish, water absorption and grease/oil/petrol. resist.

*Formula:* (C<sub>8</sub>H<sub>8</sub>O<sub>2</sub> · C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>)<sub>n</sub>

*Properties:* Cryst.; dens. 1.310; tens. str. 56 MPa; Vicat soften. pt. 175 C

*Uses:* Engineering plastic; domestic power tools; cooker components; elec. plugs/sockets/switches/circuit breaker housings; automotive parts; blends with PC; pump housings; impellers; gears; hinges; antistat, film-former, visc. control agent in cosmetics

*Manuf./Distrib.:* Aldrich; BASF; GE Plastics; Ticona; Whyte Chems. Ltd

*Trade Names:* Ultradur® B 2550

### Poly (2-chlorobutadiene). See Polychloroprene

### Poly (2-chloro-1,3-butadiene). See Polychloroprene

### Polychloro copper phthalocyanine. See Phthalocyanine green

### Poly (chloroethylene). See Polyvinyl chloride

### Polychloroprene

CAS 9010-98-4

*Synonyms:* CR; 1,3-Butadiene, 2-chloro-, polymers; 2-Chloro-1,3-butadiene homopolymer; Chlorobutadiene polymer; 2-Chloro-1,3-butadiene polymer; Chloroprene polymer; Chloroprene resin; Chloroprene rubber; Neoprene; Neoprene rubber; Poly (2-chlorobutadiene); Poly (2-chloro-1,3-butadiene); Poly (chloroprene)

*Classification:* Polymer; synthetic elastomer

*Definition:* Unsaturated polymer of chloroprene

*Empirical:* (C<sub>4</sub>H<sub>3</sub>Cl)<sub>x</sub>

*Formula:* [CH<sub>2</sub>CH=CClCH<sub>2</sub>]<sub>x</sub>

*Properties:* As solid, latex, or flexible foam; m.w. 100,000-300,000; dens.

1.23-1.35; brittle pt. -35 C; softens.  $\approx$  80 C; ref. index 1.5512 (20 C); high tens. str.; resilient; resistant to oils, oxygen, ozone, elec. current, abrasion  
**Toxicology:** LC50 (inh., mouse, 30 min) 26 g/m<sup>3</sup>; questionable carcinogen; TSCA listed

**Precaution:** Combustible; incompat. with strong oxidants

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of Cl

**Storage:** Store in cool, dry place; keep container closed when not in use

**Uses:** Syn. elastomer for molding, extrusion, and calendaring for mech. rubber goods, adhesive compounding, construction, automotive, hose and cable jackets, conveyor belts, closed cell sponge, binder for rocket fuels, fibers; roof coatings; vulcanizing plasticizer for elastomers; liq. for specialty items made by dipping or electrophoresis from the latex; foam for adhesive tape, seat cushions, carpet backing, sealant; in food-contact coatings; in food-contact articles for repeated use

**Regulatory:** FDA 21CFR §175.300, 177.2600

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich

**Trade Names:** Baypren Latex B; Baypren Latex GK; Baypren Latex L 200A; Baypren Latex L 300; Baypren Latex L 345; Baypren Latex MKB; Baypren Latex SK; Baypren Latex T; Neoprene Latex 654; Neoprene Latex 735A; Neoprene Latex 842A

**Trade Names Containing:** Baypren Latex 4 R

**Poly (chloroprene).** See Polychloroprene

**Poly(chlorotrifluoroethylene).** See Chlorotrifluoroethylene polymer

**Polychlorotrifluoroethylene.** See Chlorotrifluoroethylene polymer

**Poly (coumarone-co-indene).** See Coumarone/indene resin

**Poly ((o-cresyl glycidyl ether)-co-formaldehyde).** See Epoxy cresol novolac

**Poly (diallyldimethylammonium chloride).** See Polyquaternium-6

**Poly [2-(diethylamino) ethyl methacrylate] phosphate**

**Uses:** Surfactant in food-contact coatings; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.180

**Poly (dimethylamine-co-epichlorohydrin).** See Dimethylamine/epichlorohydrin copolymer

**Poly (dimethyl diallyl ammonium chloride).** See Polyquaternium-6

**Polydimethylsiloxane**

CAS 9016-00-6

**Synonyms:** Dimethylpolysiloxane; Methyl silicone; Poly (oxy (dimethylsilylene))

**Classification:** Polymer

**Empirical:** (C<sub>2</sub>H<sub>6</sub>OSi)<sub>x</sub>

**Properties:** Clear visc. liq.; insol. in water; m.w. (74.15)<sub>x</sub>; dens. 0.980; flash pt. 235 F; ref. index 1.4040

**Toxicology:** LD (IP, rat) > 2 g/kg; TDLo (implant, rat) 1500 mg/kg; may cause eye, skin, respiratory and digestive tract irritation; questionable carcinogen; tumorigen; experimental neoplastigen; experimental reproductive effector; mutagenic data

**Precaution:** Flamm.; incompat. with strong oxidizers, strong acids, strong bases, boiling water

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, silicon oxide; heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store in cool, dry place in tightly closed container

**Uses:** Release material; foam preventative; surfactant; food processing and pkg.; food-pkg. adhesives, coatings, paper

**Manuf./Distrib.:** Acros Org.; Aldrich; Sigma

**Trade Names:** AF 10 IND; AF 60; Foam Blast 102; Foam Blast 106; GP-223

**Trade Names Containing:** Dehydran® 1293; Foamaster® DS; Pulpasil® 160 C; Pulpasil® 760 E; TEGO® Foamex 835; TEGO® Foamex N

See also Dimethicone

**Polydimethylsiloxane, methyl end-blocked.** See Dimethyl siloxane

**Poly (1,2-dimethyl-5-vinylpyridinium methyl sulfate)**

**Uses:** Adjuvant in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**PolyDMAAC.** See Polyquaternium-6

**Poly DMDAC.** See Polyquaternium-6

**Polyester acrylate resin**

**Definition:** Complex acrylate-terminated polyester prepolymers

**Formula:** CH<sub>2</sub>CRCOOR'OCOCRCH<sub>2</sub>, R = H, methyl-, R' = polyester

**Uses:** Binder for radiation-cured printing inks, wood/textile finishes, paper-foil lacquers; diluent for offset inks, overprint varnishes, coatings (paper, plastics, cardboard), paper upgrading; improves hardness and solv. resist.

**Trade Names:** CN 292; Ebecryl® 2047; Photomer® 5018

**Polyester adipate**

**Uses:** Plasticizer for PVC, NC, CAP, chlorinated rubber; pigment grinding medium; nonmigratory in paper coatings; plasticizer in pharmaceuticals; skin patch drug delivery

**Manuf./Distrib.:** C.P. Hall

**Trade Names:** Admex® 515; Admex® 6996

**Polyester resin, thermosetting**

**Synonyms:** UPR; Polyester resin, unsaturated; Polyester, unsaturated; Unsaturated polyester resin

**Definition:** Unsaturated polyester resin, the condensation product of an unsaturated dibasic acid and a glycol

**Uses:** Thermoset resin for reinforced plastics, automotive parts, protective coatings, ducts, housings, flues, laminates, pipes, terrazzo tiles, cultured marble sinks, spas; vehicle for pigment grinding; binder in industrial flooring/coatings; in food-contact coatings

**Regulatory:** FDA 21CFR §175.300

**Manuf./Distrib.:** Advance Coatings; Aristech; Ashland; BASF; Bayer; Chemical; Crompton/Witco; DSM Chem. N. Am.; I.C. Trading; Lawter Int'l.; McWhorter Tech.; Monomer-Polymer & Dajac Labs; Owens-Corning Fibreglas; Ranbar Tech.; Reichhold; Shell; Synray

**Trade Names:** Atlac® 382-05; Atlac® 382-05A; Atlac® 382-05AC

See also Alkyd resin

**Polyester resin, unsaturated.** See Polyester resin, thermosetting

**Polyester tetraacrylate**

**Uses:** Used in wet lithographic inks and coatings on paper, metal, and plastic; exc. pigment wetting

**Polyester, unsaturated.** See Polyester resin, thermosetting

**Polyether glycol.** See Polyethylene glycol

**Polyethers, epoxy resins.** See Epoxy resin

**Polyethylacrylate**

CAS 9003-32-1

**Synonyms:** Ethyl acrylate latex; Ethyl acrylate resin; Ethyl acrylate resin polymer; 2-Propenoic acid, ethyl ester, homopolymer

**Classification:** Acrylate ester

**Definition:** Polymer of ethyl acrylate

**Empirical:** (C<sub>5</sub>H<sub>8</sub>O<sub>2</sub>)<sub>x</sub>

**Formula:** [CH<sub>2</sub>CHCOOC<sub>2</sub>H<sub>5</sub>]<sub>x</sub>

**Properties:** Colorless liq.; sp.gr. 1.21

**Toxicology:** Toxic by inh., ing., skin contact; severe irritant; irritating to eyes, skin, respiratory system; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, lung irritation, chest pain, edema, death; chronic effects incl. CNS disturbances; target organs: liver, kidneys, bladder, brain; TSCA listed

**Precaution:** Flamm.; incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

**Storage:** Store in cool, dry place; keep tightly closed; keep away from ignition sources

**Uses:** Antistat, binder, film-former in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings; in food-contact paper/paperboard; in food-contact acrylics; in resin-bonded filters for food contact; polymer modifier in food-contact rigid/semirigid PVC

**Regulatory:** FDA 21CFR §175.105, 175.300, 175.320, 176.180, 177.1010, 177.2260, 178.3790

**Manuf./Distrib.:** ABCR; Acros Org.; Aldrich

**Polyethylene**

CAS 9002-88-4; EINECS/ELINCS 200-815-3

**Synonyms:** PE; Ethene, homopolymer; Ethene polymer; Ethylene homopolymer; Ethylene latex; Ethylene polymer; Ethylene polymers; Ethylene resin; Polyethylene resins; Polyethylene wax; Polythene

**Definition:** Thermoplastic resin obtained by polymerizing ethylene

**Empirical:** (C<sub>2</sub>H<sub>4</sub>)<sub>x</sub>

**Formula:** [CH<sub>2</sub>CH<sub>2</sub>]<sub>x</sub>

**Properties:** Wh. translucent partially cryst./partially amorphous plastic solid,

## Poly (ethylene-co-acrylic acid)

odorless; sol. in hot benzene; insol. in water; m.w. 1500-100,000; dens. 0.92 (20/4 C); m.p. 85-110 C

**Toxicology:** LC50 (inh., mouse, 30M) 12 g/m<sup>3</sup>; TDLo (implant, rat) 33 mg/kg; no known skin toxicity; ing. of lg. oral doses has produced kidney and liver damage; suspected carcinogen and tumorigen by implants; TSCA listed

**Precaution:** Combustible; reacts violently with F<sub>2</sub>

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Store in well closed containers

**Uses:** Laboratory tubing; prostheses; elec. insulation; pkg. materials; kitchenware; tank and pipe linings; textile stiffeners; additive in inks, adhesives, paper coatings, floor finishes, plastics, rubber, textiles; vehicle for pigment pastes; textile softener, binder; abrasive; flow additive; latex emulsions; masticatory substance in chewing gum; protective fruit coatings; pharmaceutical excipient; thickener for gels; surfactant; dispersant; antistat, binder, emulsion stabilizer, film-former, visc. control agent in cosmetics; in food-contact coatings; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; lubricant in food-contact rubber articles

**Regulatory:** FDA 21CFR §172.260, 172.615 (m.w. 2000-21,000), 173.20, 175.105, 175.300, 176.180, 176.200, 176.210, 177.1200, 177.1520, 177.2600, 178.3570, 178.3850; FDA approved for dentals, ophthalmics, orals, topicals, vaginals

**Manuf./Distrib.:** A. Schulman; ABCR; Acros Org.; Aldrich; Ashland; Atofina SA; CarboMer; ChevronPhillips; Chisso Am.; Cognis; Coz; DSM Chem. N. Am.; Eastman; Equistar; Exxon; Fabrichem; Fluka; Huntsman; LNP; Monomer-Polymer & Dajac Labs; Rohm & Haas; Solvay Polymers; Union Carbide; Westlake Plastics

**Trade Names:** A-C® 6; A-C® 6A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 15; A-C® 16; A-C® 617; A-C® 617A; A-C® 712; A-C® 715; A-C® 725; A-C® 735; A-C® 1702; ACumist® C-5; ACumist® C-9; ACumist® C-12; ACumist® C-18; ACumist® C-30; Epolene® C-18; Epolene® N-10; Polywax® 500; Polywax® 600; Polywax® 655; Polywax® 850; Polywax® 1000; Polywax® 2000; Polywax® 3000; Shamrock Neptune 5038; Shamrock S-395 N2; Shamrock S-395 N5; Shamrock S-395 SP5; Shamrock Taber Tiger 5512; Sunkem® 301; Sunkem® 329

**Trade Names Containing:** Eldorado PA-300; Sunkote® 460; Unidic™ 700 Acid

**Poly (ethylene-co-acrylic acid).** See Ethylene/acrylic acid copolymer

**Poly (ethylene-co-butyl acrylate).** See Ethylene/butyl acrylate copolymer

**Poly (ethylene-co-methacrylic acid).** See Ethylene/methacrylic acid copolymer

**Poly (ethylene-co-methyl acrylate-co-acrylic acid).** See Ethylene/methyl acrylate/acrylic acid terpolymer

**Poly (ethylene-co-vinyl acetate).** See Ethylene/VA copolymer

## Polyethylene glycol

CAS 25322-68-3 (generic); EINECS/ELINCS 203-473-3

**Synonyms:** PEG; PEO;  $\alpha$ -Hydroxy- $\omega$ -hydroxypoly (oxy-1,2-ethanediyl); Polyether glycol; Poly (ethylene oxide); Polyglycol; Polyox; Poly (oxy-1,2-ethanediyl),  $\alpha$ -hydro- $\omega$ -hydroxy-

**Classification:** Aliphatic organic compd.

**Definition:** Condensation polymer of ethylene glycol

**Empirical:** (C<sub>2</sub>H<sub>4</sub>O)<sub>n</sub> · H<sub>2</sub>O

**Formula:** H(OC<sub>2</sub>H<sub>4</sub>)<sub>n</sub>OH, n ≥ 4

**Properties:** Clear visc. liq. or wh. solid; sol. in water, org. solvs., aromatic hydrocarbons; dens. 1.110-1.140 (20 C); m.p. 4-10 C; flash pt. 471 F; ref. index 1.4590

**Toxicology:** LD50 (oral, rat) 33,750 mg/kg; LDLo (IV, rat) 22 g/kg; mod. toxic by IV route; sl. toxic by ing.; skin and eye irritant; contact dermatitis sensitization; may cause hives; TSCA listed

**Precaution:** Combustible exposed to heat or flames

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Chemical intermediates; plasticizers; softeners; humectants; ointments; polishes; paper coating; mold lubricants; bases for cosmetics and pharmaceuticals; solvents; binders; metal and rubber processing; food additives; laboratory reagent; antistat; nickel plating brightening agent; crude oil demulsifier component; paints; textile fibers; food pkg.; in food-contact coatings; boiler water additive for food processing; pharmaceutical ointment/

suppository base, coating agent, plasticizer, solvent

**Use Level:** Limitation zero tolerance (milk)

**Regulatory:** FDA 21CFR §172.210, 172.820, 173.340, 175.300; FDA approved for orals, topicals; USP/NF compliance

**Manuf./Distrib.:** Aldrich; Arch Chems.; Ashland; BASF; BCH Brühl; BP Chems. Ltd; Celanese; Chemax; Cognis/Chems. Group; Degussa-Hüls AG; Dow; DuPont; Eastman; Ferro/Grant; Fluka; Harcross; Huntsman; Inolex; Lambert Tech.; Norman, Fox; Protameen; Rhodia HPCI; Ruger; Sal Chem.; Sigma; Spec. Ingreds. & Perfume; Surfactants Inc; Thornley; Union Carbide; Universal Preserv-A-Chem; Varsal Instruments; Whyte Chems. Ltd

**Trade Names:** Cartaretin® E Powd.

**Trade Names Containing:** Vazo® 56 WSW

See also PEG...

**Polyethylene glycol 300.** See PEG-6

**Polyethylene glycol 400.** See PEG-8

**Polyethylene glycol 600.** See PEG-12

**Polyethylene glycol 1000.** See PEG-20

**Polyethylene glycol 4000.** See PEG-75

**Polyethylene glycol dimethyl ether.** See PEG dimethyl ether

**Polyethylene glycol monoether with p-t-octylphenyl.** See Octoxynol

**Polyethylene glycol monoleyl ether.** See Oleth-10

**Polyethylene glycol mono (4-octylphenyl) ether.** See Octoxynol

**Polyethylene glycol mono (4-t-octylphenyl) ether.** See Octoxynol

**Polyethylene glycol mono (p-t-octylphenyl) ether.** See Octoxynol

**Polyethylene glycol monostearate.** See PEG stearate

**Polyethylene glycol monotallate.** See PEG tallate

**Polyethylene glycol mono (p-(1,1,3,3-tetramethylbutyl) phenyl) ether.** See Octoxynol

**Polyethylene glycol nonyl phenyl ether.** See Nonoxynol

**Polyethylene glycol octylphenol ether.** See Octoxynol

**Polyethylene glycol p-octylphenyl ether.** See Octoxynol

**Polyethylene glycol p-t-octylphenyl ether.** See Octoxynol

**Polyethylene glycols monostearate.** See PEG stearate

**Polyethylene glycol stearate.** See PEG stearate

**Polyethylene glycol p-1,1,3,3-tetramethylbutylphenyl ether.** See Octoxynol

## Polyethylene, high-density

CAS 9002-88-4; EINECS/ELINCS 200-815-3

**Synonyms:** HDPE

**Definition:** Thermoplastic linear polyethylene

**Empirical:** (C<sub>2</sub>H<sub>4</sub>)<sub>n</sub>

**Formula:** [CH<sub>2</sub>CH<sub>2</sub>]<sub>n</sub>

**Properties:** Beads; swollen by hydrocarbon and chlorinated solvs.; insol. in water, cold org. solvs.; m.w. ≈ 50,000; tens. str. 24-28 MPa; tens. mod. 1050-1500 MPa; elong. 350-400% (break)

**Toxicology:** LD50 (oral, rat) > 3 g/kg; LC50 (inh., mouse, 30 min) 12 g/m<sup>3</sup>; cancer suspect agent; TSCA listed

**Uses:** Blow- and inj.-molded goods (household/food containers, toys, tubs); sheet; pipe/profile extrusions; rotationally molded goods; fibers; gasoline and oil containers; cable/wire jacketing; pkg. film (carrier bags, food wrap); additive for inks; lubricant in plastics processing; flattening/antisettling agent in paints; dispersant in color concs.; hardener in waxes

**Manuf./Distrib.:** A. Schulman; Acros Org.; Ampacet; Asahi Chem. Ind.; Atofina Bruxelles; BP Chems. Ltd; Borealis A/S; ChevronPhillips; Chisso Am.; Coz; Dow; DuPont; Equistar; Exxon; Formosa Plastics; Honeywell Perf. Polymers; Idemitsu Petrochem.; Kingsfield; LG Petrochem. Co. Ltd; Mobil; Monomer-Polymer & Dajac Labs; Nova Ltd; Occidental; Solvay Polymers; Tosoh; Union Carbide; Westlake Plastics; Whyte Chems. Ltd

**Trade Names:** ACumist® B-6; ACumist® B-9; ACumist® B-12; ACumist® B-18; Alathon® L 5845; Alathon® L 5845-1; Chevron HiD 9660; Microthene® FA 700-00; Microthene® FA 709-00; Octowax 518; Polyset® 2015; Sclair® 58G (High Gloss); Sclair® 69A; Sclair® 2607; Sclair® 2607-UV10; Sclair® 2908, 2908-UV8A; Sclair® 2909; Vestolen® A5016

## Polyethylene imine

CAS 26913-06-4

**Synonyms:** Linear polyethyleneimine; Polyethylenimin; Poly (imino (1,2-ethanediyl))

**Empirical:** (C<sub>2</sub>H<sub>5</sub>N<sub>2</sub>)<sub>n</sub>

*Properties:* Cationic

*Toxicology:* LD50 (oral, rat) 3300 mg/kg, (unreported, mammal) 30 mg/kg; poison by unspecified route; mod. toxic by ing.; primary irritant; eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>,  
*Uses:* Dispersant for printing inks; inc. adhesion of pigments to cellulose fibers; clarification of municipal drinking water; enzyme catalyst; oil field applics.; food-pkg. adhesives, coatings, paper/paperboard, cellophane

*Manuf./Distrib.:* Acros Org.

*Trade Names:* Ionac Corcat® P-12; Ionac Corcat® P-600

See also Polyethylenimine

#### Polyethyleneimine octadecyl carbamide

*Uses:* Release coating for adhesive tapes and labels

*Trade Names:* Mayzo RA-60R; Mayzo RA-100W

#### Polyethylene, linear low density

CAS 9002-88-4

*Synonyms:* LLDPE

*Definition:* Thermoplastic with linear structure with short side-chains produced by the comonomer

*Formula:* [CH<sub>2</sub>CH<sub>2</sub>]<sub>n</sub>

*Properties:* Beads; swollen by hydrocarbon and chlorinated solvs.; insol. in water, cold org. solvs.; m.w. varies widely; dens. 0.91-0.94 kg/l; m.p. 122-124 C; tens. str. 18-25 MPa; tens. mod. 350-500 MPa; elong. 300-400% (break)

*Uses:* Compatibilizer in blends and alloys; polymeric coupling agents in reinforced or recycled PE or PP, adhesives, sealants; extrusion coating resin; cable/wire jacketing; pipe/profile extrusions; film (sacks, food wrap, carrier bags); inj. molded goods (toys, elec. fittings, bushes, seals, components); rotationally molded tanks, boats

*Manuf./Distrib.:* BP Chems. Ltd; Borealis A/S; ChevronPhillips; Dow Plastics; Eastman; Equistar; Exxon; Formosa Plastics; Huntsman; Idemitsu Petrochem.; Mobil; Montell N. Am.; Nippon Petrochems.; Nova Ltd; Tosoh; Ube Ind.; Union Carbide; Westlake Plastics

*Trade Names:* Nipolon-L; Nipolon-Z; Novapol® PD-2115-A; Novapol® PF-Y821-BP; Novapol® PF-Y821-CP; Novapol® TF-Y822-BP; Novapol® TF-Y822-CP; Sclair® 11B4; Sclair® 11P2; Sclair® 11P3; Sclair® 11P4; Sclair® 61C; Sclair® 8107; Sclair® 8107 UV8D, 8107G UV8D

**Polyethylene, linear low-density, high α-olefin content.** See Polyethylene, very low-density

#### Polyethylene, low-density

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Synonyms:* LDPE

*Definition:* Thermoplastic branched chain polyethylene

*Formula:* [CH<sub>2</sub>CH<sub>2</sub>]<sub>n</sub>

*Properties:* Beads; swollen by hydrocarbon and chlorinated solvs.; insol. in water, cold org. solvs.; m.w. ≤ 70,000; dens. ≤ 0.92 kg/l; m.p. 107-115 C; tens. str. 12-15 MPa; tens. mod. 140 MPa; elong. 550-650% (break)

*Toxicology:* Cancer suspect agent; TSCA listed

*Uses:* Film (general pkg., shrink film, food pkg., carrier bags, waste bags, construction/agric. film, pallet wrapping); extrusion coatings; paper coating; cable/wire insulation; fibers; cordage; blow molded squeeze bottles, drum linings; elec. insulation; inj. molded goods (toys, elec. fittings, bushes, seals, components); piping; powd. coatings; processing aid in rubbers; flattening, antisetling agent in paints; dispersant; color enhancer; abrasive for cosmetics; chewing gum base

*Manuf./Distrib.:* A. Schulmer; Acros Org.; Ampacet; Atofina Bruxelles; ChevronPhillips; Coz; Eastman; Equistar; Exxon; Honeywell Perf. Polymers; LG Petrochem. Co. Ltd; Monomer-Polymer & Dajac Labs; Union Carbide; Westlake Plastics; Whyte Chems. Ltd

*Trade Names:* Chevron PE 4517; Eastacoat 808P; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® MN 701-00; Microthene® MN 710-20; Nipolon; Nopcote® 3560; Novapol® LC-0522-A; Novapol® LC-0717-A; Novapol® LF-0717-A; Petrothene® NA 204-000; Petrothene® NA 214-000; Petrothene® NA 216-000; Petrothene® NA 217-000; Petrothene® NA 219-000; Petrothene® NA 957; Rexene® PE 5000 Series

#### Polyethylene, medium density

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Synonyms:* MDPE

*Formula:* [CH<sub>2</sub>CH<sub>2</sub>]<sub>n</sub>

*Uses:* Extrusion coating resin; food pkg.; food-contact paper/paperboard, polymer

*Manuf./Distrib.:* Equistar; Union Carbide

*Trade Names:* Novapol® HD-2100-A; Novapol® TF-Y534-IP; Novapol® TR-0338-U; Novapol® TR-0338-UG; Novapol® TR-0535-U; Novapol® TR-0535-UG; Sclair® 8306 UV8D, 8306G UV8D; Sclair® 8405 UV8D, 8405G UV8D

**Poly (ethylene oxide).** See Polyethylene glycol

#### Polyethylene, oxidized

CAS 68441-17-8; EINECS/ELINCS 200-815-3

*Synonyms:* Ethene, homopolymer, oxidized; Oxidized polyethylene; Poly (ethylene), oxidized

*Definition:* Reaction prod. of polyethylene and oxygen

*Properties:* Dens. 0.930; m.p. 8-140 C

*Toxicology:* TSCA listed

*Uses:* Wax for polishes, finishes, adhesives, and emulsions; processing lubricant; mold release aid; textile lubricant; PVC lubricant; protective fruit/vegetable coatings; in food-pkg. adhesives and pressure-sensitive adhesives; slip agent; hardener; dispersion aid, coupling agent for plastics; in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in food-contact textiles; films; profiles; inj. molding; dry-bright wax emulsions for floor maintenance and leather finishes; visc. control agent in cosmetics

*Regulatory:* FDA 21CFR §172.260, 175.105, 175.125, 176.170, 176.200, 176.210, 177.1200, 177.1620, 177.2800

*Manuf./Distrib.:* Acros Org.; Aldrich

*Trade Names:* A-C® 316; A-C® 316A; A-C® 325; A-C® 330; A-C® 392; A-C® 395, 395A; A-C® 629; A-C® 629A; A-C® 655; A-C® 656; A-C® 680; A-C® 6702; ACumist® A-12; ACumist® A-18; Cardipol® LP 0-25; Epolene® E-10; Epolene® E-15; Epolene® E-20; Esi-Cryl™ 316N; Hoechst Wax PED 121; Hoechst Wax PED 153; Hoechst Wax PED 522; Hoechst Wax PED 821; Hoechst Wax PED 822; Luwax® OA; Luwax® OA 3; Luwax® OA 5; Petrolite® C-7500; Petrolite® C-9500; Petrolite® E-1040; Petrolite® E-2020; Vestowax® AO 1535; Vestowax® AO 1539

**Poly (ethylene), oxidized.** See Polyethylene, oxidized

**Polyethylenepolypropylene glycols, polymers.** See Poloxamer 101

**Polyethylene resin.** See Polyethylene wax

**Polyethylene resins.** See Polyethylene

**Poly (ethylene tetrafluoride).** See Polytetrafluoroethylene

#### Polyethylene, ultrahigh m.w.

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Classification:* Polymer

*Toxicology:* TSCA listed

*Uses:* Fiber; surface-modified particles producing cast elastomer composites with high abrasion resist. and low coeff. of friction; imparts improved abrasion, corrosion and chem. resist. in coatings

*Trade Names:* Tivar®-1000; 1900 UHMW Polymers; Utec® 3040; Utec® 6540

#### Polyethylene, very low-density

*Synonyms:* ULDPE; VLDPE; Polyethylene, linear low-density, high α-olefin content

*Definition:* Rubbery thermoplastic consisting of long chain ethylene copolymers with up to 10% comonomers; high impact and tens. str. with elong. at break close to 900%

*Uses:* Elasticity improver in polyolefin compds.; heavy-duty stretch pkg. film; food-contact paper/paperboard, polymers

*Trade Names:* Lumitac®; Sclair® 10A; Sclair® 10B; Sclair® 10C

#### Polyethylene wax

CAS 9002-88-4; EINECS/ELINCS 200-815-3

*Synonyms:* Polyethylene resin

*Empirical:* (C<sub>2</sub>H<sub>4</sub>)<sub>n</sub>

*Formula:* (-CH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>

*Uses:* Wax for polishes, plastics and rubber processing, printing inks, pigment master batches, hot-melt adhesives; lubricant for plastics process-

ing, PVC; mold release; thickener for solv.-based polishes, inks, paints, lacquers, pharmaceutical gels; textile antistat/lubricant (spin finishes); rubproofing additive in printing inks; processing aid; slip agent; carrier; lubricant; antiblock; surfactant; pigment dispersant; release agent in food-contact coatings

*Regulatory:* FDA 21CFR §175.300

*Manuf./Distrib.:* Aldrich; Ashland; Astor Corp.; BASF; Baker Petrolite; Barco Chem. Prods.; Chemcor; Degussa-Hüls AG; Eastman; Ferro; Fluka; Frank B. Ross; Honeywell Perf. Polymers; Int'l. Group; Koster Keunen; Michelman; Micro Powders; Morton Int'l.; Presperse; Rheox; Royce Assoc.; Sartomer; Scheel; Shamrock Tech.; Spec. Ingreds. & Perfume; Stanson; Stevenson Cooper; Strahl & Pitsch; Whittaker, Clark & Daniels

*Trade Names:* A-C® 7; A-C® 7A; Aqua Superslip 6550; Epolene® C-10; Epolene® C-13; Epolene® C-14; Epolene® C-15; Epolene® C-15P; Epolene® C-16; Epolene® C-17; Epolene® N-10P; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; Hoechst Wax PED 521; Shamrock Neptune I N1; Shamrock Neptune I SP5; Shamrock S-379 H; Shamrock S-379 N; Shamrock S-379 N3; Shamrock S-381 N1; Shamrock S-381 N5; Shamrock S-394 N1; Shamrock S-394 N5; Shamrock S-394 SP5; Shamrock S-483; Struktol® PE H-100; Struktol® PE H-100 PL; Suntorl P-40; Vestowax® AO 2733

*Trade Names Containing:* Basophob®; Shamrock Hydrocer EEP 16; Shamrock Hydrocer EEP 33

See also Polyethylene

### Polyethylenimine

CAS 9002-98-6 (generic)

*Synonyms:* PEI; Aziridine, homopolymer; Ethyleneimine, homopolymer; Ethyleneimine polymer; Ethylenimine, polymers; Ethyleneimine resin; Polyaziridine; Polyethyleneimine; Poly (ethylenimine)

*Classification:* Cationic polyelectrolyte

*Definition:* Polymer with varying m.w.

*Empirical:* (C<sub>2</sub>H<sub>5</sub>N)<sub>n</sub>

*Formula:* (CH<sub>2</sub>CH<sub>2</sub>NH)<sub>n</sub>

*Properties:* Misc. with water; m.w. (43.07)<sub>n</sub>

*Toxicology:* LD50 (oral, rat) 3300 mg/kg; mod. toxic by ing.; harmful if swallowed; irritating to eyes, skin, respiratory system; may cause GI upset; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, irritating and toxic fumes and gases; heated to decomp., emits toxic fumes of NO<sub>x</sub>

*Storage:* Store in cool, dry place; store under nitrogen; keep container closed when not in use

*Uses:* Cationic polyelectrolytes (paper retention aid, wet str. additive, pigment dispersion); flocculant (water treatment); adhesion promotion agent; ion-exchange media; textile dyeing/printing aux.; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; adjuvant in mfg. of paper/paperboard in contact with aq./fatty foods; to anchor coatings to substrate; impregnant in food-contact surf. of cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 177.1200

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Fluka; Sigma; TCI Am.

*Trade Names:* Catiofast® GM; Catiofast® NB-DF; Catiofast® NB-PD; Catiofast® PL; Polymin® PL; Polymin® PR 971 L; Polymin® SKA; Polymin® SNA

*Trade Names Containing:* Polymin® 978 L

See also Polyethylene imine

**Poly (ethylenimine).** See Polyethylenimine

**Polyethylenimine 15.** See PEI-15

**Polyethylenimine 30.** See PEI-30

**Polyethylenimine 275.** See PEI-275

**Polyethylenimine 700.** See PEI-700

**Polyethylenimine 1000.** See PEI-1000

**Polyethylenimine 1400.** See PEI-1400

**Polyethylenimine 1500.** See PEI-1500

**Polyethylenimine 1750.** See PEI-1750

**Polyethylenimine 2500.** See PEI-2500

**Polyethylenimine-silica.** See Silica, amorphous

**Polyfoam.** See Polyurethane, thermoplastic

### Poly (glycidyltrimethyl ammonium chloride)

CAS 51838-31-4

*Uses:* Cationic polyelectrolytes for water and sewage clarification; retention

aid and drainage aid in paper prod.

**Polyglycol.** See Polyethylene glycol

**Polyglycol 1000.** See PEG-20

**Polyglycol 4000.** See PEG-75

**Polyhydroxoaluminum chloride.** See Polyaluminum chloride

### Poly (2-hydroxypropyl-N,N-dimethyl ammonium chloride)

CAS 39660-17-8; 42751-79-1

*Classification:* Quat. polymer

*Formula:* [CH<sub>2</sub>CHOHCH<sub>2</sub>(CH<sub>3</sub>)<sub>2</sub>N<sup>+</sup>Cl<sup>-</sup>]<sub>n</sub>

*Properties:* M.w. < 500,000; Cationic

*Precaution:* Nonhazardous (DOT); mildly corrosive

*Uses:* Flocculant and coagulant for wastewater treatment, potable water treatment, coal clarification; food-contact paper/paperboard

*Manuf./Distrib.:* Aldrich

*Trade Names:* Agefloc A50HV-P; Agefloc A50LV-P; Agefloc A50-P; Agefloc B50-P; Hartfloc® 425

**Poly (imino (1,2-ethanediy)).** See Polyethylene imine

**Polyindene resin.** See Coumarone/indene resin

### Polyisobutene

CAS 9003-27-4

*Synonyms:* PIB; Isobutene homopolymer; Isobutene polymer; Isobutylene homopolymer; Isobutylene polymer; Isobutylene resin; 2-Methyl-1-propene, homopolymer; 2-Methylpropene polymer; Polyisobutylene; Polymerized 2-methylpropene; 1-Propene, 2-methyl-, homopolymer; Propene, 2-methyl-, polymers

*Classification:* Polymer

*Definition:* Homopolymer of isobutylene

*Empirical:* (C<sub>4</sub>H<sub>8</sub>)<sub>x</sub>

*Formula:* [CH<sub>2</sub>C(CH<sub>3</sub>)HCH<sub>2</sub>]<sub>x</sub>

*Properties:* M.w. (56.11)<sub>x</sub>; dens. 0.920; ref. index 1.5045

*Toxicology:* May cause eye/skin/digestive/respiratory tract irritation; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>

*Storage:* Store in cool, dry place in tightly closed container

*Uses:* Syn. rubber; stabilizer for rubber; thickener for lubricating oils; adhesives; sealants; paints; elec. insulating oils; prod. of damp-proof courses containing fillers in construction industry; binder, film-former, visc. control agent in cosmetics; gloss aid in lipsticks; emulsion stabilizer; base for chewing gum; pharmaceutical excipient/emollient/carrier; cosolubilizer; plasticizer in food-contact polymers; food-pkg. adhesives and pressure-sensitive adhesives; in food-contact paper coatings; in cellophane for food pkg.; in closure-sealing gaskets for food containers; food-contact surfaces; thickener in mineral oil lubricants for incidental food-contact use; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.615 (min. m.w. 37,000), 175.105, 175.125, 175.300, 176.180, 177.1200, 177.1210, 177.1420, 178.1005, 178.3570, 178.3740, 178.3910; Japan approved; FDA approved for injectables

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; BASF; ChevronPhillips; Monomer-Polymer & Dajac Labs; Rit-Chem; Texas Petrochem.

### Poly (isobutene)/maleic anhydride adduct, diethanolamine reaction prod.

*Uses:* Surfactant for dispersions of polyacrylamide retention and drainage aids used in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Polyisobutylene.** See Polyisobutene

**Poly (isobutylene-co-isoprene).** See Isobutylene/isoprene copolymer

### Polyisoprene

CAS 9003-31-0

*Synonyms:* IR; 1,3-Butadiene, 2-methyl-, homopolymer; Isoprene rubber; 2-Methyl-1,3-butadiene, homopolymer; cis-1,4-Polyisoprene; trans-Polyisoprene; cis-1,4-Polyisoprene rubber

*Classification:* Thermoplastic elastomer

*Definition:* Polymer of isoprene; major component of natural rubber, also made synthetically; avail. in range of std., oil-extended and carbon blk.-filled grades; props. vary with catalysts used in mfg. (lithium, titanium)

*Empirical:* (C<sub>5</sub>H<sub>8</sub>)<sub>x</sub>

*Formula:* [CH<sub>2</sub>C(CH<sub>3</sub>)CHCH<sub>2</sub>]<sub>x</sub>

*Properties:* M.w. (68.118)<sub>x</sub>; dens. 0.90-0.94 kg/l

*Toxicology:* TSCA listed

*Precaution:* Supports combustion

*Uses:* Elastomer for light colored goods, adhesives, footwear, sponge prods., tires, pharmaceutical goods, rubber bands, molded and mech. goods; emollient in cosmetics; in food-pkg. adhesives and pressure-sensitive adhesives, food-contact paper/paperboard; in food-contact articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 175.125, 176.180, 177.2600

*Manuf./Distrib.:* A. Schulman; ABCR; Acros Org.; E.L. Puskas; Fluka; Goodyear; Monomer-Polymer & Dajac Labs

See also Natural rubber

**cis-1,4-Polyisoprene.** See Polyisoprene

**trans-Polyisoprene.** See Polyisoprene

**cis-1,4-Polyisoprene rubber.** See Polyisoprene

**Poly (lauro lactam).** See Nylon 12

**Poly (lignosulfonic acid).** See Lignin sulfonate

**Poly (maleic anhydride).** See Maleic anhydride homopolymer

**Poly (maleic anhydride-methyl vinyl ether).** See PVM/MA copolymer

**Poly mannuronic acid.** See Alginic acid

**Poly (melamine-co-formaldehyde), butylated.** See Melamine-formaldehyde resin, butylated

**Poly (melamine-co-formaldehyde), isobutylated.** See Melamine-formaldehyde resin, isobutylated

**Poly (melamine-co-formaldehyde), methylated.** See Melamine-formaldehyde resin, methylated

**Poly (melamine-co-formaldehyde), methylated/butylated.** See Melamine-formaldehyde resin, methylated-butylated

**Polymerized 1-butene.** See Polybutene

**Polymerized 2-methylpropene.** See Polyisobutene

**Poly (methacrylic acid) sodium salt.** See Sodium polymethacrylate

**Poly (methylene) wax.** See Paraffin

**Poly [(methylimino) (2-hydroxytrimethylene) hydrochloride]**

*Uses:* Retention aid in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Polymethyl methacrylate**

CAS 9011-14-7

*Synonyms:* PMM; PMMA; Methacrylic acid methyl ester polymers; Methyl methacrylate homopolymer; Methyl methacrylate polymer; Methyl methacrylate polymers; Methyl methacrylate resin; 2-Methyl-2-propenoic acid methyl ester homopolymer; 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer

*Classification:* Thermoplastic polymer

*Definition:* Polymer of methyl methacrylate; hard transparent amorphous material

*Empirical:* (C<sub>5</sub>H<sub>8</sub>O<sub>2</sub>)<sub>n</sub>

*Formula:* [CH<sub>2</sub>C(CH<sub>3</sub>)COOCH<sub>3</sub>]<sub>n</sub>

*Properties:* Powd., gran., cast sheet and block; sol. in ethyl acetate, chlorinated solvs.; m.w. 60,000 (molding grades), 1,000,000 (cast sheet); dens. 1.188; ref. index 1.4100; tens. str. 72 MPa; tens. mod. 2400 MPa

*Toxicology:* TDL<sub>0</sub> (implant, rat) 127 mg/kg; toxic; severe irritant; questionable carcinogen; experimental tumorigen by implant; target organ: liver, kidneys, bladder; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Thermoplastic used as main constituent of acrylic sheet, molding and extrusion compds., coatings, barrier coatings for PS, vinyl topcoats, prod. finishes, printing inks; tubing for food processing/chem./medical equip. components; processing aid for PVC; modifier for alkyds; film-former, visc. control agent in cosmetics; filler, lubricant, adsorbent for cosmetic powds.; thickener for hair care preps.; food-pkg. adhesives; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with dry foods; acrylic plastic for food pkg.; polymer modifier in food-contact rigid/semirigid PVC

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.180, 177.1010, 178.3790

*Manuf./Distrib.:* Acros Org.; Aldrich; Aristech; Atofina SA; Coz; Cyro Ind.; Cytec Ind.; Degussa-Hüls; Esschem; Fluka; Monomer-Polymer & Dajac Labs; Shuman Plastics; Sigma; StanChem; Sybron; Whyte Chems. Ltd

**Poly- $\alpha$ -methylstyrene**

CAS 25014-31-7

*Synonyms:* Benzene, (1-methylethenyl)-, homopolymer; Methylstyrene homopolymer;  $\alpha$ -Methyl styrene polymer

*Empirical:* (C<sub>11</sub>H<sub>10</sub>)<sub>n</sub>

*Formula:* [CH<sub>2</sub>C(CH<sub>3</sub>)(C<sub>6</sub>H<sub>5</sub>)]<sub>n</sub>

*Properties:* M.w. 685-960; dens. 1.075 (15.6 C); m.p. 118-141 C; ref. index 1.61 (20 C)

*Toxicology:* TSCA listed

*Uses:* Plasticizer, extrusion and molding process aid in ABS, PVC, CPVC, and semirigid vinyl, thermoplastic urethanes, molded rubbers, and thermoplastic elastomers; modifier and reinforcer in adhesives, thermoplastic powd. coatings, hot-melt coatings; in food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.180

*Manuf./Distrib.:* ABCR; Acros Org.; Fluka

**Poly (methyl vinyl ether-alt-maleic anhydride).** See PVM/MA copolymer

**Poly (methyl vinyl ether/maleic anhydride).** See PVM/MA copolymer

**Poly (monochlorotrifluoroethylene).** See Chlorotrifluoroethylene polymer

**Polynoxylin.** See Ureaformaldehyde resin

**Polyorthosilicic acid.** See Silica, hydrated

**Polyox.** See Polyethylene glycol

**Poly[1-(2-oxo-1-pyrrolidinyl) ethylene].** See PVP

**Poly (oxy (dimethylsilylene)).** See Dimethyl siloxane; Polydimethylsiloxane

**Poly[oxy(dimethylsilylene)],  $\alpha$ -hydro- $\omega$ -hydroxy-.** See Dimethiconol

**Polyoxy (dimethylsilylene),  $\alpha$ -(trimethylsilyl)- $\omega$ -hydroxy.** See Dimethyl siloxane

**Poly (oxy (dimethylsilylene)),  $\alpha$ -(trimethylsilyl)- $\omega$ -methyl-.** See Dimethiconol

**Poly (oxy-1,2-ethanediyl),  $\alpha$ -hexadecyl- $\omega$ -hydroxy-, mixt. with (Z)- $\alpha$ -9-octadecenyl- $\omega$ -hydroxypoly (oxy-1,2-ethanediyl).** See Ceteleth

**Poly (oxy-1,2-ethanediyl),  $\alpha$ -hydro- $\omega$ -hydroxy-.** See Polyethylene glycol

**Poly (oxy-1,2-ethanediyl),  $\alpha$ -methyl- $\omega$ -methoxy-.** See PEG dimethyl ether

**Poly(oxy-1,2-ethanediyl),  $\alpha$ -(nonylphenyl)- $\omega$ -hydroxy-, phosphate.** See Nonoxynol-9 phosphate

**Poly (oxy-1,2-ethanediyl),  $\alpha$ -(1-oxooctadecyl)- $\omega$ -hydroxy-.** See PEG stearate

**Poly(oxy-1,2-ethanediyl),  $\alpha$ -sulfo- $\omega$ -(dodecyloxy)-, sodium salt.** See Sodium laureth sulfate

**Polyoxyethylene-grafted polydimethylsiloxane.** See Polysiloxane polyether copolymer

**Polyoxyethylene mono (octylphenyl) ether.** See Octoxynol

**Polyoxyethylene monostearate.** See PEG stearate

**Polyoxyethylene nonylphenol.** See Nonoxynol

**Polyoxyethylene/polyoxypropylene copolymer.** See EO/PO block polymer or copolymer

**Polyoxyl 40 castor oil.** See PEG-40 castor oil

**Polyoxyl cetostearyl ether.** See Ceteareth

**Polyoxyl 20 cetostearyl ether.** See Ceteareth-20

**Polyoxyl 4 dilaurate.** See PEG-4 dilaurate

**Polyoxyl 75 lanolin.** See PEG-75 lanolin

**Polyoxyl 10 oleyl ether.** See Oleth-10

**Polyoxyl 2 stearate.** See PEG-2 stearate

**Polyoxyl 8 stearate.** See PEG-8 stearate

**Polyoxyl 20 stearate.** See PEG-20 stearate

**Polyoxyl 40 stearate.** See PEG-40 stearate

**Polyoxymethylene.** See Paraformaldehyde

**Polyoxymethylene glycols.** See Formaldehyde

**Polyoxymethylene melamine.** See Melamine-formaldehyde resin

**Polyoxymethylene urea.** See Urea/formaldehyde resin

**Poly [oxy(methylsilylene)].** See Methicone

**Polyoxypropylene (9).** See PPG-9

**Polyoxypropylene (12).** See PPG-12

**Polyoxypropylene (17).** See PPG-17

**Polyoxypropylene (20).** See PPG-20

**Polyoxypropylene (26).** See PPG-26

**Polyoxypropylene (30).** See PPG-30

**Polyoxypropylene (34).** See PPG-34

**Polyoxypropylene (3) methyl ether.** See PPG-3 methyl ether

**Polyoxypropylene/polyoxyethylene block polymer.** See EO/PO block polymer or copolymer

**Polyoxypropylene/polyoxyethylene copolymer.** See EO/PO block polymer or copolymer

**Poly-1,4,7,10,13-pentaaza-15-hydroxyhexadecane**

Uses: Retention aid in mfg. of food-contact paper/paperboard

Regulatory: FDA 21CFR §176.250

**Polyphosphoric acid, ammonium salt.** See Ammonium polyphosphate**Polypropene.** See Polypropylene**Polypropylene**

CAS 9003-07-0

Synonyms: PP; Atactic polypropylene; Isotactic polypropylene; Polypropene; Propathene; 1-Propene, homopolymer; Propene polymer; Propene polymers; Propylene polymer; Syndiotactic polypropylene

Classification: Thermoplastic polymer

Definition: Polymer of propylene monomers; three forms: isotactic (fiber-forming), syndiotactic, atactic (amorphous)

Empirical:  $(C_3H_6)_x$

Formula:  $[CH_2(CH_2)CH]_x$

Properties: Wh. translucent solid; m.w. > 40,000; dens. 0.90; m.p. 168-171°C; Isotactic: solid; pract. insol. in cold org. solvs.; sol. in hot decalin, hot tetralin, boiling tetrachloroethane; dens. 0.090-0.92; m.p. 165°C; tens. str. 28-35 MPa; flex. mod. 1000-1700 MPa

Toxicology: LD50 (oral, mouse) 3200 mg/kg, (IP, rat) > 110 g/kg, (IV, rat) > 99 g/kg; mod. toxic by ing. and IP routes; questionable carcinogen; tumorigen; TSCA listed

Precaution: Combustible

Hazardous Decom. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Mfg. of paints; film (food/tobacco/display pkg.); inj. and blow-molded parts; automotive components; housings; wire/cable coating; bottles; artificial grass; plastic pipe; fish nets; surgical gear; strapping; syn. paper; reinforced plastics; flame retardant in PP homopolymers; dispersant for pigments, minerals, and glass-filled plastics, compatibilizers, and adhesion promoters; pharmaceutical excipient; film-former, visc. control agent in cosmetics; in food-pkg. adhesives; in food-contact coatings; in cellophane for food pkg.; Isotactic: fishing gear, ropes, filter cloths, laundry bags, protective clothing, blankets, fabrics, carpets, yarns; Amorphous: plastics lubricant

Regulatory: FDA 21CFR §175.105, 175.300, 177.1200, 177.1520, 179.45; FDA approved for injectables; BP compliance (stockinette)

Manuf./Distrib.: A. Schulman; Aldrich; Allchem Ind.; Ampacet; Aristech; Ashland; Atofina Bruxelles; BASF; BP Amoco Polymers; Bencorp Int'l.; Celanese; Chisso Am.; Continental Ind. Group; Cray Valley; DSM Chem. N. Am.; Eastman; Equistar; Exxon; GE Plastics; Huntsman; Int'l. Commodities Export; LNP; Marco Polo Int'l.; Monomer-Polymer & Dajac Labs; Montell N. Am.; Nichem; Shell; Solvay Polymers; Sumitomo Chem.; Union Carbide; Westlake Plastics; Whyte Chems. Ltd

Trade Names: Eastone™ 147 Wax; Microthene® FP 800-00

Trade Names Containing: Polybond® 3002; Polybond® 3150

**Polypropylene, amorphous**

Synonyms: APP; Atactic polypropylene; Polypropylene, atactic

Definition: Tacky rubbery solid consistg. of amorphous PP with small degree of crystallinity

Formula:  $[CH_2(CH_2)CH]_x$

Properties: M.w. 20,000-80,000; dens. 0.86 kg/l; soften. pt. (R&B) 155°C

Uses: Hot-melt adhesives for paper lamination; road marking compds.; bitumen sealant/roofing sheet ingred.; vehicle vibration damping material; corrosion protection wrappings; back-coating compositions (carpet tiles)

**Polypropylene, atactic.** See Polypropylene, amorphous**Polypropylene, chlorinated**

CAS 68442-33-1

Synonyms: Chlorinated polypropylene; Chlorinated PP; PP, chlorinated

Properties: Wh. powd.; odorless; nonflamm.

Toxicology: TSCA listed

Uses: Film-forming polymer used in coatings, inks, adhesives, paper coatings; adhesion promoter for PP and blends; adhesion modifier for coatings, adhesives, and inks

Manuf./Distrib.: Advanced Polymer; Aldrich

**Polypropylene glycol**

CAS 25322-69-4 (generic); EINECS/ELINCS 200-338-0

Synonyms: PPG;  $\alpha$ -Hydro- $\omega$ -hydroxypoly [oxy (methyl-1,2-ethanediyl)];

$\alpha$ -Hydro- $\omega$ -hydroxypoly (oxypropylene); Oxirane, methyl-, homopolymer; Poly (propylene oxide); Propylene oxide homopolymer

Classification: Aliphatic organic compd.

Empirical:  $(C_3H_6O)_n$

Formula:  $HO(C_3H_6O)_nH$ , n = 4-70

Properties: Colorless clear visc. liq., sl. bitter taste; sol. in water, aliphatic ketones, alcohol; insol. in ether, aliphatic hydrocarbons; m.w. 400-2000; dens. 1.001-1.007; m.p. does not cryst.; flash pt. > 390°F

Toxicology: LD50 (oral, rat) 4190 mg/kg; mildly toxic by ingestion; skin and eye irritant; linked to sensitive reactions; TSCA listed

Precaution: Combustible exposed to heat or flame; reactive with oxidizers

Hazardous Decom. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Aq. fire-resist. hydraulic fluids; rubber processing lubricant; high-temp. lubricants for furnaces; antifoam agents; PU chain extender; intermediates for urethane foams, adhesives, coatings, elastomers, plasticizers, paint formulations; lab reagent; flotation frothing agent; defoamer for beet sugar and yeast processing, foods; pharmaceutical solvent for fats, oils, waxes, resins; plasticizer in food-contact polymers; in food-pkg. adhesives; in side seam cements for food-contact containers

Regulatory: FDA 21CFR §173.340, 175.105, 175.300, 178.3740; FDA approved for ophthalmics, orals, topicals

Manuf./Distrib.: Aldrich; Arch Chems.; Ashland; BASF; BP Chems. Ltd; Bayer; Coyne; Degussa-Hüls AG; Dow; Eastman; Fluka; Harcross; Lambert Tech.; Lyondell; Monomer-Polymer & Dajac Labs; PPG Ind.; Rhodia HPCII; Sal Chem.

Trade Names: Acclaim® 2200; Acclaim® 4200; Acclaim® 8200

Trade Names Containing: Trans-278

See also PPG...

**Polypropylene glycol (9).** See PPG-9**Polypropylene glycol (12).** See PPG-12**Polypropylene glycol (17).** See PPG-17**Polypropylene glycol (20).** See PPG-20**Polypropylene glycol (26).** See PPG-26**Polypropylene glycol (30).** See PPG-30**Polypropylene glycol (34).** See PPG-34**Polypropylene glycol 1200.** See PPG-20**Polypropylene glycol monomethyl ether.** See Methoxyisopropanol**Poly (propylene oxide).** See Polypropylene glycol**Polyquaternium-5**

CAS 26006-22-4

Synonyms: Acrylamide/ $\beta$ -methacryloxyethyl trimonium methosulfate; Acrylamide- $\beta$ -methacryloxyethyltrimethyl ammonium methyl sulfate copolymer; Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl) oxy]-, methyl sulfate, polymer with 2-propenamide; Quaternium-39

Definition: Copolymer of acrylamide and  $\beta$ -methacryloxyethyl trimethyl ammonium methosulfate

Uses: Flocculant and retention aid for pulp and paper industry; retention aid for paper/paperboard in contact with aq./fatty foods; slip agent, thickener, antistat, adhesive, film-former, solids-suspending agent, and/or chemical crosslinking agent; antistat, film-former in cosmetics

Regulatory: FDA 21CFR §176.170

Trade Names Containing: Hartfloc® C-470

**Polyquaternium-6**

CAS 26062-79-3

Synonyms: PDADMAC; PolyDMAAC; Poly DMDAC; Ammonium, diallyl dimethyl-, chloride, polymers; N,N-Dimethyl-N-2-propenyl-2-propen-1-aminium chloride, homopolymer; Poly (diallyldimethylammonium chloride); Poly (dimethyl diallyl ammonium chloride); 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer; Quaternium-40

Definition: Polymer of dimethyl diallyl ammonium chloride

Empirical:  $(C_8H_{16}N \cdot Cl)_x$

Properties: M.w. 100,000-1,000,000; cationic

Toxicology: LD50 (oral, rat) 3 g/kg, (oral, mouse) 1720 mg/kg; mod. toxic by ing.; TSCA listed

Precaution: Nonhazardous (DOT); mildly corrosive

Hazardous Decom. Prods.: Heated to decomp., emits toxic vapors of NO<sub>2</sub> and Cl

Uses: Conditioner, antistat, film-former, emollient for cosmetics, hair shampoos, conditioners, rinses, moisturizing creams, lotions, bath prods., skin



care; flocculant/coagulant for water clarification, potable water treatment, wastewater treatment, oil field, flotation enhancement, mining filtration aid; flocculant, pigment dispersant, retention aid in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Aldrich

**Trade Names:** Agefloc PC20HV; Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206; Agequat C1405; Agequat C3204; Agestat 41T; Harfloc® 401; Sumaclear P30, P35

#### Polyquaternium-7

CAS 9022-17-7; 26590-05-6

**Synonyms:** Acrylamide-diallyldimethyl ammonium chloride; Acrylamide/dimethylallyl ammonium chloride copolymer; Diallyldimethyl ammonium chloride with acrylamide; N,N-Dimethyl-N-2-propenyl-2-propen-1-aminium chloride, polymer with 2-propenamamide; Poly (acrylamide-co-diallyldimethyl ammonium chloride); 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, polymer with 2-propenamamide; Quaternium-41

**Classification:** Polymeric quaternary ammonium salt

**Definition:** Polymeric quaternary ammonium salt consisting of acrylamide and dimethyl diallyl ammonium chloride monomers

**Formula:**  $(C_8H_{16}N \cdot C_3H_5NO \cdot Cl)_x$

**Properties:** Dens. 1.020; ref. index 1.350 (20 C); cationic

**Toxicology:** TSCA listed

**Uses:** Foam stabilizer, antistat, film-former, conditioner for cosmetics, shampoos; imparts lubricity, slip, detangling to hair prods.; drainage and retention aid in mfg. of paper/paperboard in contact with aq./fatty foods; sludge dewatering

**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Aldrich

**Trade Names:** Agequat C505

#### Polysilicic acid

**Uses:** Retention aid, drainage aid for papermaking; flocculant for water treatment

**Trade Names:** Particol®

**See also** Silica, hydrated

#### Polysiloxane

CAS 9011-19-2

**Synonyms:** Oxosilane; Siloxane

**Definition:** A straight-chain compd. consistg. of silicon atoms single-bonded to oxygen and arranged so that each silicon atom is linked with four oxygen atoms

**Properties:** Nonionic

**Uses:** Industrial foam control agent for high-solids coatings and water-reducible coatings, polyester/epoxy coatings, primers, and varnishes, floor coatings, top coats, solv.- and water-based printing inks, food-contact coatings; hydrophobing agent; marl and slip agent

**Trade Names Containing:** Agitan® 731; TEGO® Airex 901 W; TEGO® Airex 960; TEGO® Airex 970

#### Polysiloxane polyether copolymer

CAS 68937-54-2

**Synonyms:** Dimethicone copolyol; Polyoxyethylene-grafted polydimethylsiloxane

**Properties:** Nonionic

**Uses:** Defoamer for emulsion paints, adhesives, polymer dispersions; slip, flow, mar resist., and leveling agent for paints; extrusion aid in prod. of polyolefins for food pkg.

**Regulatory:** FDA 21CFR §177.1520

**Trade Names:** Silwet® L-7657; TEGO® Foamex 800; TEGO® Foamex 805; TEGO® Foamex 810; TEGO® Foamex 815; TEGO® Foamex 825; TEGO® Glide 403; TEGO® Glide 404; TEGO® Wet 260

**Trade Names Containing:** TEGO® Foamex 1495; TEGO® Foamex 8030

#### Polysodium vinyl sulfonate

**Synonyms:** PSVS; Sodium vinyl sulfonate polymerized

**Classification:** Polymer

**Definition:** Polymer of sodium vinyl sulfonate

**Properties:** M.w. 10,000

**Uses:** As dispersant and deflocculant for calcium carbonate and other pigment slurries used in paints, coatings, inks, and paper coatings; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Air Prods.

#### Polysorbate 20

CAS 9005-64-5 (generic); 68154-33-6; FEMA 2915

**Synonyms:** POE (20) sorbitan monolaurate; PEG-20 sorbitan laurate; Sorbimacrogol laurate 300; Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.

**Definition:** Mixture of laurate esters of sorbitol and sorbitol anhydrides, with ≈ 20 moles ethylene oxide

**Empirical:**  $C_{58}H_{114}O_{26}$

**Properties:** Lemon to amber liq., char. odor, bitter taste; sol. in water, alcohol, ethyl acetate, methanol, dioxane; insol. in min. oil, min. spirits; m.w. 1227.72; HLB 16.9; acid no. 0-2; sapon. no. 40-50; hyd. no. 60-108; nonionic

**Toxicology:** LD50 (oral, rat) 37 g/kg, (IV, mouse) 1420 mg/kg, (IP, rat) 3850 mg/kg; mod. toxic by IP, IV route; mildly toxic by ing.; human skin irritant; experimental teratogen, reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Surfactant, o/w emulsifier, solubilizer used in agric., cosmetics, pharmaceuticals, leather, metalworking, textiles, paints, emulsion polymerization; antistat for rigid PVC; in food-pkg. adhesives; food emulsifier, stabilizer, flavoring agent, dispersant; emulsifier in food pkg.

**Use Level:** ADI 0-25 mg/kg (EU); 1-15% (emulsifier for pharmaceuticals)

**Regulatory:** FDA 21CFR §172.515, 175.105, 175.300, 178.3400; FEMA GRAS; Europe listed; FDA approved for intravenous, parenterals, ophthalmics, orals, topicals, vaginals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aldrich; Fluka; Rhodia HPCII; Seabrook Ind.; Sigma

**Trade Names:** Crillet 1 HP; Crillet 1 NF; DeMULS PSML-20; Paxsorbate 20

#### Polysorbate 21

CAS 9005-64-5 (generic)

**Synonyms:** POE (4) sorbitan monolaurate; PEG-4 sorbitan laurate

**Definition:** Mixture of laurate esters of sorbitol and sorbitol anhydrides, with ≈ 4 moles ethylene oxide

**Properties:** HLB 13.3; nonionic

**Toxicology:** Moderately toxic by intraperitoneal, intravenous routes; mildly toxic by ingestion; skin irritant; TSCA listed

**Uses:** Emulsifier for PVC polymerization; solubilizer for colorants; dye leveling agent; emulsifier for cosmetics, food, and pharmaceuticals; corrosion inhibitor; antistat, fiber lubricant for textiles; in resinous/polymeric food-contact coatings

**Regulatory:** FDA 21CFR §175.300

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Crillet 11

#### Polysorbate 40

CAS 9005-66-7 (generic)

**Synonyms:** POE (20) sorbitan monopalmitate; Sorbimacrogol palmitate 300; Sorbitan, monohexadecanoate, poly(oxy-1,2-ethanediyl) derivs.

**Definition:** Mixture of palmitate esters of sorbitol and sorbitol anhydrides, with ≈ 20 moles of ethylene oxide

**Empirical:**  $C_{62}H_{122}O_{26}$

**Properties:** Yel. liq., faint char. odor; sol. in water, alcohol; insol. in min. and veg. oils; m.w. 1283.84; HLB 15.6; acid no. 2.2 max.; sapon. no. 41-52; hyd. no. 89-105; nonionic

**Toxicology:** LD50 (IV, rat) 1580 mg/kg; mod. toxic by IV route; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** O/w emulsifier, solubilizer used in agric., cosmetics, pharmaceuticals, leather, metalworking, textiles, paints, polymerization; polymer additives; food emulsifier, dough improver, crystallization retarder, solubilizer, flavor dispersant; surfactant, lubricant, antistat for cosmetics; veg./fruit coatings; yeast/sugar defoamer; emulsifier in food pkg.; in food-pkg. adhesives

**Use Level:** ADI 0-25 mg/kg (EU)

**Regulatory:** FDA 21CFR §175.105, 175.300, 178.3400; Europe listed; UK approved; FDA approved for parenterals, intramuscular injectables, orals, topicals; USP/NF compliance

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Crillet 2; Lumisorb™ PSMP-20

**Polysorbate 60**

CAS 9005-67-8 (generic); FEMA 2916

*Synonyms:* PEG-20 sorbitan stearate; POE (20) sorbitan monostearate; Sorbitan, monooleate, poly (oxy-1,2-ethanediyl) derivs.; Sorbimacrogol stearate 300*Definition:* Mixture of stearate esters of sorbitol and sorbitol anhydrides, with  $\approx$  20 moles ethylene oxide*Empirical:* C<sub>64</sub>H<sub>126</sub>O<sub>26</sub>*Properties:* Lemon to orange oily liq., faint char. odor, bitter taste; sol. in water, alcohol, aniline, ethyl acetate, toluene; insol. in min. and veg. oils; m.w. 1311.90; HLB 14.9; acid no. 2 max.; sapon. no. 45-55; hyd. no. 81-96; nonionic*Toxicology:* LD50 (IV, rat) 1220 mg/kg; mod. toxic by IV route; questionable carcinogen; experimental tumorigen, reproductive effects; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* Surfactant, emulsifier, solvent for polymerization, cosmetics, pharmaceuticals, industrial chemicals, pesticides, textiles, plastics additive, paints, pulp/paper, polish, dyes; solubilizer; textile lubricant/antistat (spin finishes); dye penetrant/leveling aid; lubricant; softener; food emulsifier, protective coating, dough conditioner, stabilizer; foaming agent in beverage mixes; pharmaceutical and veterinary drug; emulsifier in food pkg.; in food-pkg. adhesives*Use Level:* Limitation 0.4% (whipped edible oil topping), 0.46% (cake), 0.5% (confectionery coating), 0.3% (dressing), 1% (shortening), 0.4% (milk), 4.5% (nonalcoholic beverage mix), 0.5% (baked goods, gelatin desserts); ADI 0-25 mg/kg (EU)*Regulatory:* FDA 21CFR §73.1001, 172.515, 172.836, 172.878, 172.886, 173.340, 175.105, 175.300, 178.3400; USDA CFR9 §318.7, 381.147 (limitation 1% max., 1% total combined with polysorbate 80, 0.0175% in scald water); FEMA GRAS; Europe listed; UK approved; FDA approved for orals, rectals, topicals, vaginals; USP/NF, BP, Ph.Eur. compliance*Manuf./Distrib.:* Aldrich; Fluka; Rhodia HPCII; Seabrook Ind.; Sigma; Spectrum Quality Prods.*Trade Names:* Alkamuls® PSMS-20; Crillet 3; DeMULS PSMS-60; Lumisorb™ PSMS-20; Paxisorbate 60**Polysorbate 61**

CAS 9005-67-8 (generic)

*Synonyms:* POE (4) sorbitan monostearate; PEG-4 sorbitan stearate*Definition:* Mixture of stearate esters of sorbitol and sorbitol anhydrides, with  $\approx$  4 moles EO*Empirical:* C<sub>64</sub>H<sub>126</sub>O<sub>26</sub>*Properties:* M.w. 1311.70; dens. 1.044; flash pt. > 110 C; nonionic*Toxicology:* Moderately toxic by intravenous route; TSCA listed*Uses:* Emulsifier, solubilizer, lubricant for flavors, vitamins, textile use, household formulations, suppositories in pharmaceuticals, emulsion polymerization, hydraulic fluids, metal treatment, paints; color dispersants for plastics, cosmetics, leather; emulsifier in cosmetics; lubricant for fibers; antistat; stabilizer; visc. modifier; suspending agent; in resinous/polymeric food-contact coatings*Regulatory:* FDA 21CFR §175.300*Manuf./Distrib.:* Aldrich; Fluka; Sigma*Trade Names:* Crillet 31**Polysorbate 65**

CAS 9005-71-4

*Synonyms:* POE (20) sorbitan tristearate; PEG-20 sorbitan tristearate; Sorbimacrogol tristearate 300; Sorbitan, trioleate, poly (oxy-1,2-ethanediyl) derivs.*Definition:* Mixture of stearate esters of sorbitol and sorbitol anhydrides, with  $\approx$  20 moles EO*Properties:* Tan waxy solid, faint odor, bitter taste; sol. in min. and veg. oils, min. spirits, acetone, ether, dioxane, alcohol, methanol; disp. in water, CCl<sub>4</sub>; HLB 10.5; pour pt. 33 C; acid no. 2 max.; sapon. no. 88-98; hyd. no. 44-60; nonionic*Toxicology:* TDLo (oral, rat) 635 g/kg; experimental reproductive effector; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* Surfactant, o/w emulsifier, solubilizer used in agric., cosmetics, pharmaceuticals, leather, metalworking, textiles, polymerization, paints, pulp/

paper; emulsifier for food processing, food pkg.; softener, lubricant, antistat for textiles; thickener, lubricant for cosmetics; corrosion inhibitor

*Use Level:* Limitation 0.1% (ice cream), 0.32% (cakes), 0.4% (whipped topping); ADI 0-25 mg/kg (EU)*Regulatory:* FDA 21CFR §73.1001, 172.838, 173.340, 175.300, 178.3400; Europe listed; UK approved*Manuf./Distrib.:* Fluka; Seabrook Ind.; Sigma*Trade Names:* Crillet 35; DeMULS PSTS-65; Lumisorb™ PSTS-20**Polysorbate 80**

CAS 9005-65-6 (generic); 37200-49-0; 61790-86-1; FEMA 2917

*Synonyms:* PEG-20 sorbitan oleate; POE (20) sorbitan monooleate; Sorbimacrogol oleate 300*Definition:* Mixture of oleate esters of sorbitol and sorbitol anhydrides, with  $\approx$  20 moles EO*Properties:* Amber visc. liq.; faint odor; bitter taste; nonionic; very sol. in water; sol. in alcohol, fixed oils, cottonseed oil, corn oil, ethyl acetate, methanol, toluene; insol. in min. oil; dens. 1.06-1.10; visc. 270-430 cSt; HLB 15.0; acid no. 2 max.; sapon. no. 45-55; hyd. no. 65-80; pH 5-7 (5% aq.); nonionic*Toxicology:* LD50 (oral, mouse) 25 g/kg, (IP, rats) 6.3 ml/kg, (IV, rat) 179 mg/kg; mod. toxic by IV route; mildly toxic by ing.; eye irritant; questionable carcinogen; experimental tumorigen, reproductive effects; human mutagenic data; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* Surfactant, emulsifier in cosmetics; pharmaceutical aid (surfactant); emulsifier and dispersant in medicinal prods.; defoamer and emulsifier in foods; adjuvant in herbicides; polymerization; paints; color diluent, flavoring; emulsifier in food pkg.; in food-pkg. adhesives*Use Level:* Limitation 0.1% (ice cream), 4% (yeast defoamers), 500 ppm (pickles), 300-475 mg/day (vitamin/mineral preps.); ADI 0-25 mg/kg (EU)*Regulatory:* FDA 21CFR §73.1, 73.1001, 172.515, 172.840, 173.340, 175.105, 175.300, 178.3400; USDA 9CFR §318.7, 381.147 (limitation 1% alone, 1% total combined with polysorbate 60); FEMA GRAS; Europe listed; UK approved; FDA approved for buccals, intramuscular injectables, intravenous, parenterals, ophthalmics, orals, otics, rectals, topicals, vaginals; USP/NF, BP, Ph.Eur. compliance*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma; Spectrum Quality Prods.*Trade Names:* Crillet 4; DeMULS PSMO-80; Lumisorb™ PSMO-20; Paxisorbate 80**Polysorbate 81**

CAS 9005-65-6 (generic)

*Synonyms:* PEG-5 sorbitan oleate; POE (5) sorbitan monooleate*Definition:* Mixture of oleate esters of sorbitol and sorbitol anhydrides, with  $\approx$  5 moles EO*Properties:* HLB 10.0; nonionic*Toxicology:* TSCA listed*Uses:* O/w emulsifier, solubilizer, emollient used in agric., food, cosmetics, pharmaceuticals, leather, textiles, emulsion polymerization, metalworking, metal treatment, paint, insecticides, herbicides, fungicides, cutting oils; lubricant, antistat; color dispersant in plastics; food emulsifier, suspending agent, visc. modifier; in resinous/polymeric food-contact coatings*Regulatory:* FDA 21CFR §175.300*Manuf./Distrib.:* Seabrook Ind.*Trade Names:* Crillet 41; Lumisorb™ PSMO-5**Polysorbate 85**

CAS 9005-70-3 (generic)

*Synonyms:* PEG-20 sorbitan trioleate; POE (20) sorbitan trioleate; Sorbimacrogol trioleate 300*Definition:* Mixture of oleate esters of sorbitol and sorbitol anhydrides, with  $\approx$  20 moles ethylene oxide*Properties:* HLB 11.0; nonionic*Toxicology:* Human skin irritant; TSCA listed*Uses:* Surfactant, emulsifier for polymerization, cosmetics, pharmaceuticals, agric., textiles, paints, pulp/paper, metalworking; plastic additives; solubilizer for perfume, flavors, essential oils; food emulsifier, stabilizer; lubricant, antistat; visc. modifier; suspending agent; emulsifier in food pkg.*Regulatory:* FDA 21CFR §175.300, 178.3400*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma; Spectrum Quality

Prods.

Trade Names: Crillet 45; Lumisorb™ PSTO-20

### Polystyrene

CAS 9003-53-6; EINECS/ELINCS 202-851-5; UN No. 2211

Synonyms: PS; Atactic polystyrene; Benzene, ethenyl-, homopolymer; Ethenylbenzene homopolymer; Polystyrene latex; Polystyrene resin; Polystyrol; Styrene polymer; Styrene, polymerized; Vinylbenzene polymer

Classification: Hydrocarbon polymer

Definition: High molecular weight thermoplastic resin produced by free radical polymerization of styrene; grades: crystal, impact, expandable

Empirical:  $(C_8H_8)_x$

Formula:  $(CH(C_6H_5)CH_2)_x$

Properties: Colorless to ysh. glassy solid or soft colorless foam, penetrating odor; sol. in alcohol; sl. sol. in water; m.w. 2500-250,000; dens. 1.047 kg/l; m.p. 86-91 C; soften. pt. 80-102 C; ref. index 1.5916; tens. str. 52 MPa; tens. mod. 3900 MPa

Toxicology: TDLo (IV, rat, 2 wk intermittent) 200 mg/kg, (implant, rat) 1 mg/kg; severe eye irritant; may cause irritation to mucous membranes; can be narcotic in high concs.; questionable carcinogen; experimental tumorigen by implant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Inj. molded goods; extruded goods; pill bottles; food-pkg. film; appliance/electronics/machine housings; toys; household equip.; recreation equip.; construction equip.; plastic pigments for emulsion paints; in polyarylene ether blends; expandable foam for insulation, protective pkg., ice buckets, water coolers, construction, fillers in shipping containers, egg carton foam; modifier for S/B latexes; adsorbent resin for water treatment; opacifier; pharmaceutical excipient; stiffener for carpet backings and fabrics; film-former in cosmetics; in food-pkg. adhesives and pressure-sensitive adhesives; in food-contact coatings, paper; in cellophane for food pkg.; plasticizer in food-contact rubber articles

Regulatory: FDA 21CFR §175.105, 175.125, 175.300, 175.320, 176.180, 177.1200, 177.1640, 177.2600, 178.1005

Manuf./Distrib.: A. Schulman; Acros Org.; Aldrich; Ampacet; Ashland; Atofina Bruxelles; Atofina SA; BASF; BFGoodrich; BP Amoco; Bencorp Int'l.; ChevronPhillips; Coz; Degussa-Hüls AG; Dow Plastics; Fluka; GE Plastics; Huntsman; Int'l. Commodities Export; LNP; Lyondell; Marco Polo Int'l.; Monomer-Polymer & Dajac Labs; Nova Ltd; Reichhold; Royce Assoc.; Scott Bader; Sigma; Westlake Plastics; Whyte Chems. Ltd

Trade Names: Lytron® 2203

**Poly (styrene-co-allyl alcohol).** See Styrene/allyl alcohol copolymer

**Poly (styrene-co-butadiene).** See Styrene/butadiene polymer

**Poly (styrene-co-maleic anhydride).** See Styrene/MA copolymer

**Poly (styrene-co-methyl methacrylate).** See Styrene/methyl methacrylate copolymer

**Polystyrene latex.** See Polystyrene

**Polystyrene resin.** See Polystyrene

**Polystyrol.** See Polystyrene

**Polytef.** See Polytetrafluoroethylene

**Polyterpene resin.** See Terpene resin

**Polytetrafluoroethene.** See Polytetrafluoroethylene

### Polytetrafluoroethylene

CAS 9002-84-0; EINECS/ELINCS 204-126-9

Synonyms: PTFE; Poly (ethylene tetrafluoride); Polytef; Polytetrafluoroethene; Polytetrafluoroethylene resin; Tetrafluoroethene homopolymer; Tetrafluoroethylene polymer; Tetrafluoroethylene polymers; Tetrafluoroethylene resin

Classification: Thermoplastic homopolymer

Definition: Polymer of tetrafluoroethylene

Empirical:  $(C_2F_4)_x$

Formula:  $[CF_2CF_2]_x$ ,  $x \approx 20,000$

Properties: Wh. translucent to opaque solid; m.w. 400,000-9,000,000; dens. 2.2; useful temp. range cryogenic to 260 C; melts to visc. gel @ 327 C; Shore hardness 55-56; tens. str. 3500-4500 psi; elong. 200-300% (@ break); chem. inert; exc. thermal/chem. resist.; low coeff. of friction; high elec. insulation; nonflamm.

Toxicology: TDLo (implant, rat) 80 mg/kg; highly toxic; severe eye irritant; polymer fume fever reported under conditions of inadequate ventilation;

inert as finished compd.; questionable carcinogen; experimental tumorigen by implant; target organs: liver, bone marrow, kidneys, pancreas, male reproductive organs; TSCA listed

Precaution: Incompat. with fluorine, sodium potassium alloy; may undergo hazardous reaction with boron, magnesium, or titanium

Hazardous Decomp. Prods.: Heated above 750 F, dec. to yield highly toxic fumes of F<sup>-</sup>

Uses: As tubing or sheeting for chemical laboratory and process work; gaskets and pump packings; as elec. insulators esp. in high frequency applics.; filtration fabrics; protective clothing; prosthetic aid; plastics lubricant, release agent; industrial fibers; rubberproofing additive in printing inks; paint raw material and texturing agent; ablative coatings for rockets; wire coating; antistick coatings for cookware, packings, and bearings; reinforcing filler; binder in cosmetics; in food-pkg. adhesives; release agent in food-contact coatings

Regulatory: FDA 21CFR §175.105, 175.300

Manuf./Distrib.: Acros Org.; Aldrich; Allchem Ind.; Fluka; Rochem Int'l.; Shamrock Tech.

Trade Names: Krytox® DFW

Trade Names Containing: Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA

**Polytetrafluoroethylene resin.** See Polytetrafluoroethylene

**Poly (tetramethylene terephthalate).** See Polybutylene terephthalate

**Polythene.** See Polyethylene

**Poly (p-toluenesulfonamide-co-formaldehyde).** See Tosylamide/formaldehyde resin

**Polytrifluoroethene.** See Chlorotrifluoroethylene polymer

**Poly (trifluoroethylene chloride).** See Chlorotrifluoroethylene polymer

**Poly (trifluoromonoethene).** See Chlorotrifluoroethylene polymer

**Poly (trifluorovinyl chloride).** See Chlorotrifluoroethylene polymer

**Poly (urea-co-formaldehyde), butylated.** See Urea/formaldehyde resin, butylated

**Poly (urea-co-formaldehyde), isobutylated.** See Urea/formaldehyde resin, isobutylated

**Poly (urea-co-formaldehyde), methylated.** See Urea-formaldehyde resin, methylated

**Polyurethane-acrylic.** See Urethane-acrylate resin

**Polyurethane methacrylate**

Uses: Adhesives; paper; wood; ink; metal coatings

**Polyurethane, polyester**

Uses: Adhesion promoter, bonding agent in metal/plastic composite structures, textile and leather coatings, primers for rigid surface coatings; adhesive for food pkg.

Trade Names: Desmocoll® 526; Q-Thane® QW20-1; Q-Thane® QW28

**Polyurethane, polyether**

Uses: Calendering; extrusion; thickener for latex paints and adhesives

Trade Names: AL 1701; AL 4190; Upaco® 5430

**Polyurethane resin**

Synonyms: PU

Classification: Urethane

Definition: Produced from condensation reaction of isocyanates and a hydroxyl-containing material

Toxicology: TSCA listed

Uses: In food-pkg. adhesives; as food-contact surf. of articles for contact with dry food; rubber for food-contact articles for repeated use

Regulatory: FDA 21CFR §175.105, 177.1680, 177.2600

Manuf./Distrib.: Air Prods.; Aldrich; Ashland; Bayer; Cytec Ind.; Deeks; Eastech; Encal Spec.; Hexagon Enterprises; Hinton & Hillman; Kane Int'l.; Lomas Int'l.; McWhorter Tech.; Merquinsa N. Am.; P.A.T. Prods.; Polyad; Ranbar Tech.; Renosol

Trade Names: Solucote® 1003

**Polyurethane sponge.** See Polyurethane, thermoplastic

**Polyurethane, thermoplastic**

CAS 9009-54-5

Synonyms: TPU; Isourethane; Plastic sponge; Polyfoam; Polyurethane sponge

Classification: Thermoplastic polymer

Toxicology: Experimental carcinogen and tumorigen

## Polyurethane, thermoset

*Uses:* Thermoplastic polymer (can be made thermosetting) for inj. molding, extrusion, vacuum forming, calendaring, and blow molding; in adhesives; coated fabrics and films; automotive parts; cable jacketing; scuba equip.; shoe soles; ski boots, etc.; fibers for structural textiles; coatings; elastomer for sealants, caulks, adhesives, shoes, encapsulation of electronic parts; binders for rocket propellants; abrasive wheels; bonding agent; plasticizer; impact modifier; food-pkg. adhesives

*Trade Names Containing:* Estane® 5715

## Polyurethane, thermoset

*Uses:* Thermoset polymer for casting and potting systems, conformal coatings, adhesives, insulating coatings, cable molding, automotive fascia, etc.; flame retardant

*Trade Names:* Witcobond® W-213

## Polyvidone. See PVP

## Polyvidonum. See PVP

## Polyvinol. See Polyvinyl alcohol

## Polyvinyl acetate

CAS 9003-20-7

*Synonyms:* PVA; PVAc; Acetic acid, ethenyl ester, homopolymer; Acetic acid, vinyl ester, polymer; Acetic acid vinyl ester polymers; Ethenyl acetate, homopolymer; Poly (vinylacetate); Polyvinyl acetate homopolymer; Polyvinyl acetate resin; Vinyl acetate homopolymer; Vinyl acetate polymer; Vinyl acetate resin

*Classification:* Homopolymer

*Definition:* Homopolymer of vinyl acetate

*Empirical:* (C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* [CH<sub>2</sub>CHOOCOCH<sub>3</sub>]<sub>x</sub>

*Properties:* Water-wh. clear solid resin; sol. in benzene, acetone; insol. in water; dens. 1.191; ref. index 1.4670

*Toxicology:* LD (oral, rat) > 25 g/kg, (oral, mouse) > 25 g/kg; very low toxicity by ing.; tumorigen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Refrigerate

*Uses:* Resin with weathering resistance; binder in paints; adhesives for food pkg., paper, wood, glass, and metals; primer sealers; dry wall cement; intermediate for conversion to polyvinyl alcohol and acetals; component of lacquers, inks; paper coating/sizing; textile stiffening/finishing; nonwoven fabric binder/sizing; suspending agent in PVC mfg.; dispersant; stabilizer; color diluent in foods; antistat, binder, emulsion stabilizer, film-former in cosmetics; binder, emulsion stabilizer, film-former for oral pharmaceuticals; masticatory in chewing gums; in food-contact coatings; in paper/paperboard in contact with aq./fatty/dry foods; in cellophane for food pkg.; in food-contact textiles

*Regulatory:* FDA 21CFR §73.1, 172.615 (m.w. 2000 min.), 175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.2800, 181.22, 181.30; Japan approved; FDA approved for orals

*Manuf./Distrib.:* Acros Org.; Air Prods.; Aldrich; Ashland; Callaway; CarboMer; Gehring Montgomery; H.B. Fuller; Hampshire; Lenape Ind.; Monomer-Polymer & Dajac Labs; Monsanto; Nat'l. Starch & Chem.; Reichhold; Rhodia; Rohm & Haas; StanChem; Union Carbide; VYN-AC; Wacker Chems.; Wacker-Chemie GmbH

*Trade Names:* Daratak® 56L; Daratak® 61L; Daratak® 65L; Daratak® RP2000; Daratak® SP1012; Everflex® GT; Flexbond® 149; Flexbond® 150; Flexbond® 153; Flexbond® 165; Plyamul® 40305-00; Plyamul® 40315-00; Plyamul® 40351-00; Plyamul® 40354-00; Plyamul® 40359-00; Plyamul® 97825-00; Plyamul® 97897-00; Resyn® 25-1103; Resyn® 25-1114; Resyn® 25-1120; Resyn® 25-1190; Resyn® 1090; Sunbond® 936; Synthemul® 447; Synthemul® 883; Synthemul® 40503-00; Synthemul® 97883-01; Vancryl® 650; Vinac® 285; Vinac® 828; Vinac® 828M; Vinac® 884; Vinac® 1000; Vinac® A50; Vinac® H 60; Vinac® M 503; Vinac® XX-211; Vinac® XX-241; Vinac® Z 50

*Trade Names Containing:* Pace® 381; Pace® 382; Pace® 383; Pace® 385; Plyamul® 40656-00

## Poly (vinylacetate). See Polyvinyl acetate

## Poly (vinyl acetate-co-crotonic acid). See Vinyl acetate/crotonic acid copolymer

## Poly (vinyl acetate-crotonic acid). See Vinyl acetate/crotonic acid copolymer

## Polyvinyl acetate homopolymer. See Polyvinyl acetate

## Polyvinyl acetate resin. See Polyvinyl acetate

## Polyvinyl alcohol

CAS 9002-89-5 (super and fully hydrolyzed); EINECS/ELINCS 209-183-3

*Synonyms:* PVA; PVAL; PVOH; Ethenol homopolymer; Polyvinol; Polyvinyl alcohol, hydrolyzed; Polyvinyl alcohol resin; Poval; PVAL, hydrolyzed; Vinyl alcohol polymer

*Classification:* Polymer; aliphatic organic compd.

*Definition:* Water-sol. synthetic thermoplastic avail. as cast film, fiber or aq. sol'n.; film is characterized by oil resist., toughness, and high tens. str.

*Empirical:* (C<sub>2</sub>H<sub>3</sub>O)<sub>x</sub>

*Formula:* [CH<sub>2</sub>CHOH]<sub>x</sub>, avg. x = 500-5000

*Properties:* Wh. to cream amorphous powd. or gran., odorless; sol. in water; insol. in petrol. solvs.; m.w. (44.05)<sub>x</sub>, avg. 120,000; dens. 1.329; softens at 200 C with dec.; flash pt. (OC) 175 F; ref. index 1.49-1.53; pH 5-8 (4%)

*Toxicology:* TDLo (subcut., rat) 2500 mg/kg, (implant, rat) 10 g/kg; questionable carcinogen; experimental tumorigen by implant; TSCA listed

*Precaution:* Flamm. exposed to heat or flame; reactive with oxidizers; dust exposed to flame presents sl. explosion hazard

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 2; Flammability 2; Reactivity 1

*Uses:* In plastics industry in molding compds.; surface coatings; films resistant to gasoline; textile sizes; for elastomers (artificial sponges, fuel hoses); printing inks; pharmaceutical finishing; cosmetics; film and sheeting; ophthalmic lubricant; dispersant (PVC suspension polymerization); emulsion polymerization; release agent; color diluent for egg shells; artificial tear prods.; binder for cosmetics, leather, ceramics, cloth, paper; thickener; stabilizer; photosensitive films; film-former, visc. control agent in cosmetics; emulsifier; in food-contact coatings and films; dispersant in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty/dry foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §73.1, 175.105, 175.300, 175.320, 176.170, 176.180, 177.1200, 177.1670, 177.2260, 177.2800, 178.3910, 181.22, 181.30; FDA approved for ophthalmics, orals, injectables, topicals, vaginals; USP/INF compliance

*Manuf./Distrib.:* Acros Org.; Air Prods.; Aldrich; Alfa Chem; Allchem Ind.; British Traders & Shippers; CarboMer; Celanese; Fluka; GCA; Honeywill & Stein; Hunt; Itochu Spec. Chems.; Monomer-Polymer & Dajac Labs; Perry; Polysciences; Rhodia; Rochem Int'l.; Ruger; San Yuan; Shin-Etsu; Sigma; Spectrum Quality Prods.; Wacker-Chemie GmbH; Wego Chem. & Min.

*Trade Names:* Airvol® 103; Airvol® 107; Airvol® 125; Airvol® 165; Airvol® 165SF; Airvol® 203S; Airvol® 305; Airvol® 321; Airvol® 325; Airvol® 350; Airvol® 805; Airvol® 823; Airvol® 840; Airvol® MH-82; Airvol® MM-14; Airvol® MM-51; Airvol® MM-81; Bovlon; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06; Elvanol® 71-30; Elvanol® 75-15; Elvanol® 85-30; Elvanol® 85-82; Elvanol® 90-50; Elvanol® HV; Gohsenal; Gohsenol; Gohseran; Hi Selon; Mewlon; Rhodiviol® 4/125; Unisize® HA-25

*Trade Names Containing:* Pace® 381; Pace® 382; Pace® 383; Pace® 385; Plyamul® 40656-00; Unisize® HA-26; Unisize® HA-70

## Polyvinyl alcohol, hydrolyzed. See Polyvinyl alcohol

## Polyvinyl alcohol (partially hydrolyzed)

CAS 25213-24-5

*Uses:* Binder, carrier, compounding agent, dispersant, stabilizer, protective colloid in polymerizations; for textiles, paper, adhesives, cement/plaster additive, peelable caulks, ceramics, strippable coatings, mold release, nonwovens

*Trade Names:* Airvol® 203; Airvol® 205; Airvol® 205S; Airvol® 425; Airvol® 502; Airvol® 523; Airvol® 540

## Polyvinyl alcohol resin. See Polyvinyl alcohol

## Polyvinyl butyral

CAS 9003-62-7; 63148-65-2

*Synonyms:* PVB; Polyvinyl butyral resin; Vinyl acetal polymers, butyrals; Vinyl acetyl polymers, butyrates

*Definition:* Thermoplastic polymer produced by condensation of polyvinyl alcohol and butyraldehyde

*Formula:* H<sub>2</sub> • (C<sub>8</sub>H<sub>14</sub>O)<sub>n</sub>

*Properties:* Wh. powd., aq. disp. or film; m.w. 38,000-270,000; dens. 1.0830; ref. index 1.4850

*Toxicology:* Severe eye irritant; TSCA listed

*Uses:* Extrusion, molding, coating, and casting applics.; modifying resin for surf. coatings, printing inks; hot-melt/structural adhesives; paints; lacquers; films; as sheet interlayer in safety glass and shatter-resistant protection in aircraft; water/abrasion-resist. textile finishes; antistat, binder, film-former, visc. control agent in cosmetics; in food-pkg. adhesives; in food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Manuf./Distrib.:* Acros Org.; Celanese; Eastech; Gehring Montgomery; H & C Ind.; Monsanto; Sigma; Solutia; StanChem; Union Carbide; Wacker Chems.; Wacker-Chemie GmbH

**Polyvinyl butyral resin.** See Polyvinyl butyral

#### Polyvinyl butyrate

CAS 24991-31-9

*Synonyms:* Vinyl butyrate homopolymer

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* ABCR

**Poly (n-vinylbutyrolactam).** See PVP

#### Polyvinyl chloride

CAS 9002-86-2; 8063-94-3; 51248-43-2; 93050-82-9; EINECS/ELINCS 208-750-2

*Synonyms:* PVC; Atactic poly (vinyl chloride); Chloroethene homopolymer; Chloroethylene polymer; Ethene, chloro-, homopolymer; Ethylene, chloro-, polymer; Expanded polyvinyl chloride; Poly (chloroethylene); Polyvinyl chloride latex; Polyvinyl chloride resin; Vinyl chloride homopolymer; Vinyl chloride polymer; Vinyl chloride resin; Vinyon

*Definition:* Synthetic thermoplastic high polymer in rigid, plasticized, std. and high impact grades; resist. to weathering, moisture, most acids, fats, petrol. hydrocarbons, fungus; dimensionally stable; good dielec. props.

*Empirical:* (C<sub>2</sub>H<sub>3</sub>Cl)<sub>n</sub>

*Formula:* [CH<sub>2</sub>CHClCH<sub>2</sub>CHCl]<sub>n</sub>

*Properties:* Wh. powd. or colorless gran.; m.w. 60,000-200,000; dens. 1.406; ref. index 1.54; Rigid; dens 1.35 kg/l; soften. pt. 58-80 C; tens. str. 35-50 MPa; elong. 35-40% (break); Plasticized: pellets; dens. 1.15-1.50 kg/l; tens. str. 10-25 MPa

*Toxicology:* LC50 (inh., rat, 2 h) 171 g/m<sup>3</sup>; TDLo (oral, rat, 30 wks continuous) 210 mg/kg, (implant, rat) 75 mg/kg; irritant; chronic inh. of dusts can cause pulmonary changes, blood effects, abnormal liver function; may cause necrotizing or contact dermatitis; questionable carcinogen; suspected tumorigen by ing. and implant; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents, heat, light; reacts violently with F<sub>2</sub>

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrogen chloride, irritating/toxic fumes and gases; heated to decomp., emits toxic fumes of Cl<sup>-</sup> and phosphene

*Storage:* Store in cool, dry place; keep container closed when not in use

*Uses:* Rubber substitutes; elec. wire and cable coatings; pliable thin sheeting; film finishes for textiles; nonflamm. upholstery; raincoats; tubing; belting; gaskets; shoe soles; plumbing and piping; containers; plastisols and organosols; paper coatings; phono records; fuel in pyrotechnic devices; pharmaceutical excipient; copolymers for latex emulsions; calendered film; compounding; blending resin, extender, reinforcing agent in rubber; adhesive and bonding agent; in food-contact coatings; in paper/paperboard in contact with dry food; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.180, 177.1200; FDA approved for parenterals

*Manuf./Distrib.:* A. Schulman; ABCR; Abadan Petrochem.; Acros Org.; Air Prods.; Aldrich; Allchem Ind.; Ashland; Atofina SA; BASF AG; BFGoodrich; Bencorp Int'l.; Borden; Celanese; Chisso Am.; Chisso; Colorite Plastics; Condea Vista; Continental Ind. Group; E-A-R; Fluka; Georgia Gulf; Goodyear; Hummel Croton; Int'l. Commodities Export; LG Petrochem. Co. Ltd; Magna-Kron; Marco Polo Int'l.; Monomer-Polymer & Dajac Labs; Nat'l. Starch & Chem.; Nippon Zeon; Norsk Hydro AS; Occidental; PolyOne/Geon; Renosol; Shin-Etsu; Sigma; Teknor Apex; Wacker-Chemie GmbH; Westchem; Westlake Plastics; Whyte Chems. Ltd

**Poly (vinyl chloride-co-vinyl acetate).** See Vinyl chloride/vinyl acetate copolymer

**Polyvinyl chloride latex.** See Polyvinyl chloride

**Polyvinyl chloride/polyvinyl acetate.** See Vinyl chloride/vinyl acetate copolymer

**Polyvinyl chloride resin.** See Polyvinyl chloride

**Poly (vinyl chloride-vinyl acetate).** See Vinyl chloride/vinyl acetate copolymer

#### Polyvinyl formal

*Synonyms:* PVF; PVFM

*Definition:* Contains 5-9% vinyl alcohol, 9-50% vinyl acetate monomers

*Properties:* Wh. amorphous powd.; sol. in phenols, alcohols, aromatic and certain chlorinated solvs.; m.w. 24,000-40,000

*Uses:* Phenolic/polyvinyl formal resins (wire enamels, can coatings); mfg. of paints, adhesives, and films; in food-pkg. adhesives; in food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170

*Manuf./Distrib.:* Chisso Am.; Fluka; Monomer-Polymer & Dajac Labs; Monsanto

#### Polyvinylidene chloride

CAS 9002-85-1

*Synonyms:* PVDC; Ethene, 1,1-dichloro-, homopolymer; Saran; Vinylidene chloride homopolymer; Vinylidene chloride latex

*Classification:* Stereoregular thermoplastic polymer

*Empirical:* (C<sub>2</sub>H<sub>2</sub>Cl)<sub>n</sub>

*Properties:* Odorless; tasteless; sol. in cyclohexanone, dioxane; softened by chlorinated hydrocarbons; highly inert to chemical attack; abrasion resist.; low vapor transmission; m.w. (96.94),

*Precaution:* Combustible but self-extinguishing

*Uses:* Thermoplastic polymer for extrusion or inj. or blow molding; in adhesion coatings for paper; food pkg.; pipes for chemical processing; upholstery; fibers; bristles; latex coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180

*Manuf./Distrib.:* ABCR; BFGoodrich; Dow Plastics; Hampshire; Matteson-Ridolfi; Rhodia; Scott Bader; Solvay Polymers; Van Leer Flexibles

See also Vinylidene chloride copolymer

**Poly (vinylidene chloride-co-acrylonitrile).** See Vinylidene chloride/acrylonitrile copolymer

**Poly (vinylidene chloride-co-methyl acrylate).** See Vinylidene chloride/methyl acrylate copolymer

**Poly (vinylidene chloride-co-vinyl chloride).** See Vinylidene chloride/vinyl chloride copolymer

**Poly (vinylidene fluoride) homopolymer.** See Polyvinylidene fluoride resin

#### Polyvinylidene fluoride resin

CAS 24937-79-9

*Synonyms:* PVDF; 1,1-Difluoroethene homopolymer; Poly (vinylidene fluoride) homopolymer

*Definition:* Thermoplastic polymer with str., toughness, and flexibility; resist. to oxidative degradation, electricity, acids, alkalis, oxidizers, halogens

*Formula:* [CH<sub>2</sub>CF<sub>2</sub>]<sub>n</sub>

*Properties:* Cryst.; somewhat sol. in dimethylacetamide; m.w. 144.17; m.p. 171 C; ref. index 1.42; thermally stable @ -62 to 148 C

*Precaution:* Combustible but self-extinguishing; distillation residue explodes violently when heated to 130 C; attacked by hot conc. sulfuric acid or n-butylamine

*Uses:* Inj. and compr. molding; extrusion; as insulation for high-temp. wire, tank linings, chemical tanks and tubing; bonded liners for steel machinery/equip.; chemically resist. piping/equip.; pyroelectric device housings; paints and coatings with high resistance to weathering and UV light; processing aid for polyolefins used for food pkg.; in food-contact articles for repeated use

*Regulatory:* FDA 21CFR §177.1520, 177.2510

*Manuf./Distrib.:* Ausimont USA

*Trade Names:* Dykor® 204

**Poly(vinyl isobutyl ether).** See Vinyl isobutyl ether

**Polyvinyl methyl ether-maleic anhydride.** See PVM/MA copolymer

**Polyvinyl octadecyl carbamate**

CAS 36671-85-9

*Synonyms:* Carbamic acid, homopolymer, octadecyl-ethenyl ester; Poly (vinyl N-octadecylcarbamate)*Classification:* Polymer; urethanes*Empirical:* (C<sub>27</sub>H<sub>47</sub>NO)<sub>x</sub>*Properties:* Sol. in hydrocarbons, chlorinated hydrocarbons, esters; insol. in alcohols; m.p. 85-95 C*Toxicology:* Harmful if inh., ing., absorbed thru skin; corrosive; causes burns; target organs: liver, kidneys, bladder; TSCA listed*Precaution:* Incompat. with strong oxidizing agents, acids*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>; emits toxic fumes under fire conditions*Storage:* Keep tightly closed; store in cool, dry place away from heat and open flame*Uses:* Release coating for films and tapes*Manuf./Distrib.:* Aldrich; Polyad*Trade Names:* Mayzo RA-75; Mayzo RA-95H; Mayzo RA-95HS; Mayzo RA-150W**Poly (vinyl N-octadecylcarbamate).** See Polyvinyl octadecyl carbamate**Poly (vinyl propionate)**

CAS 25035-84-1

*Synonyms:* Vinyl propionate homopolymer*Classification:* Polymer; vinyl ester*Formula:* [CH<sub>2</sub>CH(OCOC<sub>2</sub>H<sub>5</sub>)]<sub>x</sub>*Properties:* Dens. 1.020; ref. index 1.4660*Toxicology:* Toxic by inh., ing., skin contact; severe irritant; irritating to eyes, skin, respiratory system; may cause burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting; target organs: liver, kidneys, bladder, brain; TSCA listed*Precaution:* Incompat. with strong oxidizing agents*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>; emits toxic fumes under fire conditions*Storage:* Keep tightly closed in cool, dry place*Uses:* Binder for alkali-resist. surf. coatings; in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.180**Poly (1-vinyl-2-pyrrolidinone) homopolymer.** See PVP**Polyvinylpyrrolidone.** See PVP**Polyvinyl stearate**

CAS 9003-95-6

*Synonyms:* Vinyl stearate homopolymer*Classification:* Polymer; vinyl ester*Properties:* Wh. beads*Toxicology:* May be harmful by inh., ing., skin absorption; may cause skin/eye irritation; TSCA listed*Precaution:* Incompat. with strong oxidizing agents*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>; emits toxic fumes under fire conditions*Storage:* Keep tightly closed; store in cool, dry place*Uses:* In food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.*Regulatory:* FDA 21CFR §175.300, 176.170, 176.180, 177.1200*Manuf./Distrib.:* Polyad**Polyvinyl sulfonic acid.** See Vinyl sulfonic acid homopolymer**Ponceau MX.** See Acid red 26**Ponceau red.** See Acid red 26**Ponolith yellow Y.** See Pigment yellow 74**Pontamine green S.** See Direct green 1**POP (15).** See PPG-15**POP (5) butyl ether.** See PPG-5 butyl ether**POP (9) butyl ether.** See PPG-9 butyl ether**POP (15) butyl ether.** See PPG-15 butyl ether**POP (18) butyl ether.** See PPG-18 butyl ether**POP (22) butyl ether.** See PPG-22 butyl ether**POP (24) butyl ether.** See PPG-24 butyl ether**POP (30) butyl ether.** See PPG-30 butyl ether**POP (33) butyl ether.** See PPG-33 butyl ether**POP (40) butyl ether.** See PPG-40 butyl ether**POP (53) butyl ether.** See PPG-53 butyl ether**POP (2) dibenzoate.** See Dipropylene glycol dibenzoate**POP (17) dioleate.** See PPG-17 dioleate**POP (2) methyl ether.** See PPG-2 methyl ether**POP (2) monooleate.** See PPG-2 oleate**POP (26) monooleate.** See PPG-26 oleate**POP (36) monooleate.** See PPG-36 oleate**POP (2) monostearate.** See PPG-2 stearate**POP/POE copolymer.** See EO/PO block polymer or copolymer**POP (2) POE (2) monobutyl ether.** See PPG-2-buteth-2**POP (2) POE (3) monobutyl ether.** See PPG-2-buteth-3**POP (3) POE (5) monobutyl ether.** See PPG-3-buteth-5**POP (5) POE (6) monobutyl ether.** See PPG-5-buteth-7**POP (7) POE (10) monobutyl ether.** See PPG-7-buteth-10**POP (9) POE (12) monobutyl ether.** See PPG-9-buteth-12**POP (12) POE (16) monobutyl ether.** See PPG-12-buteth-16**POP (15) POE (20) monobutyl ether.** See PPG-15-buteth-20**POP (20) POE (30) monobutyl ether.** See PPG-20-buteth-30**POP (24) POE (27) monobutyl ether.** See PPG-24-buteth-27**POP (26) POE (26) monobutyl ether.** See PPG-26-buteth-26**POP (28) POE (35) monobutyl ether.** See PPG-28-buteth-35**POP (33) POE (45) monobutyl ether.** See PPG-33-buteth-45**Porcelain clay.** See Kaolin**Portland stone.** See Calcium carbonate**Potash alum.** See Potassium alum anhydrous; Potassium alum dodecahydrate**Potash blue.** See Ferric ferrocyanide**Potassium acetate**

CAS 127-08-2; EINECS/ELINCS 204-822-2; FEMA 2920

*Synonyms:* Acetic acid potassium salt; Diuretic salt*Classification:* Aliphatic organic compd.*Definition:* Potassium salt of acetic acid*Empirical:* C<sub>2</sub>H<sub>3</sub>KO<sub>2</sub>*Formula:* CH<sub>3</sub>COOK*Properties:* Colorless lustrous cryst. or wh. cryst. powd. or flakes, odorless or faint acetous odor, saline taste; sol. in water, alcohol, oxygenated solvs.; insol. in ether; m.w. 98.14; dens. 1.57; m.p. 292 C; dec. on heating*Toxicology:* LD50 (oral, rat) 3.25 g/kg; mod. toxic by ing.; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of K<sub>2</sub>O

HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Deliq.; keep tightly closed; store @ R.T.*Uses:* Dehydrating agent; textile conditioner; analytical reagent; raw material for pharmaceuticals, medicine, organic synthesis, cacodylic derivatives, crystal glass; PU foam catalyst; softener for paper, textiles; film-former in cosmetics; food preservative, buffer, neutralizer, color fixative; synthetic flavoring agent for foods and pharmaceuticals; diuretic drug; penicillin purification reagent*Regulatory:* FDA 21CFR §172.515; FEMA GRAS; Europe listed; FDA approved for ophthalmics, rectals; BP compliance*Manuf./Distrib.:* A.P.; ADA Int'l.; AMRESKO; Aldrich; Allan; Am. Int'l.; Celanese; CharKit; EM Ind.; FBC Ind.; Fluka; General Chem.; Heico; Honeywill & Stein; Ikoma Fine Chem.; Integra; Jarchem Ind.; Lohmann; Mallinckrodt Baker; Niacet; Poly Research; Robeco; Ruger; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem**Potassium alum.** See Potassium alum anhydrous; Potassium alum dodecahydrate**Potassium alum anhydrous**

CAS 10043-67-1; EINECS/ELINCS 233-141-3

*Synonyms:* Alum; Aluminum potassium alum; Aluminum potassium disulfate; Aluminum potassium sulfate; Aluminum potassium sulfate alum; Aluminum potassium sulfate, anhydrous; Alum, potassium; Burnt alum; Burnt potassium alum; Dialuminum dipotassium sulfate; Exsiccated alum; Potash alum; Potassium alum; Potassium aluminum sulfate; Potassium aluminum sulfate (1:1:2); Sulfuric acid, aluminum potassium salt (2:1:1)*Classification:* Inorganic aluminum compd.*Empirical:* AlK<sub>3</sub>S<sub>2</sub>*Formula:* KAl(SO<sub>4</sub>)<sub>2</sub>*Properties:* Wh. powd. or colorless cryst.; odorless; sweet styptic taste; freely sol. in glycerol, dil. acid; sol. 1 g/10 ml cold water, 1 ml boiling water, usually incompletely; pract. insol. in alcohol; m.w. 258.20; dens.

1.725; becomes anhyd. @ 200 C; pH 3.3 (0.2 molar aq.); noncombustible

**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup> (sol. salts, as Al); TDLo (oral, rat, 26 wks intermittent) 4355 mg/kg; nuisance dust; inh. of dust may irritate nose and throat; ing. of large doses of solid or conc. sol'n. may cause GI irritation, stomach burns, nausea, vomiting, abdominal pain, diarrhea; causes redness and irritation to eyes and skin; mutation data; TSCA listed

**Precaution:** Dust can react with moisture to form weak sulfuric acid mists

**Hazardous Decomp. Prods.:** Dec. above 200 C to form corrosive sulfuric acid fumes

**Storage:** Keep well closed

**Uses:** Dyeing (mordant); tanning; flocculant (water treatment, sugar clarification); electroplating; cement/plaster hardener; explosives; waterproofing agent; matches; paints; catalyst in prod. of ammonia; aluminum salts; reagent in pulp/paper prod.; clarifier; hardener for gelatin/protein glues, in microscopy; mfg. of dyes, lakes, veg. glue, marble cement, porcelain cement, explosives; antiperspirant agent, deodorant agent in cosmetics; in food-contact animal glues; food additive; baking powd. ingred.; astringent; antiseptic

**Regulatory:** FDA 21CFR §178.3120

**Manuf./Distrib.:** AC Ind.; Aerchem; Aithaca; Allchem Ind.; Am. Int'l.; EM Ind.; Holland; Lohmann; Mutchler; Riedel-deHaën; Skymart Enterprises; Spectrum Quality Prods.; Van Waters & Rogers; Wego Chem. & Min.; Westco

#### Potassium alum dodecahydrate

CAS 7784-24-9; EINECS/ELINCS 233-141-3

**Synonyms:** Alum; Alum flour; Aluminum potassium sulfate; Alum meal; Alum, potassium; Cube alum; Kalinite; Potash alum; Potassium alum; Potassium aluminum sulfate; Sulfuric acid, aluminum potassium salt (2:1:1), dodecahydrate

**Classification:** Inorganic aluminum salt

**Empirical:** AlH<sub>24</sub>KO<sub>26</sub>S<sub>2</sub>

**Formula:** KAl(SO<sub>4</sub>)<sub>2</sub> · 12H<sub>2</sub>O (dodecahydrate)

**Properties:** Transparent cryst. or wh. cryst. powd., odorless, sweetish astringent taste; sol. glycerin; sol. 1 g/7.2 ml water; insol. in alcohol; m.w. 474.38; dens. 1.725; m.p. 92.5 C; b.p. loses 18 H<sub>2</sub>O @ 64.5 C; pH 3.3 (0.2M aq.)

**Toxicology:** TDLo (oral, rat) 1120 mg/kg; irritant; nuisance dust

**HMS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Active ingred. in OTC drug prods. (established name: Alum); astringent; reagent; burnt alum; dyes, pigments; paper mfg.; photography; glue; purifying water, coagulant for water treatment; food additive (buffer, neutralizer, firming agent; clarifying sugar; hardening gelatin); in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §133.102, 133.106, 133.111, 133.141, 133.165, 133.181, 133.183, 133.195, 137.105, 137.155, 137.160, 137.165, 137.170, 137.175, 137.180, 137.185, 178.3120, 182.90, 182.1129, GRAS; Japan approved except for miso; BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aktiva Ltd; Aldrich; Am. Int'l.; Cater Chems.; Fluka; Noah; Ruger; Sigma; Spectrum Quality Prods.

#### Potassium aluminate

CAS 12003-63-3

**Formula:** K<sub>2</sub>Al<sub>2</sub>O<sub>4</sub> · 3H<sub>2</sub>O

**Properties:** Hard cryst.; sol. in water; insol. in alcohol

**Uses:** Dyeing, printing (mordant). lakes, paper sizing

**Potassium aluminum sulfate.** See Potassium alum anhydrous; Potassium alum dodecahydrate

**Potassium aluminum sulfate (1:1:2).** See Potassium alum anhydrous

#### Potassium carrageenan

CAS 64366-24-1

**Synonyms:** Carrageenan, potassium salt

**Definition:** Potassium salt of carrageenan

**Toxicology:** LDLo (IP, mouse) 40 mg/kg; may cause structural changes in vascular vessels, changes to liver, kidney, ureter, and bladder; mutagen

**Uses:** Binder, emulsion stabilizer, film-former, visc. control agent in cosmetics; emulsifier, stabilizer, and thickener for foods; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §172.623, 172.626, 176.170

#### Potassium castorate

CAS 8013-05-6; EINECS/ELINCS 232-388-4

**Synonyms:** Castor oil, potassium salt; Fatty acids, castor oil, potassium salts

**Definition:** Potassium salt of fatty acids derived from castor oil

**Toxicology:** TSCA listed

**Uses:** Surfactant in cosmetics; emulsifier; dispersant; mild germicide; glycerized rubber lubricant; emulsifier, foam stabilizer for foamed rubber; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.200, 176.210, 177.1200, 177.2600, 177.2800, 178.3910

#### Potassium castor oil sulfate

**Synonyms:** Castor oil, sulfated, potassium salt

**Properties:** Anionic

**Uses:** Defoamer in food-contact paper coatings; in food-contact textiles

**Regulatory:** FDA 21CFR §176.200, 177.2800

**Trade Names:** Freedom SCO-75K

**Potassium chrome alum.** See Chromium potassium sulfate

**Potassium chromium sulfate.** See Chromium potassium sulfate

#### Potassium cocoate

CAS 61789-30-8; EINECS/ELINCS 263-049-9

**Synonyms:** Coco fatty acids, potassium salts; Coconut acid, potassium salt; Fatty acids, coconut oil, potassium salts; Fatty acids, coco, potassium salts; Potassium coconate

**Definition:** Potassium salt of coconut acid

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Surfactant, emulsifier, detergent, flash foamer in cosmetics, shampoo base, liq. hand soaps, medicinal soaps; lubricant for conveyors; coupling agent; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.200, 176.210, 177.1200, 177.2600, 177.2800, 178.3910

**Potassium coconate.** See Potassium cocoate

**Potassium corn acid soap.** See Potassium cornate

#### Potassium cornate

CAS 61789-23-9; EINECS/ELINCS 263-044-1

**Synonyms:** Corn oil acids, potassium salt; Corn oil fatty acids, potassium salts; Fatty acids, corn oil, potassium salts; Potassium corn acid soap

**Definition:** Potassium salt of corn acid

**Uses:** Surfactant, emulsifier in cosmetics; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, 177.1200, 177.2260, 178.3910

#### Potassium dimethyldithiocarbamate

CAS 128-03-0

**Synonyms:** Carbamic acid, dimethyldithio-, potassium salt, hydrate; Carbamodithioic acid, dimethyl-, potassium salt

**Empirical:** C<sub>3</sub>H<sub>6</sub>NS<sub>2</sub> · K · H<sub>2</sub>O

**Properties:** M.w. 177.34

**Toxicology:** LD50 (IP, mouse) 350 mg/kg; poison by intraperitoneal route; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of K<sub>2</sub>O, NO<sub>x</sub>, and SO<sub>x</sub>

**Uses:** Biocide, fungicide, and algicide used in water treatment, paper, sugar, and petrol. applics.; polymerization shortstop

**Regulatory:** SARA reportable

**Manuf./Distrib.:** Venus Ethoxyethers

**Trade Names:** Aquatreat® KM; Paxgard PDC; Qemicide DTC-1050

**Potassium diphosphate.** See Tetrapotassium pyrophosphate

#### Potassium distearyl phosphate

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210



## Potassium dodecanoate

**Potassium dodecanoate.** See Potassium laurate

### Potassium dodecylbenzene sulfonate

CAS 27177-77-1; EINECS/ELINCS 248-296-2

*Synonyms:* Dodecylbenzenesulfonic acid, potassium salt

*Classification:* Substituted aromatic compd.

*Empirical:*  $C_{18}H_{30}O_3S \cdot K$

*Properties:* Anionic

*Toxicology:* TSCA listed

*Uses:* Surfactant for S/B, vinyl chloride, VDC latexes, cosmetics; emulsifier in food pkg.

*Regulatory:* FDA 21CFR §178.3400

*Trade Names:* POLYSTEP® A-15-30K

**Potassium dodecyl sulfate.** See Potassium lauryl sulfate

**Potassium ferricyanate.** See Potassium ferricyanide

### Potassium ferricyanide

CAS 13746-66-2; EINECS/ELINCS 237-323-3

*Synonyms:* Ferrate(3-), hexacyano-, tripotassium; Hexacyanoferrate (3-) tripotassium; Potassium ferricyanate; Potassium ferrocyanide; Potassium hexacyanoferrate (III); Red prussiate of potash; Tripotassium hexacyanoferrate; Tripotassium hexakis (cyano-C) ferrate (3-)

*Empirical:*  $C_6FeK_3N_6$

*Formula:*  $K_3Fe(CN)_6$

*Properties:* Yel. to ruby-red cryst.; sol. 460 g/l in water (20 C); sl. sol. in alcohol; dec. by acids; m.w. 329.27; dens. 1.85 kg/l; m.p. loses  $3H_2O$  @ 70 C; b.p. dec.; the aq. sol'n. slowly dec. on standing

*Toxicology:* ACGIH TLV/CL 5 mg(CN)/m<sup>3</sup> (skin); LDLo (oral, rat) 1600 mg/kg; mod. toxic by ing.; harmful by inh.; skin contact; may cause changes in urine, blood; mutagenic data; TSCA listed

*Precaution:* Explosive reaction with ammonia, chromium trioxide (above 196 C), sodium nitrite + heat; violent reaction with  $Cu(NO_3)_2$ ; avoid contact with acid

*Hazardous Decomp. Prods.:* Heated to decomp., or in contact with acid or acid fumes, emits highly toxic fumes of  $K_2O$  and  $CN^-$

*Storage:* Light-sensitive; protect from light

*Uses:* Blueprint paper prod.; etchant; flotation depressant; photographic fixative, bleaching/reducing agent; rust conversion agent; metal cleaner; glass coatings; staining wood; dyeing wool; calico printing; tempering iron and steel; in electroplating; mild oxidizing agent in org. synthesis; in analytical chemistry; polymerization control agent in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* ABCR; AC Ind.; Acros Org.; Aldrich; Alfa Aesar; Allan; Allchem Ind.; BCH Brühl; Charkit; Dastech Int'l.; F.H. Taussig; Fabricem; Fluka; Graymor; Mallinckrodt Baker; Mays; Noah; RIA Int'l.; Seachem; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; U.P.T. Chems.; United Min. & Chem.; Wego Chem. & Min.; Westco

**Potassium ferrocyanide.** See Potassium ferricyanide

**Potassium hexacyanoferrate (III).** See Potassium ferricyanide

### Potassium hexamethylene diamine tetra (methylene phosphonate)

CAS 38820-59-6

*Synonyms:* HMDTMP;  $K_4$ HDTMP; Hexamethylene diamine tetramethylene phosphonic acid, potassium salt; Hexapotassium hexamethylene diamine tetra (methylene phosphonate); (1,6-Hexanediybis (nitrilobis (methylene))) tetrakisphosphonic acid potassium salt; Phosphonic acid, [1,6-hexanediybis [nitrilobis (methylene)]] tetrakis potassium salt

*Classification:* Phosphonate

*Empirical:*  $C_{10}H_{26}N_2O_{12}P_4 \cdot xK$

*Properties:* M.w. 765.98

*Toxicology:* LDLo (oral, rat) 10 g/kg; LD50 (dermal, rabbit) > 7940 mg/kg; TSCA listed

*Uses:* Process additive for paper, textiles, and metals; industrial and commercial formulations for cleaning various substrates; scale and corrosion inhibitor in aq. systems; deflocculant, sequestant, scale/corrosion inhibitor, metal ion control in water treatment, boiler treatments, reverse osmosis, desalination; crystal growth modifier

*Trade Names:* Dequest® 2054

### Potassium N-hydroxymethyl-N-methyldithiocarbamate

CAS 51026-28-9

*Synonyms:* Carbamic acid, N-hydroxymethyl-n-methyldithio-, potassium

salt; Carbamodithioic acid, N-methyl-N-hydroxymethyl-, potassium salt; (Hydroxymethyl) methyl-carbamodithioic acid, monopotassium salt

*Empirical:*  $C_3H_6NOS_2 \cdot K$

*Properties:* M.w. 175.31

*Toxicology:* LD50 (oral, rat) 590 mg/kg

*Uses:* Agric. chem.; slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

### Potassium isobutyl oleate sulfate

*Synonyms:* Isobutyl oleate, sulfated, potassium salt

*Uses:* In paper/paperboard in contact with aq./fatty food

*Regulatory:* FDA 21CFR §176.170

**Potassium isothiocyanate.** See Potassium thiocyanate

### Potassium laurate

CAS 10124-65-9; EINECS/ELINCS 233-344-7

*Synonyms:* Dodecanoic acid, potassium salt; Potassium dodecanoate

*Definition:* Potassium salt of lauric acid

*Empirical:*  $C_{12}H_{25}O_2 \cdot K$

*Formula:*  $CH_3(CH_2)_{10}COOK$

*Properties:* Lt. tan paste; sol. in water and alcohol; m.w. 238.45

*Toxicology:* Primary irritant; TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; base for liq. soaps and shampoos; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.863, 175.105, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910

### Potassium lauryl sulfate

CAS 4706-78-9; EINECS/ELINCS 225-190-4

*Synonyms:* Potassium dodecyl sulfate; Sulfuric acid, monododecyl ester, potassium salt

*Definition:* Potassium salt of lauryl sulfate

*Empirical:*  $C_{12}H_{25}O_4S \cdot K$

*Formula:*  $CH_3(CH_2)_{10}CH_2OSO_3K$

*Properties:* M.w. 304.49; anionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; detergent; foaming agent; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1200, 177.2800

*Manuf./Distrib.:* Fluka; Sigma

### Potassium lignosulfonate

*Uses:* Dispersant; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

*Manuf./Distrib.:* Wesco Tech. Ltd

### Potassium 2-mercaptobenzothiazole

*Uses:* Slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**Potassium metasilicate.** See Potassium silicate

### Potassium N-methyldithiocarbamate

CAS 137-41-7

*Synonyms:* Metham potassium

*Empirical:*  $C_2H_4S_2 \cdot K$

*Properties:* M.w. 131.28

*Uses:* Antimicrobial for use in cane-sugar and beet-sugar mills; biocide for paper industry; disinfectant for soil treatment; fungicide; nematocide; insecticide; herbicide; in paper for food pkg.; in food-pkg. adhesives; slimicide in food-contact paper/paperboard; preservative in food-contact animal glues

*Regulatory:* FDA 21CFR §173.320, 175.105, 176.300, 178.3120, 181.30; SARA reportable

*Manuf./Distrib.:* FMC Foret

### Potassium myristate

CAS 13429-27-1; EINECS/ELINCS 236-550-5

*Synonyms:* Myristic acid, potassium salt; Potassium tetradecanoate; Potassium n-tetradecanoate; Tetradecanoic acid, potassium salt

*Definition:* Potassium salt of myristic acid

*Empirical:*  $C_{14}H_{28}O_2 \cdot K$

*Formula:*  $\text{CH}_3(\text{CH}_2)_{12}\text{COOK}$

*Properties:* M.w. 267.47

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.863, 175.105, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910

**Potassium octadecanoate.** See Potassium stearate

**Potassium 9-octadecenoate.** See Potassium oleate

**Potassium cis-9-octadecenoic acid.** See Potassium oleate

#### Potassium oleate

CAS 143-18-0; EINECS/ELINCS 205-590-5

*Synonyms:* 9-Octadecenoic acid, potassium salt; 9-Octadecenoic acid (Z)-, potassium salt; Oleic acid potassium salt; Potassium 9-octadecenoate; Potassium cis-9-octadecenoic acid

*Definition:* Potassium salt of oleic acid

*Empirical:*  $\text{C}_{18}\text{H}_{33}\text{O}_2 \cdot \text{K}$

*Formula:*  $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOK}$

*Properties:* Ylsh., gray-tan, or brownish paste; sol. in water, alcohol; m.w. 320.56; HLB 20.0; anionic

*Toxicology:* Eye irritant; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $\text{K}_2\text{O}$

*Uses:* Detergent; surfactant for textile detergents; liq. soap for hand cleaners; tire mounting lubricant; emulsifier and corrosion control in paint strippers; emulsifier in latexes; frothing aid in gelled latex foam compds.; surfactant, emulsifier in cosmetics; foods (anticaking agent, binder, emulsifier); stabilizer in food pkg.; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.863, 175.105, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 181.22, 181.29

*Manuf./Distrib.:* Aldrich; Concord; Emkay; Fluka; Independent Chem.; Norman, Fox; Original Bradford Soap Works; RTD

**Potassium oleic acid sulfate.** See Potassium oleic sulfate

#### Potassium oleic sulfate

*Synonyms:* Oleic acid, sulfated, potassium salt; Potassium oleic acid sulfate; Sulfated oleic acid, potassium salt

*Properties:* Anionic

*Uses:* Mold release agent; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §176.170, 176.200

*Trade Names:* Actrasol SRK 75

#### Potassium palmitate

CAS 2624-31-9; EINECS/ELINCS 220-088-6

*Synonyms:* Hexadecanoic acid, potassium salt

*Definition:* Potassium salt of palmitic acid

*Empirical:*  $\text{C}_{16}\text{H}_{31}\text{O}_2 \cdot \text{K}$

*Formula:*  $\text{CH}_3(\text{CH}_2)_{14}\text{COOK}$

*Properties:* M.w. 294.52

*Toxicology:* Primary irritant; TSCA listed

*Precaution:* Highly flamm.

*Uses:* Surfactant, emulsifier in cosmetics; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.863, 175.105, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910

*Manuf./Distrib.:* Riedel-deHaën

**Potassium pentachlorophenate.** See Potassium pentachlorophenate

#### Potassium pentachlorophenate

CAS 7778-73-6

*Synonyms:* Phenol, pentachloro-, potassium salt; Potassium pentachloro-

phenate

*Empirical:*  $\text{C}_6\text{HCl}_5\text{O} \cdot \text{K}$

*Properties:* M.w. 305.42

*Toxicology:* TSCA listed

*Uses:* Slime control agent in mfg. of food-contact paper/paperboard; preservative in food-pkg. adhesives and animal glues; preservative for defoamers in food-contact coatings and paper/paperboard; slimicide in food-contact paper/paperboard; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 176.300, 177.1210, 178.3120, 181.30

**Potassium peroxydisulfate.** See Potassium persulfate

**Potassium peroxydisulfate.** See Potassium persulfate

#### Potassium persulfate

CAS 7727-21-1; EINECS/ELINCS 231-781-8; UN No. 1492 (DOT)

*Synonyms:* Dipotassium persulfate; Peroxydisulfuric acid dipotassium salt; Potassium peroxydisulfate; Potassium peroxydisulfate

*Empirical:*  $\text{K}_2\text{O}_8\text{S}_2$

*Formula:*  $\text{K}_2\text{S}_2\text{O}_8$

*Properties:* Colorless or wh. cryst., odorless; sol. in 50 parts water with gradual decomp.; insol. in alcohol; m.w. 270.33; dens. 2.477; m.p. 100 C (dec.)

*Toxicology:* ACGIH TLV/TWA 5 mg( $\text{S}_2\text{O}_8$ )/m<sup>3</sup>; mod. toxic; irritant; allergen; TSCA listed

*Precaution:* Powerful oxidizer; flamm. when exposed to heat or by chemical reaction; reactive with reducing materials; liberates oxygen above 100 C (dry), 50 C (sol'n.)

*Hazardous Decomp. Prods.:* Heated to decomp., emits highly toxic fumes of  $\text{SO}_2$  and  $\text{K}_2\text{O}$

*Storage:* Keep well closed in cool place

*Uses:* Bleaching; oxidizing agent in cosmetics; reducing agent; in photography; antiseptic; soap mfg.; analytical reagent; polymerization initiator; pharmaceuticals; starch modifier; flour-maturing agent; textile desizing; foods (defoamer, dispersing adjuvant, poultry scald agent); in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers; in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §172.210, 175.105, 175.210, 176.170, 177.1210, 177.2600; USDA 9CFR §381.147; BP compliance

*Manuf./Distrib.:* AMC Chems.; AMRESCO; Aceto; Aldrich; Alfa Chem; Allchem Ind.; Am. Int'l.; BCH Brühl; DuPont; FMC; Fluka; Independent Chem.; Mallinckrodt Baker; Miljac; Pacific West; Primachem; Rochem Int'l.; San Yuan; Sigma; Spectrum Quality Prods.; Transol Chems. UK Ltd

#### Potassium phosphate dibasic

CAS 7758-11-4 (anhyd.); 16788-57-1 (trihydrate); EINECS/ELINCS 231-834-5

*Synonyms:* DKP; Dibasic potassium phosphate; Dipotassium hydrogen orthophosphate; Dipotassium hydrogen phosphate; Dipotassium monophosphate; Dipotassium orthophosphate; Dipotassium phosphate; Phosphoric acid dipotassium salt

*Classification:* Inorganic salt

*Empirical:*  $\text{HK}_2\text{O}_4\text{P}$

*Formula:*  $\text{K}_2\text{HPO}_4$

*Properties:* Colorless or wh. cryst. or powd.; odorless; sol. in water; sl. sol. in alcohol; m.w. 174.18 (anhyd.), 228.23 (trihydrate); pH 8.5-9.6 (5%)

*Toxicology:* No known toxicity; nuisance dust

*Hazardous Decomp. Prods.:* Phosphorous oxides may be released in fire  
HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Deliq., hygroscopic; store @ R.T.

*Uses:* Automotive industry; corrosion inhibitor, buffer in antifreeze; corrosion/scale inhibitor, sequestrant for water and potable water treatment; laboratory reagent; reagent in enamel prod., paper processing; potassium/phosphorus source in fertilizers; food additive (buffer, pH control agent, sequestrant, yeast food, emulsifier, flavorings, humectant; nutrient in antibiotic prod.); in food-pkg. adhesives; pharmaceuticals (buffer; urinary acidifier)  
*Use Level:* Limitation 5% (pickle for meat prods.), 0.5% (meat prods.), 0.5% (total poultry)

*Regulatory:* FDA 21CFR §133.169, 133.173, 133.179, 175.105, 182.6285, GRAS; USDA 9CFR §318.7, 381.147; FDA approved for intramuscular injectables, orals; Europe listed; UK approved; Japan approved

## Potassium polysilicate

*Manuf./Distrib.:* AMRESCO; Albright & Wilson Am.; Aldrich; Allan; Astaris; FBC Ind.; FMC; Fluka; Heico; Monsanto; Rhodia Food Ingreds.; Ruger; Sigma; Spectrum Quality Prods.; U.S. Biochemical

**Potassium polysilicate.** See Potassium silicate

**Potassium pyrophosphate.** See Tetrapotassium pyrophosphate

**Potassium pyrophosphate, normal.** See Tetrapotassium pyrophosphate

**Potassium rhodanate.** See Potassium thiocyanate

**Potassium rhodanide.** See Potassium thiocyanate

### Potassium ricinoleic sulfate

*Properties:* Anionic

*Uses:* Pigment wetting and dispersing agent; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing

*Trade Names:* Actrasol PSR

### Potassium rosinate

CAS 61790-50-9; 61790-51-0; EINECS/ELINCS 263-144-5

*Synonyms:* Potassium rosin salt; Potassium soap of rosin

*Properties:* Anionic

*Uses:* Emulsifier, stabilizer, detergent, wetting agent, dispersant, foaming agent for polymerization of ABS, SBR, other elastomers, metalworking and drilling oils, adhesives; in food-pkg. adhesives; component of food-contact articles; process/polymerization aid

*Regulatory:* FDA 21CFR §175.105, 178.3870

*Trade Names:* Arizona DRS-40; Arizona DRS-42

**Potassium rosin salt.** See Potassium rosinate

### Potassium silicate

CAS 1312-76-1; EINECS/ELINCS 215-199-1

*Synonyms:* Potassium metasilicate; Potassium polysilicate; Silicic acid, potassium salt

*Definition:* Potassium salt of silicic acid

*Formula:*  $K_2O \cdot nSiO_2$ ,  $n = 2.25-3.90$

*Properties:* Colorless anhyd. lump; sol. in water @ high temp. and pressure; insol. in alcohol

*Uses:* Mfg. of glass/refractory materials; binder in carbon arc-light electrodes; binder improving rheology of paints and coatings for cementitious surfs., outdoor and indoor bldg. paints, plasters, primers, industrial construction, insulation board coating; detergent builder for household/industrial cleaners; catalyst; adhesives (paper tubes, drums); visc. control agent in cosmetics

*Manuf./Distrib.:* Ashland; Crosfield; FMC Foret; Harcros; Independent Chem.; PQ; U.S. Synthetics; Welch, Holme & Clark; Zaclon

**Potassium soap of rosin.** See Potassium rosinate

### Potassium stearate

CAS 593-29-3; EINECS/ELINCS 209-786-1

*Synonyms:* Octadecanoic acid, potassium salt; Potassium octadecanoate; Stearic acid, potassium salt

*Classification:* Sat. aliphatic carboxylic acid salt

*Definition:* Potassium salt of stearic acid

*Empirical:*  $C_{18}H_{35}KO_2$

*Formula:*  $CH_3(CH_2)_{16}COOK$

*Properties:* Wh. powd., sl. fatty odor; readily sol. in hot water producing alkaline sol'ns.; sol. in diethyl ether, ethanol, chloroform, carbon disulfide; slowly sol. in cold water; m.w. 322.63

*Toxicology:* Essentially nontoxic; inh. of high concs. of dust may cause coughing, mild temporary irritation; sl. eye irritant; ing. may cause irritation, nausea, diarrhea; TSCA listed

*Precaution:* Probable combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Store in cool area away from ignition sources

*Uses:* Surfactant, emulsifier in soaps, cosmetics, toiletries, pharmaceutical ointments, household and industrial cleaners; in mfg. of textile softeners; food additive (binder, emulsifier, anticaking agent, defoamer); masticatory substance in chewing gum; stabilizer in food pkg.; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §172.615, 172.863, 173.340, 175.105, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 179.45, 181.22, 181.29

*Manuf./Distrib.:* Am. Int'l.; Ashland; Eastech; Ferro/Grant; Jarchem Ind.; Norac; Original Bradford Soap Works; RTD; Rhodia HPCII; Universal Preserv-A-Chem; Van Waters & Rogers

**Potassium sulfocyanate.** See Potassium thiocyanate

### Potassium (3-sulfopropyl) acrylate

CAS 31098-20-1; EINECS/ELINCS 250-465-0

*Synonyms:* Acrylic acid-(3-sulfopropyl) ester, potassium salt; 3-Acryloyloxypropane-1-sulfonic acid, potassium salt; 3-Sulfopropyl acrylate, potassium salt

*Classification:* Nonaromatic sulfur-oxygen compd.

*Empirical:*  $C_6H_9KO_3S$

*Properties:* M.w. 232.30; m.p. 302 C (dec.)

*Toxicology:* Irritating to eyes, skin, respiratory system

*Uses:* Functional monomer for aq. dispersions, hydrogels, ion exchange resins, paper coatings, adhesives, photographic layers, antistatics, thickeners and polyelectrolytes

*Manuf./Distrib.:* Aldrich

*Trade Names:* SPA

### Potassium sulfopropyl methacrylate

CAS 31098-21-2; EINECS/ELINCS 250-466-6

*Synonyms:* 3-(2-Methylacryloyloxy)-propane-1-sulfonic acid, potassium salt; 2-Propenoic acid, 2-methyl, 3-sulfopropyl ester, potassium salt; Sulfopropyl methacrylate, K salt; 3-Sulfopropyl methacrylate, potassium salt

*Empirical:*  $C_7H_{11}KO_3S$

*Formula:*  $H_2C=C(CH_3)COOCH_2CH_2CH_2SO_3K$

*Properties:* Wh. cryst. powd.; sol. in water, methanol; m.w. 246.3; m.p. > 300 C (dec.)

*Toxicology:* Irritating to eyes, skin, respiratory system

*Uses:* Functional monomer for applics. such as ion exchange resins, flocculants, thickeners, emulsions; emulsion polymerization; emulsion stabilizer

*Manuf./Distrib.:* Aldrich

*Trade Names:* SPM

### Potassium tallate

CAS 61790-44-1; EINECS/ELINCS 263-136-1

*Synonyms:* Fatty acids, tall oil, potassium salts; Tall oil acid, potassium salt

*Definition:* Potassium salt of tall acid

*Uses:* Detergent, emulsifier for petroleum and agric. prods.; antistat in cosmetics; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.; in food-contact rubber articles for repeated use; in food-contact textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §176.170, 177.1200, 177.2600, 177.2800, 178.3910

### Potassium tallowate

CAS 61790-32-7; EINECS/ELINCS 263-124-6

*Synonyms:* Fatty acids, tallow, potassium salts; Tallow fatty acids, potassium salts

*Definition:* Potassium salt of tallow acid

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier in cosmetics; in food-pkg. adhesives; defoamer in food-contact paper coatings; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910

### Potassium tallow sulfate

*Synonyms:* Tallow sulfated, potassium salt

*Uses:* Defoamer in food-contact coatings; in paper/paperboard in contact with aq./fatty food

*Regulatory:* FDA 21CFR §176.170, 176.200

**Potassium tetradecanoate.** See Potassium myristate

**Potassium n-tetradecanoate.** See Potassium myristate

### Potassium thiocyanate

CAS 333-20-0; EINECS/ELINCS 206-370-1

*Synonyms:* Potassium isothiocyanate; Potassium rhodanate; Potassium rhodanide; Potassium sulfocyanate; Potassium thiocyanide; Rhodanide;

**Thiocyanic acid potassium salt***Classification:* Inorganic salt*Empirical:* CKNS*Formula:* KSC≡N*Properties:* Colorless to wh. transparent cryst. powd., odorless; sol. in cold water, acetone, ethanol, amyl alcohol; m.w. 97.19; dens. 1.886; m.p. 173 C; dec. 500 C; pH 5.3-8.7 (5%)*Toxicology:* LD50 (oral, rat) 854 mg/kg; LDLo (subcut., rabbit) 55 mg/kg, (IV, rabbit) 150 mg/kg, (oral, human) 80 mg/kg (hallucinations, convulsions, muscle weakness); poison by IV route; mod. toxic by subcut. and ing.; human poison by ing.; lg. doses may cause skin eruptions, psychoses, collapse; experimental teratogen; TSCA listed*Precaution:* Incompat. with calcium chlorite and perchloryl fluoride*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of CN<sub>2</sub>, K<sub>2</sub>O, SO<sub>x</sub>, and NO<sub>x</sub>*Storage:* Hygroscopic; deliq.; moisture-sensitive*Uses:* Intermediate for pharmaceuticals; insecticides; herbicides; slimicides for paper; dye and printing assistant in textiles; analytical reagent; electroplating bath ingred.; corrosion inhibitor in water treatment; mfg. of sulfocyanides, thioureas; photography; chelating agent in metal purification; syn. dyestuffs; cosmetic additive; medicine (hypotensive)*Regulatory:* BP compliance*Manuf./Distrib.:* Akzo Nobel bv; Aldrich; Allan; Crompton/Witco; Fluka; Katayama Chem. Ind.; Sigma; Spectrum Quality Prods.; Toyo Kasei Kogyo**Potassium thiocyanate.** See Potassium thiocyanate**Potassium trichlorophenate***Empirical:* C<sub>6</sub>H<sub>3</sub>Cl<sub>3</sub>O*Formula:* Cl<sub>3</sub>C<sub>6</sub>H<sub>2</sub>OH*Properties:* Dens. 1.3; f.p. -9 C*Uses:* Slime control agent in mfg. of food-contact paper/paperboard; preservative in defoamers for food-contact coatings and paper/paperboard; slimicide in food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.200, 176.210, 176.300, 181.30**Potassium triphosphate.** See Potassium tripolyphosphate**Potassium tripolyphosphate**

CAS 13845-36-8; EINECS/ELINCS 237-574-9

*Synonyms:* KTPP; Pentapotassium triphosphate; Pentapotassium tripolyphosphate; Potassium triphosphate; Triphosphoric acid pentapotassium salt*Classification:* Inorganic salt*Empirical:* K<sub>5</sub>O<sub>10</sub>P<sub>3</sub>*Formula:* K<sub>5</sub>P<sub>3</sub>O<sub>10</sub>*Properties:* Wh. cryst. solid; sol. in water; m.w. 448.42; dens. 2.54 kg/l; m.p. 620-640 C*Toxicology:* Nuisance dust; irritant; TSCA listed*Storage:* Hygroscopic*Uses:* Detergents; dispersant, sequestrant for liq. cleaners; paints; specialty fertilizers; sequestrant; dispersant, corrosion/scale inhibitor, sequestrant for water treatment; buffering agent, chelating agent in cosmetics; food emulsifier, suspending agent, texturizer, buffer, sequestrant, stabilizer; boiler water additive for food contact; in food-pkg. adhesives*Use Level:* Limitation 5% (pickle for meat prods.), 0.5% (meat prods.), 0.5% (total poultry); ADI 0-70 mg/kg (EU, total phosphates)*Regulatory:* FDA 21CFR §173.310, 175.105, 182.1810, GRAS; USDA 9CFR §318.7 (with limitation), 381.147 (limitation 0.5% of total poultry prod.); Europe listed*Manuf./Distrib.:* Albright & Wilson Am.; Allchem Ind.; Ashland; Browning; Coyne; FMC; Gallard-Schlesinger Ind.; Harcross; Int'l. Chem. Inc; Janus Resources; Lidochem; Quadra; S & G Resources; Spectrum Quality Prods.; T.P.P. Chems.; Van Waters & Rogers; Westco*Trade Names:* Kalipol™ KTP**Potato (Solanum tuberosum) starch**

CAS 9005-25-8; EINECS/ELINCS 232-679-6

*Synonyms:* Solanum tuberosum*Definition:* Natural substance obtained from potatoes, *Solanum tuberosum*, contg. amylose and amylopectin*Empirical:* (C<sub>6</sub>H<sub>10</sub>O<sub>5</sub>)<sub>n</sub>*Properties:* Irreg. ovoid or spherical gran.; swells in hot water to form a gel on

cooling

*Toxicology:* May cause allergic reactions and stuffy nose in hypersensitive persons; TSCA listed*Uses:* Demulcent used in dusting powds.; emollient in dry shampoos and baby powd.; thickener, emulsion stabilizer for cosmetics; migrating from cotton in dry food pkg.; in food-pkg. adhesives; pharmaceuticals (with glycerin to form protectant for eczema, skin rash, chapped skin)*Regulatory:* FDA 21CFR §175.105, 178.3520, 182.70; BP, Ph.Eur. compliance*Manuf./Distrib.:* Aldrich; Avebe Am.; Chemstar Prods.; Genericchem; Houghton Chem.; Lance Prods.; Process Prods.; Quadra; Sigma; Spectrum Quality Prods.*Trade Names:* Accosize® 60R Cationic Starch; Astro® X Cationic Starches; Astrocite™ 75 Starch; Sta-Jel® 141; Sta-Jel® 142; Sta-Lok® 400, 410, 430, 440; Sta-Lok® 480; Sta-Lok® 600**Potato starch.** See Starch**Poval.** See Polyvinyl alcohol**Povidone.** See PVP**Powdered cellulose.** See Cellulose**PP.** See Polypropylene**PP, chlorinated.** See Polypropylene, chlorinated**PPG.** See Polypropylene glycol**PPG-9**

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (9); Polypropylene glycol (9); PPG 400*Definition:* Polymer of propylene oxide*Formula:* H(OCH<sub>2</sub>CHCH<sub>3</sub>)<sub>n</sub>OH, avg. n = 9*Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Chemical intermediate; antifoam agent in fermentation and in paint formulations; antiblooming agent for pentachlorophenol-treated wood; binder and lubricant for ceramics; plasticizer of resin-treated papers; mold release applics.; emollient in cosmetics; provides solvency, low odor, low irritation, low toxicity to personal care prods.; in food-pkg. adhesives*Regulatory:* FDA 21CFR §173.310, 175.105, 176.200, 176.210*Manuf./Distrib.:* Aldrich; Fluka**PPG-12**

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (12); Polypropylene glycol (12)*Definition:* Polymer of propylene oxide*Formula:* H(OCH<sub>2</sub>CHCH<sub>3</sub>)<sub>n</sub>OH, avg. n = 12*Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Chemical intermediate; antifoam agent in fermentation and paints; antiblooming agent for pentachlorophenol-treated wood; binder and lubricant for ceramics; plasticizer of resin-treated papers; emollient in cosmetics; in food-pkg. adhesives*Regulatory:* FDA 21CFR §173.310, 175.105, 176.200, 176.210*Manuf./Distrib.:* Aldrich; Fluka**PPG-15**

CAS 25322-69-4 (generic)

*Synonyms:* POP (15)*Definition:* Polymer or propylene oxide*Formula:* H(OCH<sub>2</sub>CHCH<sub>3</sub>)<sub>n</sub>OH, avg. n = 15*Uses:* Emollient in cosmetics; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard*Regulatory:* FDA 21CFR §173.310, 175.105, 176.170, 176.200, 176.210**PPG-17**

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (17); Polypropylene glycol (17)*Definition:* Polymer of propylene oxide*Formula:* H(OCH<sub>2</sub>CHCH<sub>3</sub>)<sub>n</sub>OH, avg. n = 17*Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Chemical intermediate; antifoam agent in fermentation and paints; antiblooming agent for pentachlorophenol-treated wood; binder and lubricant for ceramics; plasticizer of resin-treated papers; defoamer for food-grade coatings and paper prods.; emollient in cosmetics; provides solvency, low odor, low irritation, low toxicity to personal care prods.; in food-

pkg. adhesives

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.170, 176.200, 176.210

*Manuf./Distrib.:* Aldrich; Fluka

*Trade Names:* Dow P1000TB

#### PPG-20

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (20); Polypropylene glycol (20); Polypropylene glycol 1200; PPG 1200

*Definition:* Polymer of propylene oxide

*Formula:*  $H(OCH_2CHCH_3)_nOH$ , avg.  $n = 20$

*Properties:* Nonionic

*Toxicology:* LD50 (IP, mouse) 113 mg/kg, (skin, rabbit) > 10 g/kg; LDLo (IV, dog) 20 mg/kg; poison by IV and IP routes; irritating to skin and eyes; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Defoamer; mold release applics.; chemical intermediates for fatty acid esters; components for urethane resins; textile lubricants; metalworking compds.; paints; urethane foams; brake and hydraulic fluids; plasticizers; release agents; lubricating oils/greases; rubber processing; emollient in cosmetics; provides solvency, low odor, low irritation, low toxicity to personal care prods.; boiler water additive; defoamer for beet sugar and yeast processing; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; plasticizer in food-contact polymers

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.200, 176.210, 178.3740

*Manuf./Distrib.:* Aldrich; Fluka

*Trade Names:* Dow P1200

#### PPG-26

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (26); Polypropylene glycol (26); PPG 2000

*Definition:* Polymer of propylene oxide

*Formula:*  $H(OCH_2CHCH_3)_nOH$ , avg.  $n = 26$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Defoamer; mold release applics.; chemical intermediates for fatty acid esters; components for urethane resins; boiler water additive for prep. of steam that will contact food; defoamer for beet sugar and yeast processing; defoamer in food-contact coatings and paper/paperboard; emollient in cosmetics; provides solvency, low odor, low irritation, low toxicity to personal care prods.; food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; plasticizer in food-contact polymers

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.200, 176.210, 178.3740

*Manuf./Distrib.:* Aldrich; Fluka

*Trade Names:* Dow P2000; Pluronic® P-2000

#### PPG-30

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (30); Polypropylene glycol (30); PPG 4000

*Definition:* Polymer of propylene oxide

*Formula:*  $H(OCH_2CHCH_3)_nOH$ , avg.  $n = 30$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Defoamer; mold release applics.; chemical intermediates for fatty acid esters; components for urethane resins; antifoam agent in fermentation and in paint formulations, antiblooming agent for pentachlorophenol-treated wood; binder and lubricant for ceramics; plasticizer of resin-treated papers; emollient in cosmetics; provides solvency, low odor, low irritation, low toxicity to personal care prods.; boiler water additive; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.200, 178.3740

*Manuf./Distrib.:* Aldrich; Fluka

*Trade Names:* Dow P4000

#### PPG-34

CAS 25322-69-4 (generic)

*Synonyms:* Polyoxypropylene (34); Polypropylene glycol (34)

*Definition:* Polymer of propylene oxide

*Formula:*  $H(OCH_2CHCH_3)_nOH$ , avg.  $n = 34$

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient, antistat, emulsifier for cosmetics, personal care prods.; syn. lubricant oil and foam modifier for aerosol formulations; in food-pkg. adhesives; defoamer in food-contact paper coatings; plasticizer in food-contact polymers

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.170, 176.200, 178.3740

*Manuf./Distrib.:* Aldrich; Fluka

**PPG 400.** See PPG-9

**PPG 1200.** See PPG-20

**PPG 2000.** See PPG-26

**PPG 4000.** See PPG-30

#### PPG-2-buteth-2

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (2) POP (2) monobutyl ether; POP (2) POE (2) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:*  $C_{14}H_{30}O_5$

*Formula:*  $C_4H_9(OCH_2CHCH_2)_x(OCH_2CH_2)_yOH$ , avg.  $x = 2$ , avg.  $y = 2$

*Uses:* Emollient in cosmetics; food pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.210, 178.3570

#### PPG-2-buteth-3

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* Oxirane, methyl, polymer and oxibane, butyl ether; POE (3) POP (2) monobutyl ether; POP (2) POE (3) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:*  $C_{16}H_{34}O_6$

*Formula:*  $C_4H_9(OCHCH_3CH_2)_x(OCH_2CH_2)_yOH$ , avg.  $x = 2$ , avg.  $y = 3$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 8530 mg/kg; mildly toxic by ing.; skin and severe eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Antistat, emollient, emulsifier in cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, surfactants; solvent for inks and dyes; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 173.340, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-55

#### PPG-3-buteth-5

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (5) POP (3) monobutyl ether; POP (3) POE (5) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:*  $C_{23}H_{48}O_9$

*Formula:*  $C_4H_9(OCHCH_3CH_2)_x(OCH_2CH_2)_yOH$ , avg.  $x = 3$ , avg.  $y = 5$

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 9170 mg/kg, (skin, rabbit) 14 g/kg; mildly toxic by ing. and skin contact; skin irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Antistat, emulsifier, emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, surfactants; solvent for inks and dyes; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-100

#### PPG-5-buteth-7

CAS 9038-95-3 (generic); 9065-63-8 (generic); 74623-31-7 (generic)

*Synonyms:* POE (7) POP (5) monobutyl ether; POP (5) POE (6) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* C<sub>33</sub>H<sub>66</sub>O<sub>13</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 5, avg. y = 7

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 5370 mg/kg; TSCA listed

*Uses:* Emollient; component in demulsifying and wetting formulations; brake and metalworking fluids; rubber and fiber lubricant; textile applics.; defoamer for hot and cold applics., foods, and chemical processing; antistat, emulsifier in cosmetics; boiler water additive for food processing; solvent for inks and dyes; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-170

#### PPG-7-buteth-10

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (10) POP (7) monobutyl ether; POP (7) POE (10) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* C<sub>45</sub>H<sub>92</sub>O<sub>18</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 7, avg. y = 10

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 4000 mg/kg; mod. toxic by ing. and skin contact; skin irritant; TSCA listed

*Uses:* Detergent for toilet cleaners, laundry detergents, emulsion polymerization, metalworking fluids, hydraulic fluids; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; antistat, emulsifier, emollient for cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, surfactants; solvent for inks and dyes; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-260

#### PPG-9-buteth-12

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (12) POP (9) monobutyl ether; POP (9) POE (12) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* (C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> • C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 9, avg. y = 12

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 5370 mg/kg; mildly toxic by ing.; skin irritant; TSCA listed

*Uses:* Antistat, emulsifier, emollient in cosmetics; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, surfactants; solvent for inks and dyes; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-400

#### PPG-12-buteth-16

CAS 9038-95-3 (generic); 9065-63-8 (generic); 74623-31-7 (generic)

*Synonyms:* POE (16) POP (12) monobutyl ether; POP (12) POE (16) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* (C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> • C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 12, avg. y = 16

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 18 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

*Uses:* Defoamer; lubricant; emollient; in demulsifying and wetting formulations; brake fluids; metalworking; rubber lubricant; textiles; fiber lubricant; chemical processing; antistat, emulsifier in cosmetics; boiler water additive for food processing; solvent for inks and dyes; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in

lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-660

#### PPG-15-buteth-20

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POP (15) POE (20) monobutyl ether; POE (20) POP (15) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* (C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> • C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 15, avg. y = 20

*Toxicology:* Irritant; TSCA listed

*Uses:* Antistat, emulsifier in cosmetics; emollient; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PPG-20-buteth-30

CAS 9038-95-3 (generic); 9065-63-8 (generic); 74623-31-7 (generic)

*Synonyms:* POE (30) POP (20) monobutyl ether; POP (20) POE (30) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* (C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> • C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 20, avg. y = 30

*Properties:* Nonionic

*Toxicology:* LD50 (oral, rat) 21 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

*Uses:* Emollient; antistat, emulsifier in cosmetics; defoamer for food processing; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, surfactants; solvent for inks and dyes; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

*Trade Names:* Ucon® 50-HB-2000

#### PPG-24-buteth-27

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (27) POP (24) monobutyl ether; POP (24) POE (27) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* (C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> • C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 24, avg. y = 27

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, dispersant for agric. concs., latex polymerization, mfg. of iodophors for germicidal cleaners; antistat, emulsifier in cosmetics; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210, 178.3570

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PPG-26-buteth-26

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (26) POP (26) monobutyl ether; POP (26) POE (26) monobutyl ether

*Definition:* Polyoxypropylene, polyoxyethylene ether of butyl alcohol

*Empirical:* (C<sub>7</sub>H<sub>14</sub>O<sub>2</sub> • C<sub>6</sub>H<sub>12</sub>O<sub>2</sub>)<sub>x</sub>

*Formula:* C<sub>4</sub>H<sub>9</sub>(OCH<sub>2</sub>CHCH<sub>2</sub>)<sub>x</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>y</sub>OH, avg. x = 26, avg. y = 26

*Properties:* Nonionic

*Toxicology:* Irritant; TSCA listed

*Uses:* Antistat, emulsifier in cosmetics; emollient; superfatting agent; skin lubricant; perfume solubilizer; vehicle for suntan oils and lotions; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §173.310, 175.105, 176.210

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### PPG-28-buteth-35

CAS 9038-95-3 (generic); 9065-63-8 (generic)

*Synonyms:* POE (35) POP (28) monobutyl ether; POP (28) POE (35) monobutyl ether

**Definition:** Polyoxypropylene, polyoxyethylene ether of butyl alcohol

**Empirical:**  $(C_7H_{14}O_2 \cdot C_4H_{12}O_2)_x$

**Formula:**  $C_4H_9(OCH_2CHCH_2)_x(OCH_2CH_2)_yOH$ , avg.  $x = 28$ , avg.  $y = 35$

**Properties:** Nonionic

**Toxicology:** LD50 (oral, rat) 38 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Uses:** Emollient; detergent; defoamer; metalworking and hydraulic fluids; mold release agent; emulsion polymerization; defoamer for food processing; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; lubricant for compressor, rubber, greases, textiles; intermediate for prep. of resins, plasticizers, surfactants; solvent for inks and dyes; antistat, emulsifier in cosmetics; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

**Regulatory:** FDA 21CFR §173.310, 175.105, 176.210, 178.3570

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Ucon® 50-HB-3520

#### PPG-33-buteth-45

CAS 9038-95-3 (generic); 9065-63-8 (generic); 74623-31-7 (generic)

**Synonyms:** POE (45) POP (33) monobutyl ether; POP (33) POE (45) monobutyl ether

**Definition:** Poxoxypropylene, polyoxyethylene ether of butyl alcohol

**Empirical:**  $(C_7H_{14}O_2 \cdot C_4H_{12}O_2)_x$

**Formula:**  $C_4H_9(OCH_2CHCH_2)_x(OCH_2CH_2)_yOH$ , avg.  $x = 33$ , avg.  $y = 45$

**Properties:** Nonionic

**Toxicology:** LD50 (oral, rat) 49 g/kg; mildly toxic by ing.; skin irritant; TSCA listed

**Uses:** Defoamer; lubricant; emollient; in demulsifying and wetting formulations; brake fluids; metalworking; rubber lubricant; textiles; fiber lubricant; defoamer in food processing; chemical processing; antistat, emulsifier in cosmetics; boiler water additive for food processing; solvent for inks and dyes; antifoam in boiler water, latex processing, washing sol'ns., paints, adhesives, salt water evaporators; food-pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

**Regulatory:** FDA 21CFR §173.310, 173.340, 175.105, 176.210, 178.3570

**Manuf./Distrib.:** Aldrich; Fluka; Sigma

**Trade Names:** Ucon® 50-HB-5100

#### PPG-5 butyl ether

CAS 9003-13-8 (generic)

**Synonyms:** POP (5) butyl ether

**Definition:** Polypropylene glycol ether of butyl alcohol

**Formula:**  $C_4H_9(OCH_2CHCH_2)_nOH$ , avg.  $n = 5$

**Properties:** Nonionic

**Toxicology:** LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; insect repellent; antistat in cosmetics

**Manuf./Distrib.:** Aldrich

**Trade Names:** Ucon® LB-65

#### PPG-9 butyl ether

CAS 9003-13-8 (generic)

**Synonyms:** POP (9) butyl ether

**Definition:** Polypropylene glycol ether of butyl alcohol

**Formula:**  $C_4H_9(OCH_2CHCH_2)_nOH$ , avg.  $n = 9$

**Properties:** Nonionic

**Toxicology:** LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics

**Manuf./Distrib.:** Aldrich

**Trade Names:** Ucon® LB-135

#### PPG-15 butyl ether

CAS 9003-13-8 (generic)

**Synonyms:** POP (15) butyl ether

**Definition:** Polypropylene glycol ether of butyl alcohol

**Formula:**  $C_4H_9(OCH_2CHCH_2)_nOH$ , avg.  $n = 15$

**Properties:** Nonionic

**Toxicology:** LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics; food-pkg. adhesives; defoamer for food contact

**Manuf./Distrib.:** Aldrich

**Trade Names:** Ucon® LB-285

#### PPG-18 butyl ether

CAS 9003-13-8 (generic)

**Synonyms:** POP (18) butyl ether; PPG (18) butyl ether

**Definition:** Polypropylene glycol ether of butyl alcohol

**Formula:**  $C_4H_9(OCH_2CHCH_2)_nOH$ , avg.  $n = 18$

**Properties:** Liq.; insol. in water; sol. in alcohol; nonionic

**Toxicology:** LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emollient; lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics; food-pkg. adhesives; defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.210

**Manuf./Distrib.:** Aldrich

**Trade Names:** Ucon® LB-385

**PPG (18) butyl ether.** See PPG-18 butyl ether

#### PPG-22 butyl ether

CAS 9003-13-8 (generic)

**Synonyms:** POP (22) butyl ether

**Definition:** Polypropylene glycol ether of butyl alcohol

**Formula:**  $C_4H_9(OCH_2CHCH_2)_nOH$ , avg.  $n = 22$

**Properties:** Nonionic

**Toxicology:** LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics; food pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Aldrich

**Trade Names:** Ucon® LB-525

#### PPG-24 butyl ether

CAS 9003-13-8 (generic)

**Synonyms:** POP (24) butyl ether

**Definition:** Polypropylene glycol ether of butyl alcohol

**Formula:**  $C_4H_9(OCH_2CHCH_2)_nOH$ , avg.  $n = 24$

**Properties:** Liq.; insol. in water; sol. in alcohol; nonionic

**Toxicology:** LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emollient; lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; surfactant in cosmetics; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, 178.3570

**Manuf./Distrib.:** Aldrich



Trade Names: Ucon® LB-625

**PPG-30 butyl ether**

CAS 9003-13-8 (generic)

Synonyms: POP (30) butyl ether

Definition: Polypropylene glycol ether of butyl alcohol

Formula:  $C_4H_9(OCH_2CH_2)_nOH$ , avg.  $n = 30$

Uses: Antistat in cosmetics; food pkg. adhesives; defoamer in food-contact paper/paperboard; in lubricants for incidental food contact

Regulatory: FDA 21CFR §175.105, 176.210, 178.3570

**PPG-33 butyl ether**

CAS 9003-13-8 (generic)

Synonyms: POP (33) butyl ether; PPG (33) butyl ether

Definition: Polypropylene glycol ether of butyl alcohol

Formula:  $C_4H_9(OCH_2CH_2)_nOH$ , avg.  $n = 33$

Properties: Liq.; insol. in water; sol. in alcohol; nonionic

Toxicology: LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emollient; lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics; defoamer in food-contact coatings and paper/paperboard

Regulatory: FDA 21CFR §166.110, 172.615, 175.105, 175.125, 175.300, 175.380, 175.390, 176.170, 176.200, 176.210, 177.1010, 177.1210, 177.1350, 184.1660, 178.3570

Manuf./Distrib.: Aldrich

Trade Names: Ucon® LB-1145

PPG (33) butyl ether. See PPG-33 butyl ether

**PPG-40 butyl ether**

CAS 9003-13-8 (generic)

Synonyms: POP (40) butyl ether; PPG (40) butyl ether

Definition: Polypropylene glycol ether of butyl alcohol

Formula:  $C_4H_9(OCH_2CH_2)_nOH$ , avg.  $n = 40$

Properties: Liq.; insol. in water; sol. in alcohol; nonionic

Toxicology: LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emollient; lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

Regulatory: FDA 21CFR §175.105, 176.200, 176.210, 178.3570

Manuf./Distrib.: Aldrich

Trade Names: Ucon® LB-1715

PPG (40) butyl ether. See PPG-40 butyl ether

**PPG-53 butyl ether**

CAS 9003-13-8 (generic)

Synonyms: POP (53) butyl ether; PPG (53) butyl ether

Definition: Polypropylene glycol ether of butyl alcohol

Formula:  $C_4H_9(OCH_2CH_2)_nOH$ , avg.  $n = 53$

Properties: Liq.; insol. in water; sol. in alcohol; nonionic

Toxicology: LD50 (oral, rat) 9160 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emollient; lubricant for two-stroke cycle engines, rubber, greases, textiles; reactive intermediate for resins, plasticizers, surfactants; antifoam in boiler water, latex processing; solvent for inks and dyes; antistat in cosmetics; defoamer in food-contact paper coatings; in lubricants for incidental food contact

Regulatory: FDA 21CFR §176.200, 178.3570

Manuf./Distrib.: Aldrich

Trade Names: Ucon® LB-3000

PPG (53) butyl ether. See PPG-53 butyl ether

**PPG-3 diacrylate**

CAS 68901-05-3; 42978-66-5; EINECS/ELINCS 256-032-2

Synonyms: TPGDA; TRPGDA; Acrylic acid, propylenebis (oxypropylene) ester; 2-Propenoic acid, (1-methyl-1,2-ethanediy)bis(oxy(methyl-2,1-ethanediy)) ester; Tripropylene glycol diacrylate

Empirical:  $C_{15}H_{24}O_8$

Formula:  $H_2C=CHCO(OC_3H_6)_3O_2CCH=CH_2$

Properties: M.w. 300.39; dens. 1.030; b.p. > 120 C (1 mm); flash pt. 110 C; ref. index 1.4500

Toxicology: LD50 (oral, rat) 6800 mg/kg; low toxicity by ing.; skin irritant; TSCA listed

Precaution: Hygroscopic

Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating vapors

Uses: Reactive diluent for radiation-curing systems, inks, coatings, lacquers, floor tiles, wood coatings and fillers, adhesives, textile finishes, rubber compds.

Manuf./Distrib.: Aldrich; CPS

Trade Names: SR 306HP

Trade Names Containing: CN 104 A80; CN 120 A75; CN 963 A80; CN 964 A85; CN 970 A60; CN 971 A80; CN 973 A80; CN 981 A75; CN 982 A75; Ebecryl® 585; Photomer® 3038; Santolink® AM-129

PPG-2 dibenzoate. See Dipropylene glycol dibenzoate

PPG (2) dibenzoate. See Dipropylene glycol dibenzoate

**PPG-17 dioleate**

CAS 26571-49-3 (generic)

Synonyms: POP (17) dioleate

Definition: Polypropylene glycol diester of oleic acid

Formula:  $CH(CH_2)_7CH_2CH(CH_2)_7CO(OCH_2CH_2)_nOCO(CH_2)_7CH_2CH_2CH_2(CH_2)_7$ , avg.  $n = 17$

Uses: Emollient in cosmetics; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

Regulatory: FDA 21CFR §175.300, 176.210

**PPG-66 glycereth-12**

CAS 9082-00-2 (generic); 51258-15-2 (generic)

Definition: Polyoxypropylene, polyoxyethylene ether of glycerin

Formula:  $C_3H_7O_2(OCH_2CH_2)_x(OCH_2CH_2)_yOH$ , avg.  $x = 66$ , avg.  $y = 12$

Properties: Nonionic

Toxicology: TSCA listed

Uses: Emulsifier in cosmetics; provides solvency, low odor, low irritation, low toxicity to personal care prods.; defoamer for cutting and drilling fluids, fermentation, chem. mfg., acid gas treatment, pulp and paper, and textiles

Manuf./Distrib.: Aldrich

**PPG-2 laurate**

Synonyms: PPG (2) laurate; POP (2) monolaurate

Definition: Polypropylene glycol ester of lauric acid

Properties: Nonionic

Uses: W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

PPG (2) laurate. See PPG-2 laurate

**PPG-2 laurate SE**

Properties: Anionic

Uses: W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

**PPG-2 methyl ether**

CAS 13429-07-7; 34590-94-8; EINECS/ELINCS 236-547-9; 252-104-2

Synonyms: DPGME; DPM; DPMG; 1,4-Dimethyl-3,6-dioxo-1-heptanol; Dipropylene glycol methyl ether; Dipropylene glycol monomethyl ether; Methoxy dipropylene glycol; 1-(2-Methoxyisopropoxy)-2-propanol; (2-Methoxymethylethoxy) propanol; 1-(2-Methoxy-1-methylethoxy)-2-propanol; Methoxypropoxypropanol; POP (2) methyl ether

Classification: Aliphatic ether alcohol

Definition: Polypropylene glycol ether of methyl alcohol

Empirical:  $C_7H_{14}O_3$

Formula:  $CH_3(OCH_2CH_2)_nOH$ , avg.  $n = 2$

Properties: Colorless clear liq.; mild ethereal sweet odor; sol. in water, acetone, ethanol, benzene,  $CCl_4$ , ether, methanol, monochlorobenzene,

petrol, ether, VM&P naphtha; misc. with most org. solvs.; m.w. 148.23; dens. 0.951; f.p. -83 C; b.p. 190 C; flash pt. (CC) 86 C; ref. index 1.4205  
*Toxicology:* ACGIH TLV/TWA 100 ppm (skin); STEL 150 ppm (skin); LD50 (oral, rat) 5660 mg/kg, (skin, rat) 9500 mg/kg; mildly toxic by ing. and skin contact; skin and eye irritant; human eye irritant; causes tears; mild allergen; TSCA listed

*Precaution:* Combustible exposed to heat or flame; can react with oxidizing materials

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke, irritating fumes

NFPA: Health 0; Flammability 2; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight

*Uses:* Solvent for paints, lacquers, resins, dyes, oils/greases, cellulose, cleaners, inks, cosmetics, agric., epoxy laminates, adhesives, floor polish, fuel additives, antifreeze, oil field, mining, and electronic chems.; chem. intermediate applies.; heat transfer fluid; wetting agent, soil penetrant in cleaners; in food-pkg. adhesives; adjuvant in silicides in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.300, 181.22, 181.30

*Manuf./Distrib.:* Aldrich; Ashland; Celanese; Fluka; Oxiteno; Van Waters & Rogers

*Trade Names Containing:* Surfynol® 104DPM

### PPG-3 methyl ether

CAS 25498-49-1; EINECS/ELINCS 243-734-9

*Synonyms:* TPGME; TPM; (2-(2-Methoxymethylethoxy) methylethoxy) propanol; 3-(3-(3-Methoxypropoxy) propoxy) propan-1-ol; Polyoxypropylene (3) methyl ether; PPG (3) methyl ether; Propanol, 3-(3-(3-methoxypropoxy) propoxy)-; Propanol, (2-(2-methoxymethylethoxy) methylethoxy)-; Tripropylene glycol methyl ether; Tripropylene glycol mono-methyl ether

*Classification:* Aliphatic ether alcohol

*Definition:* Polypropylene glycol ether of methyl alcohol

*Empirical:* C<sub>10</sub>H<sub>22</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(OCHCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 3

*Properties:* Colorless clear liq.; sl. sweetish ether odor; sol. in water, acetone, ethanol, benzene, CCl<sub>4</sub>, ether, methanol, monochlorobenzene, VM&P naphtha; misc. with most org. solvs.; m.w. 206.32; dens. 0.967; f.p. -60 C; b.p. 243 C; pour pt. -78 C; flash pt. (CC) 121 C; ref. index 1.4300

*Toxicology:* LD50 (oral, rat) 3200 mg/kg; LDLo (skin, rabbit) 14,505 mg/kg; mod. toxic by ing.; mild eye irritant; vapor inh. nonirritating; high concs. of mists can irritate nose/throat, cause CNS depression, nausea, headache, weakness, fatigue; may cause wt. loss, sleepiness; TSCA listed

*Precaution:* Incompat. with oxidizing agents; increases risk of fire and explosion

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Store in a cool, dry area, out of direct sunlight

*Uses:* High-boiling solvent for paints, lacquers, resins, dyes, oils, greases, cellulose, cleaners, inks, functional fluids, agric., cosmetics, epoxy laminates, adhesives, floor polish, fuel additives, antifreeze, oil field, mining, and electronic chems.; chemical intermediate; component of hydraulic brake fluids; flotation frothing agent; wetting agent, soil penetrant in cleaners; in food-pkg. adhesives; adjuvant in silicides in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.300, 181.22, 181.30

*Manuf./Distrib.:* Aldrich; Oxiteno

*Trade Names Containing:* Metasol® CB-220

PPG (3) methyl ether. See PPG-3 methyl ether

PPG (2) monooleate. See PPG-2 oleate

PPG (26) monooleate. See PPG-26 oleate

PPG (36) monooleate. See PPG-36 oleate

PPG (2) monostearate. See PPG-2 stearate

### PPG-2 oleate

*Synonyms:* Dipropylene glycol monooleate; POP (2) monooleate; PPG (2) monooleate

*Definition:* Polypropylene glycol ester of oleic acid

*Properties:* Nonionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting

oils, polishes, emulsion cleaners, rubber latex, wool lubricants

### PPG-26 oleate

CAS 31394-71-5 (generic)

*Synonyms:* POP (26) monooleate; PPG (26) monooleate

*Definition:* Polypropylene glycol ester of oleic acid

*Formula:* CH<sub>2</sub>(CH<sub>2</sub>)<sub>n</sub>CH=CH(CH<sub>2</sub>)<sub>n</sub>CO(OCHCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 26

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient, lubricant, defoamer, viscosity control agent, dispersant, spreading agent in cosmetics and topical pharmaceuticals; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.210; FDA approved for topicals

### PPG-36 oleate

CAS 31394-71-5 (generic)

*Synonyms:* POP (36) monooleate; PPG (36) monooleate

*Definition:* Polypropylene glycol ester of oleic acid

*Formula:* CH<sub>2</sub>(CH<sub>2</sub>)<sub>n</sub>CH=CH(CH<sub>2</sub>)<sub>n</sub>CO(OCHCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 36

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient, dispersant, spreading agent in cosmetics, industrial lubricants, hydraulic fluids; oil-based coatings; visc. depressant for PVC; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.300, 176.210

### PPG-2 oleate SE

*Properties:* Anionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

### PPG-2 stearate

*Synonyms:* Dipropylene glycol monostearate; POP (2) monostearate; PPG (2) monostearate

*Definition:* Polypropylene glycol ester of stearic acid

*Properties:* Nonionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

### PPG-2 stearate SE

*Properties:* Anionic

*Uses:* W/o emulsifier, dispersant, antistat for textile, paper processing, cutting oils, polishes, emulsion cleaners, rubber latex, wool lubricants

### PPG-3 trimethylolpropane triacrylate

*Synonyms:* Propoxylated 3 trimethylolpropane triacrylate

*Uses:* In acrylics, adhesives, glass/metal/paper/release/textile/wood coatings, electronics, inks

*Trade Names:* SR 492

### PPG-6 trimethylolpropane triacrylate

*Synonyms:* Propoxylated 6 trimethylolpropane triacrylate

*Uses:* In acrylics, adhesives, glass/metal/paper/release/textile/wood coatings, electronics, inks, paints, photopolymers

*Trade Names:* CD 501

**Precipitated barium sulfate.** See Barium sulfate

**Precipitated calcium carbonate.** See Calcium monocarbonate

**Precipitated calcium sulfate.** See Calcium sulfate dihydrate

**Precipitated chalk.** See Calcium monocarbonate

**Precipitated silica.** See Silica, amorphous; Silica, hydrated

**Precipitated sulfur.** See Sulfur

**Precipitated zinc sulfide.** See Zinc sulfide

**Prepared chalk.** See Calcium monocarbonate; Whiting

**Primary ammonium phosphate.** See Ammonium phosphate

**Primary amyl alcohol.** See n-Amyl alcohol

**Primary decyl alcohol.** See Decyl alcohol

**Process white.** See Barium sulfate

**Propanal, 2,3-dibromo-.** See 2,3-Dibromopropionaldehyde

**1-Propanaminium, N-(2-hydroxyethyl)-N,N-dimethyl-3-(1-oxooctadecyl) amino]-, nitrate.** See Stearamidopropyl dimethyl-2-hydroxyethyl ammonium nitrate

**Propane, 2,2-bis(p-(2,3-epoxypropoxy) phenyl)-.** See Bisphenol A diglycidyl

- ether
- 1,2-Propanediol.** See Propylene glycol
- Propane-1,2-diol.** See Propylene glycol
- 1,2(or 3)-Propanediol, 1-acrylate.** See Hydroxypropyl acrylate
- Propane-1,2-diol alginate.** See Propylene glycol alginate
- 1,3-Propanediol, 2-bromo-2-nitro.** See 2-Bromo-2-nitropropane-1,3-diol
- 1,2-Propanediol carbonate.** See Propylene carbonate
- 1,2-Propanediol, 2-methyl, monomethacrylate.** See Hydroxypropyl methacrylate
- 1,2-Propanediol monomethyl ether acetate.** See Propylene glycol methyl ether acetate
- 1,2-Propanediol monostearate.** See Propylene glycol stearate
- 1,2-Propanediyl carbonate.** See Propylene carbonate
- Propanenitrile, 2,2'-azobis (2-methyl)-.** See 2,2'-Azobisisobutyronitrile
- 1-Propanesulfonic acid, 2-hydroxy-3-(2-propenyloxy)-, monosodium salt.** See Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate
- 1,2,3-Propanetricarboxylic acid, 2-(acetyloxy)-, tributyl ester.** See Acetyl tributyl citrate
- 1,2,3-Propanetriol octadecanoate.** See Glyceryl stearate
- 1,2,3-Propanetriol triacetate.** See Triacetin
- 1,2,3-Propanetriol tribenzoate.** See Glyceryl tribenzoate
- 1,2,3-Propanetriol trioctadecanoate.** See Tristearin
- Propanol-1.** See Propyl alcohol
- 1-Propanol.** See Propyl alcohol
- Propan-1-ol.** See Propyl alcohol
- 2-Propanol.** See Isopropyl alcohol
- Propan-2-ol.** See Isopropyl alcohol
- n-Propanol.** See Propyl alcohol
- 2-Propanol, 1-methoxy.** See Methoxyisopropanol
- Propanol, (2-(2-methoxymethylethoxy) methylethoxy)-.** See PPG-3 methyl ether
- Propanol, 3-(3-(3-methoxypropoxy) propoxy)-.** See PPG-3 methyl ether
- 2-Propanol, 2-methyl-.** See t-Butyl alcohol
- 2-Propanol, 1,1'-oxydi-.** See Dipropylene glycol
- Propanone.** See Acetone
- 2-Propanone.** See Acetone
- Propathene.** See Polypropylene
- Prop-2-enal.** See Acrolein
- 2-Propenal.** See Acrolein
- Propenamide.** See Acrylamide
- 2-Propenamide.** See Acrylamide
- 2-Propenamide, homopolymer.** See Polyacrylamide
- 2-Propenamide, polymer with 2-butenamide and/or alkylpropenamide.** See Acrylamides copolymer
- 2-Propenamide, polymer with 2-propenoic acid.** See Acrylic acid/acrylamide copolymer
- Propenamide, polymer with propenoic acid, butenoic acid, and/or alkyl propenoates.** See Acrylates/acrylamide copolymer
- 2-Propenamide-2-propenoic acid polymer.** See Acrylic acid/acrylamide copolymer
- 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride.** See Dimethyl diallyl ammonium chloride
- 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer.** See Polyquaternium-6
- 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, polymer with 2-propenamide.** See Polyquaternium-7
- Propene acid.** See Acrylic acid
- 1-Propene, homopolymer.** See Polypropylene
- 1-Propene, 2-methyl-, homopolymer.** See Polyisobutene
- Propene, 2-methyl-, polymers.** See Polyisobutene
- Propenenitrile.** See Acrylonitrile
- 2-Propenenitrile.** See Acrylonitrile
- Propenenitrile copolymer.** See Acrylonitrile copolymer
- 2-Propenenitrile, homopolymer.** See Polyacrylonitrile
- 2-Propenenitrile, polymer with 1,3-butadiene.** See Butadiene/acrylonitrile copolymer
- Propene polymer.** See Polypropylene
- Propene polymers.** See Polypropylene
- Propenoic acid.** See Acrylic acid
- 2-Propenoic acid.** See Acrylic acid
- Propenoic acid amide.** See Acrylamide
- 2-Propenoic acid, n-butyl ester.** See Butyl acrylate
- 2-Propenoic acid, 2-(diethylamino)ethyl ester.** See Diethylaminoethyl acrylate
- 2-Propenoic acid, 2-(dimethylamino) ethyl ester.** See Dimethylaminoethyl acrylate
- 2-Propenoic acid with ethene.** See Ethylene/acrylic acid copolymer
- 2-Propenoic acid, ethyl ester.** See Ethyl acrylate
- 2-Propenoic acid, ethyl ester, homopolymer.** See Polyethylacrylate
- 2-Propenoic acid, 2-ethylhexyl ester.** See Octyl acrylate
- 2-Propenoic acid 1,6-hexanediyl ester.** See 1,6-Hexanediol diacrylate
- 2-Propenoic acid, homopolymer.** See Polyacrylic acid
- 2-Propenoic acid, homopolymer, ammonium salt.** See Ammonium polyacrylate
- 2-Propenoic acid, 2-hydroxyethyl ester.** See 2-Hydroxyethyl acrylate
- 2-Propenoic acid-2-(hydroxymethyl)-2-(((1-oxo-2-propenyl) oxy) methyl)-1,3-propanediyl ester.** See Pentaerythrityl triacrylate
- 2-Propenoic acid isodecyl ester.** See Isodecyl acrylate
- 2-Propenoic acid, 2-methyl-.** See Methacrylic acid
- 2-Propenoic acid, 2-methyl-, 2-(diethylamino) ethyl ester.** See Diethylaminoethyl methacrylate
- Propenoic acid methyl ester.** See Methyl acrylate
- 2-Propenoic acid methyl ester.** See Methyl acrylate
- 2-Propenoic acid, 2-methyl-, 1,2-ethanediylbis (oxy-2,1-ethanediyl) ester.** See PEG-3 dimethacrylate
- 2-Propenoic acid, (1-methyl-1,2-ethanediyl)bis(oxy(methyl-2,1-ethanediyl)) ester.** See PPG-3 diacrylate
- 2-Propenoic acid, 2-methyl-, ethyl ester.** See Ethyl methacrylate
- 2-Propenoic acid, 2-methyl-, hexadecyl ester.** See Cetyl methacrylate
- 2-Propenoic acid, 2-methyl-, homopolymer, sodium salt.** See Sodium polymethacrylate
- 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester.** See 2-Hydroxyethyl methacrylate
- 2-Propenoic acid, 2-methyl-, 2-hydroxymethylethyl ester.** See Hydroxypropyl methacrylate
- 2-Propenoic acid, 2-methyl-, 2-hydroxypropyl ester.** See 2-Hydroxypropyl methacrylate
- 2-Propenoic acid, 2-methyl-, methyl ester.** See Methyl methacrylate
- 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer.** See Polymethyl methacrylate
- 2-Propenoic acid, 2-methyl-, monoester with 1,2-propanediol.** See Hydroxypropyl methacrylate
- 2-Propenoic acid, 2-methyl-, oxybis (2,1-ethanediyl)oxy-2,1-ethanediyl) ester.** See PEG-4 dimethacrylate
- 2-Propenoic acid, 2-methyl-, polymer with 1-ethenyl-2-pyrrolidinone and ethyl 2-methyl-2-propenoate.** See Acrylates/PVP copolymer
- 2-Propenoic acid, 2-methyl-, polymer with ethyl 2-propenoate and methyl 2-methyl-2-propenoate.** See Acrylates copolymer
- 2-Propenoic acid, 2-methyl-, 2-sulfoethyl ester, sodium salt.** See Sodium 2-sulfoethyl methacrylate
- 2-Propenoic acid, 2-methyl, 3-sulfopropyl ester, potassium salt.** See Potassium sulfopropyl methacrylate
- 2-Propenoic acid, monoester with 1,2-propanediol.** See Hydroxypropyl acrylate
- 2-Propenoic acid, octyl ester.** See Octyl acrylate
- 2-Propenoic acid, oxybis (2,1-ethanediyl)oxy-2,1-ethanediyl) ester.** See PEG-4 diacrylate
- 2-Propenoic acid, 2-phenoxyethyl ester.** See 2-Phenoxyethyl acrylate
- Propenoic acid polymer.** See Polyacrylic acid
- 2-Propenoic acid, polymer with ethene.** See Ethylene/acrylic acid copolymer
- 2-Propenoic acid, polymer with ethene and ethenyl acetate.** See Ethylene/acrylic acid/vinyl acetate copolymer
- 2-Propenoic acid, polymer with 2-propenamide.** See Acrylic acid/acrylamide copolymer
- Propenoic acid, polymers, homopolymer.** See Polyacrylic acid
- Propionaldehyde, 2,3-dibromo-.** See 2,3-Dibromopropionaldehyde
- Propionic acid, 2-methylene-.** See Methacrylic acid
- Propionitrile, 2,2'-azobis (2-methyl)-.** See 2,2'-Azobisisobutyronitrile
- 2-Propoxyethanol.** See Ethylene glycol propyl ether
- Propoxylated 3 trimethylolpropane triacrylate.** See PPG-3 trimethylolpropane triacrylate
- Propoxylated 6 trimethylolpropane triacrylate.** See PPG-6 trimethylolpropane triacrylate

## Propyl acetate

CAS 109-60-4; EINECS/ELINCS 203-686-1; UN No. 1276 (DOT); FEMA 2925

**Synonyms:** Acetic acid n-propyl ester; Acetic acid propyl ester; 1-Acetoxypropane; n-Propyl acetate; 1-Propyl acetate; n-Propyl ethanoate

**Classification:** Sat. aliphatic carboxylic acid ester

**Definition:** Ester of propyl alcohol and acetic acid

**Empirical:** C<sub>5</sub>H<sub>10</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>COOCH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>

**Properties:** Colorless liq., pear-like odor; sol. in alcohols, ketones, esters, hydrocarbons, diethyl ether, castor oil, linseed oil; mod. sol. in water; m.w. 102.14; dens. 0.887 (20/20 C); vapor pressure 40 mm (28.8 C); m.p. -92 C; b.p. 99-102 C; flash pt. (CC) 14 C; ref. index 1.384 (20 C); surf. tens. 24.3 dynes/cm (20 C)

**Toxicology:** ACGIH TLV/TWA 200 ppm; STEL 250 ppm; LD50 (oral, rat) 9370 mg/kg, (IP, mouse) 1420 mg/kg; mod. toxic by IP and subcut. routes; mildly toxic by ing., inh.; may be irritating to skin, mucous membranes; narcotic in high concs.; human systemic effects by inh. (lacrimation, cough); TSCA listed

**Precaution:** Highly flamm.; dangerous fire hazard exposed to heat, flame, oxidizers; explosive as vapor exposed to heat, flame; incompat. with oxidizing agents, strong acids, potassium t-butoxide, reactive nitrogen compds.

**Hazardous Decom. Prods.:** N-Propanol, acetic acid; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight and away from heat and ignition sources

**Uses:** Syn. flavoring agent for foods, pharmaceuticals; solvent for nitrocellulose and other cellulose derivs., natural and syn. resins, lacquers, plastics, printing inks, chlorinated rubber, heat-reactive phenolics, cosmetics; fragrance ingred. in perfumes; organic synthesis; lab reagent; in recovery of acetic acid from dil. aq. sol'ns.; in cellophane for food pkg.

**Use Level:** 4 ppm (nonalcoholic beverages), 16 ppm (ice cream), 12 ppm (candy), 14 ppm (baked goods)

**Regulatory:** FDA 21CFR §172.515, 177.1200; FEMA GRAS

**Manuf./Distrib.:** A.P.; Aldrich; Alfrebro; Allchem Ind.; Ashland; BASF; BP Chems. Ltd; Bencorp Int'l.; Berje; Celanese; Coyne; Eastman; Fluka; G.J. Chem.; Grau Aromatics; HCH Marketing; HCl Chemtech Distribution; Houghton Chem.; Hukill; JLM Marketing; Penta Mfg.; Quaker City; Union Carbide; Van Waters & Rogers

**Trade Names Containing:** Metalure® L-54893

**1-Propyl acetate.** See Propyl acetate

**2-Propyl acetate.** See Isopropyl acetate

**n-Propyl acetate.** See Propyl acetate

## Propyl alcohol

CAS 71-23-8; EINECS/ELINCS 200-746-9; UN No. 1274 (DOT); FEMA 2928

**Synonyms:** Albalcol; Alcohol C-3; Ethyl carbinol; 1-Hydroxypropane; Normal propyl alcohol; Optal; 1-Propanol; Propanol-1; Propan-1-ol; n-Propanol; n-Propyl alcohol; 1-Propyl alcohol; Propylic alcohol

**Classification:** Aliphatic alcohol

**Empirical:** C<sub>3</sub>H<sub>8</sub>O

**Formula:** CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>OH

**Properties:** Colorless clear liq., alcoholic and sl. stupefying odor; very sol. in benzene; sol. in water, ethyl alcohol, ether, acetone, propylene glycol; misc. with oxygenated solvs.; dissolves fat; m.w. 60.10; sp.gr. 0.804 (20/4 C); vapor pressure 10 mm Hg (14.7 C); m.p. -127 C; b.p. 97-98 C; flash pt. (TCC) 23 C; ref. index 1.385 (20 C)

**Toxicology:** ACGIH TLV/TWA 200 ppm; STEL 250 ppm (skin); LD50 (oral, rat) 1.87 g/kg, (IP, rat) 2164 mg/kg, (IV, rat) 590 mg/kg; poison by subcut. route; mod. toxic by inh., ing., IP, IV routes; toxic by skin absorption; skin and severe eye irritant; drying effect on skin may lead to cracking, fissuring, and infections; mildly irritating to mucous membranes; questionable carcinogen; mutagenic data; TSCA listed

**Precaution:** Highly flamm.; dangerous fire hazard exposed to heat, flame, oxidizers; explosive limits in air 2-13%; incompat. with oxidizing agents (increases risk of fire and explosion); ignites on contact with potassium t-butoxide

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

**Storage:** Store in tightly closed containers in cool, well-ventilated area separate from work place; limit quantities in use

**Uses:** Solvent for natural and syn. resins, cellulose esters and ethers, paints, printing inks, waxes, veg. oils; organic synthesis; chemical intermediate; in polishes; brake fluids; degreasing solvent; antiseptic; antifoam, solvent in cosmetics; syn. flavoring for foods, pharmaceuticals; in food-pkg. adhesives; in cellophane for food pkg.

**Use Level:** 0.50-5.0 ppm (nonalcoholic beverages), 0.50 ppm (ice cream, ices, candy), 0.65 ppm (baked goods)

**Regulatory:** FDA 21CFR §172.515, 175.105, 177.1200, 573.880; FEMA GRAS; FDA approved for topicals; BP compliance

**Manuf./Distrib.:** Aldrich; Alfrebro; Allchem Ind.; Amyl; Ashland; Baychem; Burdick & Jackson; Celanese; Chemcentral; Coyne; Eastman; Fluka; Grau Aromatics; Houghton Chem.; Hukill; J.T. Baker; Lyondell; Mallinckrodt Baker; Penta Mfg.; Romil Ltd; Ruger; Samson; Sigma; Spectrum Quality Prods.; Sunnyside; Union Carbide; Van Waters & Rogers

**Trade Names Containing:** Surfynol® 104NP

**1-Propyl alcohol.** See Propyl alcohol

**n-Propyl alcohol.** See Propyl alcohol

**s-Propyl alcohol.** See Isopropyl alcohol

**Propyl carbinol.** See Butyl alcohol

**Propyl 'Cellosolve'.** See Ethylene glycol propyl ether

**Propylene aldehyde.** See Acrolein

## Propylene carbonate

CAS 108-32-7; EINECS/ELINCS 203-572-1

**Synonyms:** Carbonic acid, cyclic propylene ester; Carbonic acid, 1,2-propylene glycol ester; 1,3-Carbonyl dioxopropane; Cyclic methylethylene carbonate; Cyclic propylene carbonate; Cyclic 1,2-propylene carbonate; 1,3-Dioxolan-2-one, 4-methyl; Dipropylene carbonate; 4-Methyl-1,3-dioxolan-2-one; 1-Methyl ethylene carbonate; 1,2-Propanediol carbonate; 1,2-Propanediyl carbonate; 1,2-Propylene carbonate; Propylene glycol cyclic carbonate

**Classification:** Organic compd.; carbonic acid ester

**Empirical:** C<sub>4</sub>H<sub>6</sub>O<sub>3</sub>

**Properties:** Colorless clear liq.; odorless; very sol. in water; misc. with acetone, benzene, chloroform, ether, ethyl acetate; m.w. 102.10; dens. 1.2069 (20/20 C); vapor pressure 0.03 mm Hg (20 C); m.p. -48.8 C; b.p. 242.1 C; flash pt. (OC) 135 C; ref. index 1.422 (20 C); pH 8.8; can remain liq. (supercools) below its f.p.

**Toxicology:** LD50 (oral, rat) 29 g/kg, (skin, rabbit) 20 ml/kg; mildly toxic by ingestion; human skin irritant; eye irritant; TSCA listed

**Precaution:** Combustible exposed to heat or flame; incompat. with strong oxidizing agents (increases fire risk), acids, bases, reducing agents (decomp. can occur)

**Hazardous Decom. Prods.:** May produce propylene oxide if an acid, base, or salt is present in an aq. sol'n. of propylene carbonate; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 1; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight; avoid generating mist

**Uses:** Solvent for inorg. salts, plasticizers, syn. fibers, polymers, pigments, dyes, paints; extraction solvent; polar process solvent; intermediate for organic syntheses; reactive diluent for urethane foams and coatings; foundry sand binders; textiles; natural gas purification; bentonite/montmorillonite gellant (greases, cosmetics); hydraulic fluid additive; plasticizer; cosmetics lubricant, solvent; flavoring agent for pharmaceuticals; antifoam for antifreeze; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105; FDA approved for topicals

**Manuf./Distrib.:** Aceto; Aldrich; Allchem Ind.; Ashland; BASF AG; Bencorp Int'l.; Degussa-Hüls AG; Ferro/Grant; Fluka; Great Western; Huntsman; Itochu Spec. Chems.; Loos & Dilworth; Lyondell; Romil Ltd; Ruger; Sigma; Spectrum Quality Prods.; Van Waters & Rogers

**Trade Names Containing:** SR-1010; SR-1011

**1,2-Propylene carbonate.** See Propylene carbonate

**Propylenedicarboxylic acid.** See Itaconic acid

## Propylene glycol

CAS 57-55-6; 4254-15-3 (+); 4254-14-2 (-); 4254-16-4 (±); EINECS/ELINCS 200-338-0; FEMA 2940

**Synonyms:** 1,2-Dihydroxypropane; 2-Hydroxypropanol; Methyl ethylene glycol; Methyl ethyl glycol; Methyl glycol; Monopropylene glycol; 1,2-Propanediol; Propane-1,2-diol;  $\alpha$ -Propylene glycol; 1,2-Propylene glycol; Trimethyl glycol

**Classification:** Aliphatic dihydric alcohol

**Empirical:** C<sub>3</sub>H<sub>8</sub>O<sub>2</sub>

**Formula:** CH<sub>3</sub>CHOHCH<sub>2</sub>OH

**Properties:** Colorless clear visc. liq., odorless, sl. acrid taste; sol. in water, essential oils, acetone, chloroform, ether, ethanol; misc. with oxygenated solvs.; m.w. 76.11; dens. 1.0362; vapor pressure 0.08 mm (20 C); m.p. -60 C; b.p. 188.2 C; flash pt. (OC) 99 C

**Toxicology:** LD50 (oral, rat) 25 ml/kg, (IP, rat) 6660 mg/kg, (IV, rat) 6423 mg/kg, (skin, rabbit) 20,800 mg/kg; sl. toxic by ing., skin contact, IP, IV, subcut. routes; eye and human skin irritant; human systemic effects by ing. (anesthesia, convulsions, EEG changes); experimental teratogen, reproductive effector; mutagenic data: TSCA listed

**Precaution:** Combustible exposed to heat or flame; explosive as vapor exposed to heat or flames; explosive limits 2.6-12.6%; reactive with oxidizers; can increase risk of fire and explosion

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Storage:** Store in cool, dry area; hygroscopic

**Uses:** Intermediate in synthesis of org. compds., polyester and alkyd resins, polypropylene glycol; solvent, emulsifier in paints, foods, pharmaceuticals; substitute for ethylene glycol and glycerol; hygroscopic agent; energy source in animal feed; plasticizer for adhesives, cork, paper prods.; mold growth and fermentation inhibitor; bactericide (air sterilization); component of antifreeze, hydraulic and brake fluids; humectant, solvent in cosmetics; pharmaceutical vehicle, solvent; protectant in hemorrhoidal prods.; plasticizer in food-contact coatings and rubber articles for repeated use

**Use Level:** Limitation 5% (alcoholic beverages), 24% (confections), 2.5% (frozen dairy prods.), 97% (seasonings), 5% (nuts), 2% (other food), 40 ppm (wine); ADI 25 mg/kg (FAO/WHO); 10-25% (oral sol'ns.), 10-80% (parenterals), 5-80% (topicals)

**Regulatory:** FDA 21CFR §169.175, 169.176, 169.177, 169.178, 169.180, 169.181, 175.300, 177.2600, 178.3300, 184.1666, 582.4666, GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051; EPA reg., approved for some drugs; Japan approved with limitations; Europe listed; FEMA GRAS; FDA approved for orals, parenterals, topicals; USP/NF, BP, Ph.Eur., JP compliance

**Manuf./Distrib.:** ADA Int'l.; AMRESO; Aldrich; Allchem Ind.; Arch Chems./Perf. Urethanes; Asahi Denka Kogyo; Ashland; BP Chems. Ltd; Baychem; C.P. Hall; Chemcentral; Coyne; Degussa-Hüls AG; Dow; Eastman; Fluka; Focus; Harcros; Houghton Chem.; Hukill; Huntsman; J.T. Baker; Lyondell Petrochem.; Lyondell; Miljac; Primachem; R.I.T.A.; Romil Ltd; Ruger; Sal Chem.; Samson; Schaefer Tech.; Seeler Ind.; Sigma; Spectrum Quality Prods.; Sunnyside; Union Carbide; Van Waters & Rogers; Veckridge; Westco; Whyte Chems. Ltd

**Trade Names Containing:** Aerosol® OT-70 PG; Aerosol® OT-75-PG; Ancowet S-70PG; Arquad® 2HT-75PG; Burcosoft LEQ; DeWET SDO-70PG; Geropon® 99; Geropon® SS-O-70PG; Monawet MO-70R; Monawet MO-84R2W; Nipacide® BIT 20; Pentasol DO-70PG; Proxel® XL2; Rhodorsil® Emulsion 865A; Rhodorsil® Emulsion 878; Surfynol® 104PG-50; Surfynol® PG-50; Troysan® 586

**1,2-Propylene glycol.** See Propylene glycol

**$\alpha$ -Propylene glycol.** See Propylene glycol

**Propylene glycol acrylate.** See Hydroxypropyl acrylate

### Propylene glycol alginate

CAS 9005-37-2; FEMA 2941

**Synonyms:** Alginic acid, ester with 1,2-propanediol; Hydroxypropyl alginate; Propane-1,2-diol alginate

**Definition:** Mixture of propylene glycol esters of alginic acid

**Empirical:** C<sub>72</sub>H<sub>112</sub>O<sub>56</sub>

**Formula:** (C<sub>9</sub>H<sub>14</sub>O<sub>7</sub>)<sub>8</sub>

**Properties:** Wh. to ysh. fibrous or gran. powd., pract. odorless and tasteless; sol. in water, dil. organic acids, hydroalcoholic mixts.; m.w. 1873.6; DE 0.75-0.85

**Toxicology:** LD50 (oral, rat) 7200 mg/kg; mildly toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Food additive (emulsifier, flavoring adjuvant, formulation aid, stabilizer, surfactant, thickener, solvent); gellant; film-former; emulsifier; suspending agent; reactive with milk; binder, visc. control agent in cosmetics; cosmetics/pharmaceuticals (lotions, vitamin suspension); industrial (paper coatings, adhesives, textile printing, dyeing, explosives); pharmaceutical solvent; in paper/paperboard in contact with aq./fatty foods

**Use Level:** Limitation 0.5% (frozen dairy desserts), 0.5% (baked goods), 0.9% (cheese), 1.1% (fats/oils), 0.6% (gelatins, puddings), 0.5% (gravies), 0.4% (jams/jellies), 0.6% (condiments), 1.7% (seasonings), 0.3% (other foods); ADI 0-25 mg/kg (EU)

**Regulatory:** FDA 21CFR §133.133, 133.134, 133.162, 133.178, 133.179, 172.210, 172.820, 172.858, 173.340, 176.170, GRAS; FEMA GRAS; Japan approved (1% max.); Europe listed; UK approved; FDA approved for orals; USP/NF compliance

**Manuf./Distrib.:** Ashland; B2E; CarboMer; FMC Biopolymer; Frutarom Meer; Monsanto; Spectrum Quality Prods.

**Trade Names:** Colloid 602; KELCOLOID® DH; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S

**Propylene glycol, caprylate caprate diester.** See Propylene glycol dicaprylate/dicaprate

**Propylene glycol cyclic carbonate.** See Propylene carbonate

### Propylene glycol dicaprylate

CAS 7384-98-7; EINECS/ELINCS 230-962-9

**Synonyms:** Octanoic acid, 1-methyl-1,2-ethanediyl ester

**Definition:** Diester of propylene glycol and caprylic acid

**Empirical:** C<sub>19</sub>H<sub>36</sub>O<sub>4</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>6</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OCO(CH<sub>2</sub>)<sub>6</sub>CH<sub>3</sub>

**Toxicology:** TSCA listed

**Uses:** Emollient, visc. control agent, solvent, solubilizer for cosmetics, pharmaceuticals; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §172.856, 173.340, 175.300, 176.170, 176.210, 177.2800

**Propylene glycol dicaprylate-caprate.** See Propylene glycol dicaprylate/dicaprate

### Propylene glycol dicaprylate/dicaprate

CAS 58748-27-9; 68583-51-7; 68988-72-7; EINECS/ELINCS 271-516-3

**Synonyms:** Caprylic, capric acid, propylene glycol diester; Decanoic acid, 1-methyl-1,2-ethanediyl ester mixed with 1-methyl-1,2-ethanediyl diocanoate; Decanoic acid, mixed diesters with octanoic acid and propylene glycol; Octanoic acid, mixed diesters with decanoic acid and propylene glycol; Propylene glycol, caprylate caprate diester; Propylene glycol dicaprylate-caprate

**Definition:** Mixture of the propylene glycol diesters of caprylic and capric acids

**Formula:** C<sub>10</sub>H<sub>20</sub>O<sub>2</sub> · C<sub>8</sub>H<sub>16</sub>O<sub>2</sub> · C<sub>9</sub>H<sub>18</sub>O<sub>2</sub>

**Properties:** Liq.; insol. in water; dens. 0.92 kg/l; pour pt. -40 C; flash pt. (COC) 184 C; nonionic

**Toxicology:** TSCA listed

**Uses:** Coupling agent, solvent for flavors, fragrance oil, sol. colorants, vitamins, medicinals, cosmetics; emollient for cosmetics, creams, lotions, makeup; food additive, emulsifier, stabilizer, defoamer; pharmaceutical emollient; cosolvent for toiletries; vehicle/diluent/carrier for vitamins, drugs, flavors, colors, fragrances; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §172.856, 173.340, 175.300, 176.170, 176.210, 177.2800

**Manuf./Distrib.:** Ashland; M.M.P.

### Propylene glycol dicocotate

CAS 68953-19-5; EINECS/ELINCS 273-191-3

**Synonyms:** Coconut fatty acids, 1-methyl-1,2-ethanediyl ester; Fatty acids, coco, ester with propylene glycol; Fatty acids, coco, 1-methyl-1,2-ethanediyl esters; Propylene glycol dicocotate; Propylene glycol diester coconut acids

**Definition:** Diester of propylene glycol and coconut acid

## Propylene glycol dicoconate

*Formula:* RCO-OCH<sub>2</sub>CHCH<sub>2</sub>O-RCO, RCO- rep. fatty acids from coconut oil

*Uses:* Emollient, emulsifier in cosmetics; food pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §172.856, 175.105, 175.300, 176.170, 176.210, 177.2800

**Propylene glycol dicoconate.** See Propylene glycol dicocoate

**Propylene glycol diester coconut acids.** See Propylene glycol dicocoate

## Propylene glycol dilaurate

CAS 22788-19-8; EINECS/ELINCS 245-217-3

*Synonyms:* Dodecanoic acid, 1-methyl-1,2-ethanediyl ester

*Definition:* Diester of propylene glycol and lauric acid

*Empirical:* C<sub>27</sub>H<sub>52</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OCO(CH<sub>2</sub>)<sub>10</sub>CH<sub>3</sub>

*Uses:* Emollient, visc. control agent in cosmetics; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §172.856, 173.340, 175.300, 176.170, 176.210, 177.2800

## Propylene glycol distearate

CAS 6182-11-2; EINECS/ELINCS 228-229-3

*Synonyms:* Octadecanoic acid, 1-methyl-1,2-ethanediyl ester

*Definition:* Diester of propylene glycol and stearic acid

*Empirical:* C<sub>39</sub>H<sub>76</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>

*Toxicology:* TSCA listed

*Uses:* Emollient, visc. control agent in cosmetics; opacifier; emulsifier; stabilizer; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §172.856, 173.340, 175.300, 176.170, 176.210, 177.2800

*Manuf./Distrib.:* Ruger

## Propylene glycol laurate

CAS 142-55-2; 27194-74-7; EINECS/ELINCS 205-542-3

*Synonyms:* PGML; Dodecanoic acid, 2-hydroxypropyl ester; Dodecanoic acid, monoester with 1,2-propanediol; 2-Hydroxypropyl dodecanoate; Lauric acid, monoester with 1,2-propanediol; Propylene glycol monolaurate

*Definition:* Ester of propylene glycol and lauric acid

*Empirical:* C<sub>15</sub>H<sub>30</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OH

*Properties:* Pale amber liq.; m.w. 258.40; dens. 0.911; m.p. 0-12 C; HLB 4.5; flash pt. (COC) 188 C; nonionic

*Toxicology:* Nontoxic but can cause allergic reactions in hypersensitive persons; TSCA listed

*Uses:* Surfactant, emulsifier, coemulsifier, stabilizer, wetting agent, lubricant, plasticizer, emollient, solvent, and antistat used in cosmetics, pharmaceuticals, industrial, food applics., pulp/paper, metalworking, lubricants, textiles, agric., paints; adhesives; food additive, emulsifier, stabilizer, defoamer; pharmaceutical emulsifier, stabilizer, lubricant, solvent, excipient, permeation enhancer; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.856, 173.340, 175.105, 175.300, 176.170, 176.210, 177.2800

*Manuf./Distrib.:* Inolex; Lambent Tech.; Ruger; Stepan; Velsicol

*Trade Names:* Lumulse™ PGML

**Propylene glycol methyl ether.** See Methoxyisopropanol

## Propylene glycol methyl ether acetate

CAS 108-65-6; EINECS/ELINCS 203-603-9; UN No. 1993 (DOT)

*Synonyms:* MPA; PGMEA; PMA; Acetic acid, 2-methoxy-1-methylethyl ester; 2-Acetoxy-1-methoxypropane; 1-Methoxy-2-acetoxypropane; 2-Methoxy-1-methylethyl acetate; 1-Methoxy-2-propanol acetate; Methoxypropyl acetate; 1-Methoxy-2-propyl acetate; 2-(1-Methoxy)propyl acetate; PM acetate; 1,2-Propanediol monomethyl ether acetate; Propylene glycol monomethyl ether acetate

*Classification:* Aliphatic ether alcohol

*Empirical:* C<sub>8</sub>H<sub>12</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>COOCHCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>

*Properties:* Colorless liq.; mild fruity odor; sol. 20% in water; misc. with most org. solvs.; m.w. 132.17; dens. 0.97 (20/20 C); m.p. < -67 C; b.p. 146 C; flash pt. (Seta) 45 C; ref. index 1.402 (20 C)

*Toxicology:* LD50 (oral, rat) 8532 mg/kg, (skin, rabbit) 5 g/kg, (IP, mouse) 750 mg/kg; mod. toxic by IP route; sl. toxic by ing. and skin contact; inh. of vapor may cause nose/throat irritation; very high exposures unlikely but may cause CNS depression; low toxicity by skin absorption; may cause eye irritation on direct contact; TSCA listed

*Precaution:* Flamm.; incompat. with oxidizing agents (increases fire/explosion hazard)

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors

NFPA: Health 0; Flammability 2; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight; hygroscopic

*Uses:* Solvent for electronics, printing inks, acrylics, nitrocellulose, paints, urethane coatings, lacquers, water-based paints, oils, gums; solvent, coupling agent, wetting agent, soil penetrant in cleaners

*Manuf./Distrib.:* Acros Org.; Aldrich; Allchem Ind.; Ashland; BP Amoco; Fluka; Harcros; Oxiteno; Spectrum Quality Prods.; Van Waters & Rogers; Whyte Chems. Ltd

*Trade Names Containing:* Metalure® L-55700

**Propylene glycol monoacrylate.** See Hydroxypropyl acrylate

**Propylene glycol monoester of soybean oil fatty acids.** See Propylene glycol soyate

**Propylene glycol monolaurate.** See Propylene glycol laurate

**Propylene glycol monomethyl ether.** See Methoxyisopropanol

**α-Propylene glycol monomethyl ether.** See Methoxyisopropanol

**Propylene glycol monomethyl ether acetate.** See Propylene glycol methyl ether acetate

**Propylene glycol monomyristate.** See Propylene glycol myristate

**Propylene glycol monostearate.** See Propylene glycol stearate

## Propylene glycol myristate

CAS 29059-24-3; EINECS/ELINCS 249-395-3

*Synonyms:* Myristic acid, monoester with 1,2-propanediol; Propylene glycol monomyristate; Tetradecanoic acid, monoester with 1,2-propanediol

*Definition:* Ester of propylene glycol and myristic acid

*Empirical:* C<sub>17</sub>H<sub>34</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>12</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OH

*Toxicology:* TSCA listed

*Uses:* Wetting agent, lubricant, opacifier, antistat, dispersant, w/o emulsifier, scouring and detergent aid, defoamer, emollient, plasticizer, rust inhibitor in cosmetics, pharmaceuticals, lubricating and cutting oils, pigment grinding, paints, inks, plastics, waxes, insecticides; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §172.856, 173.340, 175.300, 176.170, 176.210, 177.2800

**Propylene glycol octadecanoate.** See Propylene glycol stearate

## Propylene glycol oleate

CAS 1330-80-9; EINECS/ELINCS 215-549-3

*Synonyms:* 9-Octadecenoic acid, monoester with 1,2-propanediol; Oleic acid, monoester with 1,2-propanediol

*Definition:* Ester of propylene glycol and oleic acid

*Empirical:* C<sub>21</sub>H<sub>40</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OH

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Emollient, emulsifier, coemulsifier, stabilizer, wetting agent, lubricant, and antistat in cosmetics, pharmaceuticals, industrial, food applics.; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §172.856, 173.340, 175.300, 176.210, 177.2800

*Manuf./Distrib.:* A.P.; Lambent Tech.

## Propylene glycol palmitate

*Definition:* Ester of propylene glycol and palmitic acid

*Properties:* Nonionic

*Uses:* Surfactant for industrial and cosmetic applics., pulp/paper, pharmaceuticals, metalworking, lubricants, textiles, agric., paints, adhesives; food

emulsifier

Trade Names: Lumulse™ PGMP

**Propylene glycol soyate**

CAS 67784-79-6; EINECS/ELINCS 267-054-7

Synonyms: Fatty acids, soya, esters with propylene glycol; Propylene glycol monoester of soybean oil fatty acids; Soy fatty acid, monoester with 1,2-propanediol

Definition: Ester of propylene glycol and soy acid

Uses: Surfactant, emollient in cosmetics; defoamer in food-contact coatings and paper/paperboard; in food-contact adhesives; in food-contact resinous/polymeric coatings; in paper/paperboard in contact with aq./fatty foods; in textiles/textile fibers

Regulatory: FDA 21CFR §172.856, 173.340, 175.105, 175.300, 176.170, 176.200, 176.210, 177.2800

**Propylene glycol stearate**

CAS 1323-39-3; EINECS/ELINCS 215-354-3; FEMA 2942

Synonyms: PGMS; Monosteol; Octadecanoic acid, monoester with 1,2-propanediol; 1,2-Propanediol monostearate; Propylene glycol monostearate; Propylene glycol octadecanoate; Prostearin; Stearic acid, monoester with 1,2-propanediol

Definition: Ester of propylene glycol and stearic acid

Empirical: C<sub>21</sub>H<sub>40</sub>O<sub>3</sub>Formula: CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOCH<sub>2</sub>CHCH<sub>2</sub>OH

Properties: Wh. to cream flakes, bland typ. fatty odor and taste; sol. in min. oil, IPM, oleyl alcohol; insol. in water, glycerin, propylene glycol; m.w. 342.63; m.p. 35-38 C; HLB 3.4; acid no. 4 max.; iodine no. 3 max.; sapon. no. 155-165; hyd. no. 160-175; nonionic

Toxicology: LD50 (IP, mouse) 200 mg/kg; poison by IP route; TSCA listed Hazardous Decomp. Prods.: Heated to decomp., emits acrid smoke and irritating fumes

Uses: Emulsifier for lotions, soft creams, makeup, paints, adhesives; emollient, emulsifier, viscosifier for cosmetics; plasticizer for cellulose nitrate; food additive, emulsifier, stabilizer, defoamer, viscosifier; pharmaceutical surfactant, dispersant, solubilizer, lubricant, humectant, excipient, thickener, vehicle; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; in food-contact textiles

Use Level: Limitation 2% (margarine)

Regulatory: FDA 21CFR §172.856, 172.860, 172.862, 173.340, 175.105, 175.300, 176.170, 176.210, 177.2800; USDA 9CFR §318.7, 381.147; FEMA GRAS; FDA approved for rectals, vaginals; USP/NF compliance

Manuf./Distrib.: A.P.; ABITEC; Ashland; Crompton/Witco; Danisco Ingreds.; Eastman; ISP Van Dyk; Inolex; Lambent Tech.; Lipo; Lonza; Ruger; Sea-Land; Stepan; Universal Preserv-A-Chem

Trade Names: Lumulse™ PGMS

**Propylene glycol tallowate**

Uses: Defoamer in food-contact paper coatings

Regulatory: FDA 21CFR §176.200

**Propyleneimine**

CAS 75-55-8; EINECS/ELINCS 200-878-7; UN No. 1921

Synonyms: Aziridine, 2-methyl-; 2-Methylazacyclopropane; 2-Methylaziridine; Methyleneimine; 2-Methylethyleneimine; 1,2-Propyleneimine; Propyleneimine, inhibited; Propyleneimine; 1,2-Propyleneimine

Empirical: C<sub>3</sub>H<sub>3</sub>N

Properties: Colorless to lt. yel. oily fuming liq.; strong ammonia-like odor; sol. in water, DMSO, 95% ethanol, acetone, petrol. ether, most org. solvs.; m.w. 57.10; sp.gr. 0.802; vapor pressure 112 mm Hg (20 C); m.p. -65 C; b.p. 66-67 C; flash pt. -15 C; ref. index 1.4084

Toxicology: ACGIH TLV/TWA 2 ppm (skin); LD50 (oral, rat) 19 mg/kg, (IP, mouse) 335 mg/kg, (skin, guinea pig) 43 mg/kg; LCLo (inh., rat, 4 h) 500 ppm; highly toxic by ing., inh., skin routes; corrosive; eye/nose/throat irritant; may cause nausea, vomiting, difficulty breathing, skin/eye burns, eye damage, CNS effects, etc.; readily absorbed thru skin; may be fatal; mutation data; experimental carcinogen; has been implicated as brain carcinogen; suspected human carcinogen; target organ: blood, nerves; TSCA listed

Precaution: Flamm.; vapor may flash back; uninhibited, polymerizes easily; may polymerize explosively with acids/fumes; incompat. with strong oxidizers; reacts with quinones, sulfonyl halides; attacks some plastics,

rubber; may dec. in air; hydrolyzes in HCl

Hazardous Decomp. Prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>; heated to decomp., emits irritating vapors and toxic fumes of NO<sub>x</sub>; emits toxic fumes under fire conditions

Storage: Ship under argon; moisture/heat-sensitive; store in tightly closed containers under inert atmosphere in explosion-proof refrigerator; keep away from acids, ignition sources

Uses: Org. intermediate in prod. of polymers for use as coatings and adhesives in paper/textiles industries; derivs. used in rubber and pharmaceutical industries; modifier for latex surf. coating resins to improve adhesion

Regulatory: SARA §313 reportable

Manuf./Distrib.: Aldrich; Dixie; Pfaltz &amp; Bauer; TCI Am.; Whyte Chems. Ltd

**1,2-Propyleneimine.** See Propyleneimine**Propyleneimine, inhibited.** See Propyleneimine**Propylene oxide homopolymer.** See Polypropylene glycol**Propylene polymer.** See Polypropylene**Propyleneimine.** See Propyleneimine**1,2-Propyleneimine.** See Propyleneimine**2-Propyl ethanoate.** See Isopropyl acetate**n-Propyl ethanoate.** See Propyl acetate**Propylic alcohol.** See Propyl alcohol**Propylmethanol.** See Butyl alcohol**Prostearin.** See Propylene glycol stearate**Protease**

CAS 9014-01-1; EINECS/ELINCS 232-752-2

Synonyms: Alcalase; Bacillus subtilis Carlsberg; Detergent enzyme; Maxatase; Protease, bacterial, alkaline; Proteinase; Proteolytic enzymes; Subtilisin; Subtilisin Carlsberg; Subtilisins

Classification: Enzyme

Properties: Gran.; sol. in water; m.w. ≈ 27,000

Toxicology: TWA 0.00006 mg/m<sup>3</sup>; LD50 (oral, rat) 3700 mg/kg; mod. toxic by ingestion; primary irritant to eyes, skin, respiratory tract; sensitizer; TSCA listedHazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of NO<sub>x</sub>

Storage: Hygroscopic; packaged under argon; freeze

Uses: Enzyme for breakdown of protein; used in detergent compositions, industrial laundry use, food processing, tanning, protein hydrolysis, desizing textiles, wastewater treatment, industrial cleaning; digestive aids; wound debriding agent; blood typing aid

Regulatory: Canada, Japan approved

Manuf./Distrib.: Aldrich; Am. Biorganics; Fluka; PMP Fermentation Prods.; Schweizerhall; Sigma; U.S. Biochemical

Trade Names: HT-Proteolytic® 200

**Protease, bacterial, alkaline.** See Protease**Proteinase.** See Protease**Protein hydrolysate.** See Hydrolyzed collagen**Protein hydrolysates, soya.** See Hydrolyzed soy protein**Proteins, collagen, hydrolysate.** See Hydrolyzed collagen**Proteins, milk.** See Casein**Proteolytic enzymes.** See Protease**Prussian blue.** See Ferric ferrocyanide**PS.** See Polystyrene**Pseudothiourea.** See Thiourea**Pseudourea.** See Urea**PSVS.** See Polysodium vinyl sulfonate**PTFE.** See Polytetrafluoroethylene**PTMT.** See Polybutylene terephthalate**PTSA.** See p-Toluene sulfonic acid**PTZ.** See Phenothiazine**PU.** See Polyurethane resin**Purified gum spirits.** See Turpentine**Purified water.** See Water**PVA.** See Polyvinyl acetate; Polyvinyl alcohol**PVAc.** See Polyvinyl acetate**PVAL.** See Polyvinyl alcohol**PVAL, hydrolyzed.** See Polyvinyl alcohol**PVB.** See Polyvinyl butyral**PVC.** See Polyvinyl chloride**PVCA.** See Vinyl chloride/vinyl acetate copolymer**PVC/VA copolymer.** See Vinyl chloride/vinyl acetate copolymer



**PVDC.** See Polyvinylidene chloride

**PVDF.** See Polyvinylidene fluoride resin

**PVF.** See Polyvinyl formal

**PVFM.** See Polyvinyl formal

**PVM/MA.** See PVM/MA copolymer

#### PVM/MA copolymer

CAS 9011-16-9; 52229-50-2

**Synonyms:** PVM/MA; 2,5-Furandione, polymer with methoxyethene; 2,5-Furandione, polymer with methoxyethylene; Methyl vinyl ether/maleic anhydride copolymer; Poly (maleic anhydride-methyl vinyl ether); Poly (methyl vinyl ether-alt-maleic anhydride); Poly(methyl vinyl ether/maleic anhydride); Polyvinyl methyl ether-maleic anhydride

**Definition:** Copolymer of methyl vinyl ether and maleic anhydride

**Empirical:**  $(C_4H_2O_3 \cdot C_3H_6O)_x$

**Formula:**  $[-CH_2CHOCH_2CHCOOCOCH-]_n$

**Properties:** Wh. powd.; sol. in water, oxygenated solvs.; m.w. 20,000-67,000; anionic

**Toxicology:** Toxic; cancer suspect agent; TSCA listed

**Uses:** Dispersant, coupling, stabilizer, thickener, emulsifier, solubilizer, corrosion inhibitor, film-former, antistat used in agric., paper and textile industries, chemical processing, industrial products, detergents, cosmetics, emulsion polymerization; binder, emulsion stabilizer, oral care agent in cosmetics; protective colloid; sequestrant for demineralization (water treatment); pharmaceuticals (dispersant, coupling agent, stabilizer, thickener; film-former in spray bandages; bioadhesives; complexing agent for sustained-release iron preps.; dentifrices)

**Manuf./Distrib.:** Aldrich; Sigma

**PVOH.** See Polyvinyl alcohol

#### PVP

CAS 9003-39-8

**Synonyms:** PVPP; 1-Ethenyl-2-pyrrolidinone homopolymer; 1-Ethenyl-2-pyrrolidinone polymers; Poly[1-(2-oxo-1-pyrrolidinyl) ethylene]; Polyvidone; Polyvidonum; Poly (n-vinylbutyrolactam); Poly (1-vinyl-2-pyrrolidinone) homopolymer; Polyvinylpyrrolidone; Povidone; N-Vinylbutyrolactam polymer; Vinyl pyrrolidone homopolymer; 1-Vinyl-2-pyrrolidinone polymer; N-Vinylpyrrolidone polymer

**Classification:** Synthetic linear polymer

**Definition:** Polymer of 1-vinyl-2-pyrrolidone monomers

**Empirical:**  $(C_4H_5NO)_x$

**Properties:** Wh. to lt. yel. amorphous powd., odorless; sol. in water, chlorinated hydrocarbons, alcohol, chloroform, amines, nitroparaffins, lower m.w. fatty acids, org. solvs.; m.w.  $\approx$  10,000,  $\approx$  24,000,  $\approx$  40,000 (food use),  $\approx$  160,000,  $\approx$  360,000 (beer); dens. 1.23-1.29; pH 3.0-7.0 (5% aq.)

**Toxicology:** LD50 (oral, rat) 100 g/kg, (IP, mouse) 12 g/kg; mildly toxic by IP and IV routes; potent histamine-releasing agent in animals; questionable carcinogen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

HMIS: Health 1; Flammability 0; Reactivity 0

**Storage:** Hygroscopic; store @ R.T.

**Uses:** Film-former, thickener, protective colloid, suspending agent, and dispersant for cosmetics, tech. applics., paints; in adhesives; in detergents; cast films; detoxification; photography; dye stripping; textiles; hair fixative, antistat, binder, emulsion stabilizer in cosmetics; water/waste treatment; clarifying agent for beer, wine, vinegar; food stabilizer, bodying agent, dispersant, color diluent; drug vehicle and retardant; tablet binder, pharmaceutical excipient; artificial tear prods.; transdermal patches; blood plasma expander; in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard

**Use Level:** Limitation 10 ppm residual (beer), 40 ppm residual (vinegar), 60 ppm residual (wine); ADI 0-25 mg/kg (JECFA); 3-5%; 0.03-0.9% (injectable drug prods.); 1-50 mg (oral dosage forms)

**Regulatory:** FDA 21CFR §73.1, 73.1001, 172.210, 173.50, 173.55, 175.105, 175.300, 176.170, 176.180, 176.210; BATF 27CFR §240.1051; FDA approved for parenterals, intramuscular injectables, orals, topicals; USP/NF, BP, Ph. Eur. compliance

**Manuf./Distrib.:** AMRESCO; Aldrich; Allchem Ind.; Ashland; BASF; CarboMer; Fluka; Great Western; Hickson Danchem; ISP; Jarchem Ind.; Monomer-Polymer & Dajac Labs; Research Organics; Ruger; Sigma; Spectrum Quality Prods.; Tri-K Ind.

**Trade Names:** Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol®

K60; Luviskol® K80; Luviskol® K90; Pregel® ST; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120

#### PVP/acrylic acid copolymer

**Synonyms:** Vinylpyrrolidone/acrylic acid copolymer

**Uses:** {Surface-act. anti-soil redeposition agent in laundry detergents; stabilizer for colloidal disps.

**Trade Names:** Acrylidone® Resins

**PVPP.** See PVP

**PVP/styrene copolymer.** See Styrene/PVP copolymer

**1H-Pyrazole-3-carboxylic acid, 4,5-dihydro-5-oxo-1-(4-sulfophenyl)-4-[(4-sulfophenyl) azo]-, trisodium salt.** See Tartrazine

#### Pyrethrin I

CAS 121-21-1; EINECS/ELINCS 204-455-8; UN No. 2902

**Synonyms:** Chrysanthemum monocarboxylic acid pyrethrolone ester; Cyclopropanecarboxylic acid, 2,2-dimethyl-3-(2-methylpropenyl)-, ester with 4-hydroxy-3-methyl-2-(2,4-pentadienyl)-2-cyclopenten-1-one; Pyrethrolone, chrysanthemum monocarboxylic acid ester; (+)-Pyrethronyl (+)-trans-chrysanthemate

**Classification:** Pyrethrins (natural)

**Empirical:** C<sub>21</sub>H<sub>28</sub>O<sub>3</sub>

**Properties:** Visc. liq. or oil; pract. insol. in water; sol. in ethyl alcohol, petroleum ether, kerosene, carbon tetrachloride, ethylene dichloride, nitromethane; m.w. 328.45; b.p. 146-150 C (0.0005 mm Hg)

**Toxicology:** LD50 (oral, rat) 260 mg/kg; LDLo (IV, rat) 5 mg/kg; may cause some degree of eye irritation; may cause somnolence, tremor, convulsions, ataxia, acute pulmonary edema; ing. of large amts. may cause nausea, vomiting, convulsions, other CNS effects

**Hazardous Decomp. Prods.:** Heated to decomp. emits CO, CO<sub>2</sub>

**Storage:** Protect from air and light

**Uses:** Research on pyrethroid insecticides; ingred. in insecticides; treatment of paper bags for shipping cereals, etc.

**Pyrethrolone, chrysanthemum monocarboxylic acid ester.** See Pyrethrin I

**(+)-Pyrethronyl (+)-trans-chrysanthemate.** See Pyrethrin I

**Pyroacetic acid.** See Acetone

**Pyroacetic ether.** See Acetone

**Pyrocatechin.** See Pyrocatechol

**Pyrocatechinic acid.** See Pyrocatechol

#### Pyrocatechol

CAS 120-80-9; EINECS/ELINCS 204-427-5

**Synonyms:** O-Benzenediol; 1,2-Benzenediol; Catechol; CI 76500; 1,2-Dihydroxybenzene; o-Dihydroxybenzene; o-Dioxybenzene; o-Diphenol; o-Hydroquinone; o-Hydroxyphenol; 2-Hydroxyphenol; Oxyphenic acid; o-Phenylenediol; Pyrocatechin; Pyrocatechinic acid; Pyrocatechuic acid

**Classification:** Phenol

**Empirical:** C<sub>6</sub>H<sub>6</sub>O<sub>2</sub>

**Formula:** C<sub>6</sub>H<sub>4</sub>(OH)<sub>2</sub>

**Properties:** Colorless monol. leaflets; discolored by lt. and air; sol. in water, oxygenated solvs., chloroform, alcohol, benzene, ether; m.w. 110.11; dens. 1.371 (15 C); vapor pressure 10 mm (118.3 C); m.p. 105 C; b.p. 240 C; flash pt. (CC) 261 F

**Toxicology:** LD50 (oral, rat) 260 mg/kg, (subcut., mouse) 247 mg/kg, (skin, rabbit) 800 mg/kg; toxic; poison by ing., subcut., IP, IV, parental routes; mod. toxic by skin contact; corrosive; skin irritant; allergen; readily absorbed thru skin; tumorigen; experimental reproductive effects; human mutagenic data; target organs: liver, kidneys, nerves; TSCA listed

**Precaution:** Oxygen-sensitive; combustible exposed to heat or flame; can react vigorously with oxidizers; hypergolic reaction with conc. nitric acid

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Light- and air-sensitive; store under nitrogen

**Uses:** Reagent; synthesis of rubber chems., resins, antioxidants, adhesives, insecticides; electroplating; flavors and fragrances, pharmaceuticals; fax papers; dyes; photographic chems.; fur/leather dyeing reagent; antiseptic; specialty inks; antioxidant for perfumes, essential oils

**Regulatory:** BP compliance

**Manuf./Distrib.:** Aldrich; Coalite Chems.; Fluka; Int'l. Fiber; Sigma; Spectrum Quality Prods.

**Pyrocatechuic acid.** See Pyrocatechol  
**Pyrocellulose.** See Cellulose  
**Pyrodextrin.** See Dextrin  
**Pyrogentistic acid.** See Hydroquinone  
**L-Pyroglutamic acid.** See PCA  
**Pyroligneus acid.** See Acetic acid  
**Pyrophyllite.** See Aluminum silicate  
**Pyrosulfurous acid disodium salt.** See Sodium metabisulfite  
**Pyroxylic spirit.** See Methyl alcohol  
**Pyroxylin.** See Nitrocellulose  
**Pyroxylin plastic.** See Nitrocellulose  
**Pyroxylin rods.** See Nitrocellulose  
**2-Pyrrolidinone, 1-ethenyl-, polymer with ethenylbenzene.** See Styrene/PVP copolymer  
**2-Pyrrolidinone, 1-vinyl-, polymer with styrene.** See Styrene/PVP copolymer  
**Pyrrolidonecarboxylic acid.** See PCA  
**2-Pyrrolidone-5-carboxylic acid.** See PCA

**Quassia**  
*Synonyms:* Bitter ash; Bitter wood  
*Definition:* Wood of *Picrasma excelsa* or *Quassia amara*, contg. bitter principle quassin  
*Properties:* Ylsh-wh. to bright yel. chips or fibrous coarse grains, sl. odor, very bitter taste  
*Uses:* Natural flavoring in foods and pharmaceuticals; bitter; tonic; medicine (anthelmintic); extract as fly poison on flypaper; surrogate for hops; hair lotion; alcohol denaturant  
*Regulatory:* FDA 21CFR §172.510; Japan approved

**Quaternary ammonium compds., benzyl-C8-18-alkyldimethyl, chlorides.** See Benzalkonium chloride  
**Quaternary ammonium compds., benzylcoco alkyldimethyl, chlorides.** See Cocoalkonium chloride  
**Quaternary ammonium compds., bis (hydrogenated tallow alkyl) dimethyl chlorides.** See Quaternium-18  
**Quaternary ammonium compds., carboxymethyl (coco alkyl) dimethyl hydroxides, inner salts.** See Coco-betaine  
**Quaternary ammonium compds., coco alkyl trimethyl, chlorides.** See Cocotrimonium chloride  
**Quaternary ammonium compds., tallow alkyl trimethyl, chlorides.** See Tallowtrimonium chloride  
**Quaternium-5.** See Distearyltrimonium chloride  
**Quaternium-10.** See Steartrimonium chloride  
**Quaternium-12.** See Didecyltrimonium chloride

**Quaternium-15**  
 CAS 4080-31-3; 51229-78-8; EINECS/ELINCS 223-805-0  
*Synonyms:* N-(3-Chloroallyl) hexaminium chloride; Chlorallyl methenamine chloride; 1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride; Methenamine 3-chloroallylochloride  
*Classification:* Quaternary ammonium salt  
*Empirical:* C<sub>9</sub>H<sub>16</sub>ClN<sub>4</sub> • Cl  
*Formula:* C<sub>8</sub>H<sub>12</sub>N<sub>4</sub>(CH<sub>2</sub>CHCHCl)Cl  
*Properties:* Cationic  
*Toxicology:* TSCA listed  
*Uses:* Formaldehyde-releasing antimicrobial preservative for adhesives, latex emulsions, paints, cutting fluids, topical pharmaceuticals; preservative in cosmetics, food-pkg. adhesives, food-contact PU resins; preservative for pigment slurries and latexes used as pigment binders in food-contact paper/paperboard  
*Use Level:* 0.02-03%; 0.02% (topicals)  
*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1680; CIR approved; Europe listed; Japan not approved; FDA approved for topicals  
*Manuf./Distrib.:* Sigma  
*Trade Names Containing:* Dowicil® 75

**Quaternium-18**  
 CAS 61789-80-8; 68002-59-5; EINECS/ELINCS 263-090-2  
*Synonyms:* Bis (hydrogenated tallowalkyl) dimethyl ammonium chloride; Dihydrogenated tallow dimethyl ammonium chloride; Dihydrogenated tallowdimonium chloride; Dimethyl di (hydrogenated tallow) ammonium chloride; Quaternary ammonium compds., bis (hydrogenated tallow alkyl)

dimethyl chlorides

*Classification:* Quaternary ammonium salt

*Formula:* R(CH<sub>2</sub>)<sub>n</sub>NR'Cl<sup>+</sup>, R rep. hydrogenated tallow fatty radicals

*Properties:* Cationic

*Toxicology:* LD50 (oral, rat) > 9850 mg/kg; low toxicity by ing.; skin and eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NH<sub>3</sub> and Cl<sup>-</sup>

*Uses:* Surfactant, fabric antistat, conditioner for household, industrial, textile, hair applics.; antistatic coating for cellulose acetate, polyacetal, PE, PP; surfactant, antistat in cosmetics

*Manuf./Distrib.:* Ruger

*Trade Names:* Querton 442; Querton 442-11; Querton 442-82; Querton 442E; Querton 442H

*Trade Names Containing:* Arquad® 2HT-75; Arquad® 2HT-75PG

**Quaternium-32.** See Isostearyl ethylimidonium ethosulfate

**Quaternium-34.** See Dicothodimonium chloride

**Quaternium-39.** See Polyquaternium-5

**Quaternium-40.** See Polyquaternium-6

**Quaternium-41.** See Polyquaternium-7

**Quicklime.** See Calcium oxide

**Quinacridone.** See Pigment violet 19

**Quinacridone red.** See Pigment violet 19

**Quinacridone violet.** See Pigment violet 19

**Quino (2,3-b) acridine-7,14-dione, 5,12-dihydro-.** See Pigment violet 19

**Quinol.** See Hydroquinone

**Quinoline yellow.** See Acid yellow 3

**2-(2-Quinoly)-1,3-indandione disulfonic acid disodium salt.** See Acid yellow 3

**R 141b.** See Dichlorofluoroethane

**Radiant yellow.** See Pigment yellow 14

**Raney alloy.** See Nickel

**Raney nickel.** See Nickel

**Rapeseed (Brassica campestris) oil**

CAS 8002-13-9; 120962-03-0; EINECS/ELINCS 232-299-0

*Synonyms:* Brassica campestris oil; Brassica oleifera; Canola oil (low erucic acid rapeseed oil); Colza oil; Rapeseed oil; Rapeseed oil, blown

*Definition:* Vegetable oil expressed from seeds of *Brassica campestris*

*Properties:* Brn. viscosus liq., yel. when refined, noxious odor; sol. in chloroform, ether, CS<sub>2</sub>; dens. 0.913-0.916; m.p. 17-22 C; solidifies at 0 C; iodine no. 97-105; sapon. no. 170-177 C; flash pt. 162 C; ref. index 1.4720-1.4752

*Toxicology:* Toxic; allergic potential; can cause acne-like skin eruptions

*Precaution:* Subject to spontaneous heating

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Lubricant and slip agent for plastics, polymers, rubber, metal lubricants; quenching oil; blown oils; soft soaps; textile finishing agent; drying oil for paints; leather fat-liquoring agent; lubricant, wetting agent for continuous films; emollient in cosmetics; edible oil for salad dressings, margarine; pharmaceutical excipient; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.210, 177.1200, 177.2800, 184.1555;

Japan approved (extract); FDA approved for orals; BP compliance

*Manuf./Distrib.:* ABITEC; Actrachem; Alfa Aesar; Alnor Oil; Anar; Arista Ind.; BF Goodrich/Textile; Degen; Industrial Oil Prods.; Jarchem Ind.; Lambent Tech.; Penta Mfg.; Sea-Land; Stevenson Cooper; Vliengenthart BV; Welch, Holme & Clark; Werner G. Smith

**Rapeseed oil.** See Rapeseed (Brassica campestris) oil

**Rapeseed oil, blown.** See Rapeseed (Brassica campestris) oil

**Rapeseed oil triglycerides**

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Raw linseed oil.** See Linseed (*Linum usitatissimum*) oil

**Rayon.** See Cellophane

**Rayon flock.** See Cellophane

**Red 106.** See Acid red 52

**Red haematite.** See Iron oxide red

**Red iron oxide.** See Ferric oxide; Iron oxide red

**Red iron trioxide.** See Ferric oxide

**Pyrocatechuic acid.** See Pyrocatechol  
**Pyrocellulose.** See Cellulose  
**Pyrodextrin.** See Dextrin  
**Pyrogentistic acid.** See Hydroquinone  
**L-Pyroglutamic acid.** See PCA  
**Pyroligneus acid.** See Acetic acid  
**Pyrophyllite.** See Aluminum silicate  
**Pyrosulfurous acid disodium salt.** See Sodium metabisulfite  
**Pyroxylic spirit.** See Methyl alcohol  
**Pyroxylin.** See Nitrocellulose  
**Pyroxylin plastic.** See Nitrocellulose  
**Pyroxylin rods.** See Nitrocellulose  
**2-Pyrrolidinone, 1-ethenyl-, polymer with ethenylbenzene.** See Styrene/PVP copolymer  
**2-Pyrrolidinone, 1-vinyl-, polymer with styrene.** See Styrene/PVP copolymer  
**Pyrrolidonecarboxylic acid.** See PCA  
**2-Pyrrolidone-5-carboxylic acid.** See PCA

**Quassia**

*Synonyms:* Bitter ash; Bitter wood  
*Definition:* Wood of *Picrasma excelsa* or *Quassia amara*, contg. bitter principle quassin  
*Properties:* Ylsh-wh. to bright yel. chips or fibrous coarse grains, sl. odor, very bitter taste  
*Uses:* Natural flavoring in foods and pharmaceuticals; bitter; tonic; medicine (anthelmintic); extract as fly poison on flypaper; surrogate for hops; hair lotion; alcohol denaturant  
*Regulatory:* FDA 21CFR §172.510; Japan approved

**Quaternary ammonium compds., benzyl-C8-18-alkyldimethyl, chlorides.** See Benzalkonium chloride

**Quaternary ammonium compds., benzylcoco alkyldimethyl, chlorides.** See Cocoalkonium chloride

**Quaternary ammonium compds., bis (hydrogenated tallow alkyl) dimethyl chlorides.** See Quaternium-18

**Quaternary ammonium compds., carboxymethyl (coco alkyl) dimethyl hydroxides, inner salts.** See Coco-betaine

**Quaternary ammonium compds., coco alkyl trimethyl, chlorides.** See Cocotrimonium chloride

**Quaternary ammonium compds., tallow alkyl trimethyl, chlorides.** See Tallowtrimonium chloride

**Quaternium-5.** See Distearyltrimonium chloride

**Quaternium-10.** See Steartrimonium chloride

**Quaternium-12.** See Didecyltrimonium chloride

**Quaternium-15**

CAS 4080-31-3; 51229-78-8; EINECS/ELINCS 223-805-0

*Synonyms:* N-(3-Chloroallyl) hexaminium chloride; Chlorallyl methenamine chloride; 1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride; Methenamine 3-chloroallylochloride

*Classification:* Quaternary ammonium salt

*Empirical:* C<sub>9</sub>H<sub>16</sub>ClN<sub>4</sub> • Cl

*Formula:* C<sub>8</sub>H<sub>12</sub>N<sub>4</sub>(CH<sub>2</sub>CHCHCl)Cl

*Properties:* Cationic

*Toxicology:* TSCA listed

*Uses:* Formaldehyde-releasing antimicrobial preservative for adhesives, latex emulsions, paints, cutting fluids, topical pharmaceuticals; preservative in cosmetics, food-pkg. adhesives, food-contact PU resins; preservative for pigment slurries and latexes used as pigment binders in food-contact paper/paperboard

*Use Level:* 0.02-03%; 0.02% (topicals)

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1680; CIR approved; Europe listed; Japan not approved; FDA approved for topicals

*Manuf./Distrib.:* Sigma

*Trade Names Containing:* Dowicil® 75

**Quaternium-18**

CAS 61789-80-8; 68002-59-5; EINECS/ELINCS 263-090-2

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dimethyl chlorides

*Classification:* Quaternary ammonium salt

*Formula:* R(CH<sub>2</sub>)<sub>n</sub>NR'Cl<sup>+</sup>, R rep. hydrogenated tallow fatty radicals

*Properties:* Cationic

*Toxicology:* LD50 (oral, rat) > 9850 mg/kg; low toxicity by ing.; skin and eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NH<sub>3</sub> and Cl<sup>-</sup>

*Uses:* Surfactant, fabric antistat, conditioner for household, industrial, textile, hair applics.; antistatic coating for cellulose acetate, polyacetal, PE, PP; surfactant, antistat in cosmetics

*Manuf./Distrib.:* Ruger

*Trade Names:* Querton 442; Querton 442-11; Querton 442-82; Querton 442E; Querton 442H

*Trade Names Containing:* Arquad® 2HT-75; Arquad® 2HT-75PG

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**Quaternium-41.** See Polyquaternium-7

**Quicklime.** See Calcium oxide

**Quinacridone.** See Pigment violet 19

**Quinacridone red.** See Pigment violet 19

**Quinacridone violet.** See Pigment violet 19

**Quino (2,3-b) acridine-7,14-dione, 5,12-dihydro-.** See Pigment violet 19

**Quinol.** See Hydroquinone

**Quinoline yellow.** See Acid yellow 3

**2-(2-Quinoly)-1,3-indandione disulfonic acid disodium salt.** See Acid yellow 3

**R 141b.** See Dichlorofluoroethane

**Radiant yellow.** See Pigment yellow 14

**Raney alloy.** See Nickel

**Raney nickel.** See Nickel

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*Toxicology:* Toxic; allergic potential; can cause acne-like skin eruptions

*Precaution:* Subject to spontaneous heating

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Lubricant and slip agent for plastics, polymers, rubber, metal lubricants; quenching oil; blown oils; soft soaps; textile finishing agent; drying oil for paints; leather fat-liquoring agent; lubricant, wetting agent for continuous films; emollient in cosmetics; edible oil for salad dressings, margarine; pharmaceutical excipient; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.1200, 177.2800, 184.1555; Japan approved (extract); FDA approved for orals; BP compliance  
*Manuf./Distrib.:* ABITEC; Actrachim; Alfa Aesar; Alnor Oil; Anar; Arista Ind.; BF Goodrich/Textile; Degen; Industrial Oil Prods.; Jarchem Ind.; Lambent Tech.; Penta Mfg.; Sea-Land; Stevenson Cooper; Vliengenthart BV; Welch, Holme & Clark; Werner G. Smith

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**Rapeseed oil, blown.** See Rapeseed (Brassica campestris) oil

**Rapeseed oil triglycerides**

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Raw linseed oil.** See Linseed (Linum usitatissimum) oil

**Rayon.** See Cellophane

**Rayon flock.** See Cellophane

**Red 106.** See Acid red 52

**Red haematite.** See Iron oxide red

**Red iron oxide.** See Ferric oxide; Iron oxide red

**Red iron trioxide.** See Ferric oxide

**Pyrocatechuic acid.** See Pyrocatechol  
**Pyrocellulose.** See Cellulose  
**Pyrodextrin.** See Dextrin  
**Pyrogenetic acid.** See Hydroquinone  
**L-Pyroglutamic acid.** See PCA  
**Pyroligneous acid.** See Acetic acid  
**Pyrophyllite.** See Aluminum silicate  
**Pyrosulfurous acid disodium salt.** See Sodium metabisulfite  
**Pyroxylic spirit.** See Methyl alcohol  
**Pyroxylin.** See Nitrocellulose  
**Pyroxylin plastic.** See Nitrocellulose  
**Pyroxylin rods.** See Nitrocellulose  
**2-Pyrrolidinone, 1-ethenyl-, polymer with ethenylbenzene.** See Styrene/PVP copolymer  
**2-Pyrrolidinone, 1-vinyl-, polymer with styrene.** See Styrene/PVP copolymer  
**Pyrrolidonecarboxylic acid.** See PCA  
**2-Pyrrolidone-5-carboxylic acid.** See PCA

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**Quaternary ammonium compds., benzyl-C8-18-alkyldimethyl, chlorides.** See Benzalkonium chloride

**Quaternary ammonium compds., benzylcoco alkyldimethyl, chlorides.** See Cocoalkonium chloride

**Quaternary ammonium compds., bis (hydrogenated tallow alkyl) dimethyl chlorides.** See Quaternium-18

**Quaternary ammonium compds., carboxymethyl (coco alkyl) dimethyl hydroxides, inner salts.** See Coco-betaine

**Quaternary ammonium compds., coco alkyl trimethyl, chlorides.** See Cocotrimonium chloride

**Quaternary ammonium compds., tallow alkyl trimethyl, chlorides.** See Tallowtrimonium chloride

**Quaternium-5.** See Distearyltrimonium chloride

**Quaternium-10.** See Steartrimonium chloride

**Quaternium-12.** See Didecyltrimonium chloride

**Quaternium-15**

CAS 4080-31-3; 51229-78-8; EINECS/ELINCS 223-805-0

*Synonyms:* N-(3-Chloroallyl) hexaminium chloride; Chlorallyl methenamine chloride; 1-(3-Chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride; Methenamine 3-chloroallylochloride

*Classification:* Quaternary ammonium salt

*Empirical:* C<sub>9</sub>H<sub>16</sub>ClN<sub>4</sub> • Cl

*Formula:* C<sub>8</sub>H<sub>12</sub>N<sub>4</sub>(CH<sub>2</sub>CHCHCl)Cl

*Properties:* Cationic

*Toxicology:* TSCA listed

*Uses:* Formaldehyde-releasing antimicrobial preservative for adhesives, latex emulsions, paints, cutting fluids, topical pharmaceuticals; preservative in cosmetics, food-pkg. adhesives, food-contact PU resins; preservative for pigment slurries and latexes used as pigment binders in food-contact paper/paperboard

*Use Level:* 0.02-03%; 0.02% (topicals)

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1680; CIR approved; Europe listed; Japan not approved; FDA approved for topicals

*Manuf./Distrib.:* Sigma

*Trade Names Containing:* Dowicil® 75

**Quaternium-18**

CAS 61789-80-8; 68002-59-5; EINECS/ELINCS 263-090-2

*Synonyms:* Bis (hydrogenated tallowalkyl) dimethyl ammonium chloride; Dihydrogenated tallow dimethyl ammonium chloride; Dihydrogenated tallowdimonium chloride; Dimethyl di (hydrogenated tallow) ammonium chloride; Quaternary ammonium compds., bis (hydrogenated tallow alkyl)

dimethyl chlorides

*Classification:* Quaternary ammonium salt

*Formula:* R(CH<sub>2</sub>)<sub>n</sub>NR'<sub>3</sub>Cl<sup>+</sup>, R rep. hydrogenated tallow fatty radicals

*Properties:* Cationic

*Toxicology:* LD50 (oral, rat) > 9850 mg/kg; low toxicity by ing.; skin and eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NH<sub>3</sub> and Cl<sup>-</sup>

*Uses:* Surfactant, fabric antistat, conditioner for household, industrial, textile, hair applics.; antistatic coating for cellulose acetate, polyacetal, PE, PP; surfactant, antistat in cosmetics

*Manuf./Distrib.:* Ruger

*Trade Names:* Querton 442; Querton 442-11; Querton 442-82; Querton 442E; Querton 442H

*Trade Names Containing:* Arquad® 2HT-75; Arquad® 2HT-75PG

**Quaternium-32.** See Isostearyl ethylimidonium ethosulfate

**Quaternium-34.** See Dicoctadimonium chloride

**Quaternium-39.** See Polyquaternium-5

**Quaternium-40.** See Polyquaternium-6

**Quaternium-41.** See Polyquaternium-7

**Quicklime.** See Calcium oxide

**Quinacridone.** See Pigment violet 19

**Quinacridone red.** See Pigment violet 19

**Quinacridone violet.** See Pigment violet 19

**Quino (2,3-b) acridine-7,14-dione, 5,12-dihydro-.** See Pigment violet 19

**Quinol.** See Hydroquinone

**Quinoline yellow.** See Acid yellow 3

**2-(2-Quinoly)-1,3-indandione disulfonic acid disodium salt.** See Acid yellow 3

**R 141b.** See Dichlorofluoroethane

**Radiant yellow.** See Pigment yellow 14

**Raney alloy.** See Nickel

**Raney nickel.** See Nickel

**Rapeseed (Brassica campestris) oil**

CAS 8002-13-9; 120962-03-0; EINECS/ELINCS 232-299-0

*Synonyms:* Brassica campestris oil; Brassica oleifera; Canola oil (low erucic acid rapeseed oil); Colza oil; Rapeseed oil; Rapeseed oil, blown

*Definition:* Vegetable oil expressed from seeds of *Brassica campestris*

*Properties:* Brn. viscous liq., yel. when refined, noxious odor; sol. in chloroform, ether, CS<sub>2</sub>; dens. 0.913-0.916; m.p. 17-22 C; solidifies at 0 C; iodine no. 97-105; sapon. no. 170-177 C; flash pt. 162 C; ref. index 1.4720-1.4752

*Toxicology:* Toxic; allergic potential; can cause acne-like skin eruptions

*Precaution:* Subject to spontaneous heating

NFPA: Health 0; Flammability 1; Reactivity 0

*Uses:* Lubricant and slip agent for plastics, polymers, rubber, metal lubricants; quenching oil; blown oils; soft soaps; textile finishing agent; drying oil for paints; leather fat-liquoring agent; lubricant, wetting agent for continuous films; emollient in cosmetics; edible oil for salad dressings, margarine; pharmaceutical excipient; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; in food-contact textiles  
*Regulatory:* FDA 21CFR §175.105, 176.210, 177.1200, 177.2800, 184.1555; Japan approved (extract); FDA approved for orals; BP compliance  
*Manuf./Distrib.:* ABITEC; Actrachim; Alfa Aesar; Alnor Oil; Anar; Arista Ind.; BF Goodrich/Textile; Degen; Industrial Oil Prods.; Jarchem Ind.; Lambent Tech.; Penta Mfg.; Sea-Land; Stevenson Cooper; Vliengenthart BV; Welch, Holme & Clark; Werner G. Smith

**Rapeseed oil.** See Rapeseed (Brassica campestris) oil

**Rapeseed oil, blown.** See Rapeseed (Brassica campestris) oil

**Rapeseed oil triglycerides**

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Raw linseed oil.** See Linseed (Linum usitatissimum) oil

**Rayon.** See Cellophane

**Rayon flock.** See Cellophane

**Red 106.** See Acid red 52

**Red haematite.** See Iron oxide red

**Red iron oxide.** See Ferric oxide; Iron oxide red

**Red iron trioxide.** See Ferric oxide

**Red No. 506.** See Acid red 88

**Red oil.** See Oleic acid; Sulfated castor oil

**Red oil, sulfated.** See Sulfated oleic acid

**Red oxide.** See Iron oxide red

**Red prussiate of potash.** See Potassium ferricyanide

**Refined petroleum wax.** See Petroleum wax

**Refined solvent naphtha.** See VM&P naphtha

**Regenerated cellulose.** See Cellophane

**Resin.** See Rosin

**Resin acids and rosin acids, esters with pentaerythritol.** See Pentaerythryl rosinate

**Resin acids and rosin acids, hydrogenated, methyl esters.** See Methyl hydrogenated rosinate

**Resin acids and rosin acids, methyl esters.** See Methyl rosinate

**Resin acid, zinc salt.** See Zinc rosinate

**Resins, Manila elemi.** See Elemi gum

**Resole.** See Phenolic resin

**Resole resin.** See Phenolic resin

**Resol resin.** See Phenolic resin

**Rhodamine 6G.** See Basic red 1

**Rhodamine B.** See Basic violet 10

**Rhodamine, tetraethyl-.** See Basic violet 10

**Rhodanide.** See Potassium thiocyanate

**Rhus succedanea.** See Japan (*Rhus succedanea*) wax

**Rhus succedanea wax.** See Japan (*Rhus succedanea*) wax

**Rice bran oil.** See Rice (*Oryza sativa*) bran oil

**Ricebran oil triglycerides**

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Rice bran wax, hydrogenated.** See Hydrogenated rice bran wax

**Rice oil.** See Rice (*Oryza sativa*) bran oil

**Rice (*Oryza sativa*) bran oil**

CAS 68553-81-1; 84696-37-7; EINECS/ELINCS 271-397-8

*Synonyms:* Oils, rice bran; Rice oil; Rice bran oil; *Oryza sativa*

*Definition:* Oil expressed from rice bran, *Oryza sativa*

*Properties:* Golden yel. oil; misc. with hexane and other fat solvs.; negligible sol. in water; dens. 0.916-0.921; vapor pressure very low; cloud pt. < -7 C; acid no. < 2; iodine no. 92-115; sapon. no. 180-190; ref. index 1.470-1.473

*Hazardous Decomp. Prods.:* CO<sub>2</sub> from combustion

*Uses:* Soap raw material; hydrogenated shortening ingred.; edible oil; skin conditioner, solvent, emollient for cosmetics; pharmaceutical emollient, ointment solvent; in food-pkg. adhesives; defoamer in food-contact paper coatings, paper/paperboard; for fiber finishing for resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 177.2260, 177.2800

*Manuf./Distrib.:* Arista Ind.; Ashland; B&D Nutritional Ingreds.; Barnet Prods.; Chugai Boyeki Am.; Fabrichem; Freeman Ind.; Int'l. Sourcing; Maypro Ind.; Natural Oils Int'l.; Oilseeds Int'l.; Penta Mfg.; Pokonobe Ind.; Seltzer; Tri-K Ind.; Welch, Holme & Clark

**Rice (*Oryza sativa*) starch**

CAS 9005-25-8; 53112-52-0; 75138-75-9

*Synonyms:* *Oryza sativa*; *Oryza sativa* starch; Rice starch

*Definition:* Starch obtained from rice, *Oryza sativa*

*Empirical:* (C<sub>6</sub>H<sub>10</sub>O<sub>5</sub>)<sub>n</sub>

*Toxicology:* LD50 (IP, mouse) 6600 mg/kg; primary irritant; may cause mechanical irritation by blocking pores and putrefying; may cause allergic reaction; TSCA listed

HMS: Health 0; Flammability 1; Reactivity 0

*Uses:* Demulcent and emollient forming a soothing and protective film in baby powds. and dusting powds.; binder for meat processing, dairy, chocolate, candy, pharmaceuticals, cosmetics, paper industry; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 178.3520; BP compliance

*Manuf./Distrib.:* Aldrich; Penta Mfg.; Rhodia HPCII; Ruger; Sigma; Spectrum Quality Prods.; U.S. Synthetics

**Rice starch.** See Rice (*Oryza sativa*) starch; Starch

**Ricini oleum.** See Castor (*Ricinus communis*) oil

**Ricinus communis oil.** See Castor (*Ricinus communis*) oil

**Ricinus oil.** See Castor (*Ricinus communis*) oil

**Road asphalt.** See Asphalt

**Road tar.** See Asphalt

**Rocceline.** See Acid red 88

**Roccelline.** See Acid red 88

**Rock salt.** See Sodium chloride

**Rosin**

CAS 8050-09-7; 8052-10-6; EINECS/ELINCS 232-475-7

*Synonyms:* Colophane; Colophonium; Colophony; Disproportionated rosin; Gum rosin; Pine rosin; Resin; Rosin gum; Wood rosin; Yellow pine rosin; Yellow resin

*Classification:* Nonaromatic anhydride

*Definition:* Residue from distilling off the volatile oil from the oleoresin obtained from *Pinus palustris* and other species of *Pinaceae*

*Empirical:* C<sub>20</sub>H<sub>30</sub>O<sub>2</sub>

*Properties:* Pale yel. to amber translucent solid; sl. turpentine odor and taste; sol. in alcohol, benzene, ether, glacial acetic acid, oils, carbon disulfide; insol. in water; m.w. 302.46; dens. 1.07-1.09; soften. pt. (R&B) 78 C; m.p. 100-150 C; flash pt. 187 C; anionic

*Toxicology:* May be harmful by inh., ing., or skin absorption; may cause eye/ skin irritation; may cause contact dermatitis; may cause sensitization by inh., skin contact; TSCA listed

*Precaution:* Combustible; incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Store away from heat; keep tightly closed

*Uses:* Mfg. of paint driers, printing inks, cements, soap, sealing wax, wood polishes, paper, plastics, fireworks; waterproofing paper, walls; paper sizing ingred.; tackifier for rubber, adhesives; in food-pkg. adhesives and pressure-sensitive adhesives; tung oil/rosin varnish ingred.; emulsifier for SBR polymerization; tackifier resin in adhesives, sealants; natural flavoring in foods; food coatings; masticatory substance in chewing gum; pharmaceutical aid, stiffening agent; film-former in cosmetics; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in closure-sealing gaskets for food containers; plasticizer in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §73.1, 172.210, 172.510, 172.615, 175.105, 175.125, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1210, 177.2600, 178.3120, 178.3800, 178.3850, 178.3870; Japan approved; FDA approved for orals

*Manuf./Distrib.:* Acros Org.; Akzo Nobel; Aldrich; Alfa Aesar; Arakawa USA; Arizona; Browning; Chemcentral; Cytec Ind.; Dastech Int'l.; Dujodwala Resins & Terpenes; Fluka; Focus; Frutarom Meer; Georgia-Pacific Resins; Hercules BV; J.H. Calo; Natrochem; Pfaltz & Bauer; Punda Mercantile; Resinas Sintéticas; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Stevenson Cooper; Technichem; Veitsiluoto Oy; Welch, Holme & Clark; Westvaco

*Trade Names:* Acintol® R Type S; Arizona DR-22; DynaCoat™ XA; DynaCoat™ XC; Dynakoll; Malros®; NeuRoz® 426; NeuRoz® 540; NeuRoz® 700; NeuRoz® XC-7; Neutros®; Neutros® Extra; NovaFlo® 50; NovaFlo® HW; NovaPlus®; NovaPlus® HS; NovaSize, Dark Fortified; NovaSize, Dark Unfortified; NovaSize, Pale Fortified; NovaSpere™; Plasmine® N-750-P; Plasmine® PLH-50; Plasmine® PLH-55; Polystix® 90 Resin; Resin 731D; Roscol®; Sugum 300 NS; Sugum 300 WR; Sugum 500; Sugum 700; Super 50; Uni-Tac® 70; Westvaco® Rosin T

*Trade Names Containing:* Aquacoll 30 CC; Aquacoll 30 PA; Aquacoll 300; Aquacoll 400; Aquacoll 433 S; Aquacoll P 231

**Rosin acid, methyl ester.** See Methyl rosinate

**Rosin, glyceryl ester.** See Glyceryl rosinate

**Rosin gum.** See Rosin

**Rosin, hydrogenated.** See Hydrogenated rosin

**Rosin, hydrogenated, glycerol ester.** See Glyceryl hydrogenated rosinate

**Rosin, lime-hardened.** See Calcium rosinate

**Rosin, maleated**

*Uses:* Intermediate for rosin derivs., printing ink binders; tackifier resin in sealants and mastics; mfg. paper sizes; food-pkg. adhesives, coatings, paper/paperboard, cellophane, rubber articles, wood preservatives

**Rosin, methyl ester.** See Methyl rosinate

**Rosin pentaerythritol ester.** See Pentaerythritol rosinate

**Rosin, polymerized**

*Definition:* Various grades avail. depending on degree of polymerization

*Properties:* 'Dimerized' grades: soften. pt. 150-170 C; 'Polymerized' grades: soften. pt. (R&B) 95 C

*Uses:* Binder for printing inks, lacquers; mfg. of paints; tackifier for polyamide hot-melt adhesives; adhesion promoter; food-pkg. adhesives, pressure-sensitive adhesives, paper, closure-sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard

*Manuf./Distrib.:* Arizona; Chemcentral; Matteson-Ridolfi; S & S Chem.; T&R Chem.; U.S. Polymers

*Trade Names:* Sylvaros® R; Sylvatac® 295; Sylvatac® R85; Sylvatac® RX

**Rosin soap.** See Sodium abietate; Sodium rosinate

**Rubber.** See Natural rubber

**Rubber, chlorinated**

CAS 9006-03-5

*Synonyms:* Chlorinated rubber

*Classification:* Elastomer

*Definition:* Rubber deriv. mfg. by passing chlorine into sol'n. of rubber in chloroform, CCl<sub>4</sub>, etc.; characterized by good film-forming and elec./thermal insulation props.; good resist. to acids, alkalis

*Properties:* Wh. amorphous powd.; sol. in aromatic and chlorinated solvs.; insol. in aliphatics and alcohol; dec. @ 125 C; nonflamm.

*Toxicology:* Nontoxic

*Precaution:* Violent reactions @ 216 C if dry-milled with zinc oxide

*Uses:* Film-former for printing inks, overprint varnishes, maintenance paints (marine, swimming pool, traffic, masonry); fire-resist. textile coatings; heat-seal coatings; syn. rubber adhesives; binder in printing inks, paper coatings, and in anticorrosion, chem.- and fire-resist., swimming pool, marine, road-marking, and concrete paints; in food-contact coatings

*Regulatory:* FDA 21CFR §175.125, 175.300

*Manuf./Distrib.:* Am. Tartaric Prods.; Bayer; Chemcentral; Darwin; Eastech; Mitsubishi Int'l./Plastics; NeoResins; Revelli; Rit-Chem; Seegott; Service Chem.; Tartaric Chems.; Van Waters & Rogers

**Rubber dust.** See Natural rubber

**Rubber hydrochloride**

CAS 9006-00-2

*Synonyms:* Pliofilm; Rubber hydrochloride polymer

*Definition:* A hydrochloride deriv.; chlorine content 29-30.5%

*Empirical:* (C<sub>3</sub>H<sub>5</sub>Cl)<sub>n</sub>

*Properties:* Thermoplastic, wh. powd. or clear film; odorless; tasteless; sol. in aromatic hydrocarbons; softens @ 110-120 C; films are highly resist. to moisture, oils, acids, and alkalis; nonflamm.

*Toxicology:* TDLo (implant, rat) 18 mg/kg; questionable carcinogen; experimental tumorigen

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Cl<sup>-</sup>

*Uses:* Mfg. of paper/paperboard for food contact; in pressure-sensitive food pkg. adhesives; in food-contact coatings

*Regulatory:* FDA 21CFR §175.125, 175.300, 181.30

**Rubber hydrochloride polymer.** See Rubber hydrochloride

**Rubber, natural.** See Natural rubber

**SAA.** See Styrene/acrylic acid copolymer

**Safflower (Carthamus tinctorius) oil**

CAS 8001-23-8; EINECS/ELINCS 232-276-5

*Synonyms:* Carthamus tinctorius; Carthamus tinctorious oil; Safflower oil; Safflower oil (unhydrogenated)

*Definition:* Oily liq. obtained from seeds of *Carthamus tinctorius* consisting principally of triglycerides of linoleic acid

*Properties:* Lt. yel. oily liq.; sl. veg. odor; sol. in oil and fat solvs.; misc. with ether, chloroform; insol. in water; dens. 0.9211-0.9215 (25/25 C); iodine no. 135-150; sapon. no. 188-194; ref. index 1.472-1.475

*Toxicology:* Human skin and eye irritant; ing. in large volumes produces vomiting; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* CO, from combustion; heated to decomp., emits acid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Light-sensitive; becomes rancid on exposure to air

*Uses:* Drying oil for paints, varnishes, alkyd resins; emollient in cosmetics; salad oil blends; margarine/shortening; food coatings; food emulsifier, texturizer, flavoring agent; medicine (laxative, diaphoretic); pharmaceutical emollient, vehicle, solvent; in food-pkg. adhesives; drying oil in food-contact coatings; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, GRAS; Japan approved (safflower); USP/NF compliance

*Manuf./Distrib.:* ABITEC; Alban Muller; Aldrich; Alfa Chem; Alnor Oil; Arista Ind.; Biosil Tech.; Cascade; Charkit; Croda Inc; Int'l. Sourcing; Lambent Tech.; Lipo; Penta Mfg.; Protameen; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Thornley; Tri-K Ind.; Vliengenthart BV; Welch, Holme & Clark

**Safflower oil.** See Safflower (*Carthamus tinctorius*) oil

**Safflower oil (unhydrogenated).** See Safflower (*Carthamus tinctorius*) oil

**Safranin A.** See Basic red 2

**Safranin Y.** See Basic red 2

**Sago starch.** See Starch

**Salicylic acid, bismuth basic salt.** See Bismuth subsalicylate

**Salicylsulfonic acid.** See 5-Sulfosalicylic acid

**Saline.** See Sodium chloride

**Sal soda.** See Sodium carbonate

**Salt.** See Sodium chloride

**Salt cake.** See Sodium sulfate

**Salt of Mohr.** See Ferrous ammonium sulfate

**Sandarac.** See Sandarac (*Callitris quadrivalvis*) gum

**Sandarac (*Callitris quadrivalvis*) gum**

CAS 9000-57-1; EINECS/ELINCS 232-547-8

*Synonyms:* Callitris quadrivalvis; Callitris quadrivalvis gum; Gum sandarac; Sandarac; Sandarac gum

*Definition:* Exuded oleoresin from *Callitris quadrivalvis*, contg. approx. 80% pimaric acid, 10% callitrollic acid

*Properties:* Yel. brittle amorphous lumps or powd.; turpentine-like fresh resinous odor; sol. in alcohol, acetone; insol. in benzene, aryl and aliphatic hydrocarbons, water; sp.gr. 1.05-1.09; m.p. 135-150 C; soften. pt. 100-130 C; iodine no. 112-141; sapon. no. 145-157; ref. index 1.545

*Uses:* Binder in lacquers and paper/picture varnishes; emulsion stabilizer in cosmetics; natural flavoring agent in foods; in food-pkg. adhesives; in food-contact coatings

*Regulatory:* FDA 21CFR §172.510, 175.105, 175.300

*Manuf./Distrib.:* P.L. Thomas

**Sandarac gum.** See Sandarac (*Callitris quadrivalvis*) gum

**Saran.** See Polyvinylidene chloride

**SAS.** See Sodium alum

**S/B.** See Styrene/butadiene polymer

**SBA.** See 2-Butanol

**SBH.** See Sodium borohydride

**SBR.** See Styrene/butadiene polymer

**Scarlet pigment RN.** See Pigment red 3

**SCMC.** See Carboxymethylcellulose sodium

**SDBS.** See Sodium dodecylbenzenesulfonate

**SDDC.** See Sodium dimethyldithiocarbamate

**SDS.** See Sodium lauryl sulfate

**Sea salt.** See Sodium chloride

**Seawater magnesia.** See Magnesium oxide

**Sebacic acid, dibutyl ester.** See Dibutyl sebacate

**Secondary ammonium phosphate.** See Ammonium phosphate, dibasic

**Secondary butyl alcohol.** See 2-Butanol

**Secondary cellulose acetate.** See Cellulose acetate

**Secondary propyl alcohol.** See Isopropyl alcohol

**Sericite.** See Mica

**Serpentine asbestos.** See Asbestos

**Sesame oil.** See Sesame (*Sesamum indicum*) oil

**Sesame seed oil.** See Sesame (*Sesamum indicum*) oil

**Sesame (*Sesamum indicum*) oil**

CAS 8008-74-0; EINECS/ELINCS 232-370-6

*Synonyms:* Benne oil; Gingilli oil; Gingelly oil; Sesame oil; Sesame seed oil;

**Rosin, methyl ester.** See Methyl rosinate

**Rosin pentaerythritol ester.** See Pentaerythrityl rosinate

**Rosin, polymerized**

*Definition:* Various grades avail. depending on degree of polymerization  
*Properties:* 'Dimerized' grades: soften. pt. 150-170 C; 'Polymerized' grades: soften. pt. (R&B) 95 C  
*Uses:* Binder for printing inks, lacquers; mfg. of paints; tackifier for polyamide hot-melt adhesives; adhesion promoter; food-pkg. adhesives, pressure-sensitive adhesives, paper, closure-sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard  
*Manuf./Distrib.:* Arizona; Chemcentral; Matteson-Ridolfi; S & S Chem.; T&R Chem.; U.S. Polymers  
*Trade Names:* Sylvaros® R; Sylvatac® 295; Sylvatac® R85; Sylvatac® RX

**Rosin soap.** See Sodium abietate; Sodium rosinate

**Rubber.** See Natural rubber

**Rubber, chlorinated**

CAS 9006-03-5  
*Synonyms:* Chlorinated rubber  
*Classification:* Elastomer  
*Definition:* Rubber deriv. mfg. by passing chlorine into sol'n. of rubber in chloroform, CCl<sub>4</sub>, etc.; characterized by good film-forming and elec./thermal insulation props.; good resist. to acids, alkalis  
*Properties:* Wh. amorphous powd.; sol. in aromatic and chlorinated solvs.; insol. in aliphatics and alcohol; dec. @ 125 C; nonflamm.  
*Toxicology:* Nontoxic  
*Precaution:* Violent reactions @ 216 C if dry-milled with zinc oxide  
*Uses:* Film-former for printing inks, overprint varnishes, maintenance paints (marine, swimming pool, traffic, masonry); fire-resist. textile coatings; heat-seal coatings; syn. rubber adhesives; binder in printing inks, paper coatings, and in anticorrosion, chem.- and fire-resist., swimming pool, marine, road-marking, and concrete paints; in food-contact coatings  
*Regulatory:* FDA 21CFR §175.125, 175.300  
*Manuf./Distrib.:* Am. Tartaric Prods.; Bayer; Chemcentral; Darwin; Eastech; Mitsubishi Int'l./Plastics; NeoResins; Revelli; Rit-Chem; Seegott; Service Chem.; Tartaric Chems.; Van Waters & Rogers

**Rubber dust.** See Natural rubber

**Rubber hydrochloride**

CAS 9006-00-2  
*Synonyms:* Pliofilm; Rubber hydrochloride polymer  
*Definition:* A hydrochloride deriv.; chlorine content 29-30.5%  
*Empirical:* (C<sub>5</sub>H<sub>5</sub>Cl)<sub>n</sub>  
*Properties:* Thermoplastic, wh. powd. or clear film; odorless; tasteless; sol. in aromatic hydrocarbons; softens @ 110-120 C; films are highly resist. to moisture, oils, acids, and alkalis; nonflamm.  
*Toxicology:* TDLo (implant, rat) 18 mg/kg; questionable carcinogen; experimental tumorigen  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Cl-  
*Uses:* Mfg. of paper/paperboard for food contact; in pressure-sensitive food pkg. adhesives; in food-contact coatings  
*Regulatory:* FDA 21CFR §175.125, 175.300, 181.30

**Rubber hydrochloride polymer.** See Rubber hydrochloride

**Rubber, natural.** See Natural rubber

**SAA.** See Styrene/acrylic acid copolymer

**Safflower (Carthamus tinctorius) oil**

CAS 8001-23-8; EINECS/ELINCS 232-276-5  
*Synonyms:* Carthamus tinctorius; Carthamus tinctorious oil; Safflower oil; Safflower oil (unhydrogenated)  
*Definition:* Oily liq. obtained from seeds of *Carthamus tinctorius* consisting principally of triglycerides of linoleic acid  
*Properties:* Lt. yel. oily liq.; sl. veg. odor; sol. in oil and fat solvs.; misc. with ether, chloroform; insol. in water; dens. 0.9211-0.9215 (25/25 C); iodine no. 135-150; sapon. no. 188-194; ref. index 1.472-1.475  
*Toxicology:* Human skin and eye irritant; ing. in large volumes produces vomiting; TSCA listed  
*Precaution:* Combustible  
*Hazardous Decomp. Prods.:* CO, from combustion; heated to decomp., emits acid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Light-sensitive; becomes rancid on exposure to air

*Uses:* Drying oil for paints, varnishes, alkyd resins; emollient in cosmetics; salad oil blends; margarine/shortening; food coatings; food emulsifier, texturizer, flavoring agent; medicine (laxative, diaphoretic); pharmaceutical emollient, vehicle, solvent; in food-pkg. adhesives; drying oil in food-contact coatings; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, GRAS; Japan approved (safflower); USP/NF compliance

*Manuf./Distrib.:* ABITEC; Alban Muller; Aldrich; Alfa Chem; Alnor Oil; Arista Ind.; Biosil Tech.; Cascade; Charkit; Croda Inc; Int'l. Sourcing; Lambent Tech.; Lipo; Penta Mfg.; Protameen; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Thornley; Tri-K Ind.; Vliengenthart BV; Welch, Holme & Clark

**Safflower oil.** See Safflower (*Carthamus tinctorius*) oil

**Safflower oil (unhydrogenated).** See Safflower (*Carthamus tinctorius*) oil

**Safranin A.** See Basic red 2

**Safranin Y.** See Basic red 2

**Sago starch.** See Starch

**Salicylic acid, bismuth basic salt.** See Bismuth subsalicylate

**Salicylsulfonic acid.** See 5-Sulfosalicylic acid

**Saline.** See Sodium chloride

**Sal soda.** See Sodium carbonate

**Salt.** See Sodium chloride

**Salt cake.** See Sodium sulfate

**Salt of Mohr.** See Ferrous ammonium sulfate

**Sandarac.** See Sandarac (*Callitris quadrivalvis*) gum

**Sandarac (*Callitris quadrivalvis*) gum**

CAS 9000-57-1; EINECS/ELINCS 232-547-8  
*Synonyms:* Callitris quadrivalvis; Callitris quadrivalvis gum; Gum sandarac; Sandarac; Sandarac gum  
*Definition:* Exuded oleoresin from *Callitris quadrivalvis*, contg. approx. 80% pimaric acid, 10% callitrollic acid  
*Properties:* Yel. brittle amorphous lumps or powd.; turpentine-like fresh resinous odor; sol. in alcohol, acetone; insol. in benzene, aryl and aliphatic hydrocarbons, water; sp.gr. 1.05-1.09; m.p. 135-150 C; soften. pt. 100-130 C; iodine no. 112-141; sapon. no. 145-157; ref. index 1.545  
*Uses:* Binder in lacquers and paper/picture varnishes; emulsion stabilizer in cosmetics; natural flavoring agent in foods; in food-pkg. adhesives; in food-contact coatings  
*Regulatory:* FDA 21CFR §172.510, 175.105, 175.300  
*Manuf./Distrib.:* P.L. Thomas

**Sandarac gum.** See Sandarac (*Callitris quadrivalvis*) gum

**Saran.** See Polyvinylidene chloride

**SAS.** See Sodium alum

**S/B.** See Styrene/butadiene polymer

**SBA.** See 2-Butanol

**SBH.** See Sodium borohydride

**SBR.** See Styrene/butadiene polymer

**Scarlet pigment RN.** See Pigment red 3

**SCMC.** See Carboxymethylcellulose sodium

**SDBS.** See Sodium dodecylbenzenesulfonate

**SDDC.** See Sodium dimethyldithiocarbamate

**SDS.** See Sodium lauryl sulfate

**Sea salt.** See Sodium chloride

**Seawater magnesia.** See Magnesium oxide

**Sebacic acid, dibutyl ester.** See Dibutyl sebacate

**Secondary ammonium phosphate.** See Ammonium phosphate, dibasic

**Secondary butyl alcohol.** See 2-Butanol

**Secondary cellulose acetate.** See Cellulose acetate

**Secondary propyl alcohol.** See Isopropyl alcohol

**Sericite.** See Mica

**Serpentine asbestos.** See Asbestos

**Sesame oil.** See Sesame (*Sesamum indicum*) oil

**Sesame seed oil.** See Sesame (*Sesamum indicum*) oil

**Sesame (*Sesamum indicum*) oil**

CAS 8008-74-0; EINECS/ELINCS 232-370-6  
*Synonyms:* Benne oil; Gingilli oil; Gingelly oil; Sesame oil; Sesame seed oil;



Sesamum indicum; Sesamum indicum oil; Teel oil

**Definition:** Refined fixed oil obtained from the seeds of *Sesamum indicum*

**Properties:** Bland yish. oily liq., pract. odorless, bland taste; sl. sol. in alcohol; misc. with ether, chloroform, hexane, carbon disulfide; negligible sol. in water; dens. 0.916-0.921; vapor pressure very low; iodine no. 103-116; sapon. no. 188-195; flash pt. 491 F; ref. index 1.4575-1.4598 (60 C)

**Toxicology:** LD50 (IP, mouse) > 50 g/kg, (IV, rabbit) 678 µg/kg; poison by IV route; primary irritant; human skin irritant; may cause allergic reactions, primarily contact dermatitis; questionable carcinogen; experimental tumorigen; TSCA listed

**Precaution:** Combustible exposed to heat or flame

**Hazardous Decomp. Prods.:** CO<sub>2</sub> from combustion; heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 0; Flammability 1; Reactivity 0

**Storage:** Light-sensitive

**Uses:** Cosmetics; lotions; injectables; natural flavorant for foods; mfg. of oleomargarine, iodized oil; pharmaceutical solvent, vehicle, keratin softener; emollient; in food-pkg. adhesives; drying oil in food-contact coatings; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210; FDA approved for parenterals, orals, topicals; USP/NF, BP, Ph.Eur., JP compliance

**Manuf./Distrib.:** Alban Muller; Arista Ind.; Cascade; Charkit; Chart; Croda Inc; Fanning; Fluka; Int'l. Sourcing; Jarchem Ind.; Lipo; Penta Mfg.; Pokonobe Ind.; Protameen; Quest Int'l.; Ruger; Sigma; Spectrum Quality Prods.; Thornley; Tri-K Ind.; Universal Preserv-A-Chem; Vitamins, Inc; Welch, Holme & Clark

**Sesamum indicum.** See Sesame (*Sesamum indicum*) oil

**Sesamum indicum oil.** See Sesame (*Sesamum indicum*) oil

**Sewer gas.** See Hydrogen sulfide

**SFS.** See Sodium formaldehyde sulfoxylate

### Shark liver oil

CAS 68990-63-6; EINECS/ELINCS 273-616-2

**Definition:** Oil expressed from fresh livers of sharks and other *Elasmobranchii* species

**Properties:** Yel. to red-brown liq., strong odor; sol. in ether, chloroform, benzene, carbon disulfide, oxygenated and chlorinated solvs.; dens. 0.917-0.928; iodine no. 125-155; sapon. no. 170-187; ref. index 1.4784 (20 C)

**Uses:** Nutritive additive in foods; source of vitamin A and squalene; biochemical research; emollient; moisture repellent; skin protectant; topical protectant (hemorrhoidal preps.); in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2800

**Manuf./Distrib.:** Alfa Chem; Am. Roland; Arista Ind.; F.H. Taussig; Gemchem; Infinity Marketing Group; Marine Bio-Prods.; Maypro Ind.; R.W. Greeff; Ruger; Sigma; Traco Labs

**Shark liver oil, hydrogenated.** See Hydrogenated shark liver oil

### Shellac

CAS 9000-59-3; EINECS/ELINCS 232-549-9

**Synonyms:** Bleached shellac; Button lac; Garnet lac; Gum lac; Lac; Lacca; Shellac orange S-40; Stick lac; White shellac

**Classification:** Fatty acid

**Definition:** Resinous secretion of the insect *Laccifer (Tachardia) lacca*

**Properties:** Off-wh. to brn. amorphous gran. solid, very little odor; slowly sol. in alcohol; sl. sol. in acetone, ether, benzene, petrol. ether; insol. in water; dens. ≈ 1.15 kg/l; m.p. 115-120 C; acid no. 73-89 (reg.), 75-91 (refined)

**Toxicology:** Nonallergenic; may cause contact dermatitis

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMS:** Health 1; Flammability 2; Reactivity 0

**Uses:** Resin for paints; lacquers; varnishes; sealer coat under varnish; finish coat for floors, furniture; dielectric coatings; cement; mfg. of buttons, grinding wheels, sealing wax, cements, inks, phonograph records, paper; stiffener for hats; binder for knot-sealing paints; finishing leather; foods (coating agent, color diluent, surface-finishing agent, glazing/polishing agent); chewing gum base; pharmaceutical enteric coating for tablets; dental impression compds.; in food-pkg. adhesives; in food-contact coatings

**Use Level:** 0.4% max. (EU)

**Regulatory:** FDA 21CFR §73.1, 175.105, 175.300, 175.380, 175.390, 182.99; 27CFR §21.126, 212.61, 212.90; 40CFR §180.1001; Japan approved; Europe listed; UK approved; FDA approved for orals; USP/NF compliance; JP compliance (purified shellac and white shellac)

**Manuf./Distrib.:** Colony Ind.; Houghton Chem.; Kane Int'l.; Mantrose Bradshaw Zinsser; Nichimen Am.; P.L. Thomas; Punda Mercantile; Ruger; Sarcom; Stevenson Cooper; Wm. Zinsser

**Shellac orange S-40.** See Shellac

**SHMP.** See Sodium hexametaphosphate

**Shorea robusta gum.** See Dammar

**Sienna.** See Iron oxide yellow

### Silica

**Synonyms:** Silicic anhydride; Silicon dioxide

**Classification:** Inorganic oxide

**Definition:** Occurs in nature as agate, amethyst, chalcedony, cristobalite, flint, quartz, sand, tridymite, diatomite. The designation silica (silicon dioxide) incl. cryst., amorphous forms which are hydrated or hydroxylated

**Empirical:** O<sub>2</sub>Si

**Formula:** SiO<sub>2</sub>

**Properties:** Transparent crystals or amorphous very fine powd.; pract. insol. in water, alcohol, and acids except hydrofluoric; m.w. 60.09; dens. 2.2 (amorphous), 2.65 (quartz, 0 C); vapor pressure 10 mm Hg (1732 C); m.p. 1710 C; b.p. 2230 C; lowest coeff. of heat expansion; melts to a glass; pH 3.5-4.4

**Toxicology:** LD50 (oral, rat) 3160 mg/kg; poison by IP, IV, intratracheal routes; mod. toxic by ing.; prolonged inh. of dust can cause silicosis; suspected human carcinogen; TSCA listed

**Precaution:** Reacts violently with ClF<sub>3</sub>; MNF<sub>3</sub>; OF<sub>2</sub>

**HMS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Hygroscopic

**Uses:** Mfg. of glass, water glass, refractories, abrasives, ceramics, enamels, petroleum prods.; filler in paints, cosmetics; rubber reinforcing agent; anticaking agent; defoamer; abrasive in dentifrices; thickener; decolorizer, purifier; ferrosilicon; adsorbent for removal of dyes from wastewater; in scouring/grinding compds.; foods (anticaking, carrier, thickener, color diluent; chillproofing in beer; clarifier in wine); pharmaceuticals (thickener, glidant, carrier, suspending agent); in food-pkg. adhesives; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in food-contact crosslinked polyesters

**Use Level:** Limitation 2% (of ink solids), 4% (in dry tocopherol-contg. bacon curing agent); ADI not specified (EU)

**Regulatory:** FDA 21CFR §73.1, 172.230, 172.480 (limitation 2%), 173.340, 175.105, 175.300, 176.170, 176.200, 176.210, 177.1200, 177.1460, 177.2420, 177.2600, 178.3297, 182.90, 182.1711, GRAS; USDA 9CFR §318.7; Japan approved (2% max. as anticaking), other restrictions; Europe listed; UK approved; FDA approved for orals, rectals, vaginals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Akzo Nobel; Atlantic Equip. Engrs.; BYK-Chemie GmbH; Cabot Carbon Ltd; Celite; Chisso Am.; Crosfield; Degussa-Hüls; DuPont; Engelhard; Fluka; Gelest; J.M. Huber/Chems.; Nissan Chem. Ind.; PPG Ind.; PQ; Presperse; Reade Advanced Materials; Spectrum Quality Prods.; Triple Crown Am.; Unimin; Whittaker, Clark & Daniels

**Trade Names:** Patcote® 801; Patcote® 806; Patcote® 814; Patcote® 8060

**Trade Names Containing:** Advantage® 91WW; Advantage® 357 Defoamer; Advantage® Eff-101 Defoamer; Agitan® 260; Agitan® 280; Agitan® 281; Agitan® 295; Agitan® 315; Agitan® 380; Dapros® DF 2162; Defoamer CK-55; Drewplus® L-108; Drewplus® L-131; Drewplus® L-139; Drewplus® L-175; Drewplus® L-191; Drewplus® L-198; Drewplus® L-418; Drewplus® L-419; Drewplus® L-424; Drewplus® L-474; Drewplus® L-475; Drewplus® L-477; Drewplus® L-493; Drewplus® L-496; Drewplus® L-768; Drewplus® Y-250; Drewplus® Y-281; Foamaster® AP; Foamaster® DS; Foamaster® G; Foamaster® R; Foamaster® RD; Foamaster® S; Foamaster® V; Foamlex W-315; Halocarbon Grease 19; Halocarbon Grease 25-5S; Halocarbon Grease 28; Halocarbon Grease 28LT; Halocarbon Grease 32; Larostat® 902AS; Larostat® FPE-S; Sag 730; TEGO® Foamex 835; TEGO® Foamex 1495; TEGO® Foamex N

See also Diatomaceous earth; Silica, amorphous; Silica, amorphous hydrated; Silica, colloidal; Silica, fumed; Silica, hydrated

**Silica acid.** See Silica, hydrated

**Silica, amorphous**

CAS 112926-00-8; EINECS/ELINCS 231-545-4

*Synonyms:* Polyethylenimine-silica; Precipitated silica; Silica, amorphous precipitated; Silica, amorphous, precipitated and gel*Classification:* Mineral*Properties:* Sp.gr. 2-2.3; oil absorp. 28; GE brightness 90-94; ref. index 1.45; hardness (Mohs) 5-6*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust); harmful dust; avoid inh.*Storage:* Hygroscopic*Uses:* Reinforcing filler for rubber goods, tires, adhesives, footwear; food-pkg. adhesives, coatings, cellophane, rubber articles; defoamer in food-contact coatings, paper/paperboard*Manuf./Distrib.:* Aldrich; Am. Int'l.; Cabot/Cab-O-Sil; Celite; Crosfield; Degussa-Hüls; J.M. Huber/Chems.; Kaopolite; Nalco; PPG Ind.; Reade Advanced Materials; Sigma; Whittaker, Clark & Daniels*Trade Names:* San-Sil® AN 45; San-Sil® CG-102; San-Sil® KU 33; Sipernat® 22; Sipernat® 50S; Sipernat® 500LS; Sylophobic; Sylysia 250; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Sylysia 430; Sylysia 440; Sylysia 450; Sylysia 470; Sylysia 530; Sylysia 540; Sylysia 550; Sylysia 730; Sylysia 740; Sylysia 770*Trade Names Containing:* Modaflow® Powder 2000; Sylysia 256N; Sylysia 435; Sylysia 436; Sylysia 445; Sylysia 456*See also* Silica, amorphous hydrated; Silica, fumed**Silica, amorphous fumed.** *See* Silica, fumed**Silica, amorphous hydrated**

CAS 7631-86-9; EINECS/ELINCS 231-545-4

*Synonyms:* Amorphous silica; Silica, amorphous*Empirical:* O<sub>2</sub>Si*Properties:* Transparent cryst. or amorphous powd.; tasteless; sol. in HF; sl. sol. in water; m.w. 60.09; dens. 2.2; m.p. 1716-1736 C; b.p. 2230 C; ref. index 1.46; melts to glass at ordinary temps.; chem. resist. to most reagents*Toxicology:* ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust), when toxic impurities absent; nuisance particulate; transient dermatitis which causes skin dehydration and loss of skin oils

HMIS: Health 2; Flammability 0; Reactivity 0

*Uses:* Filler and reinforcing material in rubber and plastics; to improve ink retention on paper; as pigment and filler in paints and coatings; as an abrasive, adsorbent, desiccant and catalyst base*Manuf./Distrib.:* Akzo Nobel; Archway Sales; CR Mins.; Cabot/Cab-O-Sil; Chem-Materials; Crosfield; D.N. Lukens; Degussa-Hüls; H.M. Royal; J.M. Huber/Chems.; Jesse S. Young; Lenape Ind.; Lomas Int'l.; Millennium Inorg. Chems.; Nalco; PPG Ind.; PQ; Seegott; Tamms Ind.; Tulco; Van Waters & Rogers; Whittaker, Clark & Daniels*Trade Names:* San-Sil® BD-73*Trade Names Containing:* Modaflow® Powder III*See also* Silica**Silica, amorphous precipitated.** *See* Silica, amorphous**Silica, amorphous, precipitated and gel.** *See* Silica, amorphous**Silic acid (polyortho).** *See* Silica, hydrated**Silica, colloidal**

EINECS/ELINCS 231-545-4

*Synonyms:* Colloidal silica; Silica sol*Definition:* A stable dispersion of discrete, colloid-size particles of amorphous silica in aq. sol'n.*Uses:* Antislip agent for paper; fiber binder for metal casting and refractory materials; catalyst carrier; reinforcing material for adhesives and paints; food pkg.*Manuf./Distrib.:* Aldrich; Cabot/Cab-O-Sil; Degussa-Hüls; H.M. Royal; Nalco; Reade Advanced Materials; Sigma; Whittaker, Clark & Daniels*Trade Names:* Adelite; Bindzil® 15/500; Bindzil® 30/80; Bindzil® 30/220; Bindzil® 30/360; Bindzil® 30NH<sub>2</sub>/220; Bindzil® 40/130; Bindzil® 40/220; Bindzil® 50/80; Bindzil® 305; Bindzil® CAT80; Bindzil® F45; Ludox® CL-X; Nyacol® 215; Nyacol® 830; Nyacol® 1430; Nyacol® 1440; Nyacol® 2034DI; Nyacol® 2040; Nyacol® 2040NH<sub>2</sub>; Nyacol® 2050; Nyacol® 9950; Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex O; Snowtex OL; Snowtex PS-L; Snowtex PS-M; Snowtex S; Snowtex ST-20L; Snowtex ST-40; Snowtex ST-50; Snowtex ST-C; Snowtex ST-N; Snowtex ST-O; Snowtex ST-O-30; Snowtex ST-O-40;

Snowtex ST-OL; Snowtex ST-OL-40; Snowtex ST-OS; Snowtex ST-S; Snowtex ST-UP; Snowtex ST-XS; Snowtex ST-ZL; Snowtex XS

*Trade Names Containing:* Snowtex N*See also* Silica; Silica, amorphous**Silica, fumed**

CAS 112945-52-5; EINECS/ELINCS 231-545-4

*Synonyms:* Amorphous silica dust; CI 77711; Colloidal silica; Colloidal silicon dioxide; Fossil flour; Fumed silica; Fumed silicon dioxide; Pigment white 27; Silica, amorphous; Silica, amorphous fumed; Silica, pyrogenic; Silicic anhydride; Silicon dioxide*Definition:* High surface area aggregate particles of silica, with min. 89.5% SiO<sub>2</sub> content*Empirical:* O<sub>2</sub>Si*Formula:* SiO<sub>2</sub>*Properties:* Wh. to gray fine dusty powd.; odorless; sol. in hydrofluoric acid; insol. in water; m.w. 60.09; sp. gr. 2.1; dens. ≈ 2 lb/ft<sup>3</sup> (unpacked); BET surf. area 200-300 m<sup>2</sup>/g; m.p. 1600 C; ref. index 1.46; hydrophilic*Toxicology:* ACGIH TLV 10 mg/m<sup>3</sup>; nuisance dust; LD50 (oral, rat) 3160 mg/kg, (IV, rat) 15 mg/kg; LDLo (IP, rat) 50 mg/kg; poison by IP, IV, and intratracheal routes; mod. toxic by ing.; hazard by inh.; silica fume may cause drying of skin after prolonged exposure; contact lenses should not be worn for handling material; much less toxic than crystalline forms; does not cause silicosis; questionable carcinogen; mutagenic data; tumorigen*Precaution:* Incompat. with strong oxidizers, fluorine, oxygen difluoride, chlorine trifluoride*Storage:* Hygroscopic*Uses:* Thickener, thixotropic and reinforcing agent in inks, resins, paints, and cosmetics; filler for plastics, rubber, caulks, sealants; flattening agent, pigment in paints, printing inks; viscosifier for paints, adhesives, cosmetics; base material for high-temp. mortars; food-pkg. adhesives, coatings, paper/paperboard, cellophane, film, rubber articles; defoamer in food-contact coatings, paper/paperboard*Manuf./Distrib.:* Aldrich; AluChem; Cabot/Cab-O-Sil; Degussa-Hüls; Fluka; H.M. Royal; Reade Advanced Materials; Sigma; Wacker Silicones; Whittaker, Clark & Daniels*Trade Names:* Acematt™ TS100; Aerosil® 200; Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® LM-150D; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Cab-O-Sil® PTG; Wacker HDK® N20*Trade Names Containing:* TEGO® Airex 901 W; TEGO® Foamex 8030; TEGO® Foamex 826*See also* Silica; Silica, amorphous**Silica hydrate.** *See* Silica, hydrated**Silica, hydrated**

CAS 1343-98-2; EINECS/ELINCS 215-683-2

*Synonyms:* Hydrated silica; Hydrosilicic acid; Polyorthosilicic acid; Polysilicic acid; Precipitated silica; Silica acid; Silica hydrate; Silica, precipitated; Silicic acid; Silicic acid hydrate; Silicic acid hydrated; Silic acid (polyortho); Silicon hydroxide*Classification:* Inorganic oxide*Definition:* Occurs in nature as opal; jelly-like precipitate obtained when sodium silicate sol'n. is acidified*Empirical:* ≈ H<sub>2</sub>O<sub>2</sub>Si*Formula:* SiO<sub>2</sub> · xH<sub>2</sub>O, x varies with method of precipitation and extent of drying*Properties:* Wh. amorphous powd. or lumps; sol. in hot fixed alkaline hydroxide sol'ns.; insol. in water or acids except hydrofluoric; m.w. 60.08 + water*Toxicology:* TLV/TWA 10 mg/m<sup>3</sup> (total dust); eye irritant; poison by IV route; TSCA listed*Uses:* Insecticide; pesticide carrier; for absorption of vapors; laboratory reagent; reinforcing filler in rubber, plastics, sealants, cleaners, grease; extender in paints; flow conditioner/anticaking agent in fire extinguisher powds., foodstuffs; prevents ink migration in paper coatings; adsorbent in foods and pharmaceuticals; beer clarifying agent; anticaking agent for table salt and powd. sweeteners; abrasive, thickener in dentifrices; free-flow agent; food-pkg. adhesives; opacifier; visc. control agent; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty/dry

## Silica, precipitated

foods; defoamer in food-contact coatings; in cellophane for food pkg.; in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §73.1, 160.105, 160.185, 172.480, 173.340, 175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.2420, 177.2600, 182.90, 573.940

**Manuf./Distrib.:** Crosfield; Fluka; J.M. Huber/Chems.; Osram Sylvania; PPG Ind.; PQ; Spectrum Quality Prods.

**Trade Names:** Quiso® G35, G38, WR55, WR83; Sipernat® 22LS; Sipernat® 22S; Sipernat® 50; Sipernat® 300DS; Sipernat® 310; Sipernat® 320DS

**Silica, precipitated.** See Silica, hydrated

**Silica, pyrogenic.** See Silica, fumed

**Silica sol.** See Silica, colloidal

**Silicate (2-), hexafluoro-, magnesium (1:1).** See Magnesium silicofluoride

**Siliceous earth.** See Diatomaceous earth

**Silicic acid.** See Silica, hydrated

**Silicic acid, calcium salt.** See Calcium metasilicate; Calcium silicate

**Silicic acid, calcium salt (1:1).** See Calcium metasilicate

**Silicic acid, disodium salt.** See Sodium metasilicate

**Silicic acid hydrate.** See Silica, hydrated

**Silicic acid hydrated.** See Silica, hydrated

**Silicic acid, lithium, magnesium, sodium salt.** See Smectite

**Silicic acid, potassium salt.** See Potassium silicate

**Silicic acid (H<sub>2</sub>SiO<sub>3</sub>), calcium salt (1:1).** See Calcium metasilicate

**Silicic acid, sodium salt.** See Sodium silicate

**Silicic anhydride.** See Silica; Silica, fumed

## Silicon

CAS 7440-21-3; EINECS/ELINCS 231-130-8; UN No. 1346 (DOT)

**Synonyms:** Silicon powder, amorphous

**Classification:** Nonmetallic element

**Definition:** Does not occur freely in nature; found as silica (quartz, sand) or as silicate (feldspar, kaolinite); 27.6% of earth's crust

**Empirical:** Si

**Properties:** Blk. to gray cryst. or dk. brn. powd. (amorphous form); pract. insol. in water; at. no. 14; m.w. 28.086; dens. 2.330 (20/4 C); m.p. 1420 C; b.p. 2680 C; hardness (Mohs) 7.0; sp. heat 0.162 cal/gC; dielec. const. 12

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust), when toxic impurities are not present; LD50 (oral, rat) 3160 mg/kg; mod. toxic by ing.; nuisance dust; eye irritant; TSCA listed

**Precaution:** DOT: Flamm. solid; violent reactions with alkali carbonates, oxidants, etc.; heated, reacts with water to produce H<sub>2</sub>; can react with oxidizers; attacked by hydrofluoric or hydrofluoric/nitric acids; burns in fluorine, chlorine

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Semiconductor in solid-state devices; organosilicon compounds; silanes and silicones; silicon carbide; alloying agent in steels, aluminum, copper, bronze, iron; cermets, refractories; halogenated silanes; deoxidizer in steel mfg.; nutrient; reducing agent; pharmaceuticals (orals, topicals)

**Regulatory:** FDA approved for orals, topicals

**Manuf./Distrib.:** Aldrich; Atlantic Equip. Engrs.; Atomergic Chemetals; Atramet; Cerac; Crystran Ltd; Dow Corning; Eagle-Picher; Fluka; Gelest; Shin-Etsu; Sigma; Spectrum Quality Prods.

**Trade Names Containing:** Kronos® 2081; Kronos® 2101; Kronos® 2160; Kronos® 2220; Kronos® 2310

**Silicon dioxide.** See Silica; Silica, fumed

**Silicon dioxide, diatomaceous.** See Diatomaceous earth

## Silicone

**Synonyms:** Organosiloxane; Organosiloxanes; Siloxane; Siloxanes

**Classification:** Siloxane polymers

**Definition:** Family of syn. polymers contg. a repeating silicon-oxygen backbone with org. side groups attached via carbon-silicon bonds; classified as fluids, resins, and elastomers

**Properties:** Liq., semisolid, or solid; cis 1 to >1,000,000 cs; water repellent; sol. in most organic solvents

**Toxicology:** Silicone-related diseases can occur, e.g., silicone-induced synovitis and lymphadenopathy, acute and chronic pneumonitis from 'bleeding' from ruptured bag-gel breast implants, pulmonary lesions, granulomatous

reactions

**Precaution:** Unhalogenated types combustible

**Uses:** Thermosetting siloxane polymers used as mold release for plastics and rubber; defoamers for mining, latex, ink, soaps, agric., food processing, pulp/paper, effluent, antifreeze, textiles; wetting agent; surfactant; hydraulic and dielec. oils; adhesives; caulking compds.; water repellents for textile, paper, masonry, concrete; damping fluids; as lubricants, conditioners, and emollients in personal care prods.; molding compds.; encapsulants; medical implants; release agent in food-contact coatings

**Regulatory:** FDA 21CFR §175.300

**Manuf./Distrib.:** Ashland; Bayer; Chemcentral; Clariant; Crucible; D.N. Lukens; Dow Corning; GE Silicones; Genesee Polymers; Goldschmidt; Harcross; Reichhold; Rhodia HPCI; Ruger; Seegott; Shin-Etsu; Sivento; Tego GmbH; Transene; Union Carbide; Van Waters & Rogers; Veckridge; Wacker Silicones; Wacker-Chemie GmbH

**Trade Names:** Adekanol G-683; Chemax DF-100; Dow Corning® 26 Additive; Dow Corning® 163 Additive; EXP-58 Silicone Wax; EXP-77 Mercapto Functional Silicone Wax; Foamkill® 618; Foamkill® 639J-F; Foamkill® MSF Conc.; GP-300-I Antifoam Compd.; No Stik 806; Polysynth SD; Sag 100; Silicone Antifoam Agent S 203; Silicone Antifoam Agent S 204; Silicone Antifoam Agent S 670; Silicone Antifoam Compound S 204; Surfynol® SM-740; TEGO® RC 704; Trans-290

**Trade Names Containing:** Adekanate B-190; Adekanate B-192; Adekanate B-1012; Adekanate B-1015; Adekanate B-1016; Agitan® 217; Agitan® 218; Agitan® 301; Agitan® 760; Colloid™ 1010; Dapro® DF 1161; Drewplus® L-418; Drewplus® L-419; Drewplus® L-768; Foam Blast 240; Foamlex E-585K; GP-262 Defoamer; Hi-Mar DFP-203; Oakite® Defoamant RC; Suntorl C-500; Surfynol® SM-745

See also Dimethicone; Methicone; Polysiloxane; Simethicone

## Silicone acrylate

**Uses:** For release coatings to be cured by electron beam or UV-radiation in the paper and film industries

**Trade Names:** TEGO® RC 705; TEGO® RC 706; TEGO® RC 708; TEGO® RC 711; TEGO® RC 726; TEGO® Silicone Acrylate RC

## Silicone emulsions

**Classification:** Organosiloxane

**Toxicology:** No known toxicity

**Uses:** Lubricant, release agent, extender, modifier for plastics and rubber; defoamer for food processing, pharmaceuticals, paints, adhesives, polymerization processes, boiler water, waste treatment; textile waterproofing agent; antiadherence coatings; mold release agents; pharmaceuticals (desiccant, water repellent, film-former); defoamer in food-contact coatings, paper/paperboard; food-pkg. adhesives

**Regulatory:** FDA approved for orals, topicals; USP/NF compliance

**Manuf./Distrib.:** Atlas Refinery; CNC Int'l.; Clariant; Crompton/Witco; Crucible; Dow Corning; Genesee Polymers; Great Western; Harwick; Lambent Tech.; PPG Ind.; ROSS Chem; Ruger; Sivento; Soluol; Taylor; Wacker Silicones

**Trade Names:** Adekanate B-1019; Chemax DF-10; Chemax DF-10A; Chemax DF-30; CNC Antifoam 10-FG; CNC Antifoam 30-FG; CNC Antifoam 495, 495-M; CS-10; CS-10A; CS-20; CS-30; CS-420; Dow Corning® 1430 Emulsion; Dow Corning® Antifoam 1520-US; Dow Corning® Antifoam FG-10; Dow Corning® Antifoam H-10; Dow Corning® Antifoam Y-30; Drewplus® L-407; EXP-24-LS Silicone Wax Emulsion; Foamkill® 400A; Foamkill® 679; Foamkill® 830; Foamkill® 836A; Foamkill® 836B; Foamkill® 852; Foamkill® MS-1; GP-310-I Antifoam Emulsion; Masil® EM 501; Mazu® DF 210SX; Mazu® DF 230SX; Moussex® 904 SE; NuDry™ 30; Polysynth SI 40; Silicone Antifoam Emulsion SE 21; Silicone Antifoam Emulsion SE 23; Silicone Antifoam Emulsion SE 25; Silicone Antifoam Emulsion SE 26; Silicone Antifoam Emulsion SRE; SM 2128; Surfynol® DF-695; TEGO® Antifoam 1-60; TEGO® Antifoam 1-62; TEGO® Antifoam 2-18; TEGO® Antifoam 2-57; TEGO® Antifoam 2-67; TEGO® Antifoam 2-80; TEGO® Antifoam 2-82; TEGO® Antifoam 2-89; TEGO® Antifoam 2-92; TEGO® Antifoam 1488; TEGO® Antifoam MR 1015; TEGO® Antifoam MR 1016; TEGO® Antifoam N; TEGO® Foamex 1435; Trans-10; Trans-20; Trans-30; Webnix 69C; Webnix 1065-3; Webnix 5113; Webnix 5116

**Trade Names Containing:** Advantage® 91WW; GP-210 Silicone Antifoam Emulsion; Trans-278

See also Dimethicone; Methicone; Polysiloxane; Simethicone

**Silicone glycol copolymer**

CAS 67674-67-3; 68937-55-3; 68938-54-5

*Uses:* Surfactant for use in MDI-based polyurethane foam systems; mar resist. additive used for water-based, solv.-based, high-solids and solventless org. paints, inks, and coatings; slip aid; enhances flow-out, wetting, and leveling; aids pigment disp.; defoamer in food-contact paper/paperboard

*Trade Names:* Silwet® L-7200; Silwet® L-7210; Silwet® L-7220; Silwet® L-7230; Silwet® L-7608

**Silicone hexaacrylate**

*Uses:* Slip, wetting agent, flow improver for coatings on paper, plastics, and metal

*Trade Names:* Ebecryl® 1360

**Silicone oil.** See Dimethyl siloxane**Silicone oils.** See Dimethyl siloxane**Silicon hydroxide.** See Silica, hydrated**Silicon powder, amorphous.** See Silicon**Siloxane.** See Polysiloxane; Silicene**Siloxane, dimethyl-.** See Dimethyl siloxane**Siloxanes.** See Silicene**Siloxanes and silicones, dimethyl-.** See Dimethyl siloxane**Siloxanes and silicones, dimethyl, hydroxy-terminated.** See Dimethiconol**Siloxanes and silicones, dimethyl, hydroxy-terminated, ethoxylated propoxylated.** See Dimethicone copolyol**Silver fluoride**

CAS 7775-41-9; EINECS/ELINCS 231-895-8

*Synonyms:* Silver (I) fluoride; Silver monofluoride

*Empirical:* AgF

*Properties:* Yel. or brnsh. cryst. mass; darkens on exposure to light; sol. in water; m.w. 126.87; dens. 5.852; m.p. 435 C; b.p. 1150 C

*Toxicology:* TLV 0.01 mg/m<sup>3</sup> of air; strong irritant

*Storage:* Very hygroscopic; light-sensitive

*Uses:* Medicine (antiseptic); substitution of fluorine for bromine and chlorine in org. compds.; slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

*Manuf./Distrib.:* ABCR; Acros Org.; Atofina; Colonial Metals; Noah; Ozark-Mahoning; Pfaltz & Bauer; Spectrum Quality Prods.

**Silver (I) fluoride.** See Silver fluoride**Silver monofluoride.** See Silver fluoride**Silver nitrate**

CAS 7761-88-8; EINECS/ELINCS 231-853-9; UN No. 1493 (DOT)

*Synonyms:* Nitric acid silver (1+) salt; Silver (I) nitrate (1:1); Silver (1+) nitrate

*Empirical:* AgNO<sub>3</sub>

*Properties:* Colorless or wh. cryst.; becomes gray or grayish blk. on exposure to light in presence of org. matter; very sol. in water, ammonia; sol. in boiling alcohol; sparingly sol. in alcohol; sl. sol. in ether; m.w. 169.88; dens. 4.352 (19 C); m.p. 212 C; b.p. 444 C (dec.); pH 5.5 (sol'n.)

*Toxicology:* ACGIH TLV/TWA 0.01 mg(Ag)/m<sup>3</sup>; LD50 (IP, mouse) 23,783 µg/kg; LDLo (oral, rabbit) 800 mg/kg, (IV, rabbit) 8800 µg/kg; poison by ing., IV, subcut., IP routes; human poison; ing. can cause severe or fatal gastroenteritis; irritating to eyes (severe), skin, and respiratory tract; chronic exposure causes argyria; questionable carcinogen; experimental tumorigen, reproductive effector; human mutagenic data; TSCA listed

*Precaution:* Strong oxidizer that reacts dangerously with many acids and phosphorus derivs.; incompat. with alkalis, Al, antimony salts, arsenic, bromides, C, carbonates, chlorides, copper, ethanol, ferrous salts, oils, phosphates, sulfur, etc.

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic Ag and fumes of NO<sub>x</sub>

HMIS: Health 3; Flammability 1; Reactivity 3

*Storage:* Store @ R.T.

*Uses:* Photographic film raw material; catalyst for ethylene oxide; indelible inks; silver plating; silver salts; silvering mirrors; germicide; hair dyeing; antiseptic; laboratory reagent; ophthalmic sol'ns.; slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

*Manuf./Distrib.:* AMRESCO; Accurate Chem. & Scientific; Aldrich; Alfa Aesar; Amend Drug & Chem.; Atlantic Equip. Engrs.; Brand-Nu Labs;

Cater Chems.; Columbus Chem. Ind.; Cooper Chem.; D.F. Goldsmith Chem. & Metal; Degussa-Hüls; Doe & Ingalls; Fluka; GFS; Johnson Matthey plc; Mays; Quimica Sagal; Reagents; Ruger; Sigma; Spectrum Quality Prods.

**Silver (1+) nitrate.** See Silver nitrate**Silver (I) nitrate (1:1).** See Silver nitrate**Simethicone**

CAS 8050-81-5

*Synonyms:* α-(Trimethylsilyl)-ω-methylpoly[oxy(dimethylsilylene)], mixt. with silicon dioxide

*Definition:* Mixture of dimethicone with an avg. chain length of 200-350 dimethylsiloxane units and hydrated silica gel

*Formula:* (CH<sub>3</sub>)<sub>3</sub>SiO[Si(CH<sub>3</sub>)<sub>2</sub>O]<sub>n</sub>Si(CH<sub>3</sub>)<sub>3</sub>, n = 200-350

*Properties:* Hazy translucent visc. fluid; sol. in chloroform, ether; insol. in water and alcohol; dens. 0.965-0.970; ref. index ≈ 1.404; nonionic

*Toxicology:* LD50 (IV, dog) 900 mg/kg

HMIS: Health 0; Flammability 1; Reactivity 0

*Uses:* Foam control agent, processing aid for foods, cosmetics, pharmaceuticals, fermentation, pesticide/fertilizer, paper/printing, textile, adhesives/coatings industries, in mfg. of plastics in contact with food, for degassing of monomers; defoamer for waste treatment, latex processing; chewing gum base; skin protectant; foods (water repellent, anticaking agent); in brewing; pharmaceutical coating agent; topical drug vehicle; ointment base ingred.; anti-flatulence oral dosages

*Use Level:* ADI 0-1.5 mg/kg (EU)

*Regulatory:* Europe listed; UK approved; FDA approved for orals, rectals, topicals; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Biosil Tech.; C.P. Hall; Crompton/Witco; Dow Corning; Lanaetex Prods.; PPG Ind.; Ruger; Universal Preserv-A-Chem; Wacker Silicones

*Trade Names:* Antifoam F-1; Dow Corning® Antifoam A Compd.; Dow Corning® Antifoam C Emulsion

**Slaked lime.** See Calcium hydroxide**SLS.** See Sodium lauryl sulfate**SMA.** See Styrene/MA copolymer**Smectite**

CAS 53320-86-8; EINECS/ELINCS 258-476-2

*Synonyms:* Lithium magnesium sodium silicate; Magnesium lithium sodium silicate; Silicic acid, lithium, magnesium, sodium salt; Sodium lithium magnesium silicate

*Definition:* Synthetic silicate clay consisting mainly of lithium, magnesium, and sodium silicates

*Properties:* Wh. powd.

*Uses:* Visc. control agent; thickener, thixotrope, antisetling agent for trade sales and industrial solv.-based coatings, cosmetics, adhesives, caulks, agrics., inks, paper, rubber, waste treatment, refractory, foundry, greases, oil field chems.

*Manuf./Distrib.:* Southern Clay Prods.

*Trade Names:* Claytone® 2000; Claytone® LMW; Claytone® SO

**SMO.** See Sorbitan oleate**SMS.** See Sorbitan stearate**Soap clay.** See Bentonite**Soda alum.** See Sodium alum**Soda ash.** See Sodium carbonate**Soda calcined.** See Sodium carbonate**Soda chlorate.** See Sodium chlorate**Soda lye.** See Sodium hydroxide**Soda mint.** See Sodium bicarbonate**Soda phosphate.** See Sodium phosphate dibasic anhydrous**Sodium abietate**

*Synonyms:* Rosin soap; Sodium resinate

*Formula:* C<sub>19</sub>H<sub>29</sub>COONa

*Properties:* Wh. powd.; sol. in water

*Precaution:* Combustible

*Uses:* Soap making, paper coating

See also Sodium rosinate

**Sodium acid carbonate.** See Sodium bicarbonate**Sodium acid sulfate.** See Sodium bisulfate

## Sodium acid sulfate solid

**Sodium acid sulfate solid.** See Sodium bisulfate

**Sodium acid sulfite.** See Sodium bisulfite

**Sodium alginate.** See Algin

**Sodium alkylbenzene sulfonate, branched.** See Sodium dodecylbenzene-sulfonate

**Sodium alkyl (C9-C15) benzenesulfonate**

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

*Manuf./Distrib.:* Ashland; Chem. Distribution; Davidson Labs; Intertrade Holdings; Rhodia HPCII

**Sodium 3-(allyloxy)-2-hydroxypropanesulfonate.** See Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate

**Sodium allyloxy hydroxypropyl sulfonate**

*Synonyms:* Sodium 1-allyloxy-2-hydroxypropyl sulfonate

*Empirical:* C<sub>8</sub>H<sub>11</sub>NaO<sub>5</sub>S

*Formula:* CH<sub>2</sub>=CHCH<sub>2</sub>OCH<sub>2</sub>CHOHCH<sub>2</sub>SO<sub>3</sub>Na

*Properties:* M.w. 218; anionic

*Uses:* Monomer for emulsion polymerization; copolymerizable surfactant/stabilizer; improves latex props.; for paints, adhesives, paper and textile coatings

*Manuf./Distrib.:* Rhodia

*Trade Names:* Sipomer® COPS 1

**Sodium 1-allyloxy-2-hydroxypropyl sulfonate.** See Sodium allyloxy hydroxypropyl sulfonate

**Sodium alum**

CAS 10102-71-3; EINECS/ELINCS 233-277-3

*Synonyms:* SAS; Alum; Aluminum sodium sulfate; Soda alum; Sodium aluminum sulfate; Sulfuric acid, aluminum sodium salt (2:1:1)

*Classification:* Inorganic salt

*Definition:* Avail. commercially as the dodecahydrate

*Empirical:* AlNaO<sub>8</sub>S<sub>2</sub> · 12H<sub>2</sub>O

*Formula:* AlNaO<sub>8</sub>S<sub>2</sub> (anhyd.), NaAl(SO<sub>4</sub>)<sub>2</sub> · 12H<sub>2</sub>O (dodecahydrate)

*Properties:* Anhyd.: Sol. in alcohol; sl. sol. in water; m.w. 242.10; Dodecahydrate: Colorless cryst. or wh. gran. or powd.; highly sol. in water; pract. insol. in alcohol; m.w. 458.29; dens. 1.675; m.p. 61°C; noncombustible

*Toxicology:* ACGIH TLV/TWA 2 mg/m<sup>3</sup> (sol. salts, as Al); weak sensitizer; local contact may cause dermatitis; irritant; dust may react with moisture in air to form weak sulfuric acid mists (nose/throat irritant); ing. of lg. doses may cause GI irritation, stomach burns, nausea, vomiting, abdominal pain, diarrhea

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

*Uses:* Dyeing; paper; tanning; purifying water; electroplating; prod. of cement, explosives; hardener; waterproofing agent; catalyst in prod. of ammonia; textiles (mordant, waterproofing); dry colors; ceramics; paper size precipitant; matches; inks; engraving; sugar refining; food additive (buffer, firming agent, neutralizer, leavening agent); migrating to food from paper/paperboard; medicine; astringent; antiseptic; in food-pkg. adhesives; in food-contact animal glues

*Regulatory:* FDA 21CFR §175.105, 178.3120, 182.90, 182.1131, GRAS

*Manuf./Distrib.:* Am. Int'l.; FPC Int'l.; General Chem.; Real Commerce; Segro Int'l.

**Sodium aluminate**

CAS 1302-42-7; 11138-49-1; EINECS/ELINCS 215-100-1; UN No. 1819 (DOT), 2812 (DOT)

*Synonyms:* Aluminate, sodium; Aluminum sodium oxide; Sodium aluminum oxide; Sodium polyaluminate

*Classification:* Inorganic compd.

*Empirical:* AlO<sub>2</sub> · Na

*Formula:* AlNaO<sub>2</sub> or Na<sub>2</sub>O · Al<sub>2</sub>O<sub>3</sub> · 3H<sub>2</sub>O

*Properties:* Wh. powd.; sol. in water forming alkaline sol'ns.; insol. in alcohol; m.w. 81.97 (anhyd.); m.p. 1650°C

*Toxicology:* TLV/TWA 2 mg(Al)/m<sup>3</sup>; mod. irritant to skin, eyes, mucous membranes; corrosive substance

*Precaution:* DOT: Corrosive material

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

*Storage:* Hygroscopic

*Uses:* Coagulant, flocculant for water treatment; boiler water additive for food processing; color and silica removal; mordant; zeolites; sizing/retention aid for paper; textile aux.; mfg. of milk glass, soap, cleaning compds.; curing agent (tiles); aluminosilicate catalyst raw material; reagent (titanium dioxide post-treatment); migrating to food from paper/paperboard

*Regulatory:* FDA 21CFR §173.310, 182.90

*Manuf./Distrib.:* BK Giulini Chemie; Delta; General Alum & Chem.; Holland; Southern Ionics; Spectrum Quality Prods.

*Trade Names:* Han-Floc 45®

**Sodium aluminosilicate.** See Sodium silicoaluminate

**Sodium aluminum oxide.** See Sodium aluminate

**Sodium aluminum silicate.** See Sodium silicoaluminate

**Sodium aluminum sulfate.** See Sodium alum

**Sodium 3-[[4-(anilino) phenylazo] benzenesulfonate.** See Acid yellow 36

**Sodium benzoate**

CAS 532-32-1; EINECS/ELINCS 208-534-8; FEMA 3025

*Synonyms:* Benzoate of soda; Benzoate sodium; Benzoic acid sodium salt; Sodium benzoic acid

*Classification:* Aromatic carboxylic acid salt

*Definition:* Sodium salt of benzoic acid

*Empirical:* C<sub>7</sub>H<sub>5</sub>NaO<sub>2</sub>

*Formula:* C<sub>6</sub>H<sub>5</sub>COONa

*Properties:* Wh. gran. or cryst. powd., odorless, sweetish astringent taste; very sol. in water; sparingly sol. in alcohol; m.w. 144.11; m.p. > 300°C; pH ≈ 8; stable in air

*Toxicology:* LD50 (oral, rat) 4.07 g/kg, (IV, rat) 1714 µg/kg, (intramuscular, mouse) 2306 mg/kg; poison by subcut., IV routes; mod. toxic by ing., IP, intramuscular routes; may cause human intolerance reaction, asthma, rashes, hyperactivity, nausea, vomiting; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

*Precaution:* Combustible when exposed to heat or flame; incompat. with acids, ferric salts

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O  
HMIS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Fungicide; antimicrobial preservative in pharmaceuticals and foods, esp. in sl. acidic media; clinical reagent (bilirubin assay); nucleating agent for plastics; corrosion inhibitor for antifreeze coolants; tobacco; mfg. of dyes; rust and mildew inhibitor; flavoring agent, adjuvant; antimycotic migrating from food pkg.; medicine; antiseptic

*Use Level:* 0.5% max.; 0.1% max. in food; 0.1% (in distilling materials); ADI 0-5 mg/kg (EU); 0.1% (parenterals), 0.08% (dentifrices), 4.75-5% (injectables), 0.02-0.5% (orals)

*Regulatory:* FDA 21CFR §146.152, 146.154, 150.141, 150.161, 166.40, 166.110, 181.22, 181.23, 184.1733; GRAS; USDA 9CFR §318.7; BATF 27CFR §240.1051; EPA reg.; FEMA GRAS; Japan approved with limitations; Europe listed 0.5% as acid; FDA approved for dentals, orals, rectals, topicals; USP/NF, BP, Ph. Eur. compliance

*Manuf./Distrib.:* ADA Int'l.; AMC Chems.; Aceto; Aldrich; Alfa Chem; Allan; Alchem Ind.; Am. Int'l.; Atomergic Chemetals; BCH Brühl; Bayer; Danisco Cultor; Dastech Int'l.; FBC Ind.; Fallek; Fluka; Gallard-Schlesinger Ind.; Haarmann & Reimer; Haltermann GmbH; Int'l. Sourcing; Jan Dekker BV; Jarchem Ind.; Jungbunzlauer; Kalama; Kraft Chem.; Lohmann; Mallinckrodt Baker; Merck KGaA; O.C. Lugo; R.W. Greeff; Rochem Int'l.; Ruger; Sal Chem.; San Yuan; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; Tri-K Ind.; Universal Preserv-A-Chem; V.L. Clark; Varsal Instruments; Velsicol; Wego Chem. & Min.; Whyte Chems. Ltd  
*Trade Names Containing:* Aerosol® OT-B; Monawet MO-85P

**Sodium benzoic acid.** See Sodium benzoate

**Sodium bitorate decahydrate.** See Sodium borate decahydrate

**Sodium bicarbonate**

CAS 144-55-8; EINECS/ELINCS 205-633-8

*Synonyms:* Baking soda; Bicarbonate of soda; Carbonic acid monosodium salt; Monosodium carbonate; Soda mint; Sodium acid carbonate; Sodium hydrogen carbonate

*Classification:* Inorganic salt

*Empirical:* CHNaO<sub>3</sub>

*Formula:* NaHCO<sub>3</sub>

*Properties:* Wh. powd. or cryst. lumps, sl. alkaline taste; sol. in water; sl. sol.

in ethanol; m.w. 84.01; dens. 2.159; stable in dry air, slowly dec. in moist air; pH 8.3 (0.1M sol'n.)

**Toxicology:** LD50 (oral, rat) 4220 mg/kg; low toxicity by ing.; irritant; harmless to the skin; leaves an alkaline residue that may cause irritation; nuisance dust; human systemic effects (potassium/sodium level changes, inc. urine volume, metabolic acidosis; nausea, vomiting, respiratory changes); excessive ing. of sodium may be detrimental to certain persons; experimental teratogen; mutagen; TSCA listed

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Moisture-sensitive; store in cool, dry place; keep containers sealed

**Uses:** Mfg. of effervescent salts and beverages, artificial mineral water; prevention of timber mold; cleaning preparations; lab reagent; antacid; mouthwash; OTC drug active; blowing/nucleating agent for thermoplastics; in fire extinguishers; leaching agent (uranium ores); pH control and activation of silica in water treatment; foods (alkali, leavening agent, aerator, diluent, pH control, poultry scald agent); pharmaceuticals (pH adjuster; abrasive in dentifrices; antibiotic mfg.); food pkg.; animal feed

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §137.180, 137.270, 163.110, 173.385, 182.1736, 184.1736, GRAS; USDA 9CFR §318.7, 381.147; Japan approved; Europe listed; FDA approved for injectables, parenterals, ophthalmics, orals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** AMRESCO; Aldrich; Allchem Ind.; Balchem; Captree; Charkit; Church & Dwight; Coyne; EM Ind.; FMC; Farleyway Chem. Ltd; Fluka; General Chem.; Harcros; Hummel Croton; IMC Global; Independent Chem.; Kraft Chem.; Lohmann; Melchemie bv; Natrium Prods.; Oriental Chem. Ind.; Quest Int'l. Fragrances; Robeco; Ruger; Sal Chem.; Schaefer Tech.; Sigma; Solvay SA; Spectrum Quality Prods.; Universal Preserv-A-Chem; Varsal Instruments; Vivion

**Trade Names Containing:** Dowicil® 75

**Sodium 2-biphenylolate.** See Sodium o-phenylphenate

**Sodium biphenyl-2-yl oxide.** See Sodium o-phenylphenate

**Sodium 1,4-bis(2-ethylhexyl) sulfosuccinate.** See Dioctyl sodium sulfosuccinate

**Sodium bis(2-ethylhexyl) sulfosuccinate.** See Dioctyl sodium sulfosuccinate

**Sodium 1,2-bis(tridecyloxy-carbonyl) ethanesulfonate.** See Ditridecyl sodium sulfosuccinate

**Sodium bistridecyl sulfosuccinate.** See Ditridecyl sodium sulfosuccinate

#### Sodium bisulfate

CAS 7681-38-1; EINECS/ELINCS 231-665-7; UN No. 1821 (solid) (DOT), 2837 (sol'n.) (DOT)

**Synonyms:** Nitre cake; Sodium acid sulfate; Sodium acid sulfate solid; Sodium bisulfate, fused; Sodium bisulfate solid; Sodium hydrogen sulfate; Sodium pyrosulfate; Sulfuric acid monosodium salt

**Empirical:** HNaO<sub>3</sub>S

**Formula:** NaHSO<sub>4</sub>

**Properties:** Colorless cryst. or wh. fused lumps; sol. in water; dec. by ethanol; m.w. 120.07; dens. 2.435 (13 C); m.p. > 315 C (dec.)

**Toxicology:** Corrosive irritant to respiratory system, mucous membranes, skin, and eyes; causes burns; mutagenic data; TSCA listed

**Precaution:** Corrosive; reacts with moisture to form sulfuric acid; incompat. with calcium hypochlorite

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

**Storage:** Hygroscopic; keep well closed

**Uses:** Scale control in cooling water treatment; pH control in pool and spa water; flux for decomposing minerals; substitute for sulfuric acid in dyeing; disinfectant; mfg. of chemicals; liberating CO<sub>2</sub> in carbonic acid baths; wool carbonizing agent; leather bleaching; swelling agent; mfg. of magnesia cements, paper, soap, perfumes, industrial cleaners; metal pickling agent; laboratory reagent; food acidulant; pharmaceuticals (inhalants, ophthalmics, orals); in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 182.3739, GRAS (not for use in meats, vitamin B<sub>1</sub>, sources, raw fruits and vegetables); FDA approved for inhalants, ophthalmics, orals

**Manuf./Distrib.:** AMRESCO; Aldrich; Ashland; Brown; Charkit; Chem. Distribution; Coyne; Fluka; Harcros; Independent Chem.; Jones Hamilton; Kraft Chem.; Lowenstein Dyes & Cosmetics; O.C. Lugo; Penta Mfg.; Ruger; Spectrum Quality Prods.; Van Waters & Rogers

**Sodium bisulfate, fused.** See Sodium bisulfate

**Sodium bisulfate solid.** See Sodium bisulfate

#### Sodium bisulfide

CAS 16721-80-5; EINECS/ELINCS 240-778-0; UN No. 2318 (DOT), NA 2922 (DOT), NA 2949 (DOT)

**Synonyms:** Sodium hydrogen sulfide; Sodium hydrosulfide; Sodium hydrosulfide, sol'n.; Sodium hydrosulfide, solid; Sodium mercaptan; Sodium mercaptide; Sodium sulfhydrate

**Classification:** Inorganic sulfide

**Empirical:** HNaS

**Formula:** NaSH

**Properties:** Wh. to colorless cryst. solid; turns yel. on heating; odor of hydrogen sulfide; very sol. in water; sol. in alcohol, ether; m.w. 56.06; dens. 1.79; m.p. 350 C, forming a blk. liq.; aq. sol'ns. are strongly alkaline

**Toxicology:** LD50 (IP, mouse) 18 mg/kg, (subcut., mouse) 200 mg/kg; toxic; poison by IP and subcut. routes; corrosive irritant to eyes, skin, mucous membranes; mutagen; TSCA listed

**Precaution:** Flamm.; corrosive; spontaneous combustion; reacts violently with diazonium salts; readily yields H<sub>2</sub>S; avoid contact with acid

**Hazardous Decomp. Prods.:** SO<sub>2</sub>, HS, NaOH; heated to decomp., emits toxic fumes of SO<sub>x</sub> and Na<sub>2</sub>O

**Storage:** Hygroscopic; store under nitrogen

**Uses:** Dyestuffs processing reagent; rayon and cellophane desulfurizing; dehairing hides; bleaching reagent; textile bleaching; corrosion inhibitor for metal protection; sulfidity control in Kraft paper processes; reaction intermediate for thio compds.; paper pulping; leather tanning; flotation agent in iron processing; flotation depressant for copper ores; sulfur dyes; sulfur dye reducing agent in textiles; in food-contact polysulfide polymer/polyepoxy resins

**Regulatory:** FDA 21CFR §177.1650

**Manuf./Distrib.:** Chem. Prods.; Crompton/Witco; FMC Foret; Fluka; Jupiter; Nissan Chem. Ind.; PPG Ind.; Tessenderlo Kerley

#### Sodium bisulfite

CAS 7631-90-5; EINECS/ELINCS 231-548-0; UN No. 2693 (sol'n.) (DOT), 2949

**Synonyms:** Acid sodium sulfite; Hydrogen sulfite sodium; Sodium acid sulfite; Sodium bisulfite (1:1); Sodium bisulfite, solid; Sodium bisulfite, solution; Sodium hydrogen sulfite; Sodium sulfhydrate; Sulfurous acid monosodium salt

**Classification:** Inorganic salt

**Empirical:** HO<sub>2</sub>S • Na

**Formula:** NaHSO<sub>3</sub>

**Properties:** Wh. cryst. powd., SO<sub>2</sub> odor, disagreeable taste; very sol. in hot or cold water; sl. sol. in alcohol; m.w. 104.06; dens. 1.48; m.p. 315 C

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 2000 mg/kg, (IP, rat) 475 mg/kg, (IV, rat) 115 mg/kg; poison by IV and IP routes; mod. toxic by ing.; corrosive irritant to skin, eyes, mucous membranes; allergen; mutagenic data; TSCA listed

**Precaution:** Corrosive

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Fusion of minerals to make sol'ns. for analysis; pickling metals; bleaching/carbonizing wool; dechlorination and oxygen scavenger in water treatment, oil extraction; corrosion inhibitors; textiles; copper and brass plating; wood pulp digestion; analytical reagent; color preservative (rubber); reducing agent; mfg. of dyestuff intermediates; cask sterilization (brewing); antiseptic; fermentation; acid, preservative, and bleach in food; pharmaceutical aid, antioxidant, stabilizer; reducing agent in chromium tanning, effluent treatment; reducing agent, fixative preservative in photography; reducing agent for polymerization initiators; dechlorination agent in textiles, paper

**Use Level:** ADI 0-0.7 mg/kg (EU); 0.3-0.75% (sympathomimetic/aminoglycoside medications)

**Regulatory:** FDA 21CFR §161.173, 173.310, 182.3739, GRAS; Europe listed; FDA approved for parenterals, inhalants, ophthalmics, orals, topicals; SARA reportable

**Manuf./Distrib.:** Aldrich; Ashland; BASF; Browning; Calabrian; Celanese; Charkit; Degussa-Hüls AG; DuPont; Fluka; General Chem.; Harcros; ICC Ind.; Independent Chem.; PVS; Penreco; Penta Mfg.; Primachem; Rhodia; Robeco; Ruger; Sal Chem.; Schaefer Tech.; Sigma; Southern

## Sodium bisulfite (1:1)

Ionics; Spectrum Quality Prods.; Universal Preserv-A-Chem; Wm. Blythe Ltd

See also Sodium metabisulfite

**Sodium bisulfite (1:1).** See Sodium bisulfite

**Sodium bisulfite, solid.** See Sodium bisulfite

**Sodium bisulfite, solution.** See Sodium bisulfite

## Sodium borate

CAS 1330-43-4 (anhyd.); 1332-28-1; EINECS/ELINCS 215-540-4

**Synonyms:** Borates, tetra, sodium salt, anhydrous; Borax, fused; Sodium pyroborate anhydrous; Sodium borate anhydrous; Sodium tetraborate anhydrous

**Classification:** Borate/sodium salt

**Empirical:** B<sub>4</sub>Na<sub>2</sub>O<sub>7</sub>

**Formula:** Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>

**Properties:** Colorless to wh. cryst. or powd., odorless; mod. sol. in water, glycerol; insol. in alcohol; m.w. 201.22; dens. 1.730; m.p. 741 C; b.p. 1575 C (dec.)

**Toxicology:** ACGIH TLV/TWA 1 mg/m<sup>3</sup>; TDLo (oral, male rate, 30 days) 16,750 µg/kg; harmful solid; inh. hazard; irritant; experimental reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na<sub>2</sub>O, boron

**Storage:** Hygroscopic; keep tightly closed

**Uses:** Heat-resist. glass; porcelain enamel; detergents; herbicides; fertilizers; rust inhibitors; leather; photography; bleaches; paint; boron compds.; flux for smelting; flame-retardant fungicide for wood; soldering flux; cleaning preps.; laboratory reagent; in adhesives, sizes, and paper coatings for food contact; alkalinizing agent, preservative, emulsifier for pharmaceuticals; food-pkg. adhesives; in food-contact acrylate ester copolymer coatings; in paper/paperboard in contact with dry foods; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.210, 176.180, 177.2800, 181.22, 181.30; FDA approved for ophthalmics; USP/NF, BP compliance

**Manuf./Distrib.:** Aldrich; Ashland; Charkit; Coyne; E-Chemicals; Fluka; IMC Chems.; Independent Chem.; Noah; Sigma; Spectrum Quality Prods.; U.S. Borax; Universal Preserv-A-Chem

**Sodium borate anhydrous.** See Sodium borate

## Sodium borate decahydrate

CAS 1303-96-4; EINECS/ELINCS 215-540-4

**Synonyms:** Borax; Borax decahydrate; Boric acid disodium salt; Sodium baborate decahydrate; Sodium pyroborate decahydrate; Sodium tetraborate decahydrate

**Classification:** Borate

**Empirical:** B<sub>4</sub>Na<sub>2</sub>O<sub>7</sub> • 10H<sub>2</sub>O

**Formula:** Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub> • 10H<sub>2</sub>O

**Properties:** Wh. hard crystals, granules, or cryst. powd.; odorless; efflorescent; sol. 1 g/16 ml water, 1 ml glycerol; insol. in alcohol; m.w. 381.37; dens. 1.73; m.p. 75 C; b.p. 320 C (becomes anhyd.); decomp. pt. 1575 C; pH ≈ 9.5

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 2660 mg/kg, (IP, mouse) 2711 mg/kg, (IV, mouse) 1320 mg/kg; poison by subcut. route; mod. toxic by ing., IV, IP routes; mod. toxic to humans by ing.; irritant; effect on seizure threshold; ing. of 5-10 g by children can cause severe vomiting, diarrhea, shock, and death; experimental reproductive effects; mutagenic data; TSCA listed

**Precaution:** Incompat. with acids, alkaloidal and metallic salts; explosive reaction with zirconium when heated

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na<sub>2</sub>O, boron

HMIS: Health 1; Flammability 0; Reactivity 0

**Storage:** Store in tightly closed container away from incompat. materials

**Uses:** Dispersant, wetting agent for NR, SR latexes; mold lubricant for dry rubber; in ant poisons; soldering metals; nonselective herbicide; larvicide; heat-resist. glass; porcelain enamel; detergents; fertilizers; rust inhibitors; mfg. of glazes; cleaning compds.; fly control; pharmaceuticals (alkalizer, preservative, emulsifier); leather; photography; bleaches; paint; boron compds.; soldering flux; flame-retardant fungicide for wood; flame retardant for cellulose; lab reagent; in food-pkg. adhesives; preservative in coatings for paper/paperboard in contact with dry food; preservative in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.210, 176.180, 177.2800, 181.22, 181.30; BP, Ph.Eur. compliance

**Manuf./Distrib.:** AMRESCO; Aldrich; Ashland; BCH Brühl; Belinka; E-Chemicals; Fluka; IMC Chems.; Noah; Ruger; Sal Chem.; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; U.S. Borax

**Trade Names:** Borax

## Sodium borohydride

CAS 16940-66-2; EINECS/ELINCS 241-004-4; UN No. 1325; 1426 (DOT)

**Synonyms:** SBH; Sodium tetrahydridoborate; Sodium tetrahydroborate

**Empirical:** H<sub>2</sub>BNa

**Formula:** NaBH<sub>4</sub>

**Properties:** Wh. to grayish-wh. cryst. powd.; sol. in water, ammonia, amines, pyridine, diethylene glycol dimethyl ether; insol. in other ethers, hydrocarbons, alkyl chlorides; stable in dry air to 300 C; dec. in moist air; m.w. 37.83; m.p. 497 C (dec.)

**Toxicology:** LD50 (IP, rat) 18 mg/kg; LDLo (oral, rat) 160 mg/kg; poison by ing. and IP routes; corrosive; strong alkali; severe eye, skin, and mucous membrane irritant; TSCA listed

**Precaution:** Flammable; dangerous fire risk; ignites in air above 288 C when exposed to spark; reacts with water to evolve hydrogen and sodium hydroxide; explosive and violent reactions possible; emits flamm. vapors on contact with acid fumes

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na<sub>2</sub>O  
**Storage:** Hygroscopic; store out of contact with water; do not store in glass containers

**Uses:** Source of H<sub>2</sub> and other borohydrides; bleaching wood pulp; blowing agent for plastics; process stream purification; reducing agent; organic synthesis; formaldehyde scavenger for textile finishing; carbonyl reduction agent; catalyst; color purification in epoxy resins, plasticizers, curing amines for coatings, laminates, adhesives, elec. coatings, tooling, casting, and molding resins; storage tank purification; trace metal scavenger in effluent treatment; magnetic tape prod.

**Manuf./Distrib.:** AC Ind.; Aldrich; Alfa Aesar; Allan; Atomergic Chemetals; Charkit; Fabricchem; Fluka; Morton Int'l.; Sigma

**Trade Names:** Borino®

## Sodium bromide

CAS 7647-15-6; EINECS/ELINCS 231-599-9

**Definition:** Bromide salt of sodium

**Empirical:** BrNa

**Formula:** NaBr

**Properties:** Wh. cryst. powd. or gran.; bitter saline taste; sol. in water, ethanol; m.w. 102.90; sp.gr. 3.21; m.p. 755 C; b.p. 1390 C; pH 5.0-8.8 (5%)

**Toxicology:** LD50 (oral, rat) 3500 mg/kg, (subcut., rat) 2900 mg/kg; mod. toxic by ing.; harmful, irritant; experimental reproductive effects; TSCA listed

**Precaution:** Volatilizes at high temps.; incompat. with acids, alkaloidal and heavy metal salts

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Br and Na<sub>2</sub>O

HMIS: Health 2; Flammability 0; Reactivity 0

**Storage:** Hygroscopic

**Uses:** Photography; preparation of bromides; biocide precursor for cooling water treatment; biocide in pulp/paper industry; oil-well drilling fluids; medicine (sedative)

**Manuf./Distrib.:** Albemarle; Aldrich; BCH Brühl; Dead Sea Bromine; Fluka; Great Lakes; Hawks Chem. Co Ltd; Morre-Tec Ind.; Morton Int'l.; Ocean Chems.; Ruger; Sal Chem.; Schütz; Sigma; Spectrum Quality Prods.

**Trade Names:** Metasol® 940; Sanibrom™ 40; Sanibrom™ 45

## Sodium butyl oleate sulfate

**Properties:** Anionic

**Uses:** Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Trade Names:** Actrasol SBO; Freedom SBO-65

## Sodium butyl oleate sulfonate

**Properties:** Anionic

**Uses:** Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing; textile dye assistant; lubricant, wetting agent/rewetting agent,



penetrant in textile dyeing, leather dyeing, fat liquors, metal cutting oils, paper mfg.; leveling agent for acid dyes; detergent

**Sodium butyl phosphate**

*Definition:* Butyl ester of phosphoric acid, sodium salt

*Properties:* Anionic

*Uses:* Surfactant for textiles, agric., paper, cleaners, metal processing; fiber antistat

*Trade Names:* Servoxyl® VPI 55

**Sodium butyl tallate sulfate**

*Uses:* Dye assistant; wetting agent, rewetter for textiles; rewetting agent for paper; penetrant in leather dyeing; leveling agent for acid dyes; lubricant in textiles, leather, metalworking, paper mfg.

*Trade Names:* Freedom SBT-65

**Sodium calcium edetate.** See Calcium disodium EDTA

**Sodium capryl sulfate.** See Sodium octyl sulfate

**Sodium carbonate**

CAS 497-19-8 (anhyd.); 5968-11-6 (monohydrate); 6132-02-1 (decahydrate); EINECS/ELINCS 207-838-8

*Synonyms:* Bisodium carbonate; Calcined soda; Carbonic acid disodium salt; Crystol carbonate; Disodium carbonate; Natron; Sal soda; Soda ash; Soda calcined; Sodium carbonate (2:1); Washing soda

*Classification:* Inorganic salt

*Empirical:* CO<sub>3</sub> • 2Na

*Formula:* Na<sub>2</sub>CO<sub>3</sub>

*Properties:* Colorless to wh. cryst. or cryst. powd., odorless, alkaline taste; sol. in water, glycerol; insol. in alcohol; m.w. 105.99 (anhyd.), 124.00 (monohydrate); dens. 2.509 (0 C); m.p. 109 C (loses water 851 C); b.p. dec., does not form vapor; pH 11.5 (1% aq.)

*Toxicology:* LD50 (oral, rat) 4090 mg/kg, (IP, mouse) 117 mg/kg, (subcut., mouse) 2210 mg/kg; LC50 (inh., rat, 2 h) 2300 mg/m<sup>3</sup>; poison by IP route; mod. toxic by inh. and subcut. routes; mildly toxic by ing.; skin and eye irritant; experimental reproductive effects; migrates to food from pkg. materials; TSCA listed

*Precaution:* Violent reactions with Al, P<sub>2</sub>O<sub>5</sub>, H<sub>2</sub>SO<sub>4</sub>, F<sub>2</sub>, Li, 2,4,6-trinitrotoluene

*Hazardous Decom. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

HMLS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Detergent and cleaning prods.; intermediate in thermochemical reactions; food additive; mfg. of glass, pulp/paper, chemicals, sodium compds.; analytical reagent; corrosion/scale control, pH control, softener, water and waste treatment; aluminum prod.; textile processing; petroleum refining; sealing ponds from leakage; catalyst in coal liquefaction; intermediate for corn sweeteners, sodium bicarbonate, phosphates for improving foods and toiletries; pharmaceuticals

*Use Level:* ADI no limit (EU)

*Regulatory:* FDA 21CFR §173.310, 184.1742, GRAS; USDA 9CFR §318.7, 381.147; Japan approved; Europe listed; FDA approved for injectables, parenterals, ophthalmics, orals, rectals; USP/NF, BP, Ph.Eur., JP compliance

*Manuf./Distrib.:* AMRESKO; Albright & Wilson Am.; Aldrich; Amyl; Charkit; EM Ind.; FMC; Fluka; General Chem.; Harcross; IMC Chems.; Independent Chem.; Lohmann; Mallinckrodt Baker; Norsk Hydro AS; Oriental Chem. Ind.; Rhodia; Ruger; Sal Chem.; Schaefer Tech.; Sigma; Solvay Mins.; Solvay SA; Spectrum Quality Prods.; Universal Preserv-A-Chem; Varsal Instruments

*Trade Names Containing:* Calgon PTH

**Sodium carbonate (2:1).** See Sodium carbonate

**Sodium carboxymethylcellulose.** See Carboxymethylcellulose sodium

**Sodium carboxymethyl corn starch**

*Uses:* Visc. builder and water retention aid in aq. pigment coatings, paper coatings

*Trade Names:* Vandrox® 185F

**Sodium carboxymethyl guar gum**

*Uses:* Dry str. agent and formation aid in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Sodium carrageenan**

CAS 9061-82-9; 60616-95-7

*Synonyms:* Carrageenan, sodium salt; Sodium carrageenate; Sodium carragenate

*Definition:* Sodium salt of carrageenan; mixt. of highly sulfated polygalactosides extracted from seaweed

*Toxicology:* LD50 (oral, rat) 5650 mg/kg, (oral, mouse) 8730 mg/kg; mildly toxic by ing.; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

*Uses:* Emulsifier, stabilizer, and thickener in foods and pharmaceuticals; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §136.110, 136.115, 136.130, 136.160, 136.180, 139.121, 139.122, 150.141, 150.161, 172.626, 176.170; FDA approved for orals

**Sodium carrageenate.** See Sodium carrageenan

**Sodium carragenate.** See Sodium carrageenan

**Sodium caseinate**

CAS 9005-46-3; 9004-36-3

*Synonyms:* Casein-sodium; Casein-sodium complex; Casein sodium salt; Caseins, sodium complexes

*Definition:* Sodium salt of casein

*Properties:* Wh. coarse powd., odorless, tasteless; insol. in water, alcohol

*Toxicology:* TDLo (subcut., mouse, 15 days intermittent) 45 g/kg; questionable carcinogen; experimental tumorigen; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

*Uses:* Beer bottle label adhesives; foil-paper laminating adhesives; binder in paper coatings; protective colloid in emulsion polymerization; food additive, binder, extender, emulsifier, stabilizer, gellant, clarifying agent, coffee whiteners; food processing aid (Japan)

*Regulatory:* FDA 21CFR §135.110, 135.140, 166.110, 182.1748, GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §240.1051, GRAS; Japan approved

*Manuf./Distrib.:* Alfa Chem; Am. Casein; Premium Ingreds.; Sigma; Spectrum Quality Prods.; Spice King

**Sodium castorate**

CAS 8013-06-7; EINECS/ELINCS 232-390-5

*Synonyms:* Castor oil, sodium salt

*Definition:* Sodium salt of the fatty acids derived from castor oil

*Toxicology:* TSCA listed

*Uses:* Softener and finishing oil; pasting oil for dyestuffs; defoamer in food-contact paper coatings, paper/paperboard; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §176.200, 176.210, 177.2600, 177.2800, 178.3910

**Sodium castor oil sulfate**

*Synonyms:* Castor oil, sulfated, sodium salt

*Properties:* Anionic

*Uses:* Acid etching additive; pigment wetter/dispersant; lubricant, emulsifier for metalworking fluids; textile softener/finishing oil; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

*Trade Names:* Actrasol C-50; Actrasol C-75; Actrasol C-85

**Sodium cellulose glycolate.** See Carboxymethylcellulose sodium

**Sodium chlorate**

CAS 7775-09-9; EINECS/ELINCS 231-887-4; UN No. 1495 (DOT), 2428 (DOT)

*Synonyms:* Chlorate of soda; Chloric acid sodium salt; Soda chlorate; Sodium chlorate, aqueous soln.

*Classification:* Inorganic salt

*Empirical:* ClNaO<sub>3</sub>

*Formula:* NaClO<sub>3</sub>

*Properties:* Colorless cryst. powd.; odorless; cooling saline taste; sol. in water, alcohol; m.w. 106.45; dens. 2.490 (15 C); m.p. 248-261 C; b.p. dec. above 300 C releasing oxygen

*Toxicology:* LD50 (oral, rat) 1200 mg/kg, (IP, mouse) 596 mg/kg; mod. toxic by ing. and IP routes; human poison by unspecified routes; human systemic effects by ing.: blood hemolysis, pulmonary changes; damages red blood corpuscles (humans); skin, eye, and mucous membrane irritant;

## Sodium chlorate, aqueous sol'n.

mutagenic data; TSCA listed  
**Precaution:** DOT: Oxidizer; dangerous fire risk; contact with organic materials may cause fire; corrosive; may react explosively with agric. materials, ammonium salts, grease, leather, powd. metals, nonmetals, etc.; violent reactions or ignition possible  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl<sup>-</sup> and Na<sub>2</sub>O  
**Uses:** Oxidizing agent for dyestuffs, pulp bleaching; ore processing; defoliant; herbicide; leather tanning and finishing; textile mordant; matches ingred.; explosives ingred.; flares; pyrotechnics; mfg. of perchlorates; uranium extraction agent; pharmaceuticals; astringent; in food-pkg. adhesives and animal glues  
**Regulatory:** FDA 21CFR §175.105, 178.3120; FDA approved for injectables  
**Manuf./Distrib.:** Albright & Wilson Am.; Aldrich; Atofina SA; Atofina; CXY Chems.; Chemical; Coyne; Eka Chems. AB; Eka Chems.; Finnish Chems. Oy; Fluka; Georgia Gulf; Huron Tech; J.F. Henry; Kerr-McGee; Occidental; PPG Ind.; Pacific West; Seidler; Sigma; Solvay SA; Spectrum Quality Prods.; Sterling Pulp; Van Waters & Rogers

**Sodium chlorate, aqueous sol'n.** See Sodium chlorate

## Sodium chloride

CAS 7647-14-5; EINECS/ELINCS 231-598-3  
**Synonyms:** Brine; Common salt; Halite; Rock salt; Saline; Salt; Sea salt; Sodium chloride, natural; Sodium chloride, refined; Table salt; White crystal  
**Classification:** Inorganic salt  
**Definition:** Occurs in nature as the mineral halite  
**Empirical:** ClNa  
**Formula:** NaCl  
**Properties:** Colorless transparent cryst. or wh. cryst. powd., saline taste; sol. 1 g/2.8 ml water; sol. in glycerin; very sl. sol. in alcohol; m.w. 58.45; dens. 2.17; m.p. 804 C; f.p. -20.5 C (23% aq.); pH 6.7-7.3  
**Toxicology:** LD50 (oral, rat) 3.75 g/kg, (IP, rat) 6614 mg/kg, (IV, mouse) 645 mg/kg; poison by IP and intracervical routes; mod. toxic by ing., IV, subcut. routes; human systemic effects (blood pressure increase); skin/eye irritant; ing. of lg. amts. can irritate stomach; terminates human pregnancy by intraplacental route; experimental teratogen; human mutagenic data; TSCA listed  
**Precaution:** Explosive reaction possible with dichloromaleic anhydride + urea; reaction with burning lithium forms dangerously reactive Na; molten salt reacts explosively with water @ 1100 C; violent reaction with BrF<sub>3</sub>  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Cl<sup>-</sup> and Na<sub>2</sub>O  
**HMS:** Health 1; Flammability 0; Reactivity 0  
**Storage:** Hygroscopic; store @ R.T.  
**Uses:** Source of chlorine and sodium; mfg. of soaps, dyes; in freezing mixtures; dyeing/printing fabrics; glazing pottery; curing hides; metallurgy; mineral processing agent; herbicide; electrolyte replenisher; oil-well drilling fluids; fertilizer ingred.; road de-icing agent; diluent; water softening by regeneration of ion exchange materials; filler in sanitary cleaners; preservative, flavoring for foods and pharmaceuticals; food curing; nutrient; feed supplement; topical anti-inflammatory; emetic  
**Use Level:** Limitation 700 lb/10,000 gal water (poultry chilling)  
**Regulatory:** FDA 2CFR §163.153; 21CFR §131.111, 131.112, 131.136, 131.138, 131.144, 131.146, 131.162, 131.170, 131.185, 131.187, 133.123, 133.124, 133.169, 133.173, 133.179, 133.187, 133.188, 133.189, 133.190, 133.195, 136.110, 136.115, 136.130, 136.160, 136.180; 145.110, 145.130, 155, 156, 158, 161.170, 161.173, 161.190, 163.111, 163.112, 163.113, 163.114, 163.117, 163.123, 163.130, 163.135, 163.140, 163.145, 163.150, 163.155, 166.110, 169.115, 169.140, 169.150, 182.1, 182.70, 182.90; 9CFR 381.147; BP, PhEur  
**Manuf./Distrib.:** AMRESO; Akzo Nobel Salt; Aldrich; Atofina; Bilt Chems. Ltd; CXY Chems.; Charkit; Crystran Ltd; EM Ind.; Fluka; Heico; Independent Chem.; Kraft Chem.; Mallinckrodt Baker; Morton Salt; O.C. Lugo; Olin/Chlor Alkali; PPG Ind.; Ruger; Sal Chem.; Sigma; Solvay SA; Spectrum Quality Prods.; Stan Chem Int'l. Ltd; Universal Preserv-A-Chem; Vivion  
**Trade Names Containing:** Texapon® K-1296 Powd.; Texapon® VHC Needles

**Sodium chloride oxide.** See Sodium hypochlorite

**Sodium chloride, refined.** See Sodium chloride

## Sodium chlorite

CAS 7758-19-2; EINECS/ELINCS 231-836-6; UN No. 1496 (DOT), 1908 (DOT)  
**Synonyms:** Chlorous acid, sodium salt  
**Classification:** Chlorite salt  
**Empirical:** ClNaO<sub>2</sub>  
**Formula:** NaClO<sub>2</sub>  
**Properties:** Wh. cryst. powd.; odorless; sol. 1 g/10 ml water; m.w. 90.45; sp.gr. 2.47; dens. 53 lb/ft<sup>3</sup>; cryst. pt. -7 C; m.p. dec. 180-200 C  
**Toxicology:** LD50 (oral, rat) 165 mg/kg; poison by ing.; corrosive; strong irritant to skin and tissue; questionable carcinogen; experimental teratogen, reproductive effects; mutagen; TSCA listed  
**Precaution:** Oxidizer; ignited by friction, heat or shock; an explosive sensitive to impact or heating to 200 C; explosive reactions possible with acids, oils, org. matter, zinc, etc.; violent reaction or ignition possible; reactive with reducing agents  
**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of Cl<sup>-</sup> and Na<sub>2</sub>O  
**NFPA:** Health 1; Flammability 0; Reactivity 1  
**Storage:** Deliq.; sl. hygroscopic  
**Uses:** Oxidizing agent improving taste and odor of potable water; color removal, disinfection, Fe/Mn removal in water treatment; oxidizing agent, bleaching agent for textiles, paper pulp, disinfecting; prod. of chlorine dioxide; food processing; antimicrobial effective against bacteria, algae, fungi, and viruses; electronics (oxidizer of copper layer in circuit boards); industrial air/flue gas treatment; oil field stimulation; process and wastewater treatment; in food-pkg. adhesives  
**Regulatory:** FDA 21CFR §175.105, 186.1750, GRAS as indirect food additive  
**Manuf./Distrib.:** AMC Chems.; Albright & Wilson Am.; Aldrich; Arch Chems.; Atofina; Coyne; Fluka; ICC Ind.; Independent Chem.; Int'l. Dioxide; Oriental Chem. Ind.; Sal Chem.; Seeler Ind.; Spectrum Quality Prods.; Veckridge; Vivion; Vulcan Perf. Chems.; Westco  
**Trade Names:** Adox 3125; Adox 8125; C2® Sodium Chlorite; Drewchlor®; Sodium Chlorite Sol'n. 50, Tech.; Sodium Chlorite, Tech.

**Sodium CMC.** See Carboxymethylcellulose sodium

**Sodium CM-cellulose.** See Carboxymethylcellulose sodium

## Sodium cocoate

CAS 61789-31-9; EINECS/ELINCS 263-050-4  
**Synonyms:** Coconut fatty acid, sodium salt; Coconut oil fatty acids, sodium salt; Fatty acids, coconut oil, sodium salts; Fatty acids, coco, sodium salts; Sodium coconate; Sodium coconut oil soap  
**Definition:** Sodium salt of coconut acid  
**Properties:** Anionic  
**Toxicology:** May cause allergic skin rash; TSCA listed  
**Uses:** Soap base; stabilizer; gelling agent; ointment base for pharmaceuticals; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles  
**Regulatory:** FDA 21CFR §175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910  
**Manuf./Distrib.:** Norman, Fox

**Sodium coconate.** See Sodium cocoate

**Sodium coconut oil soap.** See Sodium cocoate

**Sodium decylbenzenesulfonamide.** See Sodium decylbenzene sulfonate

## Sodium decylbenzene sulfonate

CAS 1322-98-1; EINECS/ELINCS 215-347-5  
**Synonyms:** Decylbenzenesulfonic acid, sodium salt; Decylbenzene sodium sulfonate; Sodium decylbenzenesulfonamide  
**Classification:** Substituted aromatic compd.  
**Empirical:** C<sub>16</sub>H<sub>25</sub>O<sub>3</sub>S • Na  
**Properties:** M.w. 320.46; anionic  
**Toxicology:** LD50 (oral, mouse) 2000 mg/kg, (IV, mouse) 115 mg/kg; poison by IV route; mod. toxic by ing.; severe eye irritant; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub>  
**Uses:** Detergent, foaming agent, wetting agent for personal care prods.; defoamer, dispersant, adjuvant in foods; in food-pkg. adhesives; can end

cement for food contact; in paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers; emulsifier in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §172.210, 175.105, 175.300, 176.170, 176.210, 177.1210, 177.2600, 178.3130, 178.3400

#### Sodium dibutyl naphthalene sulfonate

CAS 25417-20-3

*Synonyms:* Nekal

*Empirical:* C<sub>18</sub>H<sub>24</sub>O<sub>3</sub>S • Na

*Properties:* M.w. 343.47; anionic

*Toxicology:* LD50 (oral, rat) 1250 mg/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Toxic fumes of SO<sub>x</sub> and Na<sub>2</sub>O

*Uses:* Dispersant, wetting agent, penetrant, emulsifier for pesticides, industrial cleaning, textiles, dyeing, leather, paper, dyes, rubber, latex polymerization; wetting agent in food-contact polysulfide polymer/polyepoxy resins

*Regulatory:* FDA 21CFR §177.1650

*Trade Names:* Rhodacal® BX-78

#### Sodium diethylenetriaminepentakis (methylenephosphonate)

*Uses:* Sequestant for water treatment, detergent industries for scale and corrosion inhibition, metal ion control; crystal growth modifier; also for pulp/paper, textile processing, bleach stabilization; sec. oil recovery; desalination

#### Sodium diethylenetriamine penta (methylene phosphonate)

CAS 22042-96-2

*Synonyms:* Diethylene triamine penta (methylene phosphonic acid) sodium salt; Phosphonic acid, ((bis(2-(bis (phosphonomethyl) amino) ethyl) amino) methyl)-, sodium salt; Phosphonic acid, (((phosphonomethyl)imino) bis (2,1-ethanediylnitrilobis (methylene))) tetrakis-, sodium salt

*Classification:* Substituted amine

*Empirical:* C<sub>9</sub>H<sub>28</sub>N<sub>3</sub>O<sub>15</sub>P<sub>5</sub> • xNa

*Properties:* M.w. 734.18

*Toxicology:* LD50 (oral, rat) > 5 g/kg, (skin, rabbit) > 5 g/kg; low toxicity by ing. and skin contact; TSCA listed

*Environmental:* LD50 (oral, quail) > 2510 mg/kg, (oral, duck) > 2510 mg/kg  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub>, NaO, and PO<sub>x</sub>

*Uses:* Deflocculant and sequestant for cooling water treatment, textile and pulp bleach stabilization, oil fields, deinking, liq. detergents; desalination antiscalant; sequestant, dispersant, scale inhibitor for I&I cleaning, detergents, metal cleaning, pulp and paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

*Trade Names:* Briquest® 543-33S; Dequest® 2066A

**Sodium di(2-ethylhexyl) sulfosuccinate.** See Dioctyl sodium sulfosuccinate

**Sodium dihexyl sulfosuccinate.** See Dihexyl sodium sulfosuccinate

**Sodium 1,2-diisobutoxycarbonyl ethanesulfonate.** See Diisobutyl sodium sulfosuccinate

#### Sodium diisobutylphenoxy diethoxyethyl sulfonate

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

#### Sodium diisobutylphenoxy monoethoxyethyl sulfonate

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Sodium diisobutyl sulfosuccinate.** See Diisobutyl sodium sulfosuccinate

#### Sodium diisooctyl sulfosuccinate

*Synonyms:* Diisooctyl sodium sulfosuccinate

*Empirical:* C<sub>20</sub>H<sub>37</sub>NaO<sub>3</sub>S

*Properties:* M.w. 444.56; anionic

*Uses:* Mold release agent for plastics; wetting agent for pesticides, textile processing, dry cleaning, household/industrial cleaners, ceramics, varnishes; wetting agent, penetrant for paper strippers, solder flux; pigment dispersant for lacquers, paints, plastics; wetting agent, emulsifier for glass/metal cleaners, dust repellents, firefighting foams

#### Sodium dimethyldithiocarbamate

CAS 128-04-1 (hydrate); EINECS/ELINCS 204-876-7 (hydrate); UN No. 1760

*Synonyms:* SDDC; Carbamodithioic acid, dimethyl-, sodium salt; Dibam; Dimethyldithiocarbamic acid sodium salt; Methyl Namate; Sodium N,N-dimethyl dithiocarbamate

*Empirical:* C<sub>3</sub>H<sub>6</sub>NS<sub>2</sub> • Na; C<sub>3</sub>H<sub>6</sub>NNaS<sub>2</sub> • nH<sub>2</sub>O

*Formula:* (CH<sub>3</sub>)<sub>2</sub>NCS<sub>2</sub>Na

*Properties:* Crystals; sol. in water; m.w. 143.19 + aq.; dens. 1.1 (20/20 C); m.p. 95 C

*Toxicology:* LD50 (oral, rat) 1000 mg/kg, (IP, rat) 1000 mg/kg; mod. toxic by ing., IP and subcut. routes; mutagenic data; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>, SO<sub>x</sub>, and Na<sub>2</sub>O

*Uses:* Intermediate; pesticide; fungicide; corrosion inhibitor; rubber accelerator; biocide, fungicide, and algicide in water treatment; heavy metal precipitant to remove metals from wastewater streams; biocide in paper sizing, adhesives, cutting fluids; polymerization shortstop; termination agent for S/B rubber prod.; antimicrobial for cane-sugar and beet-sugar mills; in food-pkg. adhesives; slimicide in food-contact paper/paperboard; accelerator for food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §173.320 (3 ppm max.), 175.105, 176.300, 177.2600; SARA reportable

*Manuf./Distrib.:* Alco; Complex Quimica SA; FMC Foret; Fluka; Novachem Corp.; R.T. Vanderbilt; Tessenderlo Kerley; Uniroyal; Venus Ethoxyethers; Vinings Ind.; Wall Chem.

*Trade Names:* Aquatreat® SDM; Paxgard SDC; Thiostop® N

*Trade Names Containing:* Amerstat® 272; Aquatreat® DNM-9; Aquatreat® DNM-30; Aquatreat® DNM-360; Metasol® 300; Qemicide DTC-35; Vancide® 51

**Sodium N,N-dimethyl dithiocarbamate.** See Sodium dimethyldithiocarbamate

**Sodium di-(2-methylpentyl) sulfosuccinate.** See Dihexyl sodium sulfosuccinate

**Sodium dioctyl sulfosuccinate.** See Dioctyl sodium sulfosuccinate

**Sodium dioxide.** See Sodium peroxide

**Sodium diphenyl-4,4'-bis-azo-2''-8''-amino-1''-naphthol-3'',6''-disulfonate.** See Direct blue 6

#### Sodium diphenyl ether disulfonate

CAS 70191-76-3

*Properties:* Anionic

*Uses:* Surfactant for paper, textiles, metalworking, industrial and household cleaners

**Sodium diphosphate.** See Tetrasodium pyrophosphate

#### Sodium distearyl phosphate

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Sodium dithionate.** See Sodium hydrosulfite

**Sodium dithionite.** See Sodium hydrosulfite

**Sodium ditridecyl sulfosuccinate.** See Ditridecyl sodium sulfosuccinate

**Sodium dodecanoate.** See Sodium laurate

#### Sodium dodecylbenzenesulfonate

CAS 25155-30-0; 68081-81-2; 68608-89-9; 85117-50-6; EINECS/ELINCS 246-680-4

*Synonyms:* SDBS; NaDBS; Benzenesulfonic acid, dodecyl-, sodium salt; Dodecylbenzene sodium sulfonate; Dodecylbenzenesulfonate, sodium salt; Dodecylbenzenesulfonic acid sodium salt; Sodium alkylbenzene sulfonate, branched; Sodium lauryl benzene sulfonate

*Classification:* Substituted aromatic compd.

*Empirical:* C<sub>18</sub>H<sub>29</sub>O<sub>3</sub>S • Na

*Properties:* Wh. to lt. yel. flakes, granules, or powd.; m.w. 348.52; anionic

*Toxicology:* LD50 (oral, rat) 438 mg/kg, (oral, mouse) 1330 mg/kg, (IV, mouse) 105 mg/kg; poison by IV route; mod. toxic by ing.; skin and severe eye irritant; ing. can cause vomiting; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

*Uses:* Detergent, emulsifier, wetting agent for emulsion polymerization, industrial cleaning, cosmetics, textiles, laundry, paints; emulsifier for metalworking fluids, pesticides; penetrant; dye leveling; grinding aid; plasticizer; cement admixture; anticaking agent; washing water agent for washing/lye peeling of fruits/vegetables; denuding agent; poultry scald agent;

## Sodium n-dodecylpolyethoxy (50 moles) sulfate

animal glue adjuvant; surfactant in topical pharmaceuticals; food-contact paper coatings, acrylic food pkg.; emulsifier in prod. of polyethylene phthalate polymers for food pkg.; in cellophane for food pkg.; emulsifier in food-contact rubber articles for repeated use; in food-contact textiles; as sanitizing solution for food contact and milk bottles

*Use Level:* Limitation 0.2% (in wash water)

*Regulatory:* FDA 21CFR §173.315, 175.105, 175.300, 175.320, 176.210, 177.1010, 177.1200, 177.1630, 177.2600, 177.2800, 178.1010, 178.3120, 178.3130, 178.3400; USDA 9CFR §318.7, 381.147; FDA approved for topicals

*Manuf./Distrib.:* Albright & Wilson Am.; Aldrich; Ashland; Chem-Tex Labs; DuPont; Emkay; Fluka; Intertrade Holdings; Lidochem; Norman, Fox; Pilot; Rhodia HPCI; Sigma; Spectrum Quality Prods.; Stepan; Tokyo Kasei Kogyo; Unger Fabrikker AS

*Trade Names:* Calimulse EM-22; Calimulse EM-30; Calimulse EM-96F; Maranil® A 25 IS; Maranil® Paste A 55; NACCONOL® 40G; NACCONOL® 90G; Nansa® HS80S; Nansa® HS85/S; Newrex Paste H; Newrex Powd. F; Newrex R; Norfox® 90; POLYSTEP® A-7; POLYSTEP® A-15; POLYSTEP® A-16; POLYSTEP® A-16-22; POLYSTEP® LAS-50; Rhodacal® DS/4-E25; Rhodacal® DS-10; Ufaryl DB 80; Ufaryl DL 80 CW; Ufaryl DL 85; Ufaryl DL 90 C

**Sodium n-dodecylpolyethoxy (50 moles) sulfate.** See Sodium laureth-50 sulfate

**Sodium dodecyl sulfate.** See Sodium lauryl sulfate

**Sodium n-dodecyl sulfate.** See Sodium lauryl sulfate

**Sodium DTPA.** See Pentasodium pentetate

**Sodium EDTMPA.** See Pentasodium ethylene diamine tetramethylene phosphonate

**Sodium ethylenediaminetetraacetate.** See Tetrasodium EDTA

**Sodium (2-ethylhexyl) alcohol sulfate.** See Sodium 2-ethylhexyl sulfate

### Sodium 2-ethylhexyl sulfate

CAS 126-92-1; EINECS/ELINCS 204-812-8

*Synonyms:* 2-Ethylhexyl sodium sulfate; 2-Ethyl-1-hexanol, hydrogen sulfate, sodium salt; 2-Ethyl-1-hexanol sulfate sodium salt; Sulfuric acid, mono (2-ethylhexyl) ester sodium salt; Sodium (2-ethylhexyl) alcohol sulfate; Mono (2-ethylhexyl) sulfate sodium salt

*Definition:* Sodium salt of 2-ethylhexyl sulfate

*Empirical:* C<sub>8</sub>H<sub>17</sub>O<sub>4</sub>S • Na

*Properties:* M.w. 232.28; anionic

*Toxicology:* LD50 (oral, rat) 4 g/kg, (oral, mouse) 1550 mg/kg; poison by IP route; mod. toxic by ing., skin contact; skin and eye irritant; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of SO<sub>x</sub> and Na<sub>2</sub>O

*Uses:* Electroplating bath additive; wetting agent for alkaline textile processing aids, industrial cleaners; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; low-foaming detergent, wetting agent, emulsifier, penetrant, stabilizer for cosmetics, textiles, household and industrial cleaners, metal cleaning, paints, plastics, rubber, food pkg. and processing, adhesives; coemulsifier for polymerization

*Regulatory:* FDA 21CFR §175.105, 176.170

*Manuf./Distrib.:* Albright & Wilson Am.; Chemron; Niacet; Rhodia HPCI; Sigma

*Trade Names:* Avirol® SA 4106; DeSULF SEH-40; Sintrex EHR; Sulfotex OA; Texapon® EHS

**Sodium feldspar.** See Sodium silicoaluminate

### Sodium ferrocyanide

CAS 13601-19-9; EINECS/ELINCS 237-081-9

*Synonyms:* Sodium ferrocyanide decahydrate; Sodium hexacyanoferrate (II); Yellow prussiate of soda

*Definition:* Avail. as the decahydrate

*Empirical:* C<sub>6</sub>FeN<sub>6</sub>Na<sub>4</sub> • 10H<sub>2</sub>O

*Formula:* Na<sub>4</sub>Fe(CN)<sub>6</sub> • 10H<sub>2</sub>O

*Properties:* Yel. cryst. or cryst. powd.; sol. in water; pract. insol. in most org. solvs.; m.w. 303.92 (anhyd.), 484.06 (decahydrate); dens. 1.458; dec. 435 C; loses water on heating above 50 C

*Precaution:* Do not mix with hot or conc. acids; protect from sunlight to avoid generation of hydrogen cyanide

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of CN  
*Storage:* Protect from sunlight

*Uses:* Mfg. of sodium ferricyanide, blue pigments, blueprint paper; flotation depressant for copper ores; heavy metal scavenger; pickling metals; polymerization catalyst; photographic oxidizing agent/fixative; anticaking agent for table salt; food processing aid, cryst. modifier; in wine

*Use Level:* ADI 0-0.025 mg/kg (EU)

*Regulatory:* FDA 21CFR §172.490 (13 ppm max.), GRAS; BATF 27CFR §240.1051 (1 ppm max. residue in finished wine); Europe listed; UK approved

*Manuf./Distrib.:* ADA Int'l.; AMC Chems.; Atomergic Chemetals; Degussa-Hüls Ltd; Fluka; Rit-Chem; Sinochem Liaoning

**Sodium ferrocyanide decahydrate.** See Sodium ferrocyanide

**Sodium formaldehyde hydrosulfite.** See Sodium formaldehyde sulfoxylate

### Sodium formaldehyde sulfoxylate

CAS 149-44-0; 6035-47-8 (dihydrate); EINECS/ELINCS 295-739-4

*Synonyms:* SFS; Formaldehyde hydrosulfite; Formaldehyde sodium bisulfite adduct; Formaldehyde sodium sulfoxylate; Hydroxymethanesulfonic acid monosodium salt; Hydroxymethanesulfonic acid sodium salt; Methanesulfonic acid, hydroxy-, monosodium salt; Monosodium hydroxymethane sulfinate; Sodium formaldehyde hydrosulfite; Sodium hydroxymethane sulfinate; Sodium methanalsulfoxylate; Sodium sulfoxylate formaldehyde

*Definition:* Avail. as the dihydrate

*Empirical:* CH<sub>3</sub>NaO<sub>3</sub>S; CH<sub>3</sub>NaO<sub>3</sub>S • 2H<sub>2</sub>O

*Formula:* HOCH<sub>2</sub>SOONa or HOCH<sub>2</sub>SOONa • 2H<sub>2</sub>O

*Properties:* Wh. cryst., garlic odor; sol. in water; sl. sol. in alcohol, ether, chloroform, benzene; readily dec. by dil. acids; m.w. 118.09 (anhyd.), 154.11 (dihydrate); m.p. 64-68 C (dihydrate); pH 9.5-10.5 (2%)

*Toxicology:* LD50 (oral, rat) > 2 g/kg; LDLo (subcut., mouse) 3000 mg/kg; mod. toxic by ing. and subcut. routes; irritating to respiratory system; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>x</sub>, Na<sub>2</sub>O

HMIS: Health 2; Flammability 1; Reactivity 1

*Storage:* Keep well closed in cool place

*Uses:* Catalyst/polymerization regulator for plastics; redox activator in S/B rubber prod.; reducing agent for redox-catalyzed polymerization; paint raw material; stripping and discharge agent for textiles; in food-pkg. adhesives; reducing agent in vat dyeing; bleaching agent for molasses, soap; antioxidant in pharmaceuticals; treatment of mercury poisoning; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers; in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1210, 177.2600; FDA approved for parenterals, topicals; USP/NF compliance

*Manuf./Distrib.:* AC Ind.; Aceto; Aldrich; Benco; CP PhibroChem; Cognis/Coatings & Inks; Fluka; J.A. Gross; L. Bruggemann; Passaic Color & Chem.; Phibrochem; Royce Assoc.; Ruger; Spectrum Quality Prods.; Van Waters & Rogers; Wang Trading Enterprises; Whyte Chems. Ltd

*Trade Names:* Hydrosulfite® AWC

### Sodium fructoheptonate

*Uses:* Chelating agent in food-contact paper/paperboard mfg.

*Regulatory:* FDA 21CFR §176.150

**Sodium gluceptate.** See Sodium glucoheptonate

### Sodium glucoheptonate

CAS 13007-85-7; EINECS/ELINCS 235-849-8

*Synonyms:* Gluceptate, sodium; Glucoheptonic acid, sodium salt; D-Glycero-D-gulo-heptonic acid, monosodium salt; Sodium gluceptate

*Classification:* Organic salt

*Empirical:* C<sub>7</sub>H<sub>13</sub>NaO<sub>6</sub>

*Formula:* HOCH<sub>2</sub>(CHOH)<sub>5</sub>COO<sup>-</sup> Na<sup>+</sup>

*Properties:* Lt. tan cryst. powd.; m.w. 248.16

*Uses:* Chelating agent in dairy cleaners, bottle cleaners, food-contact paper/paperboard mfg.; metal cleaning; kier boiling; caustic boiloff; paint stripping; boiler water additive for food processing; aluminum etchant ingred.; sequestrant; latex stabilizer; intravenous pharmaceuticals

*Regulatory:* FDA 21CFR §173.315 (limitation < 1 ppm cyanide), 176.150; FDA approved for intravenous

*Manuf./Distrib.:* Atomergic Chemetals; Brook-Chem; Burlington Chem.; Callaway; Chem. Distribution; Encee Chem. Sales; Hickson Danchem;

Jarchem Ind.; Lowenstein Dyes & Cosmetics; Milport Enterprises; O.C. Lugo; Pfanstiehl Labs; Quaker City; RussTech; Seppic; Surfactants Inc; Van Waters & Rogers

**Sodium gluconate**

CAS 527-07-1; EINECS/ELINCS 208-407-7

**Synonyms:** D-Gluconic acid monosodium salt; Gluconic acid sodium salt; Monosodium gluconate; Monosodium D(-)-pentahydroxy capronate; Sodium d-gluconate

**Classification:** Nonaromatic acid salt

**Definition:** Sodium salt of gluconic acid

**Empirical:** C<sub>6</sub>H<sub>11</sub>NaO<sub>7</sub>

**Formula:** HOCH<sub>2</sub>CHOHCHOHCHOHCHOHCOONa

**Properties:** Wh. to ysh. cryst. powd., pleasant odor; sol. 59 g/100 ml water; sl. sol. in alcohol; insol. in ether; m.w. 218.16; m.p. 206 C (dec.)

**Toxicology:** LDLo (IV, rabbit) 7630 mg/kg; low toxicity by IV route; TSCA listed

**Environmental:** Easily degraded biologically; presents no waste problem

**Precaution:** Avoid dust formation

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Keep in well-closed container in dry place

**Uses:** Sequestering agent and chelant in metal plating, derusting, bottleshaving formulations; metal cleaners; tanning of hides; mordants for fabrics; paints; paint stripper; aluminum deoxidizer; chrome tanning; rust remover; nutrient, mineral source in foods and pharmaceuticals

**Use Level:** ADI 0-50 mg/kg (EU, as total gluconic acid)

**Regulatory:** FDA 21CFR §182.6757, GRAS; Europe listed; UK approved; FDA approved for orals

**Manuf./Distrib.:** ADA Int'l.; Akzo Nobel; Albright & Wilson Am.; Aldrich; Am. Biorganics; Charkit; Faesy & Besthoff; Fluka; Glucona Am.; Int'l. Chem. Inc; Jarchem Ind.; Jungbunzlauer; Lohmann; PMP Fermentation Prods.; Pfizer Int'l.; Rit-Chem; Ruger; Sal Chem.; Seppic; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem; Vivion; Wego Chem. & Min.

**Trade Names:** Gluconal® NG-C

**Sodium d-gluconate.** See Sodium gluconate

**Sodium glyceryl trioleate sulfate**

**Properties:** Anionic

**Uses:** Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing

**Sodium hexacyanoferrate (II).** See Sodium ferrocyanide

**Sodium hexadecanoate.** See Sodium palmitate

**Sodium 2,4-hexadienoate.** See Sodium sorbate

**Sodium hexametaphosphate**

CAS 10124-56-8; EINECS/ELINCS 233-343-1; FEMA 3027

**Synonyms:** HMP; SHMP; Glassy sodium; Hexametaphosphate sodium salt; Hexasodium metaphosphate; Metaphosphoric acid, hexasodium salt; Phosphate, sodium hexameta-; Sodium polymetaphosphate

**Classification:** Inorganic salt

**Empirical:** O<sub>18</sub>P<sub>6</sub> • 6Na

**Formula:** (NaPO<sub>3</sub>)<sub>6</sub>

**Properties:** Colorless to wh. powd. or flakes; odorless; sol. in water; m.w. 611.76; sp.gr. 2.181; m.p. 1184 F; pH 6.0-7.7; anionic

**Toxicology:** LD50 (oral, rat) 6200 mg/kg, (IP, mouse) 870 mg/kg, (subcut., mouse) 1300 mg/kg, (IV, mouse) 62 mg/kg; poison by IV route; mod. toxic by IP, subcut. routes; mildly toxic by ing.; may cause skin/eye/respiratory/digestive tract irritation; may cause flaccid paralysis, somnolence, convulsions, changes in tubules (incl. acute renal failure); TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of PO<sub>4</sub> and Na<sub>2</sub>O

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Store in cool, dry place in a tightly closed container

**Uses:** Sequesterant, dispersant, emulsifier, suspending agent, corrosion/scale control in personal care prods., water treatment, drinking water treatment, cleaning formulations; water softener; binder in refractory bricks; textile scouring/Kier boiling agent; reagent; deflocculant in paper, paint, ceramics, oil drilling; foods (emulsifier, stabilizer, sequesterant, texturizer, dietary supplement, water binding agent; hog/poultry scald agent); milk scale control

agent; pharmaceuticals (buccals)

**Regulatory:** FDA 21CFR §173.310, 182.90, 182.6760, 182.6769, GRAS; USDA 9CFR §318.7, 381.147; FEMA GRAS; FDA approved for buccals  
**Manuf./Distrib.:** ABCR; ADA Int'l.; Albright & Wilson Am.; Albright & Wilson UK; Am. Int'l.; BCH Brühl; Browning; Dastech Int'l.; FMC; Farleyway Chem. Ltd; Fisher Scientific; Fluka; Monsanto; Rhodia; Ruger; Sal Chem.; Sinochem Liaoning; Spectrum Quality Prods.; Universal Preserv-A-Chem; Wego Chem. & Min.

**Trade Names:** Kalipol™ 20

**Sodium hydrate.** See Sodium hydroxide

**Sodium hydrogen carbonate.** See Sodium bicarbonate

**Sodium hydrogen phosphate.** See Sodium phosphate dibasic anhydrous

**Sodium hydrogen sulfate.** See Sodium bisulfate

**Sodium hydrogen sulfide.** See Sodium bisulfide

**Sodium hydrogen sulfite.** See Sodium bisulfite

**Sodium hydrosulfide.** See Sodium bisulfide

**Sodium hydrosulfide, solid.** See Sodium bisulfide

**Sodium hydrosulfide, sol'n.** See Sodium bisulfide

**Sodium hydrosulfite**

CAS 7775-14-6 (anhyd.); EINECS/ELINCS 231-890-0; UN No. 1384 (DOT)

**Synonyms:** Disodium dithionate; Disodium dithionite; Dithionous acid disodium salt; Sodium dithionate; Sodium dithionite; Sodium hyposulfite; Sodium sulfoxylate

**Classification:** Inorganic salt

**Empirical:** Na<sub>2</sub>O<sub>2</sub>S<sub>2</sub>

**Formula:** NaO<sub>2</sub>SSO<sub>2</sub>Na

**Properties:** Wh. or yel.-wh. large transparent cryst., bitter taste; sl. sol. in cold water; insol. in alcohol, conc. HCl; dec. in hot water; m.w. 174.10; dens. 2.189; m.p. 55 C; dec. 267 C

**Toxicology:** Toxic, irritant to skin; allergen; TSCA listed

**Precaution:** DOT: Flamm. solid; fire risk; spontaneously combustible; ignites on contact with water or sodium chloride

**Hazardous Decomp. Prods.:** Dec. violently when heated to 190 C, emitting toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

**NFPA:** Health 2; Flammability 1; Reactivity 2

**Storage:** Moisture-sensitive

**Uses:** Chemical reagent for the reduction of aldehydes and ketones to alcohols; vat dyeing of fibers and textiles; stripping agent for dyes; wood pulp bleaching; bleaching food, sugar, soap, oils, paper, clay, textiles; oxygen scavenger for syn. rubbers; polymerization terminator (S/B rubber prod.); photography; paint raw material; gas analysis; rust remover; migrating to food from paper/paperboard; pharmaceuticals (reducing agent; salvarsan; urine tests for detection of paraquat poisoning); reducing agent in textile dyeing; chromium reducing agent in effluent treatment; kaolin bleaching in mining; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800, 182.90; Japan approved (0.03-5 g/kg residual as sulfur dioxide), not permitted in certain foods; FDA approved for parenterals; BP compliance

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Arch Chems.; BCH Brühl; Brown; Burlington Chem.; Celanese; Clariant; Cognis/Coatings & Inks; Coyne; Dastech Int'l.; FMC Foret; Farleyway Chem. Ltd; Fluka; ICC Ind.; Independent Chem.; Int'l. Chem. Inc; LaRoche Ind.; Monomer-Polymer & Dajac Labs; Morton Int'l.; Nissan Chem. Ind.; Olin/Chlor Alkali; PPG Ind.; Robeco; Schaefer Tech.; Sigma; Spectrum Quality Prods.; Sumitomo Chem.; Vulcan Perf. Chems.; Whyte Chems. Ltd

**Trade Names:** Blankit®; Hydrolin; Hydrosulfite of Soda, 70%; Hydrosulfite of Soda Conc.; Hydrosulphite®

**Sodium hydroxide**

CAS 1310-73-2; EINECS/ELINCS 215-185-5; UN No. 1823 (DOT); 1824 (DOT)

**Synonyms:** Caustic soda; Lye; Soda lye; Sodium hydrate; White caustic

**Classification:** Alkali hydroxide

**Empirical:** HNaO

**Formula:** NaOH

**Properties:** Wh. solid beads or pellets; absorbs water and CO<sub>2</sub> from air; sol. in water, alcohol, methanol, glycerin; m.w. 40.00; dens. 2.12 (20/4 C); vapor pressure 1 mm (739 C); m.p. 318 C; b.p. 1390 C

**Toxicology:** ACGIH TLV/CL 2 mg/m<sup>3</sup> of air; LD50 (IP, mouse) 40 mg/kg; LDLo (oral, rabbit) 500 mg/kg; poison by IP route; mod. toxic by ing.; corrosive irritant to eyes, skin, mucous membrane; mists and dusts cause

## Sodium 2-hydroxydiphenyl

small burns; inh. can damage upper respiratory tract and lungs; mutagenic data; TSCA listed

**Precaution:** DOT: Corrosive material; strong base; incompat. with acids and water; may ignite or react violently with many org. compds.; dangerous material to handle

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na<sub>2</sub>O  
NFPA: Health 3; Flammability 0; Reactivity 1

**Storage:** Deliq.

**Uses:** Chemical mfg.; rayon; cellophane; neutralizing agent in petrol. refining; textile processing; pulp and paper bleaching; deinking and water treatment at pulp mills; soaps; vegetable oil refining reagent; reclaiming rubber; solvent for colorants; processing aid in petrol. mfg.; prod. of alumina; etching and electroplating; boiler water treatment, coagulation, corrosion/scale control, pH control, softening; industrial cleaner ingred.; ion-exchange resin regeneration; dyes; pharmaceutical alkalinizing agent, buffering agent; food additive; pH control; dispersant for suspended material such as silt and metal oxides

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §163.110, 172.560, 172.814, 172.892, 173.310, 184.1763, GRAS; USDA 9CFR §318.7, 381.147; BATF 27CFR §21.101, 240.1051a; Japan restricted; Europe listed; UK approved; FDA approved for injectables, dentals, parenterals, inhalants, ophthalmics, orals, rectals, topicals, vaginales; USP/NF, BP, Ph.Eur. compliance; SARA reportable

**Manuf./Distrib.:** AMRESCO; Advance Research Chems.; Akzo Nobel; Aldrich; Allied Universal; Alitvia; Am. Biorganics; Arch Chems.; Asahi Denka Kogyo; Atofina; BCH Brühl; Bilt Chems. Ltd; CXY Chems.; Degussa-Hüls AG; Dow; EM Ind.; FMC; Fluka; GE Plastics; General Chem.; Georgia Gulf; Georgia-Pacific Resins; Harcros; HoltraChem; Hydrite; Kuehne Chem.; LaRoche Ind.; Nissan Chem. Ind.; Norsk Hydro AS; Occidental; Olin/Chlor Alkali; PPG Ind.; PVS; Primachem; Rasa Ind.; Ruger; Sal Chem.; Schaefer Tech.; Sigma; Solvay Mins.; Spectrum Quality Prods.; Universal Preserv-A-Chem; Van Waters & Rogers; Varsal Instruments; Vulcan Perf. Chems.; Weyerhaeuser

**Trade Names Containing:** Degal BP; Neonol™-HSC

**Sodium 2-hydroxydiphenyl.** See Sodium o-phenylphenate

**Sodium hydroxymethane sulfinate.** See Sodium formaldehyde sulfoxylate

**Sodium 4-[(2-hydroxy-1-naphthyl) azo] benzenesulfonate.** See Acid orange 7

## Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate

CAS 52556-42-0; EINECS/ELINCS 258-004-5

**Synonyms:** 3-Allyloxy-2-hydroxy-1-propanesulfonic acid, sodium salt; 1-Propanesulfonic acid, 2-hydroxy-3-(2-propenyloxy)-, monosodium salt; Sodium 3-(allyloxy)-2-hydroxypropanesulfonate

**Classification:** Sulfonic acids and salts

**Empirical:** C<sub>6</sub>H<sub>12</sub>NaO<sub>5</sub>S

**Properties:** M.w. 218.21; dens. 1.170; ref. index 1.3940

**Toxicology:** TSCA listed

**Storage:** Air-sensitive

**Uses:** Polymerizable surfactant for vinylic systems; antistatic props.; promotes adhesion of pigments; used for emulsion polymerization in paper, textile, fiber, and adhesives industries

**Manuf./Distrib.:** Aldrich

**Trade Names:** SPAE

## Sodium hypochlorite

CAS 7681-52-9; EINECS/ELINCS 231-668-3; UN No. 1791 (DOT)

**Synonyms:** Bleaching sol'n.; Dakins sol'n.; Hypochlorite sol'n.; Hypochlorous acid, sodium salt; Labarrque's sol'n.; Liquid bleach; Sodium chloride oxide; Sodium oxychloride

**Classification:** Hypochlorous acid salt

**Empirical:** ClNaO

**Formula:** NaOCl

**Properties:** Pale greenish to yel. liq., chlorine bleach odor; sol. in water; reacts with many org. solvs.; m.w. 74.45; sp.gr. 1.1 (6% sol'n.); m.p. -6 C (5%); dec. above 40 C; pH ≈ 11

**Toxicology:** LD50 (oral, mouse) 5800 mg/kg; TDLo (IV, man) 45 mg/kg; mildly toxic by ing.; strong irritant to tissue; highly irritating to eyes, skin, respiratory tract; human systemic effects by ing. (somnolence, blood pressure decrease, nausea, vomiting); tumorigen; human mutagenic data; TSCA listed

**Environmental:** Hazardous to environment

**Precaution:** Corrosive; strong oxidizer capable of igniting combustibles; highly explosive, sensitive to heat or friction; forms explosive prods. with amines; unstable in air; fire risk

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na<sub>2</sub>O and Cl<sup>-</sup>

**HMS:** Health 2; Flammability 0; Reactivity 1

**Uses:** Bleaching paper, pulp, and textiles; household bleach; intermediate; organic chemicals; water disinfection/purification/treatment, taste/odor control, slime control, effluent treatment; swimming pool disinfectant; laundering; reagent; fungicide; germicide; seed treatment; chlorinating agent; medicine (antiseptic for wounds); disinfection, deodorization in foods, beverages; washing/lye peeling of fruits/vegetables; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty food; in food-contact textiles; as sanitizing solution for food contact

**Regulatory:** FDA 21CFR §173.315, 175.105, 176.170, 177.2800, 178.1010; Japan approved as bleaching agent, restricted as sterilizing agent; BP compliance (sol'n.)

**Manuf./Distrib.:** Ajinomoto; Albemarle; Aldrich; Allied Universal; Arch Chems.; Asahi Denka Kogyo; Atofina; Bio-Lab; Degussa-Hüls AG; Delta; Fluka; George Mann; Harcros; Hydrite; KIK Int'l.; Kuehne Chem.; Mitsubishi Chem.; Norsk Hydro AS; Occidental; Olin/Chlor Alkali; P.B. & S.; Robeco; Ruger; Sal Chem.; Showa Denko; Sigma; Solvay SA; Spectrum Quality Prods.; Universal Preserv-A-Chem

**Trade Names:** Adeka Hypote

**Sodium hyposulfite.** See Sodium hydrosulfite; Sodium thiosulfate anhydrous

**Sodium hyposulfite pentahydrate.** See Sodium thiosulfate pentahydrate

## Sodium isobutyl oleate sulfate

**Synonyms:** Isobutyl oleate, sulfated, sodium salt

**Uses:** In paper/paperboard in contact with aq./fatty food

**Regulatory:** FDA 21CFR §176.170

**Sodium isothiocyanate.** See Sodium thiocyanate

## Sodium laurate

CAS 629-25-4; EINECS/ELINCS 211-082-4

**Synonyms:** Dodecanoic acid sodium salt; Lauric acid sodium salt; Sodium dodecanoate

**Definition:** Sodium salt of lauric acid

**Empirical:** C<sub>12</sub>H<sub>23</sub>O<sub>2</sub> · Na

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>COONa

**Properties:** M.w. 222.31

**Toxicology:** LDLo (unreported, mouse) 400 mg/kg; poison by unspecified route; severe skin irritant; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

**Uses:** Binder, emulsifier, and anticaking agent in foods; food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles for repeated use; in food-contact textiles; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §172.863, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910

**Manuf./Distrib.:** Fluka; Sigma

**Trade Names:** EW-POL 7902 NaC 12

## Sodium laureth sulfate

CAS 1335-72-4; 3088-31-1; 9004-82-4 (generic); 13150-00-0; 15826-16-1; 68585-34-2; EINECS/ELINCS 221-416-0

**Synonyms:** PEG (1-4) lauryl ether sulfate, sodium salt; Poly(oxy-1,2-ethanediyl), α-sulfo-ω-(dodecyloxy)-, sodium salt; Sodium lauryl ether sulfate; Sodium POE lauryl sulfate

**Definition:** Sodium salt of sulfated ethoxylated lauryl alcohol

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OSO<sub>3</sub>Na, avg. n = 1-4

**Properties:** Yel. liq. or paste; anionic

**Toxicology:** LD50 (oral, rat) 1600 mg/kg; mod. toxic by ing.; irritating to eyes and skin; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

**Uses:** Foam stabilizer, detergent, flash foamer, wetter, visc. builder for detergent systems, personal care prods.; emulsifier for emulsion polymerization (vinyl acetate, acrylates, methacrylates, styrene, butadiene); textile

aux.; dispersant in plasterboard prod.; concrete air-entrainment agent; coupling agent; leveling agent; pearling agent; for paper coatings; textile coatings; paints; adhesives; industrial coatings; shampoo base; topical pharmaceuticals; emulsifier in mfg. of food-contact articles; defoamer in food-contact paper/paperboard; food-pkg. adhesives

**Regulatory:** FDA approved for topicals

**Manuf./Distrib.:** Chemron; Clariant; Condea Vista; Int'l. Chem. Inc; Lonza; Norman, Fox; Pilot; Rhodia HPCII; Sea-Land; Stepan; U.S. Synthetics; Unger Fabrikker AS

**Trade Names:** Abex® 23S; Paxnol LES; POLYSTEP® B-330S; Stanfax 1066

**Trade Names Containing:** Abex® VA50

### Sodium laureth-12 sulfate

CAS 9004-82-4 (generic); 66161-57-7; EINECS/ELINCS 221-416-0

**Synonyms:** PEG (12) lauryl ether sulfate, sodium salt; PEG 600 lauryl ether sulfate, sodium salt; Sodium POE (12) lauryl ether sulfate

**Definition:** Sodium salt of the sulfate ester of the PEG ether of lauryl alcohol

**Empirical:** C<sub>36</sub>H<sub>74</sub>O<sub>16</sub>S • Na

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OSO<sub>3</sub>Na, avg. n = 12

**Properties:** Anionic

**Toxicology:** TSCA listed

**Uses:** Detergent, foaming agent for cosmetics; emulsion polymerization; food-pkg. adhesives; defoamer in food-contact paper/paperboard

**Trade Names:** POLYSTEP® B-23

### Sodium laureth-50 sulfate

**Synonyms:** Sodium n-dodecylpolyethoxy (50 moles) sulfate

**Uses:** In food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180

### Sodium lauryl benzene sulfonate. See Sodium dodecylbenzenesulfonate

### Sodium lauryl ether sulfate. See Sodium laureth sulfate

### Sodium lauryl sulfate

CAS 151-21-3; 68585-47-7; 68955-19-1; EINECS/ELINCS 205-788-1; 271-557-7; 273-257-1

**Synonyms:** SDS; SLS; Dodecyl alcohol, hydrogen sulfate, sodium salt; Dodecyl sodium sulfate; Dodecylsulfate sodium salt; Lauryl sodium sulfate; Lauryl sulfate sodium salt; Monododecyl sodium sulfate; Sodium dodecyl sulfate; Sodium n-dodecyl sulfate; Sodium monododecyl sulfate; Sulfuric acid monododecyl ester sodium salt

**Classification:** Alkyl sulfate salt

**Definition:** Sodium salt of lauryl sulfate

**Empirical:** C<sub>12</sub>H<sub>25</sub>O<sub>4</sub>S • Na

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>10</sub>CH<sub>2</sub>OSO<sub>3</sub>Na

**Properties:** Wh. to cream crystals, flakes, or powd., faint fatty odor; mod. sol. in water; m.w. 288.38; sp.gr. > 1.1 (20 C); m.p. 204-207 C; anionic

**Toxicology:** LD50 (oral, rat) 1288 mg/kg, (IP, rat) 210 mg/kg, (IV, rat) 118 mg/kg; poison by IV, IP routes; mod. toxic by ing.; human skin irritant; experimental eye, severe skin irritant; mild allergen; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** Burns above 93.3 C; incompat. with strong oxidizers (increases fire risk)

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S; heated to decomp., emits toxic fumes of SO<sub>x</sub> and Na<sub>2</sub>O

**HMS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials

**Uses:** Detergent; surface tension depressant; wetting agent in textile industry, in toothpaste; emulsifier for emulsion polymerization (vinyl chloride, S/B, acrylic), paints, coatings, printing inks, fats; flotation collector; lubricant; pearlescent; visc. builder; penetrant; food additive (thickener, emulsifier); dispersant in creams, lotions, medical preps.; foaming agent (foamed rubber/carpetbacking latex); electrophoretic separation of proteins and lipids; surfactant in food-contact coatings; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; in closure-sealing gaskets for food containers

**Use Level:** Limitation 1000 ppm (egg white solids), 125 ppm (liq. or frozen egg whites), 0.5% (marshmallows), 10 ppm (vegetable oils, animal fats), 25 ppm (fruit juice drink); 0.004-0.6 mg (oral solids); 0.01-0.02% (oral liqs.); 0.1-12.7% (topical pharmaceuticals)

**Regulatory:** FDA 21CFR §172.210, 172.822, 175.105, 175.300, 175.320, 176.170, 176.210, 177.1200, 177.1210, 177.1630, 177.2600, 177.2800, 178.1010, 178.3400; USDA 9CFR §318.7, 381.147; FDA approved for dentals, orals, topicals, vaginals; USP/NF, BP, Ph. Eur. compliance

**Manuf./Distrib.:** AMRESKO; Accurate Chem. & Scientific; Aceto; Albright & Wilson UK; Aldrich; Am. Biorganics; Chemron; Clariant; Cognis/Chem. Group; Costec; DeForest Enterprises; Degussa-Hüls AG; DuPont; Fluka; Kraft Chem.; Lonza; Monomer-Polymer & Dajac Labs; Norman, Fox; Patco Chem. Ind.; Pilot; Rhodia HPCII; Rochem Int'l.; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Stepan; Thornley; U.S. Synthetics; Unger Fabrikker AS; Universal Preserv-A-Chem; Vivion

**Trade Names:** Aviro® SL 2010; Aviro® SL 2020 G; Calimulse SLS; DeSULF SLS-30LC; DeSULF SLS-30LS; Paxnol PSL; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-24; Rhodapon® LCP; Rhodapon® LSB; Rhodapon® SM; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Stanfax 234; Stanfax 234LCP; Stanfax 996; Stanfax 997; STEPANOL® LCP; Sulfofon® 101; Sulfofon® 101 Special; Sulfofon® 101 Special RHD; Texapon® K-12 C Powd.; Texapon® K-12 Granules; Texapon® K-12 Needles; Texapon® K-12 PA 15; Texapon® K-1296 C Needles; Texapon® LS Highly Conc. Needles; Texapon® OT Highly Conc. Needles; Texapon® ZHC Needles; Texapon® ZHC Powder

**Trade Names Containing:** Texapon® K-1296 Powd.; Texapon® VHC Needles

### Sodium ligninsulfonate. See Sodium lignosulfonate

### Sodium lignosulfonate

CAS 8061-51-6

**Synonyms:** Lignin sodium sulfonate; Lignosulfonic acid, sodium salt; Sodium ligninsulfonate; Sodium polignate

**Definition:** Sodium salt of polysulfonated lignin, a dark brown polymeric material from wood

**Properties:** Tan free-flowing powd.; sol. in water; anionic

**Toxicology:** LDLo (IV, mouse) 500 mg/kg; TSCA listed

**Precaution:** Combustible

**Uses:** Dispersant, emulsion stabilizer, chelating agent for rubber, water treatment; boiler water additive for food contact; sequestrant for micronutrient systems, cleaning compds.; dispersant for mineral flotation, electrolytic refining, disperse dyes; emulsifier/protective colloid for emulsion polymerization; leather tanning aux.; emulsifier for asphalt, pigments, dyes, pesticides, waxes; dye dispersant extender; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in closure-sealing gaskets for food containers

**Regulatory:** FDA 21CFR §173.310, 175.105, 176.170, 176.210, 177.1210

**Manuf./Distrib.:** Aldrich; LignoTech USA; Los Angeles Chem.; R.T. Vanderbilt; Tembec; Van Waters & Rogers; Varsal Instruments; Wesco Tech. Ltd; Westvaco

**Trade Names:** Dyqex®; Lignosite® 260; Lignosite® 431; Lignosite® 458; Lignosite® 823; Maracarb N-1; Marasperse 52 CP

### Sodium lithium magnesium silicate. See Smectite

### Sodium magnesium fluorosilicate

**Classification:** Inorganic salt

**Empirical:** F<sub>12</sub>MgNa<sub>2</sub>Si<sub>2</sub>

**Formula:** Na<sub>2</sub>Mg(SiF<sub>6</sub>)<sub>2</sub>

**Uses:** Imparts shear sensitive structure to waterborne formulations

**Trade Names Containing:** Laponite® JS

### Sodium maleic anhydride/diisobutylene copolymer

**Synonyms:** Maleic anhydride/diisobutylene copolymer, sodium salt

**Uses:** Dispersant for pigments and extenders in aq. systems; agric. applics.; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180

### Sodium MBT. See Sodium 2-mercaptobenzothiazole

### Sodium mercaptan. See Sodium bisulfide

### Sodium mercaptide. See Sodium bisulfide

### Sodium mercaptobenzothiazole. See Sodium 2-mercaptobenzothiazole

### Sodium 2-mercaptobenzothiazole

CAS 2492-26-4

**Synonyms:** NaMBT; 2-Mercaptobenzothiazole sodium deriv.; 2-Mercaptobenzothiazole sodium salt; Sodium MBT; Sodium mercaptobenzothiazole

**Empirical:** C<sub>7</sub>H<sub>4</sub>NS<sub>2</sub> • Na



*Properties:* M.w. 189.23

*Toxicology:* LD50 (oral, rat) 3120 mg/kg; mod. toxic by ing.; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, SO<sub>x</sub>, and Na<sub>2</sub>O

*Uses:* Preservative and mildew inhibitor for paper, textiles, food-pkg. adhesives; biocide for rubber, wax; corrosion inhibitor for nonferrous metals, antifreeze, hydraulic fluid, coolants; metal deactivator; flotation collector; chemical intermediate; copper corrosion inhibitor in water treatment; protects starch and casein coatings from bacterial or fungal activity; preservative for defoamers in food-contact coatings and paper/paperboard; slimicide in food-contact paper/paperboard; preservative in food-contact textiles and animal glues

*Regulatory:* FDA 21CFR §175.105, 176.200, 176.210, 176.300, 177.2800, 178.3120, 181.30

*Manuf./Distrib.:* Allchem Ind.; PMC Spec.; R.T. Vanderbilt; Uniroyal; Wall Chem.

*Trade Names:* Sodium MBT

*Trade Names Containing:* Vancide® 51

### Sodium metabisulfite

CAS 7681-57-4; EINECS/ELINCS 231-673-0; UN No. NA 2693 (DOT)

*Synonyms:* Disodium disulfite; Disodium pyrosulfite; Disulfurous acid disodium salt; Pyrosulfurous acid disodium salt; Sodium bisulfite; Sodium metabisulfite; Sodium pyrosulfite

*Classification:* Inorganic salt

*Empirical:* O<sub>2</sub>S<sub>2</sub> • 2Na

*Formula:* Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>

*Properties:* Colorless cryst. or wh. to ysh. powd.; pungent SO<sub>2</sub> odor; sol. in water forming acidic sol'ns.; sol. in glycerin; sl. sol. in alcohol, oxygenated solvs.; m.w. 190.10; dens. 1.480

*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (IV, rat) 115 mg/kg, (parenteral, mouse) 910 mg/kg; poison by IV route; mod. toxic by parenteral route; experimental reproductive effects; mutagen; tumorigen; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

HMIS: Health 1; Flammability 0; Reactivity 1

*Storage:* Moisture-sensitive; store @ R.T.

*Uses:* Laboratory reagent; foods (preservative, antioxidant, flavoring); boiler water additive for food processing; latex anticoagulant; mfg. of sulfosuccinates and sodium formaldehyde bisulfite; dechlorination reagent (drinking water, effluent, textiles); flotation depressant; reduction of chrome effluents from chrome plating systems; in chrome pigments mfg.; photographic fixing sol'ns.; pharmaceuticals (antioxidant, reducing agent; sympathomimetic and aminoglycoside medications); solubilizer of tanning extracts; bleaching of paper pulp; purification of aldehydes; in cellophane for food pkg.

*Use Level:* ADI 0-0.7 mg/kg (EU); 0.3-0.75% (sympathomimetic/aminoglycoside medications)

*Regulatory:* FDA 21CFR §173.310, 177.1200, 182.3766, GRAS; Europe listed; FDA approved for inhalants, injectables, parenterals, ophthalmics, orals; USP/NF, BP compliance

*Manuf./Distrib.:* AMRESCO; Aldrich; Alfa Aesar; Allchem Ind.; Am. Int'l.; Amalgamet; Artek; Ashland; BASF; Brown; Browning; Calabrian; Charkit; Chem One; Coyne; EM Ind.; Esseco SpA; FMC Foret; Filo; Fluka; General Chem.; HCl Chemtech Distribution; J.F. Henry; JTS Enterprises; Kaltron/Pettibone; Los Angeles Chem.; Mallinckrodt Baker; Mutchler; Primachem; Ruger; Seeler Ind.; Sigma; Solvay Mins.; Spectrum Quality Prods.; Universal Preserv-A-Chem; Van Waters & Rogers; Vivion; Westco; Wm. Blythe Ltd

**Sodium metabisulfite.** See Sodium metabisulfite

### Sodium metasilicate

CAS 6834-92-0; EINECS/ELINCS 229-912-9

*Synonyms:* Disodium metasilicate; Disodium monosilicate; Silicic acid, disodium salt; Sodium metasilicate anhydrous; Sodium silicate; Soluble glass; Water glass

*Classification:* Inorganic salt; metasilicate

*Empirical:* Na<sub>2</sub>O<sub>3</sub>Si

*Formula:* Na<sub>2</sub>SiO<sub>3</sub>

*Properties:* Wh. or green gran. or vitreous lumps, dustless; sol. in water forming alkaline sol'ns.; insol. in alcohol, acids, salt sol'ns.; m.w. 122.07; sp.gr. 2.614; m.p. 1089 C; pH 12.6 (1%); ref. index 1.520 (glass, 25 C)

*Toxicology:* LD50 (oral, rat) 1153 mg/kg; LDLo (IP, guinea pig) 200 mg/kg; poison by ing., IP routes; severe eye, skin, mucous membrane irritant; ing. causes GI tract upset; experimental reproductive effects; TSCA listed

*Precaution:* Strongly alkaline; caustic material; violent reaction with F<sub>2</sub>

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

*Uses:* Cosmetics; detergent builder in laundry, dairy, and metal cleaning, automatic dishwasher, household cleaners; bleaching agent; as flocculant and dispersant in metallurgy and mining; buffer; stabilizer for peroxide bleaches; corrosion inhibitor in paints and ceramic glazes; boiler water additive for food processing; food additive, processing aid; washing/lye peeling of fruits, vegetables, nuts; denuding agent in tripe; hog scald agent

*Regulatory:* FDA 21CFR §173.310, 184.1769a, GRAS; USDA 9CFR §318.7

*Manuf./Distrib.:* Aldrich; Allan; Am. Int'l.; Coyne; Crosfield; Eka Chems. AB; Fluka; Harcross; Independent Chem.; Occidental; PQ; Rhodia; Sal Chem.; Veckridge; Vivion

*Trade Names:* Drymet® 59; Drymet® Fines; Metso Beads® 2048

See also Sodium silicate

**Sodium metasilicate anhydrous.** See Sodium metasilicate

### Sodium metasilicate pentahydrate

CAS 10213-79-3; EINECS/ELINCS 229-912-9

*Empirical:* Na<sub>2</sub>O<sub>3</sub>Si • 5H<sub>2</sub>O

*Formula:* Na<sub>2</sub>OSiO<sub>2</sub> • 5H<sub>2</sub>O

*Properties:* Wh. gran.; m.w. 212.14

*Toxicology:* Harmful substance; irritating to respiratory system

*Uses:* Ingredient in detergents for food processing equipment and general cleaning in dairies, bakeries, packing houses, in laundry, textile, paper, oil, metal industries; buffer; corrosion inhibitor protecting metal surfs. and org. finishes such as paints or ceramic glazes; stabilizer for hydrogen peroxide bleaches in textiles; setting accelerator for refractories; clay deflocculant in ceramics

*Manuf./Distrib.:* Ashland; Crosfield; FMC Foret; Fluka; Occidental; PQ; Rhodia; Sigma; Spectrum Quality Prods.

*Trade Names:* Metso Pentabead® 20

**Sodium methanalsulfoxylate.** See Sodium formaldehyde sulfoxylate

**Sodium methane naphthalene sulfonate.** See Sodium methylnaphthalene-sulfonate

### Sodium methylnaphthalenesulfonate

CAS 26264-58-4; EINECS/ELINCS 247-561-6

*Synonyms:* Sodium methane naphthalene sulfonate

*Definition:* Mixture of mono- and dimethyl substituted naphthalene sulfonates

*Empirical:* C<sub>11</sub>H<sub>9</sub>NaO<sub>3</sub>S

*Properties:* M.w. 244.24; anionic

*Toxicology:* TSCA listed

*Uses:* Dispersant, suspending agent for pesticide wettable powds., paints/coatings; fluidizing and plasticizing agent for concrete and mortar; emulsifier, dispersant in emulsion polymerization, inks; wetting agent in textile, leather, and pesticide auxs.; crystallization agent for use in potable water systems; washing water agent for washing/lye peeling of fruits/vegetables; anticaking agent in sodium nitrite used in cured foods; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §172.824, 173.315 (0.2% in wash water), 175.105, 176.170, 176.180, 176.210

### Sodium methyl naphthalene sulfonic acid-formaldehyde condensate

*Uses:* Adjuvant to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §176.170, 176.180

**Sodium-2-(N-methyloleamido) ethane-1-sulfonate.** See Sodium methyl oleoyl taurate

### Sodium methyl oleoyl taurate

CAS 137-20-2; EINECS/ELINCS 205-285-7

*Synonyms:* OMT; N-Methyl-N-oleoyltaurine sodium salt; 2-[Methyl (1-oxo-9-octadecenyl) amino] ethanesulfonic acid, sodium salt; Oleoylmethyltaurine sodium salt; Oleyl methyl tauride; Sodium-2-(N-methyloleamido) ethane-1-sulfonate; Sodium N-methyl-N-oleoyl taurate; Sodium N-methyl-N-oleoyltaurate; Sodium N-oleoyl-N-methyl taurate; Sodium N-oleoyl-N-methyl taurine

*Definition:* Sodium salt of the oleic acid amide of N-methyl taurine

*Empirical:* C<sub>21</sub>H<sub>40</sub>NO<sub>2</sub>S • Na

*Formula:*  $(\text{CH}_2)_7\text{CH}_3(\text{CH}_2)_2(\text{CH}_2)_7\text{CONCH}_2\text{CH}_2\text{CH}_2\text{SO}_3\text{Na}$   
*Properties:* Wh. fine powd., sweet odor; m.w. 425.67; anionic  
*Toxicology:* LD50 (oral, rat) 1700 mg/kg, (IV, mouse) 350 mg/kg; poison by IV route; mod. toxic by ing.; severe eye irritant; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of  $\text{NO}_x$ ,  $\text{SO}_x$ , and  $\text{Na}_2\text{O}$   
*Uses:* Detergent; pesticide aid; textile/dyeing auxs.; dye assistant/leveling agent; wetting agent, emulsifier, foamer, dispersant for cosmetics and industrial use; agric. adjuvant; adjuvant to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods  
*Regulatory:* FDA 21CFR §176.170, 176.180, 176.210  
*Manuf./Distrib.:* Finetex; Rhodia HPCII  
*Trade Names:* Geropon® T-33; Geropon® T-43; Geropon® T-51; Geropon® T-77

**Sodium N-methyl-N-oleoyl taurate.** See Sodium methyl oleoyl taurate

**Sodium N-methyl-N-oleyltaurate.** See Sodium methyl oleoyl taurate

#### Sodium methyl silicate

CAS 16589-43-8  
*Synonyms:* Methylsilanetriol sodium salt  
*Definition:* Reaction prod. of aq. sodium hydroxide and resinous silicone  
*Empirical:*  $\text{CH}_3\text{O}_3\text{Si} \cdot x\text{Na}$   
*Properties:* M.w. 116.12; dens. 1.24  
*Toxicology:* TSCA listed  
 HMIS: Health 3; Flammability 0; Reactivity 0  
*Uses:* Water repellent and cleaner for limestone, concrete, and masonry; material additive or surf. treatment for coatings; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR §176.180  
*Manuf./Distrib.:* Gelest

#### Sodium methyl tall oil acid taurate

CAS 61791-41-1  
*Synonyms:* N-Methyl-N-(tall oil acyl) taurine, sodium salt; Sodium methyl tall oil taurate; Sodium tall oil N-methyltaurate  
*Definition:* Sodium salt of the tall oil acid amide of N-methyl taurine  
*Formula:*  $\text{RC}(\text{O})\text{N}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{SO}_3^- \text{Na}^+$ , R = tall-  
*Properties:* Liq.  
*Uses:* Scale inhibitor for oil field applics.; detergent, suspending agent, dispersant, precipitation inhibitor for petroleum industry; scale inhibitor in mfg. of paper/paperboard in contact with aq./fatty foods  
*Regulatory:* FDA 21CFR §176.170

**Sodium methyl tall oil taurate.** See Sodium methyl tall oil acid taurate

**Sodium monododecyl sulfate.** See Sodium lauryl sulfate

**Sodium monohydrogen phosphate (2:1:1).** See Sodium phosphate dibasic anhydrous

**Sodium monosulfide.** See Sodium sulfide

#### Sodium myristate

CAS 822-12-8; EINECS/ELINCS 212-487-9  
*Synonyms:* Myristic acid sodium salt; Sodium tetradecanoate; Tetradecanoic acid sodium salt  
*Definition:* Sodium salt of myristic acid  
*Empirical:*  $\text{C}_{14}\text{H}_{27}\text{O}_2 \cdot \text{Na}$   
*Formula:*  $\text{CH}_3(\text{CH}_2)_{12}\text{COONa}$   
*Properties:* M.w. 250.36  
*Toxicology:* LDLo (IV, dog) 10 mg/kg; poison by IV route; mutagen; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating vapors  
*Uses:* Binder, emulsifier, anticaking agent in foods; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; defoamer in food-contact paper coatings, paper/paperboard; in cellophane for food pkg.; in resin-bonded filters for food contact; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles  
*Regulatory:* FDA 21CFR §172.863, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910  
*Manuf./Distrib.:* Fluka; Sigma

**Sodium naphthalene-formaldehyde sulfonate.** See Sodium polynaphthalene sulfonate

**Sodium naphthalene-formaldehyde sulfonate polymers.** See Sodium poly-

naphthalene sulfonate

#### Sodium naphthalene sulfonate

CAS 1321-69-3  
*Empirical:*  $\text{C}_{10}\text{H}_7\text{NaO}_3\text{S}$   
*Formula:*  $\text{C}_{10}\text{H}_7\text{SO}_3\text{Na}$   
*Properties:* Ylsh. cryst. plates or wh. scales; odorless; sol. in water; insol. in alcohol  
*Precaution:* Combustible  
*Uses:* Organic synthesis; liquefying agent in animal glue preps.; naphthols  
*Manuf./Distrib.:* Rhodia HPCII  
*Trade Names:* Supragil RM/77 DL

**Sodium naphtha sulfonate.** See Sodium petroleum sulfonate

#### Sodium nitrate-urea complex

*Uses:* Plasticizer in food-contact glassine and greaseproof paper  
*Regulatory:* FDA 21CFR §176.320

**Sodium nitrilotriacetate.** See Trisodium NTA

#### Sodium nitrite

CAS 7632-00-0; EINECS/ELINCS 231-555-9; UN No. 1500 (DOT)  
*Synonyms:* Diazotizing salts; Nitrous acid sodium salt  
*Empirical:*  $\text{NNaO}_2$   
*Formula:*  $\text{NaNO}_2$   
*Properties:* Sl. ylsh. or wh. cryst. or powd., bitter sl. saline taste; sol. in water, sl. sol. in alcohol, ether, oxygenated solvs.; slowly oxidized by air; m.w. 69.00; dens. 2.168; m.p. 271 °C; b.p. dec. @ 320 °C  
*Toxicology:* LD50 (oral, rat) 85 mg/kg, (IV, rat) 65 mg/kg, (IP, mouse) 158 mg/kg; poison by ing., inh., subcut., IV, and IP routes; human poison by ing.; human systemic effects (coma, blood pressure changes, nausea, vomiting, methemoglobinemia); eye irritant; can reduce blood oxygen levels; questionable carcinogen; can produce nitrosamines associated with cancers; experimental neoplastigen, tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed  
*Precaution:* Flamm.; strong oxidizing agent; ignites by friction in contact with org. matter; may explode when heated above 100 °F or on contact with cyanides,  $\text{NH}_4^+$  salts, cellulose, etc.; incompat. with butadiene, phthalic acid and anhydride, reducers, etc.

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $\text{NO}_x$  and  $\text{Na}_2\text{O}$

HMIS: Health 2; Flammability 0; Reactivity 3

*Storage:* Hygroscopic; deliq. in air; oxygen-sensitive; store @ R.T.

*Uses:* Diazotization/nitrosation/oxidation reagent; rubber accelerators; photographic chemical; analytical reagent; dye mfg.; heat-treatment agents; phosphating accelerator; blowing agent; gold plating reagent; in food-pkg. adhesives; flocculant in cooling/boiler treatment; corrosion inhibitor for ferrous metals in water treatment, metalworking fluids; color fixative and preservative in cured foods; pharmaceuticals (antidote for cyanide poisoning); can end cement for food contact; anticorrosion agent in internal sizes in mfg. of paper/paperboard in contact with aq./fatty/dry foods; in closure-sealing gaskets for food containers; in food-contact rubber articles for repeated use; rust preventive in food-contact lubricants

*Use Level:* Limitation 10 ppm (smoked cured tunafish), 200 ppm (smoked cooked salmon, shad, meat curing), 2 lb/100 gal (pickle), 1 oz/100 lb (meat), 0.25 oz/100 lb (chopped meat); ADI 0-0.2 mg/kg (EU)

*Regulatory:* FDA 21CFR §172.175, 172.177, 175.105, 175.300, 176.170, 176.180, 177.1210, 177.2600, 178.3570, 178.3910, 181.34; USDA 9CFR §318.79, 381.147; Japan approved (0.005-0.07 g/kg); Europe listed; UK approved; BP compliance

*Manuf./Distrib.:* AMRESCO; Aldrich; BASF; BCH Brühl; DuPont; EM Ind.; Farleyway Chem. Ltd; Fluka; General Chem.; Harcross; ICC Ind.; Independent Chem.; Mitsubishi Chem.; PMC Spec.; Rochem Int'l.; Ruger; Sal Chem.; Schaefer Tech.; Sigma; Spectrum Quality Prods.; Tomiyama Pure Chem. Ind.; Ube Ind.; Universal Preserv-A-Chem; Varsal Instruments

**Sodium octadecanoate.** See Sodium stearate

**Sodium 9-octadecenoate.** See Sodium oleate

#### Sodium octoxynol-2 ethane sulfonate

CAS 2917-94-4; 67923-87-9; EINECS/ELINCS 220-851-3; 267-791-4  
*Synonyms:* 2-[2-[2-Octylphenoxy]ethoxy]ethoxy]ethanesulfonic acid, sodium salt; Entsufof; Entsufof sodium

## Sodium octoxynol-3 sulfate

*Classification:* Organic compd.

*Empirical:* C<sub>20</sub>H<sub>34</sub>O<sub>6</sub>S • Na

*Formula:* C<sub>8</sub>H<sub>17</sub>C<sub>6</sub>H<sub>14</sub>O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>SO<sub>3</sub>Na

*Properties:* M.w. 425.54; anionic

*Uses:* Detergent for metal cleaning, household cleaning; polymerization emulsifier; latex post-stabilizer; wetting agent; dispersant; dye leveling agent; topical pharmaceuticals; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180; FDA approved for topicals

## Sodium octoxynol-3 sulfate

*Properties:* Anionic

*Uses:* Emulsifier for vinyl acetate specialty copolymers; emulsion polymerization in paints and coatings; food-contact paper/paperboard

*Trade Names:* POLYSTEP® C-OP3S

## Sodium octyl sulfate

CAS 142-31-4; EINECS/ELINCS 205-535-5

*Synonyms:* SOS; Octyl sodium sulfate; Octyl sulfate sodium salt; Sodium capryl sulfate; Sulfuric acid, mono-octyl ester, sodium salt

*Empirical:* C<sub>8</sub>H<sub>17</sub>NaO<sub>4</sub>S

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>OSO<sub>3</sub>Na

*Properties:* M.w. 232.27; m.p. 210 C (dec.); anionic

*Toxicology:* LD50 (oral, rat) 3200 mg/kg, (IP, mouse) 396 mg/kg; poison by IP route; mod. toxic by ing.; irritant

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of SO<sub>x</sub>

*Uses:* Detergent, wetting, dispersing, and emulsifying agent, stabilizer for plastics, rubber, adhesives, food contact paper, pharmaceuticals, textiles, household/industrial cleaners; emulsion polymerization in paints and coatings; washing water agent for washing/lye peeling of fruits/vegetables; poultry scald agent

*Use Level:* Limitation 0.2% (in wash water)

*Regulatory:* USDA 9CFR §381.147; BP compliance

*Manuf./Distrib.:* Aldrich; Fluka; Sigma; Spectrum Quality Prods.

*Trade Names:* Texapon® 842

## Sodium oleate

CAS 143-19-1; EINECS/ELINCS 205-591-0

*Synonyms:* 9-Octadecenoic acid, sodium salt; Sodium 9-octadecenoate

*Definition:* Sodium salt of oleic acid

*Empirical:* C<sub>18</sub>H<sub>33</sub>O<sub>2</sub> • Na

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>COONa

*Properties:* Wh. powd., sl. tallow-like odor; sol. in ≈ 10 parts water, ≈ 20 parts alcohol; m.w. 304.50; m.p. 232-235 C; HLB 18.0; nonionic

*Toxicology:* LD50 (IV, mouse) 152 mg/kg; poison by IV route; migrates to food from pkg. materials; TSCA listed

*Precaution:* Combustible when exposed to heat or flame

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid toxic fumes of Na<sub>2</sub>O

*Uses:* Surfactant for foods, cosmetics, pharmaceuticals, electronics; ore flotation; textile waterproofing, scouring, dye leveling; emulsifier of oil/water systems; emulsifier for S/B latex prod.; in food-pkg. adhesives; in food-contact coatings; food stabilizer, anticaking agent, binder, emulsifier; paper mfg. aid; food coating material (Japan)

*Regulatory:* FDA 21CFR §172.863, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 181.29, 186.1770, GRAS as indirect food additive; Japan approved

*Manuf./Distrib.:* Aldrich; Concord; Fluka; Hart Prods.; Independent Chem.; Nat'l. Purity; Norman, Fox; Quimica Sagal; RTD; Ruger; Schweizerhall; Sigma

## Sodium oleic acid sulfate. See Sodium oleic sulfate

## Sodium oleic sulfate

CAS 65151-76-0; 68331-91-9

*Synonyms:* Disodium 9-(sulfonatoxy) octadecanoate; Sodium oleic acid sulfate; Sodium sulfated oleate; Sulfated oleic acid, sodium salt; 9-(Sulfoxy) octadecanoate acid, disodium salt

*Empirical:* C<sub>18</sub>H<sub>36</sub>O<sub>6</sub>S • 2Na

*Properties:* M.w. 424.51; anionic

*Uses:* Detergent; coupling agent; wetting agent; emulsifier; penetrant; lubricant; dye dispersant; scouring aid; antistat; industrial surfactant for alkaline systems; metal processing; textile surfactant; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

*Trade Names:* Dymisol® 2031

## Sodium oleoyl isopropanolamide sulfosuccinate

*Uses:* In food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170

**Sodium N-oleoyl-N-methyl taurate.** See Sodium methyl oleoyl taurate

**Sodium N-oleoyl-N-methyl taurine.** See Sodium methyl oleoyl taurate

## Sodium oleyl sulfate

CAS 1847-55-8; EINECS/ELINCS 217-430-1

*Synonyms:* 9-Octadecen-1-ol, hydrogen sulfate, sodium salt

*Definition:* Sodium salt of oleyl sulfate

*Empirical:* C<sub>18</sub>H<sub>34</sub>O<sub>4</sub>S • Na

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>CH<sub>2</sub>OSO<sub>3</sub>Na

*Properties:* M.w. 371.54; anionic

*Uses:* Scouring agent in textile and leather industries; rewetting agent for paper; emulsifier for emulsion polymerization; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 177.1200

*Trade Names:* Duponol® LS Paste

## Sodium oleyl sulfosuccinamate

*Properties:* Anionic

*Uses:* Emulsifier for emulsion polymerization; foaming agent for latex emulsions; antigelling and cleaning agents for paper mill felts

*Trade Names:* Cosmopon BN

**Sodium oxide.** See Sodium peroxide

**Sodium oxychloride.** See Sodium hypochlorite

## Sodium palmitate

CAS 408-35-5; EINECS/ELINCS 206-988-1

*Synonyms:* Hexadecanoic acid sodium salt; Palmitic acid sodium salt; Sodium hexadecanoate; Sodium pentadecanecarboxylate

*Definition:* Sodium salt of palmitic acid

*Empirical:* C<sub>16</sub>H<sub>31</sub>O<sub>2</sub> • Na

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>COONa

*Properties:* Wh. to yel. powd.; m.w. 278.47; m.p. 283-290 C

*Toxicology:* LDLo (IV, dog) 10 mg/kg; poison by IV route; mutagen; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Emulsifier; polymerization catalyst for syn. rubbers; laundry and toilet soaps; detergents; cosmetics; printing inks; binder, emulsifier, stabilizer, anticaking agent in foods; in food-contact paper/paperboard; in food-pkg. adhesives; pharmaceuticals

*Regulatory:* FDA 21CFR §172.863, 175.105, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2600, 177.2800, 178.3910, 186.1771, GRAS

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

## Sodium PCA

CAS 28874-51-3; 54571-67-4; EINECS/ELINCS 249-277-1

*Synonyms:* PCA-Na; PCA Soda; 5-Oxo-DL-proline, sodium salt; Sodium pyroglutamate

*Definition:* Sodium salt of pyroglutamic acid

*Empirical:* C<sub>5</sub>H<sub>7</sub>NO<sub>3</sub> • Na

*Properties:* Colorless liq., odorless, sl. salty taste; m.w. 151.1

*Toxicology:* No known toxicity; nonirritant to skin, eye mucosa; TSCA listed

*Storage:* Extremely hygroscopic

*Uses:* Humectant, moisturizer for cosmetics, dermatological soap, medicinal, shampoo, nutritive creams and lotions, hair balms, dentifrices, tobacco, cellulose film, paper, fibers, paints; dyeing agent, softening agent, finishing agent, antistat; intermediate for synthesis; thickener for shampoos

*Trade Names:* Ajidew N-50

*Trade Names Containing:* Ajidew SP-100

**Sodium PCP.** See Sodium pentachlorophenate

## Sodium pentachlorophenate

CAS 131-52-2; UN No. 2567 (DOT)

*Synonyms:* Pentachlorophenate sodium; Pentachlorophenol, sodium salt; Pentachlorophenoxy sodium; Pentaphenate; Sodium PCP; Sodium pentachlorophenol; Sodium pentachlorophenolate; Sodium pentachlorophenoxide

*Empirical:*  $C_2Cl_2O \cdot Na$

*Properties:* Wh. cryst. to tan powd.; sol. in water, ethanol, acetone; insol. in benzene; m.w. 288.30

*Toxicology:* LD50 (oral, rat) 126 mg/kg, (inh., rat) 11,700 µg/kg, (subcut., rat) 66 mg/kg, (skin, mouse) 124 mg/kg; poison by ing., inh., skin contact, IV, IP, subcut. routes; experimental teratogen, reproductive effects; mutagenic data

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $Cl^-$  and  $Na_2O$

*Uses:* Bactericide; fungicide; herbicide; biocide, preservative for pulp/paper, leather, drilling muds, rubber latex, aq. paints; algicide and slimicide in water treatment, food-contact paper/paperboard; fermentation disinfectant; wood preservative; preservative in food-pkg. adhesives, can end cements for food contact, coatings for food-contact paper/paperboard; preservative for defoamers in food-contact coatings and paper/paperboard; slimicide in food-contact paper/paperboard; in closure-sealing gaskets for food containers; antioxidant in food-contact rubber articles for repeated use; preservative in food-contact textiles, animal glues, wood for agric. prods. pkg.

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 176.300, 177.1210, 177.2600, 177.2800, 178.3120, 178.3800, 178.3900 (for use as preservative only), 181.30; SARA reportable

*Manuf./Distrib.:* Excel Ind.; Fluka; Zeneca Agrochemicals.

**Sodium pentachlorophenol.** See Sodium pentachlorophenate

**Sodium pentachlorophenolate.** See Sodium pentachlorophenate

**Sodium pentachlorophenoxide.** See Sodium pentachlorophenate

**Sodium pentadecanecarboxylate.** See Sodium palmitate

#### Sodium peroxide

CAS 1313-60-6; UN No. 1504 (DOT)

*Synonyms:* Disodium dioxide; Disodium peroxide; Sodium dioxide; Sodium oxide

*Empirical:*  $Na_2O_2$

*Properties:* Ylsh.-wh. powd.; sol. in cold water; m.w. 77.98; dens. 2.805; m.p. 460 C; b.p. 657 C (dec.); dec. on heating with loss of  $O_2$

*Toxicology:* Severe irritant to eyes, skin, mucous membranes; TSCA listed

*Precaution:* Dangerous fire and explosion risk in contact with water, alcohols, acids, powdered metals and organic materials; strong oxidizing agent

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $Na_2O$

*Storage:* Moisture-sensitive; keep dry

*Uses:* Oxidizing agent; bleaching of materials incl. paper and textiles; deodorant; antiseptic; organic chemicals; water purification; pharmaceuticals; oxygen generation for diving bells, submarines, etc.; textile dyeing and printing; ore processing; analytical reagent in mineral assay; reagent for precious metal and aluminothermic refining; calorimetry; germicidal soaps

*Manuf./Distrib.:* Allan; Callery; M.W. Hardy; Noah; Spectrum Quality Prods.

**Sodium peroxydisulfate.** See Sodium persulfate

#### Sodium persulfate

CAS 7775-27-1; EINECS/ELINCS 231-892-1; UN No. 1505 (DOT)

*Synonyms:* Peroxydisulfuric acid, disodium salt; Sodium peroxydisulfate

*Empirical:*  $Na_2O_8S_2$

*Formula:*  $Na_2S_2O_8$

*Properties:* Wh. cryst. powd.; sol. 700 g/l in water (20 C) with gradual decomp.; dec. by alcohol; m.w. 238.10; dens. 2.400; dec. on heating

*Toxicology:* LD50 (IP, mouse) 226 mg/kg; LDLo (IV, rabbit) 178 mg/kg; poison by IP, IV routes; TSCA listed

*Precaution:* Powerful oxidizer; can cause fires

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $SO_2$  and  $Na_2O$

HMS: Health 2; Flammability 0; Reactivity 2

*Uses:* Bleaching agent (fats, oils, hair bleach formulations, fabrics, soaps); battery depolarizers; emulsion polymerization; denuding agent for tripe; etchant for printed circuit boards; photographic bleach bath component; polymerization initiator; org. synthesis; starch modifier in foods; accelerator, bleaching agent in cosmetics; oxidizing agent, cleaning agent in metal treatment; extracting gas and petroleum; oxygen source; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 176.170, 177.1210; USDA 9CFR §318.7

*Manuf./Distrib.:* Aceto; Aldrich; Allchem Ind.; Am. Int'l.; Austin; BCH Brühl;

Brown; Browning; Chem One; Dastech Int'l.; Degussa-Hüls; Economy Polymers & Chems.; FMC Foret; FMC; Fluka; Howard Ind.; Hydrite; Independent Chem.; Int'l. Chem. Inc.; JTS Enterprises; Los Angeles Chem.; Miljac; Mitsubishi Int'l.; Pacific West; Primachem; Ruger; Sigma; Spectrum Quality Prods.; Total Spec. Chems.; Van Waters & Rogers; Westco

#### Sodium petroleum sulfonate

CAS 68608-26-4; 78330-12-8

*Synonyms:* Mahogany oil; Mineral oil sulfonic acids, sodium salts; Petroleum sulfonates, sodium salts; Petroleum sulfonic acid, monosodium salt; Sodium naphtha sulfonate; Sulfonated petroleum, sodium salt

*Definition:* 'Natural' oil-sol. mixed surfactants contg. 61-63% sulfonates and with equiv. wts. of 415-540 g

*Properties:* Anionic

*Toxicology:* TSCA listed

*Uses:* Surfactant, emulsifier, and corrosion inhibitor for metalworking fluids, dry-cleaning solvs., leather processing, printing inks, oil-well drilling fluids, water-based emulsions contg. oil-based ingredients; emulsifier/wetting agent for solv.-based cleaners, sol. cutting fluids; flotation collector; for use in semi-finished coatings where wetting, rewetting, suspending, emulsifying, and corrosion resist. props. are desired; defoamer in food-contact paper/paperboard; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §176.210, 178.3910

*Manuf./Distrib.:* Sea-Land

**Sodium 3-[(4-N-phenylamino) phenylazo] benzenesulfonate.** See Acid yellow 36

#### Sodium o-phenylphenate

CAS 132-27-4; EINECS/ELINCS 205-055-6

*Synonyms:* SOPP; 2-Biphenylol, sodium salt; (1,1'-Biphenyl)-2-ol, sodium salt; 2-Hydroxybiphenyl sodium salt; 2-Hydroxydiphenyl sodium salt; o-Phenylphenol sodium salt; 2-Phenylphenol sodium salt; Sodium 2-biphenylolate; Sodium biphenyl-2-yl oxide; Sodium 2-hydroxydiphenyl; Sodium o-phenylphenol; Sodium o-phenylphenolate; Sodium o-phenylphenoxide

*Definition:* Sodium salt of o-phenylphenol; avail. commercially as the tetrahydrate

*Empirical:*  $C_{12}H_{10}O \cdot Na$

*Formula:*  $C_{12}H_{10}(C_6H_5)ONa \cdot 4HOH$

*Properties:* Wh. flakes; sol. in water, oxygenated solvs.; sol./100 g solvent: 122 g water, 156 g acetone, 138 g methanol, 28 g propylene glycol; sparingly sol. in toluene, veg. oils; pract. insol. in petrol. fractions, pine oil; m.w. 192.20

*Toxicology:* LD50 (oral, rat) 656 mg/kg; moderately toxic by ingestion; human skin irritant; suspected carcinogen; experimental tumorigen, teratogen, reproductive effects; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $Na_2O$

*Uses:* Antimicrobial, bactericide, fungicide, mold inhibitor for apples, etc.; industrial preservative; disinfectant; biocide for adhesives, gums, latexes, paper, hides, leather, timber; preservative in food-pkg. adhesives, coatings for food-contact paper, in food-contact animal glues; can end cement for food contact; defoamer in food-contact paper/paperboard; in closure-sealing gaskets for food containers

*Use Level:* 0.05-0.5%; ADI 0-0.02 mg/kg (EU)

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.170, 176.210, 177.1210, 178.3120; USA not restricted; Europe listed; Japan approved (0.01 g/kg residual)

*Manuf./Distrib.:* Ashland; Fluka

*Trade Names:* Dovicide® A

**Sodium o-phenylphenol.** See Sodium o-phenylphenate

**Sodium o-phenylphenolate.** See Sodium o-phenylphenate

**Sodium o-phenylphenoxide.** See Sodium o-phenylphenate

**Sodium phosphate dibasic.** See Sodium phosphate dibasic anhydrous

#### Sodium phosphate dibasic anhydrous

CAS 7558-79-4; EINECS/ELINCS 231-448-7; UN No. NA 9147 (DOT); FEMA 2398

*Synonyms:* DSP; DSP-O; Dibasic sodium phosphate; Disodium acid phosphate; Disodium hydrogen orthophosphate; Disodium hydrogen phosphate; Disodium monohydrogen orthophosphate; Disodium monohydro-

## Sodium phosphate tribasic

gen phosphate; Disodium orthophosphate; Disodium phosphate; Disodium phosphoric acid; Exsiccated sodium phosphate; Phosphoric acid disodium salt; Soda phosphate; Sodium hydrogen phosphate; Sodium monohydrogen phosphate (2:1:1); Sodium phosphate dibasic

**Classification:** Inorganic salt

**Definition:** Phosphoric acid, disodium salt

**Empirical:**  $\text{HNa}_2\text{O}_4\text{P}$

**Formula:**  $\text{Na}_2\text{HPO}_4$

**Properties:** Colorless translucent cryst. or wh. powd., odorless, saline taste; sol. in water; very sol. in alcohol; m.w. 141.97; dens. 1.5235; vapor pressure 0 mm Hg; m.p. 35 C; converted to pyrophosphate @ 240 C; pH 9.1 (1%); noncombustible

**Toxicology:** LD50 (oral, rat) 17 g/kg, (IP, rat) 1 g/kg; poison by IV route, mod. toxic by IP, subcut., and intramuscular routes; mildly toxic by ing.; ing. of lg. amts. may cause diarrhea, nausea, vomiting, cramps; skin and eye irritant; TSCA listed

**Precaution:** Incompat. with strong acids (may react violently)

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $\text{PO}_4$  and  $\text{Na}_2\text{O}$

**HMS:** Health 1; Flammability 0; Reactivity 1

**Storage:** Hygroscopic; store in cool, dry, well-ventilated area, out of direct sunlight, away from incompatibles; keep tightly closed when not in use; limit quantities in storage

**Uses:** Buffer; controls pH in mildly alkaline sol'ns.; softener, water hardness precipitation, corrosion/scale control in water treatment, boiler waters; textiles; pharmaceuticals; chemicals; fertilizers; detergents; ceramic glazes; soldering enamel; buffer, dietary supplement, emulsifier, hog/poultry scald agent, nutrient, sequestrant, stabilizer, texturizer in foods, animal feed; fireproofing wood and paper; tanning; mordant in dyeing; reagent and buffer in analytical chemistry; in food-contact coatings

**Regulatory:** FDA 21CFR §133.169, 133.173, 133.179, 135.110, 137.305, 139.110, 139.115, 139.117, 139.135, 150.141, 150.161, 173.310, 175.210, 175.300, 181.22, 181.29, 182.1778, 182.5778, 182.6290, 182.6778, 182.8778, 182.8890, GRAS; USDA 9CFR 318.7, 381.147; FEMA GRAS; SARA reportable; Japan approved; FDA approved for buccals, parenterals, ophthalmics, vaginals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** AMRESCO; Albright & Wilson Am.; Aldrich; Allan; Browning; FBC Ind.; FMC; Fluka; Gadot Biochem.; Monsanto; Peter Whiting Ltd; Rhodia Food Ingreds.; Ruger; Sigma; Spectrum Quality Prods.; U.S. Biochemical; Varsal Instruments

## Sodium phosphate tribasic

CAS 7601-54-9; EINECS/ELINCS 231-509-8

**Synonyms:** TSP; TSP-0; Phosphoric acid trisodium salt; Tribasic sodium phosphate; Trisodium orthophosphate; Trisodium phosphate

**Classification:** Inorganic salt

**Empirical:**  $\text{Na}_3\text{O}_4\text{P}$

**Formula:**  $(\text{NaO})_3\text{PO}$

**Properties:** Wh. cryst., cryst. powd., gran., odorless; sol. 14 g/100 g water; insol. in alcohol; m.w. 163.97; dens. 1.62; m.p. 73 C; does not boil; does not form vapor; pH 12 (1%)

**Toxicology:** LD50 (dermal, rabbit) > 300 mg/kg; LDLo (IV, rabbit) 1580 mg/kg; mod. toxic by IV route; inh. of dusts or mist can cause irritation; sol'ns. can cause skin burns; mutagenic data; TSCA listed

**Precaution:** Corrosive; strong caustic material; reacts violently with water to generate heat

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $\text{Na}_2\text{O}$  and  $\text{PO}_4$

**Storage:** Hygroscopic

**Uses:** Corrosion/scale control in drinking water treatment; boiler water additive for food processing; softens water by precipitation; wool scouring in textiles; degreaser in household/heavy duty industrial cleaners; builder (industrial cleaners); metal phosphatizing reagent; abrasive metal cleaner ingred.; degreasing agent in metallurgy; food additive (sequestrant, nutrient, dietary supplement, emulsifier in processed cheese, denuding agent, fat rendering aid, hog/poultry scald agent)

**Regulatory:** FDA 21CFR §133.169, 133.173, 133.179, 150.141, 150.161, 173.310, 182.1778, 182.5778, 182.6778, 182.8778, GRAS; USDA 9CFR §318.7, 381.147; Japan approved

**Manuf./Distrib.:** Albright & Wilson Am.; Aldrich; Allan; Browning; FBC Ind.; FMC Foret; FMC; Fluka; Rhodia HPCII; Sal Chem.; Spectrum Quality Prods.; Varsal Instruments

**Trade Names Containing:** Degal BP

## Sodium phosphoaluminate

CAS 1344-06-5

**Definition:** Primarily sodium aluminate (hydrated), sodium phosphate (ortho), and sm. amts. of sodium carbonate and sodium silicate

**Properties:** Wh. powd.

**Uses:** Paper sizing; aids retention of filler and fiber; aids pH control; boiler water treatment; food additive; migrating to foods from paper/paperboard

**Regulatory:** FDA 21CFR §182.90, GRAS

**Sodium POE (12) lauryl ether sulfate.** See Sodium laureth-12 sulfate

**Sodium POE lauryl sulfate.** See Sodium laureth sulfate

**Sodium polignate.** See Sodium lignosulfonate

## Sodium polyacrylate

CAS 9003-04-7

**Synonyms:** Polyacrylic acid, sodium salt

**Empirical:**  $(\text{C}_3\text{H}_4\text{O}_2)_x \cdot x\text{Na}$

**Properties:** M.w. 2000-2300; anionic

**Toxicology:** LD50 (oral, rat) > 40 g/kg; eye and skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $\text{Na}_2\text{O}$

**Storage:** Hygroscopic

**Uses:** Thickener, stabilizer, protective colloid for natural and syn. latexes for paints, films, coatings, and adhesives; antiredeposition agents; dispersant, antiscalant for boiler and cooling water treatment, oil prod., laundry detergents, I&I cleaners; pigment/filler/clay dispersant in ceramics, paint, paper; film-former in hairsprays; textile soil-release finishes; cement grinding aid; mineral scale control in beet/sugar cane processing; stabilizer, thickener in food defoamers contg. dimethicone; in food-pkg. adhesives; thickener for natural rubber latex food-contact coatings; pigment dispersant for food-contact coatings; in paper/paperboard in contact with dry food; in closure-sealing gaskets for food containers

**Use Level:** 3.6 ppm max. of raw juice

**Regulatory:** FDA 21CFR §173.73, 173.310, 173.340, 175.105, 176.170, 176.180, 176.200, 177.1210; Japan approved (0.2% max.)

**Manuf./Distrib.:** 3V; Alco; Aldrich; Allchem Ind.; Arakawa USA; Atofina; Callaway; Complex Quimica SA; Dixie; Fluka; Hampshire; Monomer-Polymer & Dajac Labs; Polacryl; Prosel S.A. de C.V.; Rhodia HPCII; Synthron

**Trade Names:** Ablusol SEP40; Acriflow 041-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA; Acumer® 1000; Acumer® 1100; Acumer® 1110; Acumer® 9000; Acumer® 9141; Acumer® 9300; Acumer® 9400; Acumer® 9460; Alcosperse® 149; Alcosperse® 602-N; Aquaquest 2130; Calnox® 214; Calnox® 214 DN; Colloid™ 202; Darvan® 811; Daxad® 37LN7; Daxad® 37LN10-35; Dumasperse 540; Good-Rite® K-739 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-7058D Polymer; Gradol 400; Lastaron 891; Nopcosperse® 44; Polysynth RRE; Polywet® ND-2; Polywet® ND-35; Polywet® WTC 6512; Polywet® Z1766; Serpol QPA 160

**Trade Names Containing:** Good-Rite® K-7028 Polymer; Good-Rite® K-7028N Polymer; Good-Rite® K-7058 Polymer; Good-Rite® K-7058N Polymer; Good-Rite® K-7600N Polymer

**Sodium polyaluminate.** See Sodium aluminate

## Sodium polycarboxylate

CAS 37199-81-8

**Properties:** Anionic

**Uses:** Polymer for water treatment, scale inhibition, sludge control; pigment dispersant; food-pkg. adhesives, coatings, paper/paperboard

**Trade Names:** Acumer® 1850; Geroxon® T/36DF; Geroxon® TA/72/S

## Sodium poly (isopropenylphosphonate)

CAS 118632-18-1

**Uses:** In paper mill boilers in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Sodium polymannuronate.** See Alginate

**Sodium polymetaphosphate.** See Sodium hexametaphosphate

## Sodium polymethacrylate

CAS 25086-62-8; 54193-36-1; 156436-88-3; 156559-16-9

**Synonyms:** PMAA, sodium salt; Poly (methacrylic acid) sodium salt; 2-

Propenoic acid, 2-methyl-, homopolymer, sodium salt

**Classification:** Polymer

**Empirical:**  $(C_5H_6O)_x \cdot xNa$

**Formula:**  $[CH_2CHCHCOONa]_x$

**Properties:** Anionic

**Toxicology:** LD50 (IP, mouse) 700 mg/kg, (IV, mouse) 250 mg/kg; TSCA listed

**Uses:** Dispersant for pigments, in paint formulations, emulsion polymerization, water treatment, sludge conditioning, agriculture, cosmetics, industrial cleaners, large particle suspensions; in food-pkg. adhesives; scale inhibitor for boiler and cooling water treatment; coating adjuvant for visc. control in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §173.310, 175.105, 176.170

**Manuf./Distrib.:** Aldrich; Hampshire

**Trade Names:** Darvan® 7; Daxad® 34N10; Good-Rite® K-765 Polymer; Good-Rite® K-766 Polymer; Tamol® 808; Tamol® 850; Tamol® 960

**Trade Names Containing:** Metasol® TK-100 Disp. W

**Sodium polynaphthalenemethane sulfonate.** See Sodium polynaphthalene sulfonate

**Sodium polynaphthalene sulfonate**

CAS 9084-06-4

**Synonyms:** Naphthalenesulfonic acid-formaldehyde condensate, sodium salt; Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt; Sodium naphthalene-formaldehyde sulfonate; Sodium naphthalene-formaldehyde sulfonate polymers; Sodium polynaphthalenemethane sulfonate; Sodium salt of sulfonated naphthalene-formaldehyde condensate

**Definition:** Sodium salt of the prod. obtained by condensation polymerization of naphthalene sulfonic acid and formaldehyde

**Formula:**  $(C_{10}H_6O_3S \cdot CH_2O)_x \cdot xNa$

**Properties:** Anionic

**Toxicology:** LD50 (oral, rat) 3800 mg/kg, (IP, rat) 460 mg/kg, (IV, rat) 435 mg/kg, (subcut., mouse) 1275 mg/kg; poison by IV and IP routes; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of  $SO_x$  and  $Na_2O$

**Uses:** Dispersant for pigments, extenders, and fillers; dyeing syn. and natural fibers; ceramics; emulsion polymerization; gypsum board; printing; rubber; food-pkg. adhesives; agric.; plasticizer for concrete; stabilizer; dispersant for syn. latex prod.; milling agent/dispersant for pigments and dyes; syn. tanning agent; can end cement for food contact; in paper/paperboard in contact with aq./fatty/dry foods; defoamer in food-contact paper/paperboard; emulsifier in cellophane for food pkg.; in closure-sealing gaskets for food containers; in food-contact polysulfide polymer/polypoxy resins; emulsifier in food-contact rubber articles for repeated use

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.210, 177.1200, 177.1210, 177.1550, 177.1650, 177.2600, 178.3910

**Manuf./Distrib.:** Varsal Instruments

**Trade Names:** Crisotan R-5M; Darvan® 1; Daxad® 11G; Daxad® 13; Daxad® 15; Daxad® 16; Daxad® 17; Harol RG-71L; Rhodacal® N; Tamol® 819; Tamol® L Conc.

**Trade Names Containing:** Crisotan NN; Crisotan NR; Crisotan R-5; Lomar® LS-1; Lomar® LS Liq.; Lomar® PL; Lomar® PW

**Sodium pyroborate anhydrous.** See Sodium borate

**Sodium pyroborate decahydrate.** See Sodium borate decahydrate

**Sodium pyroglutamate.** See Sodium PCA

**Sodium pyrophosphate.** See Tetrasodium pyrophosphate

**n-Sodium pyrophosphate.** See Tetrasodium pyrophosphate

**Sodium pyrosulfate.** See Sodium bisulfate

**Sodium pyrosulfite.** See Sodium metabisulfite

**Sodium resinate.** See Sodium abietate; Sodium rosinate

**Sodium rhodanate.** See Sodium thiocyanate

**Sodium rhodanide.** See Sodium thiocyanate

**Sodium rosinate**

CAS 14351-66-7

**Synonyms:** Abietic acid sodium salt; 1-Phenanthrenecarboxylic acid, 1,2,3,4,4a,4b,5,6,10,10a-decahydro-1,4a-dimethyl-7-(1-methylethyl)-, sodium salt, (1R-(1 $\alpha$ ,4 $\alpha$ ,4 $\beta$ ,4 $\gamma$ ,10 $\alpha$ ))-; Rosin soap; Sodium abietate; Sodium resinate; Sodium soap of pale rosin

**Definition:** Sodium soap of pale rosin; mixed prod. with sodium abietate as

main constituent

**Empirical:**  $C_{20}H_{29}NaO_2$

**Properties:** Wh. powd.; sl. sol. in water; m.w. 324.44

**Uses:** Emulsifier, detergent, wetting agent, stabilizer in ABS, SBR, syn. elastomers, metalworking, disinfectants, oil-well drilling muds, drawing and grinding compds.; plasticizer; emulsifier in emulsion polymerization; in food-pkg. adhesives; component of food-contact articles

**Regulatory:** FDA 21CFR §175.105, 178.3870

**Trade Names:** Arizona DRS-43; Arizona DRS-44

**Sodium salt of sulfonated naphthalene-formaldehyde condensate.** See Sodium polynaphthalene sulfonate

**Sodium silicate**

CAS 1344-09-8; EINECS/ELINCS 215-687-4

**Synonyms:** Silicic acid, sodium salt; Soluble glass; Water glass

**Definition:** Sodium salt of silicic acid

**Empirical:**  $Na_2O_7Si_2$ ;  $Na_2O_3Si_3$

**Formula:** Various incl.  $Na_6Si_2O_7$  and  $Na_6Si_3O_{10}$ , with variable amts. of water

**Properties:** Whitish to greenish cryst. lumps, wh. powd., or cloudy to clear liq.; sol. in steam under pressure; very sl. sol. in cold water

**Toxicology:** Corrosive; irritating and caustic to skin, mucous membranes; if swallowed, causes vomiting and diarrhea; TSCA listed

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Lining Bessemer converters; acid concentrators; as binder in mfg. of grindstones, abrasive wheels; catalysts; silica gels; soaps and detergents; adhesives; bleaching/sizing textiles and paper pulp; ore treatment; soil solidification; glass foam; catalysts; pigments; drilling fluids; corrosion/scale inhibitor in potable water systems; boiler water additive; activated silica coagulation aid; as adhesive; waterproofing walls; extender in cements, paints; foundry binder; accelerator for cement, refractories; deflocculant in ceramics; stabilizer for hydrogen peroxide bleaches in textiles, paper; as sol'n.: preserving eggs; fireproofing fabrics; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §173.310, 177.1200, 182.70, 182.90

**Manuf./Distrib.:** Aldrich; Am. Int'l.; Asahi Denka Kogyo; Celanese; Coyne; Crosfield; DuPont; FMC Foret; Fluka; Harcros; Hydrite; Independent Chem.; Occidental; PPG Ind.; PQ; Ruger; Sal Chem.; Sigma; Solvay SA; Spectrum Quality Prods.; Stanson; Van Waters & Rogers; Vinings Ind.; Welch; Holme & Clark

**Trade Names:** Crystal™ 78; Crystal™ 82; D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; N® Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR

See also Sodium metasilicate

**Sodium silicoaluminate**

CAS 1344-00-9; EINECS/ELINCS 215-684-8

**Synonyms:** Aluminosilicic acid, sodium salt; Aluminum sodium silicate; Sodium aluminosilicate; Sodium aluminum silicate; Sodium feldspar; Zeolite; Zeolites

**Definition:** Series of hydrated sodium aluminum silicates; produced by reaction of sodium silicate and kaolinite clay

**Formula:**  $Na_2O : Al_2O_3 : SiO_2$  with mole ratio  $\approx 1:1:13.2$

**Properties:** Wh. fine amorphous powd. or beads, odorless and tasteless; insol. in water, alcohol, org. solvs.; partly sol. in strong acids and alkali hydroxides @ 80-100 C; pH 6.5-10.5 (20% slurry)

**Toxicology:** Irritant to skin, eyes, mucous membranes; mutagen; TSCA listed

**Precaution:** Noncombustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $Na_2O$

**Uses:** Anticaking agent in detergents, desiccants, food preps.; reinforcing filler for rubbers; extender for paints; oral pharmaceuticals; solvent; detergent builder; gas separation; white pigment in paper, paint, plastics; ion exchange and selective absorp./adsorp.; removes hardness ions from wash water; in coatings for paper/paperboard in contact with aq./fatty foods

**Use Level:** ADI no limit (EU)

**Regulatory:** FDA 21CFR §133.146, 160.105, 160.185, 176.170, 182.2727 (2% max.), 582.2727, GRAS; Europe listed; UK approved; FDA approved for orals

**Manuf./Distrib.:** Albemarle; Am. Colloid; Am. Int'l.; Crosfield; Fluka; J.M. Huber/Chems.; Kraft Chem.; PPG Ind.; PQ; Punda Mercantile; Sigma; Spectrum Quality Prods.

**Trade Names:** EZA®; Zeolex® 23P

See also Zeolite

**Sodium soap of pale rosin.** See Sodium rosinate

### Sodium sorbate

CAS 7757-81-5; EINECS/ELINCS 231-819-3

*Synonyms:* 2,4-Hexadienoic acid, sodium salt; Sodium 2,4-hexadienoate;

Sorbic acid sodium salt

*Definition:* Sodium salt of sorbic acid

*Empirical:* C<sub>8</sub>H<sub>8</sub>O<sub>2</sub> • Na

*Formula:* CH<sub>2</sub>CH:CHCH:CHCOONa

*Properties:* M.w. 134.12

*Toxicology:* LD50 (oral, rat) 7160 mg/kg, (IP, mouse) 2500 mg/kg; mod. toxic by IP route; mildly toxic by ing.; mutagenic data; migrates to food from pkg. materials

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Na<sub>2</sub>O

*Uses:* Food preservative; migrating to foods from paper/paperboard

*Use Level:* Limitation 0.1% (alone) or 0.2% (in combination with its salts or benzoic acid or salts, of finished prod.)

*Regulatory:* FDA 21CFR §182.90, 182.3795, GRAS; USDA 9CFR §318.7; Europe listed

*Manuf./Distrib.:* FBC Ind.

### Sodium soybean oil sulfate

*Uses:* Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing

*Trade Names:* Actrasol OY-75

### Sodium stannate

CAS 12058-66-1; EINECS/ELINCS 235-030-5

*Synonyms:* Disodium tin trioxide; Sodium tin oxide; Tin sodium oxide

*Classification:* Inorganic salt

*Definition:* Avail. commercially as the trihydrate

*Empirical:* Na<sub>2</sub>O<sub>2</sub>Sn • 3H<sub>2</sub>O; H<sub>6</sub>Na<sub>2</sub>O<sub>2</sub>Sn

*Formula:* Na<sub>2</sub>SnO<sub>3</sub> • 3H<sub>2</sub>O or Na<sub>2</sub>Sn(OH)<sub>6</sub>

*Properties:* Wh. to lt. tan hexagonal cryst.; sol. in water forming alkaline sol'ns.; insol. in alcohol, acetone; m.w. 212.67 (anhyd.), 266.71 (trihydrate); dec. in air; loses 3H<sub>2</sub>O @ 140 C

*Toxicology:* LD50 (oral, rat) 3457 mg/kg; TLV 2 mg/m<sup>3</sup> of air; mutagen; TSCA listed

HMS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Dyeing mordant; ceramics; glass; tin plating reagent; textile fireproofing agent; stabilizer for hydrogen peroxide; blueprint paper; laboratory reagent; pharmaceuticals (orals)

*Regulatory:* FDA approved for orals

*Manuf./Distrib.:* Atofina; Atomergic Chemetals; Atotech USA; Esprit; Goldschmidt Ind. Chems.; Kimson; Mason Corp.; Ruger; Scher; Showa Denko; Spectrum Quality Prods.; Wm. Blythe Ltd

### Sodium stearate

CAS 822-16-2; EINECS/ELINCS 212-490-5

*Synonyms:* Octadecanoic acid, sodium salt; Sodium octadecanoate; Stearic acid, sodium salt

*Classification:* Sat. aliphatic carboxylic acid salt

*Definition:* Sodium salt of stearic acid

*Empirical:* C<sub>18</sub>H<sub>35</sub>NaO<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COONa

*Properties:* Wh. fine powd., fatty (tallow) odor; sol. in hot water and hot alcohol; slowly sol. in cold water and cold alcohol; insol. in many org. solvs.; m.w. 306.47

*Toxicology:* ACGIH TLV-TWA 10 mg/m<sup>3</sup> (stearates); LD50 (oral, rat) > 5 g/kg (@ 25%), (skin, rabbit) > 3 g/kg (@ 10-25%); LDLo (IV, dog) 10 mg/kg; poison by IV and other routes; inh. of high concs. of dust may cause coughing, mild temporary irritation; nonirritating to skin; sl. eye irritant; ing. may cause irritation, nausea, diarrhea; TSCA listed

*Precaution:* Combustible dust; may form explosive dust-air mixts.; incompat. with acids (reacts vigorously)

*Hazardous Decomp. Prods.:* Thermal decomp. prods.: CO, CO<sub>2</sub>; heated to decomp., emits toxic fumes of Na<sub>2</sub>O

HMS: Health 1; Flammability 1; Reactivity 0

*Storage:* Light-sensitive; store in cool area away from ignition sources

*Uses:* Soap ingred.; waterproofing and gelling agent in toothpaste, cosmetics; stabilizer in plastics; emulsifier in cosmetics; emulsifier and stiffener in

pharmaceuticals; in glycerol suppositories; mold release; lubricant for thermoplastics; wire-drawing lubricant; paper sizing ingred.; thickener/gellant in cleansing lotions, shampoos; food additive (anticaking agent, binder, emulsifier); stabilizer in food pkg.; masticatory substance in chewing gum; in food-pkg. adhesives; lubricant in food-contact rubber articles for repeated use; in food-contact coatings

*Regulatory:* FDA 21CFR §172.615, 172.863, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1200, 177.2260, 177.2600, 177.2800, 178.3910, 179.45, 181.22, 181.29; FDA approved for orals, topicals; USP/NF compliance

*Manuf./Distrib.:* Allan; Am. Int'l.; Atofina; Cometals; Ferro/Grant; Fluka; H.M. Royal; Independent Chem.; Integra; Jarchem Ind.; Kraft Chem.; Lambent Tech.; Magnesia GmbH; Norman, Fox; Original Bradford Soap Works; RTD; Rambach; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem

*Trade Names:* Cecavon® NA 61

### Sodium p-styrenesulfonate

CAS 2695-37-6; EINECS/ELINCS 220-266-3

*Synonyms:* P-Sodium styrenesulfonate

*Empirical:* C<sub>8</sub>H<sub>7</sub>NaO<sub>2</sub>S

*Formula:* CH<sub>2</sub>CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>Na

*Properties:* Wh. to pale yel. cryst. powd., odorless; sol. in water; insol. in aromatics, high alcohols; m.w. 206.20; sp.gr. 1.55; m.p. 330 C

*Toxicology:* TSCA listed

*Uses:* Emulsifier producing acrylic, vinyl acetate, and SBR latexes; in dyeing; flocculant; scale inhibitor; sludge conditioner; dispersant for cosmetics; hair fixing agent; for polyion complex; antistat; photochemical metal plating brightener; pharmaceutical ingred.

*Manuf./Distrib.:* Aceto; Aldrich; Fluka; Monomer-Polymer & Dajac Labs; Polysciences; Tosoh; Wako Pure Chem. Ind.

*Trade Names:* Spinomar NaSS

**p-Sodium styrenesulfonate.** See Sodium p-styrenesulfonate

**Sodium subsulfite.** See Sodium thiosulfate anhydrous

### Sodium sulfate

CAS 7757-82-6; EINECS/ELINCS 231-820-9

*Synonyms:* Disodium sulfate; Glauber's salt; Salt cake; Sodium sulfate (2:1); Sodium sulfate anhydrous; Sulfuric acid, disodium salt

*Classification:* Inorganic salt

*Empirical:* Na<sub>2</sub>O<sub>2</sub>S

*Formula:* Na<sub>2</sub>SO<sub>4</sub>

*Properties:* Wh. cryst. or powd., odorless, bitter saline taste; sol. in water, glycerol; insol. in alcohol; m.w. 142.04; dens. 2.671; m.p. 888 C

*Toxicology:* LD50 (oral, mouse) 5989 mg/kg, (IV, mouse) 1220 mg/kg; mod. toxic by IV route; mildly toxic by ing.; irritant; questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; mutagen; TSCA listed

*Precaution:* Violent reaction with Al

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

HMS: Health 1; Flammability 0; Reactivity 0

*Storage:* Hygroscopic; store @ R.T.

*Uses:* Mfg. of Kraft paper, paperboard; filler in synthetic detergents; detergent builder (laundry powds.); sodium salts; ceramic glazes; processing textile fibers; dyeing/textile aux.; tanning; pharmaceuticals; clarifying agent in glass prod.; chrome plating reagent; laboratory reagent; freezing mixts.; heat storage medium; drying agent; food additive (prod. of caramel, hog/poultry scald agent, processing aid, diluent, boiler water additive, in beer-making); animal feed ingred.; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §172.615, 173.310, 177.1200, 186.1797, GRAS as indirect food additive; USDA 9CFR §318.7, 381.147; Japan approved; Europe listed; UK approved; FDA approved for parenterals, ophthalmics, orals, topicals; BP, Ph.Eur. compliance

*Manuf./Distrib.:* AMRESO; Akzo Nobel Salt; Aldrich; Allan; Atofina; BASF; Charkit; Degussa-Hüls AG; FMC Foret; Fluka; General Chem.; Giles; Harcros; Hoffmann-LaRoche; ICC Ind.; Independent Chem.; Indspec; Inspec Fibres GmbH; J.M. Huber/Chems.; Kemira Kemi AB; Lohmann; Luigi Stoppini; Mallinckrodt Baker; Morton Int'l.; O.C. Lugo; Occidental; Oriental Chem. Ind.; Prior; Robeco; Ruger; Sal Chem.; Saskatchewan Mins.; Schaefer Tech.; Sigma; Sinochem Liaoning; Spectrum Quality Prods.; Universal Preserv-A-Chem



*Trade Names Containing:* Crisotan NN; Crisotan NR; Crisotan R-5; Lomar® LS-1; Lomar® LS Liq.; Lomar® PL; Lomar® PW; Texapon® K-1296 Powd.; Texapon® VHC Needles

**Sodium sulfate (2:1).** See Sodium sulfate

**Sodium sulfate anhydrous.** See Sodium sulfate

**Sodium sulfated oleate.** See Sodium oleic sulfate

**Sodium sulfhydrate.** See Sodium bisulfide; Sodium bisulfite

### Sodium sulfide

CAS 1313-82-2 (anhyd.); 1313-84-4 (nonahydrate); EINECS/ELINCS 215-211-5; UN No. 1385 (anhyd., DOT); 1849

*Synonyms:* Sodium monosulfide; Sodium sulfide anhydrous

*Classification:* Inorg. salt

*Empirical:* Na<sub>2</sub>S

*Formula:* Na<sub>2</sub>S or Na<sub>2</sub>S • 9H<sub>2</sub>O (nonahydrate)

*Properties:* Anhyd.: Yel.-pink or wh. amorphous cryst., deliq.; m.w. 78.04; dens. 1.856 (14 C); m.p. 1180 C; Nonahydrate: m.w. 240.18; dens. 1.427

*Toxicology:* Anhyd.: LD50 (oral, rat) 208 mg/kg, (IP, rat) 147 mg/kg; toxic; poison by ing., IP routes; corrosive; target organs: nerves, cardiovascular; Hydrate: LD50 (IP, mouse) 53 mg/kg; toxic; TSCA listed

*Precaution:* DOT: Corrosive material; flamm. solid; flamm. when exposed to heat or flame; unstable; explosion hazard on rapid heating or percussion; reacts violently with carbon, water; avoid contact with acid

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub> and Na<sub>2</sub>O

*Storage:* Deliq.; hygroscopic; air- and light-sensitive; refrigerate

*Uses:* Organic chemicals; intermediates; viscose rayon; skin/hide/leather depilatory; flotation depressant for sulfide ores; hydrometallurgy of gold ores; sulfiding oxidized lead and copper ores; sheep dips; photographic reagent; engraving and lithography; analytical reagent; raw material for Kraft paper prod.; metal refining agent; reagent for sulfur dye prod.; sulfur dye reducing agent in textiles; in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §177.2600

*Manuf./Distrib.:* Aldrich; Am. Int'l.; Ashland; BCH Brühl; CP PhibroChem; Cerac; Chem One; Chem. Prods.; Cooper Chem.; Coyne; FMC Foret; Farleyway Chem. Ltd; Fluka; Los Angeles Chem.; PPG Ind.; Prior; Sal Chem.; Sigma; Sinochem Liaoning; Solvay SA; Spectrum Quality Prods.; Van Waters & Rogers; Varsal Instruments; Wego Chem. & Min.

**Sodium sulfide anhydrous.** See Sodium sulfide

### Sodium sulfite

CAS 7757-83-7; EINECS/ELINCS 231-821-4

*Synonyms:* Disodium sulfite; Exsiccated sodium sulfite; Sodium sulfite (2:1); Sodium sulfite anhydrous; Sulfurous acid disodium salt; Sulfurous acid sodium salt (1:2)

*Classification:* Inorganic salt

*Empirical:* Na<sub>2</sub>O<sub>3</sub>S

*Formula:* Na<sub>2</sub>SO<sub>3</sub>

*Properties:* Wh. to tan or pink powd. or hexagonal crystals, odorless, salty sulfurous taste; sol. in 3.2 parts water; sol. in glycerol; pract. insol. in alcohol; m.w. 126.04; dens. 2.633 (15.4 C); b.p. dec.; pH ≈ 9

*Toxicology:* LD50 (oral, mouse) 820 mg/kg, (IP, mouse) 950 mg/kg, (IV, rat) 115 mg/kg; poison by IV, subcut. routes; mod. toxic by ing., IP routes; may provoke asthma; destroys vitamin B<sub>12</sub>; human mutagenic data; TSCA listed

*Precaution:* Reducing agent

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of Na<sub>2</sub>O and SO<sub>2</sub>

HMS: Health 2; Flammability 0; Reactivity 1

*Storage:* Moisture-sensitive

*Uses:* Paper industry; reducing agent (dyes, pharmaceuticals); bleaching agent for textiles, cellulose fibers; photographic developers preservative/fixative; oxygen scavenger in boiler water treatment; corrosion control; flotation depressant for copper ores; latex anticoagulant; preservative and antioxidant in foods, wine, beer, and pharmaceuticals; antiseptic; topical antifungal agent; in sympathomimetic and aminoglycoside medications; dechlorination reagent in drinking water, effluent, textiles, pulp/paper; oil recovery; in cellophane for food pkg.

*Use Level:* ADI 0-0.7 mg/kg (EU); 0.3-0.75% (sympathomimetic/

aminoglycoside medications)

*Regulatory:* FDA 21CFR §172.615, 173.310, 177.1200, 182.3798, GRAS; Japan approved (0.03-5 g/kg max. residual as sulfur dioxide); Europe listed; FDA approved for injectables, inhalants, orals, topicals; BP, Ph.Eur. compliance

*Manuf./Distrib.:* AMRESKO; Aldrich; BASF; BCH Brühl; Calabrian; EM Ind.; Esseco SpA; FMC Foret; Ferro/Grant; Fluka; General Chem.; Harcros; Independent Chem.; Indspec; Mallinckrodt Baker; Nissan Chem. Ind.; O.C. Lugo; Olympic Chem.; Prior; Rhodia; Ruger; Sal Chem.; Schaefer Tech.; Sigma; Solvay Mins.; Southern Ionics; Spectrum Quality Prods.; Universal Preserv-A-Chem; Vivion; Wm. Blythe Ltd

**Sodium sulfite (2:1).** See Sodium sulfite

**Sodium sulfite anhydrous.** See Sodium sulfite

**Sodium sulfocyanate.** See Sodium thiocyanate

**Sodium sulfocyanide.** See Sodium thiocyanate

### Sodium 2-sulfoethyl methacrylate

CAS 1804-87-1

*Synonyms:* 2-Propenoic acid, 2-methyl-, 2-sulfoethyl ester, sodium salt; 2-Sulfoethyl methacrylate, sodium salt

*Empirical:* C<sub>6</sub>H<sub>10</sub>O<sub>3</sub>S • Na

*Properties:* M.w. 217.20

*Uses:* In copolymer food-contact coatings on metal; in coatings for paper/paperboard in contact with aq./fatty foods; emulsifier for copolymer coatings on food-grade polyethylene phthalate film

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170, 177.1630

**Sodium sulfoxylate.** See Sodium hydrosulfite

**Sodium sulfoxylate formaldehyde.** See Sodium formaldehyde sulfoxylate

**Sodium tall oil N-methyltaurate.** See Sodium methyl tall oil acid taurate

**Sodium tallow alcohol sulfate.** See Sodium tallow sulfate

### Sodium tallowate

CAS 8052-48-0; EINECS/ELINCS 232-491-4

*Synonyms:* Tallow, sodium salt

*Definition:* Sodium salt of tallow acid

*Toxicology:* TSCA listed

*Uses:* Defoamer for agric. formulations; topical pharmaceuticals; in food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; defoamer in food-contact paper coatings; in food-contact rubber articles, textiles; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.170, 176.200, 177.2600, 177.2800, 178.3910; FDA approved for topicals

*Trade Names:* Norfox® 92 Granules

### Sodium tallow sulfate

CAS 8052-50-4; 68140-10-3; EINECS/ELINCS 232-494-0

*Synonyms:* Fleshing grease, sulfated sodium salt; Sodium tallow alcohol sulfate; Sulfated tallow, sodium salt; Sulfuric acid, monotallow alkyl esters, sodium salts; Tallow, sulfated, sodium salt

*Definition:* Mixture of sodium alkyl sulfates

*Formula:* ROSO<sub>3</sub>Na, R rep. alkyl groups from tallow

*Properties:* Brn. paste (as 55% act. matter in water)

*Uses:* Heavy-duty detergent; wetting agent; emulsifier; cofoaming agent for latex foams; ore flotation agent; fabric scouring and sizing agent; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings and paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 176.210, 177.2800

**Sodium tetraborate anhydrous.** See Sodium borate

**Sodium tetraborate decahydrate.** See Sodium borate decahydrate

### Sodium tetraborate pentahydrate

CAS 12179-04-3; EINECS/ELINCS 215-540-4

*Synonyms:* Borates, tetra, sodium salts, pentahydrate; Boric acid, disodium salt, pentahydrate; Boron sodium oxide, pentahydrate; Tetraborate, pentahydrate

*Empirical:* B<sub>4</sub>O<sub>7</sub> • 2Na • 5H<sub>2</sub>O

*Properties:* Solid; m.w. 360.29

*Toxicology:* OSHA TLV/TWA 1 mg/m<sup>3</sup>; REL 1 mg/m<sup>3</sup>; mod. irritating to nose, throat, and skin

*Uses:* Source of boric oxide for insulation fiber glass, borosilicate glasses; flame retardant for cellulose; peptizing agent in adhesives; pH buffering

## Sodium tetradecanoate

agent, gentle abrasive in cleaners; wax and oil emulsifier; laundry bleaching agent; water softener; visc. control; corrosion inhibitor; enzyme stabilizer; lubricant carrier in wire drawing; food pkg.

*Trade Names:* Neobor®

**Sodium tetradecanoate.** See Sodium myristate

**Sodium tetrahydridoborate.** See Sodium borohydride

**Sodium tetrahydroborate.** See Sodium borohydride

**Sodium tetrapyrophosphate.** See Tetrasodium pyrophosphate

## Sodium thiocyanate

CAS 540-72-7; EINECS/ELINCS 208-754-4

*Synonyms:* Sodium isothiocyanate; Sodium rhodanate; Sodium rhodanide; Sodium sulfocyanate; Sodium sulfocyanide; Sodium thiocyanide; Thiocyanate sodium; Thiocyanic acid, sodium salt

*Classification:* Inorganic compd.

*Empirical:* CNNaS

*Formula:* NaSCN

*Properties:* Colorless cryst.; sol. in water, alcohol, acetone; m.w. 81.07; m.p. 287 C

*Toxicology:* LD50 (oral, rat) 764 mg/kg, (IP, rat), 540 mg/kg, (IV, mouse) 484 mg/kg; poison by ing., IV, subcut. routes; mod. toxic by IP route; irritant; ing. of large doses may cause vomiting, convulsions; chronic exposure causes weakness, confusion, diarrhea, skin rashes; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of  $\text{NO}_x$ ,  $\text{SO}_x$ ,  $\text{Na}_2\text{O}$

*Storage:* Hygroscopic, deliq.; light-sensitive

*Uses:* Intermediate for agric. chems., slimicides for paper, pharmaceuticals; brightener in electroplating; analytical reagent; photographic emulsion stabilizer; textile dye and printing assistant; fiber swelling agent; in food-pkg. adhesives; acrylic fiber spinning solvent additive; corrosion inhibitor for water treatment; solvent for polyacrylates, textile baths; extraction solvent for metals; mfg. of other thiocyanate salts and artificial mustard oil; medicine (antihypertensive)

*Regulatory:* FDA 21CFR §175.105

*Manuf./Distrib.:* AC Ind.; Akzo Nobel bv; Aldrich; Alemark; Allan; Allchem Ind.; Am. Int'l.; Amber Syn.; Austin; Barker Ind.; Crompton/Witco; Degussa-Hüls; EM Ind.; Fluka; Pacific West; Richman; Sanko Kagaku; Sigma; Spectrum Quality Prods.; Toyo Kasei Kogyo; Van Waters & Rogers; Westco

**Sodium thiocyanide.** See Sodium thiocyanate

**Sodium thiosulfate.** See Sodium thiosulfate anhydrous

## Sodium thiosulfate anhydrous

CAS 7772-98-7; EINECS/ELINCS 231-867-5

*Synonyms:* Disodium thiosulfate; Hypo; Sodium hyposulfite; Sodium subsulfite; Sodium thiosulfate; Thiosulfuric acid disodium salt

*Classification:* Inorganic salt

*Definition:* Avail. as the anhyd. or pentahydrate salts

*Empirical:*  $\text{Na}_2\text{O}_3\text{S}_2$

*Formula:*  $\text{Na}_2\text{S}_2\text{O}_3$

*Properties:* Colorless cryst. or cryst. powd.; sol. in water; pract. insol. in alcohol; m.w. 158.11; dens. 1.667; dec. on heating

*Toxicology:* LD50 (IP, mouse) 5200 mg/kg; LDLo (dermal, rabbit) 4 g/kg; mod. toxic by subcut. route; mildly irritating to respiratory tract and skin (may cause dermatitis); TSCA listed

*Precaution:* Incompat. with oxidizers, metal nitrates, sodium nitrite; slowly dec. at R.T. and more rapidly in presence of light and heat

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of  $\text{Na}_2\text{O}$  and  $\text{SO}_x$

HMIS: Health 1; Flammability 0; Reactivity 1

*Storage:* Hygroscopic; deliq. in moist air

*Uses:* Photographic fixative; chrome tanning; chlorine removal in bleaching and papermaking; extraction of silver; dechlorination reagent for drinking water, effluent; mordant; reagent; bleaching, reducing agent in chrome dyeing; sequestrant in salt; flotation depressant for copper ores; flue gas desulfurization agent; textile/leather processing aux.; food antioxidant, formulation aid, reducing agent, sequestrant; antioxidant in pharmaceuticals; antidote for cyanide poisoning

*Use Level:* Limitation 0.0005% (alcoholic beverages), 0.1% (table salt)

*Regulatory:* FDA 21CFR §184.1807, GRAS; FDA approved for intravenous, ophthalmics, orals; USP/NF, BP, Ph.Eur. compliance

*Manuf./Distrib.:* Aldrich; Allan; Am. Int'l.; Calabrian; Charkit; Dastech Int'l.; Ferro/Grant; Fluka; General Chem.; Kimson; Mallinckrodt Baker; Nissan Chem. Ind.; Ruger; Sal Chem.; Sigma; Southern Ionics; Spectrum Quality Prods.; Vivion; Wego Chem. & Min.; Wm. Blythe Ltd

## Sodium thiosulfate pentahydrate

CAS 10102-17-7; EINECS/ELINCS 231-867-5

*Synonyms:* Sodium hyposulfite pentahydrate; Thiosulfuric acid disodium salt pentahydrate

*Empirical:*  $\text{Na}_2\text{O}_3\text{S}_2 \cdot 5\text{H}_2\text{O}$

*Formula:*  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$

*Properties:* Colorless cryst. or gran., odorless; sol. in water; insol. in alcohol; m.w. 248.18; dens. 1.69; m.p. 48 C; pH 6.5-8.0; loses water of cryst. @ 100 C and dec. at higher temps.

*Toxicology:* LD50 (IV, rat) > 2.5 g/kg, (IP, mouse) 5600 mg/kg; mod. toxic by IV route; ing. may cause cyanosis in humans; lg. internal doses have cathartic action; irritant; TSCA listed

*Precaution:* Incompat. with iodine, acids, lead, mercury, and silver salts; violent reaction with  $\text{NaNO}_2$

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of  $\text{SO}_x$ ,  $\text{Na}_2\text{O}$

HMIS: Health 1; Flammability 0; Reactivity 1

*Storage:* Hygroscopic; sl. deliq. in moist air; store @ R.T.

*Uses:* Photographic fixative; dechlorination reagent for drinking water, effluent, textiles, pulp/paper; flotation depressant for copper ores; flue gas desulfurization agent; textile/leather processing aux.; dichromate reducing agent in tanning; antioxidant, sequestrant, formulation aid, reducing agent, emulsifier, pH control agent for foods and beverages

*Use Level:* Limitation 0.00005% (alcoholic beverages), 0.1% (table salt)

*Regulatory:* FDA 21CFR §184.1807, GRAS

*Manuf./Distrib.:* AMRESCO; Aldrich; Calabrian; FMC Foret; Fluka; Ruger; Sigma; Spectrum Quality Prods.; Wm. Blythe Ltd

**Sodium tin oxide.** See Sodium stannate

**Sodium trichlorophenate.** See Sodium-2,4,5-trichlorophenate

## Sodium-2,4,5-trichlorophenate

CAS 136-32-3

*Synonyms:* Phenol, 2,4,5-trichloro-, sodium salt; Sodium trichlorophenate; 2,4,5-Trichlorophenol, sodium salt; (2,4,5-Trichlorophenoxy) sodium

*Empirical:*  $\text{C}_6\text{H}_2\text{Cl}_3\text{NaO}$

*Properties:* Buff to lt. brown flakes; sol. in water, methanol, acetone; m.w. 219.42; pH 11-13 (water-sat. sol'n.)

*Toxicology:* LD50 (oral, rat) 1620 mg/kg; mod. toxic by ing.; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Cl and  $\text{Na}_2\text{O}$

*Uses:* Industrial preservative (bactericide, fungicide); fungicide for pulp/paper mill wet-end systems; preservative for defoamers in food-contact coatings and paper/paperboard; slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.200, 176.210, 176.300, 181.30

## Sodium tridecylbenzene sulfonate

CAS 26248-24-8; EINECS/ELINCS 247-536-3

*Synonyms:* Tridecylbenzenesulfonic acid, sodium salt

*Classification:* Substituted aromatic compd.

*Empirical:*  $\text{C}_{19}\text{H}_{32}\text{O}_3\text{S} \cdot \text{Na}$

*Properties:* Anionic

*Uses:* Detergent, emulsifier, foamer, and wetting agent for the detergent and personal care industries; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; antistat/antifog in food pkg.; emulsifier in mfg. of food-contact articles

*Regulatory:* FDA 21CFR §175.105, 176.210, 178.3130, 178.3400

**Sodium triphosphate.** See Pentasodium triphosphate

**Sodium tripolyphosphate.** See Pentasodium triphosphate

**Sodium tris (1,2-naphthalenedione 1-oximate-O,O') ferrate (II).** See Acid green 1

**Sodium vinyl sulfonate polymerized.** See Polysodium vinyl sulfonate

## Sodium xylenesulfonate

CAS 1300-72-7; EINECS/ELINCS 215-090-9

*Synonyms:* SXS; Dimethylbenzene sulfonic acid, sodium salt

*Definition:* Sodium salt of ring sulfonated mixed xylene isomers

*Empirical:*  $\text{C}_8\text{H}_8\text{O}_3\text{S} \cdot \text{Na}$

**Formula:**  $(\text{C}_6\text{H}_9\text{O}_2)_2\text{C}_6\text{H}_4\text{SO}_2\text{Na}$

**Properties:** M.w. 208.21; anionic

**Toxicology:** No known toxicity; irritant; TSCA listed

**Uses:** Hydrotrope, solvent in heavy-duty detergents, shampoos; coupling agent; stabilizer; dispersant; visc. reducer; processing aid; pharmaceutical solubilizer; in food-pkg. adhesives; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.180; FDA approved for topicals

**Manuf./Distrib.:** Aldrich; Ashland; Browning; Burlington Chem.; Fluka; Howard Hall; Huntsman; J.F. Henry; Pilot; Rutgers Org.; Stepan

**Trade Names:** Pilot® SXS-40

### Sodium zinc potassium polyphosphate

**Toxicology:** Irritant

**Uses:** Pigment dispersant in food-contact coatings, paper/paperboard

**Regulatory:** FDA 21CFR §176.170

See also Borosilicate glass

**Sodium chloride, natural.** See Sodium chloride

**Solanum tuberosum.** See Potato (*Solanum tuberosum*) starch

**Solid red A.** See Acid red 88

**Soluble glass.** See Sodium metasilicate; Sodium silicate

**Soluble guncotton.** See Nitrocellulose

**Soluble sulfur.** See Sulfur

**Solvent naphtha.** See VM&P naphtha

**Solvent red 72.** See Acid orange 11

**SOPP.** See Sodium o-phenylphenate

**Sorbic acid sodium salt.** See Sodium sorbate

**Sorbimacrogol laurate 300.** See Polysorbate 20

**Sorbimacrogol oleate 300.** See Polysorbate 80

**Sorbimacrogol palmitate 300.** See Polysorbate 40

**Sorbimacrogol stearate 300.** See Polysorbate 60

**Sorbimacrogol trioleate 300.** See Polysorbate 85

**Sorbimacrogol tristearate 300.** See Polysorbate 65

**Sorbit.** See Sorbitol

**Sorbitan, esters, monododecanoate.** See Sorbitan laurate

**Sorbitan, esters, monohexadecanoate.** See Sorbitan palmitate

**Sorbitan, esters, monoctadecanoate.** See Sorbitan stearate

### Sorbitan laurate

CAS 1338-39-2; 5959-89-7; EINECS/ELINCS 215-663-3; 227-729-9

**Synonyms:** Anhydrosorbitol monolaurate; Sorbitan, esters, monododecanoate; Sorbitan monododecanoate; Sorbitan monolaurate

**Definition:** Monoester of lauric acid and hexitol anhydrides derived from sorbitol

**Empirical:**  $\text{C}_{18}\text{H}_{34}\text{O}_6$

**Properties:** Yel. to amber oily liq., bland char. odor; sol. in methanol, alcohol, min. oil; sl. sol. in cottonseed oil, ethyl acetate; insol. in water; m.w. 346.47; dens. 1.032; m.p. 18°C; HLB 8.6; acid no. 8 max.; sapon. no. 158-170; hyd. no. 330-358; flash pt. > 230°F; ref. index 1.4740; nonionic

**Toxicology:** LD50 (oral, rat) 33,600 mg/kg; TDLo (skin, mouse, 24 wk intermittent) 1350 mg/kg; sl. toxic by ing.; questionable carcinogen; experimental neoplastigen, reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emulsifier, solubilizer for foods, cosmetics, household prods., industrial applics., coatings, household (polishes, cleaners), pharmaceutical uses; lubricant, antifog, antistat for PVC and other plastics; antifog for food-pkg. films; polymerization emulsifier for thermoplastics; emulsifier in food pkg.; emollient for skin care prods.; lubricant, emulsifier in textile spin finishes; cosolvent; foods (crystallization retarder, dough improver)

**Use Level:** ADI 0-25 mg/kg (EU, total sorbitan esters)

**Regulatory:** FDA 21CFR §175.320, 178.3400; Europe listed; UK approved; FDA approved for ophthalmics, orals; USP/NF, BP compliance

**Manuf./Distrib.:** A.P.; Aldrich; Ashland; Fluka; Jeen Int'l.; Lonza; Mosselman NV; Protameen; Rhodia HPCII; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem

**Trade Names:** Crill 1; DeMULS SML; Lumisorb™ SML

**Sorbitan monododecanoate.** See Sorbitan laurate

**Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.** See Polysorbate 20

**Sorbitan, monohexadecanoate, poly(oxy-1,2-ethanediyl) derivs.** See

Polysorbate 40

**Sorbitan monolaurate.** See Sorbitan laurate

**Sorbitan monoctadecanoate.** See Sorbitan stearate

**Sorbitan, monoctadecanoate, poly (oxy-1,2-ethanediyl) derivs.** See Polysorbate 60

**Sorbitan mono-9-octadecenoate.** See Sorbitan oleate

**Sorbitan monooleate.** See Sorbitan oleate

**Sorbitan monooleic acid ester.** See Sorbitan oleate

**Sorbitan monopalmitate.** See Sorbitan palmitate

**Sorbitan monostearate.** See Sorbitan stearate

**Sorbitan, 9-octadecenoate (2:3).** See Sorbitan sesquioleate

### Sorbitan oleate

CAS 1338-43-8; 5938-38-5; EINECS/ELINCS 215-665-4

**Synonyms:** SMO; Anhydrosorbitol monooleate; Monodehydrosorbitol monooleate; Sorbitan mono-9-octadecenoate; Sorbitan monooleate; Sorbitan monooleic acid ester

**Definition:** Monoester of oleic acid and hexitol anhydrides derived from sorbitol

**Empirical:**  $\text{C}_{24}\text{H}_{44}\text{O}_6$

**Properties:** Yel. to amber visc. liq., char. bland odor; misc. with min. and veg. oils; sl. sol. in ether; insol. in water, acetone, propylene glycol; m.w. 428.62; dens. 0.986; HLB 4.3; acid no. 8 max.; iodine no. 62-76; sapon. no. 145-160; hyd. no. 193-210; flash pt. > 230°F; ref. index 1.4800; nonionic

**Toxicology:** Skin irritant; human mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emulsifier for foods, cosmetics, pharmaceuticals, household prods., industrial applics., polymerization, pulp/paper, metalworking, lubricants, textiles, agric., paints, adhesives; antifog, antistat, cling additive for plastic films; oil additive; corrosion inhibitor; clarification of beet or cane sugar liquor; food stabilizer; emulsifier in food pkg.; in food-pkg. adhesives

**Use Level:** 0.7 ppm max. (sugar juice), 1.4 ppm max. (sugar liquor); ADI 0-25 mg/kg (EU, total sorbitan esters)

**Regulatory:** FDA 21CFR §73.1001, 173.75, 175.105, 175.320, 178.3400; Europe listed; UK approved; FDA approved for orals, topicals; USP/NF, BP compliance

**Manuf./Distrib.:** A.P.; ABITEC; Aldrich; Ashland; Fluka; Heterene; Jeen Int'l.; Lambent Tech.; Lonza; Mosselman NV; Norman, Fox; Protameen; Rhodia HPCII; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Uniqema/ICI Surf. Am.; Universal Preserv-A-Chem

**Trade Names:** Crill 4; DeMULS SMO; Lumisorb™ SMO

### Sorbitan palmitate

CAS 26266-57-9; EINECS/ELINCS 247-568-8

**Synonyms:** 1,4-Anhydro-D-glucitol, 6-hexadecanoate; Monopalmitate sorbitan; Sorbitan, esters, monohexadecanoate; Sorbitan monopalmitate

**Definition:** Partial ester of palmitic acid with sorbitol mono- and dianhydrides

**Empirical:**  $\text{C}_{22}\text{H}_{42}\text{O}_6$

**Properties:** Tan gran. waxy solid, faint tallow-like odor; sol. in ethyl acetate, warm abs. alcohol; sol. hazy in warm peanut or min. oil; insol. in water; m.w. 402.57; dens. 0.989; HLB 6.7; acid no. 8 max.; sapon. no. 140-150; hyd. no. 275-305; flash pt. > 230°F; ref. index 1.4780; nonionic

**Toxicology:** No known toxicity; skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** Surfactant, emulsifier for foods, cosmetics, pharmaceuticals, household prods., industrial applics., polymerization, pulp/paper, metalworking, lubricants, textiles, agric., paints, adhesives; emulsifier in food pkg.; oil additive; corrosion inhibitor; cosolvent

**Use Level:** ADI 0-25 mg/kg (EU, total sorbitan esters)

**Regulatory:** FDA 21CFR §175.320, 178.3400; Europe listed; UK approved; FDA approved for intramuscular injectables; USP/NF compliance

**Manuf./Distrib.:** Aldrich; Ashland; Fluka; Jeen Int'l.; Lonza; Protameen; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem

**Trade Names:** Crill 2; Lumisorb™ SMP

### Sorbitan sesquioleate

CAS 8007-43-0; EINECS/ELINCS 232-360-1

**Synonyms:** Anhydrohexitol sesquioleate; Anhydrosorbitol sesquioleate; Sorbitan, 9-octadecenoate (2:3)

**Definition:** Mixture of mono and diesters of oleic acid and hexitol anhydrides derived from sorbitol

**Properties:** Yel. to amber thick oily liq.; sol. in alcohol, IPA, min. oil, cottonseed oil; insol. in water, propylene glycol; HLB 3.7; acid no. 14 max.; iodine no. 65-75; sapon. no. 143-165; hyd. no. 182-220; nonionic

**Toxicology:** Skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating vapors

**Uses:** W/o emulsifier, wetting agent, pigment dispersant, lubricant, coupling agent, solubilizer, antifoam for cosmetics, pharmaceuticals, explosives, household aerosols, polymerization; in resinous/polymeric food-contact coatings for polyolefin films

**Regulatory:** FDA 21CFR §175.320; FDA approved for topicals

**Manuf./Distrib.:** A.P.; Aldrich; Seabrook Ind.; Sigma; Spectrum Quality Prods.

**Trade Names:** Crill 43

#### Sorbitan stearate

CAS 1338-41-6; 69005-67-8; EINECS/ELINCS 215-664-9; FEMA 3028

**Synonyms:** SMS; Anhydro-d-glucitol mono-octadecanoate; Anhydrosorbitol monostearate; Anhydrosorbitol stearate; Sorbitan, esters, mono-octadecanoate; Sorbitan mono-octadecanoate; Sorbitan monostearate

**Definition:** Monoester of stearic acid and hexitol anhydrides derived from sorbitol

**Empirical:** C<sub>24</sub>H<sub>46</sub>O<sub>6</sub>

**Properties:** Cream to tan waxy beads, bland odor and taste; sol. in ethyl acetate, veg. and min. oils; insol. in water, acetone, alcohol, propylene glycol; m.w. 430.70; m.p. 49-65 C; pour pt. 51-54 C; HLB 4.7; acid no. 5-10; sapon. no. 147-157; hyd. no. 235-260; nonionic

**Toxicology:** LD50 (oral, rat) 31 g/kg; very mildly toxic by ing.; primary skin irritant; experimental reproductive effects; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Emulsifier, stabilizer, coupling agent, defoamer for foods, pharmaceuticals, cosmetics, household prods., industrial applics., polymerization; emulsifier in food pkg.; in food-pkg. adhesives; to prepare silicone defoamer emulsions for industrial applics., paraffin wax emulsions for processing paper coatings; textile process lubricant; internal PVC film lubricant

**Use Level:** Limitation 0.4% (whipped toppings), 1% (confectionery coatings), 0.4% (milk substitute), 0.7% (cake icings), 1% (active dry yeast); ADI 0-25 mg/kg (EU, total sorbitan esters)

**Regulatory:** FDA 21CFR §73.1001, 163.123, 163.130, 163.135, 163.140, 163.145, 163.150, 163.153, 163.155, 172.515, 172.842, 173.340, 175.105, 175.320, 178.3400, 573.960; FEMA GRAS; Europe listed; UK approved; FDA approved for topicals, vaginals, orals; USP/NF, BP compliance

**Manuf./Distrib.:** A.P.; Aldrich; Ashland; Fluka; Jeen Int'l.; Lambert Tech.; Lonza; Norman, Fox; Protameen; Rhodia HPCII; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Uniqema/ICI Surf. Am.; Universal Preserv-A-Chem

**Trade Names:** Crill 3; DeMULS SMS; Emsorb® 2505; Lumisorb™ SMS; Polypax SMS

**Sorbitan tri-octadecanoate.** See Sorbitan tristearate

**Sorbitan, tri-octadecanoate, poly (oxy-1,2-ethanediyl) derivs.** See Polysorbate 65

**Sorbitan tri-9-octadecenoate.** See Sorbitan trioleate

#### Sorbitan trioleate

CAS 26266-58-0; 85186-88-5; EINECS/ELINCS 247-569-3; 286-074-7

**Synonyms:** STO; Anhydrosorbitol trioleate; Sorbitan tri-9-octadecenoate

**Definition:** Triester of oleic acid and hexitol anhydrides derived from sorbitol

**Empirical:** C<sub>60</sub>H<sub>108</sub>O<sub>6</sub>

**Properties:** Yel. to amber oily liq.; sol. in alcohol, veg. oil, min. oil; insol. in water, ethylene glycol, propylene glycol; m.w. 957.52; dens. 0.956; HLB 1.8; acid no. 17 max.; iodine no. 77-85; sapon. no. 170-190; hyd. no. 50-75; flash pt. > 230 F; ref. index 1.4760; nonionic

**Toxicology:** Irritant; TSCA listed

**Uses:** Emulsifier for foods, pharmaceuticals, cosmetics, household prods., industrial applics., polymerization; antifog, lubricant, cling additive for plastic film; emulsifier in food pkg.; emollient; solvent; oil phase regulator; anti-rust

**Regulatory:** FDA 21CFR §175.320, 178.3400; FDA approved for inhalants,

orals, topicals

**Manuf./Distrib.:** Aldrich; Ashland; Fluka; Jeen Int'l.; Lonza; Nihon Surfactant; Pfaltz & Bauer; Protameen; Seabrook Ind.; Sigma; Spectrum Quality Prods.; TCI Am.

**Trade Names:** Crill 45; Lumisorb™ STO

#### Sorbitan tristearate

CAS 26658-19-5; 72869-62-6; EINECS/ELINCS 247-891-4; 276-951-2

**Synonyms:** STS; Anhydrosorbitol tristearate; Sorbitan tri-octadecanoate

**Definition:** Triester of stearic acid and hexitol anhydrides derived from sorbitol

**Empirical:** C<sub>60</sub>H<sub>114</sub>O<sub>6</sub>

**Properties:** Wh. to tan waxy beads; sol. in IPA; insol. in water; m.w. 963.56; pour pt. 48 C; HLB 2.1; acid no. 12-15; sapon. no. 176-188; nonionic

**Toxicology:** No known toxicity; TSCA listed

**Uses:** Emulsifier for foods, cosmetics, pharmaceuticals, household prods., industrial applics., polymerization, pulp/paper, metalworking, lubricants, textiles, agric., paints, adhesives; emulsifier in food pkg.; coupling agent; lubricant; softener; antistat; corrosion inhibitor; process defoamer; solubilizer; dispersant; suspending agent; crystallization control in foods

**Use Level:** ADI 0-25 mg/kg (EU, total sorbitan esters)

**Regulatory:** FDA 21CFR §175.320, 178.3400; Europe listed; UK approved

**Manuf./Distrib.:** Ashland; Cognis/Chems. Group; Fluka; Lambert Tech.; Lonza; Rhodia HPCII; Seabrook Ind.; Sigma; Spectrum Quality Prods.; Uniqema/ICI Surf. Am.

**Trade Names:** Crill 41; Lumisorb™ STS

**Sorbite.** See Sorbitol

**D-Sorbite.** See Sorbitol

#### Sorbitol

CAS 50-70-4; EINECS/ELINCS 200-061-5; FEMA 3029

**Synonyms:** Glucitol; D-Glucitol; Gullitol; Sorbit; Sorbite; D-Sorbite; γ-Sorbitol; D-Sorbitol; Sorbo; Sorbol

**Classification:** Hexahydric alcohol

**Empirical:** C<sub>6</sub>H<sub>14</sub>O<sub>6</sub>

**Formula:** CH<sub>2</sub>OHHC(OH)HOCHHCOHHC(OH)CH<sub>2</sub>OH

**Properties:** Wh. cryst. powd., gran. or flakes, odorless, sweet taste; sol. in water, hot alcohol, methanol, IPA, DMF, acetic acid, phenol, acetamide sol'ns., oxygenated solvs.; insol. in veg. and min. oils; m.w. 182.20; dens. 1.47 (-5 C); m.p. 93-97.5 C; b.p. 105 C; pH ≈ 7.0

**Toxicology:** LD50 (oral, rat) 15,900 mg/kg; mildly toxic by ing.; excess consumption may have laxative effect; intolerance manifested by abdominal pain, bloating, diarrhea; no known toxicity if used externally; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Hygroscopic

**Uses:** Bodying agent for paper, textile, liq. pharmaceuticals; in mfg. of sorbose, ascorbic acid, propylene glycol, synthetic plasticizers, resins, paints; as sequestrant; pharmaceuticals (humectant, plasticizer, nutritive sweetener, vehicle, excipient); tablet diluent; food additive (nutrient, dietary supplement, anticaking agent, curing/pickling, firming agent, flavoring, emulsifier, formulation aid, humectant, sequestrant, stabilizer, thickener, surface-finisher, texturizer); as humectant on printing rolls, leather, tobacco; in writing inks; in antifreeze mixts.; sugar substitute for diabetics; sugar cryst. inhibitor; PVC heat costabilizer; plasticizer in food-contact coatings

**Use Level:** Limitation 99% (hard candy), 75% (chewing gum), 98% (soft candy), 30% (jams, jellies), 30% (baked goods), 17% (frozen dairy desserts), 12% (other foods); up to 7% (nutrient, dietary supplement); ADI not specified (FAO/WHO); 70-72% (suspensions); 6-35% (sol'ns.); 5-25% (syrups); 5-20% (elixirs)

**Regulatory:** FDA 21CFR §175.300, 182.90, 184.1835, GRAS; FEMA GRAS; Japan approved; Europe listed; UK approved; FDA approved for dentals, intramuscular injectables, orals, rectals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** ADA Int'l.; ADM; AMRESO; Aldrich; Alfa Chem; Allchem Ind.; Am. Biorganics; Ashland; Baychem; Boehle; Brown; Browning; CarboMer; Cerestar UK; Coyne; Danisco Cultor; EM Ind.; Fabrichem; Fanning; Fluka; George Uhe; Harcros; Hoffmann-LaRoche; Independent Chem.; Int'l. Chem. Inc.; Int'l. Sourcing; Jungbunzlauer; Lipo; Lonza; Mallinckrodt Baker; O.C. Lugo; Primachem; R.W. Greeff; Research Organics; Rochem Int'l.; Roquette Am.; Ruger; SPI Polyols; San Yuan; Seabrook Ind.; Sigma; Spec. Ingreds. & Perfume; Thornley; Uniqema/

ICI Surf. Am.; Van Waters & Rogers; Vivion; Whyte Chems. Ltd  
 Trade Names: Liponic 70-NC; Liponic 76-NC; Sorbitol Sol'n. High Mannitol  
 Trade Names Containing: Sorbitol Sol'n. Noncrystallizing

**D-Sorbitol.** See Sorbitol

**$\gamma$ -Sorbitol.** See Sorbitol

**Sorbo.** See Sorbitol

**Sorbol.** See Sorbitol

**Sorghum gum.** See Starch

**SOS.** See Sodium octyl sulfate

**Sour gas.** See Hydrogen sulfide

**Southern bentonite.** See Bentonite

**Soya-(3-amidopropyl)-N,N-dimethylamine glycolate.** See Soyamidopropyl dimethylamino glycolate

**Soya-(3-amidopropyl)-N,N-dimethylamino gluconate.** See Soyamidopropyl dimethylamino gluconate

**Soyabean meal.** See Soybean (Glycine soja) meal

**Soya bean oil.** See Soybean (Glycine soja) oil

**Soya diethanolamide.** See Soyamide DEA

**Soya lecithin.** See Lecithin

#### Soyamide DEA

CAS 68425-47-8; EINECS/ELINCS 270-355-6

*Synonyms:* Soya diethanolamide; N,N-Bis(hydroxyethyl)soya amides

*Definition:* Mixture of ethanolamides of soy acid

*Formula:* RCO-N(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, RCO- rep. fatty acids from soy

*Properties:* Nonionic

*Toxicology:* TSCA listed

*Uses:* Foam stabilizer, visc. builder, superfatting agent, thickener, emulsifier, conditioner, emollient for toiletries, cutting and sol. oils, textiles, household and industrial cleaners, corrosion inhibitor; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §172.710, 175.105, 176.210

#### Soyamidopropyl dimethylamino gluconate

*Synonyms:* D-Gluconic acid, compd. with n-[3-(dimethylamine) propyl] soyamide; Soya-(3-amidopropyl)-N,N-dimethylamino gluconate

*Properties:* Cationic

*Uses:* Surfactant, emulsifier, conditioning agent for hair care prods., industrial use

*Trade Names:* Necon SOGU

#### Soyamidopropyl dimethylamino glycolate

*Synonyms:* Acetic acid, hydroxy-, compd. with N-[3-(dimethylamine) propyl] soyamide; Soya-(3-amidopropyl)-N,N-dimethylamine glycolate

*Properties:* Cationic

*Uses:* Surfactant, emulsifier, conditioner, softener for hair care prods.; emulsifier for paper/pulp

*Trade Names:* Necon SOG

**Soya oil.** See Soybean (Glycine soja) oil

#### Soybean (Glycine soja) meal

*Synonyms:* Soyabean meal; Soybean meal

*Definition:* Crushed residue obtained from soybeans after expressing the oil

*Uses:* Source of protein for feedstuffs; organic filler; casein-based wood adhesives; binder for paper coatings; plastics; microbial fermentation nutrient; medium for bacitracin prod.

#### Soybean (Glycine soja) oil

CAS 8001-22-7; EINECS/ELINCS 232-274-4

*Synonyms:* Chinese bean oil; Glycine soja; Glycine soja oil; Soya bean oil; Soya oil; Soybean oil; Soy oil

*Classification:* Fixed oil

*Definition:* Oil obtained from seeds of soya plant, *Glycine soja*, by extraction or expression; consists of triglycerides of oleic, linoleic, linolenic, and saturated acids

*Properties:* Pale yel. to brnsh. yel. oil, sl. char. odor and taste; sol. in alcohol, ether, chloroform, carbon disulfide; insol. in water; dens. 0.924-0.929; visc. 50.09 cps; vapor pressure very low; m.p. 22-31 C; iodine no. 120-141; sapon. no. 189-195; flash pt. 540 F; ref. index 1.471

*Toxicology:* May cause allergic reactions incl. hair damage and acne-like pimples; TSCA listed

*Precaution:* Combustible

*Hazardous Decomp. Prods.:* CO<sub>2</sub> from combustion; heated to decomp.,

emits acrid smoke and irritating fumes

HMIS: Health 0; Flammability 1; Reactivity 0

*Storage:* Light-sensitive

*Uses:* Soap mfg.; plasticizer (epoxidized); plasticizer for rubber; high-protein foods; edible cooking oil; drying oil for inks, paints, varnishes, in food-contact coatings; alkyd resins; cattle feeds; pesticide carrier; dietary supplement; food coatings, emulsifier, texturizer, lubricant; microbial fermentation nutrient; pharmaceutical vehicle, solvent; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact paper coatings, paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2800, GRAS; FDA approved for orals, topicals; USP/INF, BP compliance

*Manuf./Distrib.:* ABITEC; ADM; Akzo Nobel; Alba Int'l.; Alban Muller; Aldrich; Alnor Oil; Arista Ind.; Ashland; Atofina; Cargill Ind. Oils & Lubes; Central Soya; Charkit; Croda Chem. Ltd; Degen; Eastman; Lomas Int'l.; Reichhold; Ruger; Sea-Land; Sigma; Spec. Ingreds. & Perfume; Spectrum Quality Prods.; Stevenson Cooper; Thornley; Tri-K Ind.; U.S. Synthetics; Vivion; Vliengenthart BV; Welch, Holme & Clark; Werner G. Smith

**Soybean meal.** See Soybean (Glycine soja) meal

**Soybean oil.** See Soybean (Glycine soja) oil

**Soybean oil hydrogenated.** See Hydrogenated soybean oil

#### Soybean oil triglycerides

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Soy fatty acid, monoester with 1,2-propanediol.** See Propylene glycol soyate

**Soy oil.** See Soybean (Glycine soja) oil

**Soy protein, hydrolyzed.** See Hydrolyzed soy protein

#### Sperm oil triglycerides

*Uses:* Defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.210

**Spirit of Hartshorn.** See Ammonium hydroxide

**Spirits of salt.** See Hydrochloric acid

**Spirits of turpentine.** See Turpentine

**Spirits of wine.** See Alcohol

**Spirit of turpentine.** See Turpentine

**Spiro (isobenzofuran-1(3H),9-(9H) xanthen)-3-one, 4',5'-dibromo-3',6'-dihydroxy-.** See Acid orange 11

**Spiro [isobenzofuran-1(3H),9-[9H] xanthen]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, disodium salt.** See Acid red 87

**STAC.** See Steartrimonium chloride

#### Stannic chloride

CAS 7646-78-8 (anhyd.); EINECS/ELINCS 231-588-9; UN No. 1827

*Synonyms:* Stannic chloride anhydrous; Tin chloride; Tin chloride, fuming; Tin chloride (ic); Tin (IV) chloride; Tin (IV) chloride (1:4); Tin (IV) chloride anhydrous; Tin perchloride; Tin tetrachloride; Tin tetrachloride, anhydrous

*Empirical:* Cl<sub>4</sub>Sn

*Formula:* SnCl<sub>4</sub>

*Properties:* Colorless fuming liq.; water converts to a cryst. solid (SnCl<sub>4</sub> • 5H<sub>2</sub>O); sol. in cold water, alcohol, carbon disulfide, most org. solvs.; dec. by hot water; m.w. 260.50; dens. 2.217 (20/4 C); f.p. -33 C; b.p. 114 C  
*Toxicology:* ACGIH TLV/TWA 2 mg(Sn)/m<sup>3</sup>; LD50 (IP, mouse) 101 mg/kg; LC50 (inh., rat, 10 min) 2300 mg/m<sup>3</sup>; poison by IP route; mod. toxic by inh.; corrosive irritant to skin, eyes, mucous membranes; causes burns; irritating to respiratory system; TSCA listed

*Precaution:* DOT: Corrosive material; evolves heat on contact with moisture; liberates HCl on contact with moisture or heat; violent reaction with K, Na, turpentine, ethylene oxide, or alkyl nitrates

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of Cl-  
*Storage:* Moisture-sensitive; keep well stoppered

*Uses:* Electroconductive/electroluminescent coatings; textile dye mordant; perfume stabilizer for soaps; mfg. of fuchsin, blueprint paper, color lakes, ceramic coatings; bleaching agent for sugar; stabilizer for resins; tin salts; organotin compds.; Friedel-Crafts reaction/polymerization catalyst; soap bactericide/fungicide; glass coatings/surf. treatment agent; sheepskin wool flame-resist. treatment; ABS electroplating activator; mfg. of pharmaceuticals

*Manuf./Distrib.:* Aldrich; Alfa Aesar; Atofina; Atotech USA; Brandeis; Cardi-

## Stannic chloride anhydrous

nal; Chemisphere Ltd; Crompton/Witco; Esprit; Fluka; Mason Corp.; Noah; Spectrum Quality Prods.; Wm. Blythe Ltd

**Stannic chloride anhydrous.** See Stannic chloride

## Stannous oleate

CAS 1912-84-1

**Synonyms:** (Z)-9-Octadecenoic acid, tin (2+) salt; Tin oleate

**Classification:** Organometallic compd.

**Empirical:**  $C_{36}H_{66}O_4Sn$

**Formula:**  $[CH_3(CH_2)_7CH=CH(CH_2)_7COO]_2Sn$

**Properties:** M.w. 681.62

**Toxicology:** ACGIH TLV/TWA 2 mg(Sn)/m<sup>3</sup>; LD50 (IV, mouse) 100 mg/kg; poison by IV route; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Esterification catalyst; ink transfer preventive in food-contact paper/paperboard; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.; accelerator for food-contact silicone rubber articles for repeated use

**Regulatory:** FDA 21CFR §176.130, 176.170, 177.1200, 177.2600

## Starch

CAS 9005-25-8; EINECS/ELINCS 232-686-4

**Synonyms:** Arrowroot starch; Corn starch; Potato starch; Rice starch; Sage starch; Sorghum gum;  $\alpha$ -Starch; Starch, converted; Starch, corn; Starch dust; Tapioca starch; Wheat starch

**Classification:** Carbohydrate polymer

**Definition:** Complex polysaccharide composed of units of glucose consisting of about one quarter amylose and three quarters amylopectin; derived from corn, wheat, potatoes, or tapioca

**Empirical:**  $(C_6H_{10}O_5)_n$

**Properties:** Wh. amorphous powd. or gran., odorless, sl. char. taste; insol. in cold water, alcohol; forms gels in hot water; m.w. 162.14<sub>n</sub>

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> of total dust (when toxic impurities not present); LD50 (IP, mouse) 6600 mg/kg; nuisance dust; mildly toxic by IP route; skin irritant; allergen; may cause contact dermatitis, peritonitis; TSCA listed

**Precaution:** Flamm. exposed to flame; can react with oxidizers; mod. explosive exposed to flame

**Uses:** In food-pkg. adhesives; machine-coated paper; textile filler and sizing agent; filler in baking powd.; urea-formaldehyde resin adhesive; paint raw material; chelating agent, sequestrant, gelling agent for foods; pharmaceutical filler, binder, disintegrant, adsorbent, diluent, carrier for tablets; rubber glove powd.

**Regulatory:** FDA 21CFR §175.105, 182.90, GRAS; FDA approved for buccals, parenterals, orals, rectals, topicals, vaginals; USP/NF, BP compliance

**Manuf./Distrib.:** A.E. Staley Mfg.; ADM Corn Processing; Alco; Aldrich; Avebe Am.; Brøste; Cerestar Int'l.; Cerestar USA; Colorcon; Eka Chems. AB; Fluka; Grain Processing; Nalco; Nat'l. Starch & Chem.; Penford Prods.; Penta Mfg.; Roquette Am.; Sigma; U.S. Synthetics; Universal Preserv-A-Chem; Vivion

**Trade Names:** Liquistrength™ Bonding Agent; Pen-cote® Starch; PenFilm™ Binder; Pen-sprae® Starch

**Trade Names Containing:** PenCP® Binder; Pensize® Binder

**$\alpha$ -Starch.** See Starch

**Starch, converted.** See Starch

**Starch, corn.** See Corn (Zea mays) starch; Starch

**Starch dust.** See Starch

**Starch gum.** See Dextrin

## Starch, pregelatinized

**Classification:** Carbohydrate polymer

**Definition:** Starch that has been chemically or mechanically processed to rupture all or part of the gran. in the presence of water, and then dried

**Properties:** Wh. to off-wh. fine to coarse powd., odorless, sl. char. taste; sl. sol. to sol. in cold water; insol. in alcohol; pH 4.5-7

**Uses:** Adhesives (corrugated cardboard, multiwall paper bags, wallpaper, posters); internal paper sizing; pie/pudding filling ingred.; pharmaceutical tablet/capsule binder, diluent, disintegrant

**Regulatory:** USP/NF compliance

**Manuf./Distrib.:** Avebe Am.; Chemstar Prods.

**Starch, zea mays.** See Corn (Zea mays) starch

**Steam.** See Water

## Stearalkonium chloride

CAS 122-19-0; EINECS/ELINCS 204-527-9; UN No. 1993 (DOT)

**Synonyms:** Ammonium, benzyldimethyloctadecyl-, chloride; Benzyldimethylstearyl ammonium chloride; Benzylstearyl dimethylammonium chloride; Dimethylbenzyloctadecylammonium chloride; N,N-Dimethyl-N-octadecylbenzenemethanaminium chloride; Dimethyloctadecylbenzyl ammonium chloride; Dimethyl stearyl benzyl ammonium chloride; Octadecyl dimethyl benzyl ammonium chloride; Stearyl benzyl dimethyl ammonium chloride; Stearyl dimethyl benzyl ammonium chloride

**Classification:** Quaternary ammonium salt

**Empirical:**  $C_{27}H_{50}N \cdot Cl$

**Formula:**  $C_{18}H_{37}(CH_3)_2(C_6H_5CH_2)NCl$

**Properties:** Wh. cryst. powd.; sol. in water, chloroform, benzene, acetone, xylene; m.w. 424.23; m.p. 35-40 C; cationic

**Toxicology:** LD50 (oral, rat) 1250 mg/kg, (IP, rat) 280 mg/kg; poison by IP route; mod. toxic by ing.; human skin and severe eye irritant; TSCA listed

**Precaution:** DOT: Flamm. liq.

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NH<sub>3</sub>, and Cl<sup>-</sup>

**Uses:** Intermediate for cationic surfactants; softener/antistat in hair conditioners; germicide in food prep., water treatment (duckweed killer), petroleum, textiles; dispersant in paints; antistat/disinfectant in plastics, pulp/paper; dye leveling agent; antimicrobial in cane-sugar mills, pharmaceutical topicals; organophilic surf. treatment agent in bentonite; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §172.165 (limitation 1.5-6 ppm), 173.320 (limitation 0.05 ppm raw sugarcane or raw beets), 175.105; FDA approved for topicals

**Manuf./Distrib.:** Ashland; Biosil Tech.; Croda Inc; Fanning; Int'l. Sourcing; Lonza; Mason; McIntyre; Norman, Fox; RTD; Rhodia HPCII; Spectrum Quality Prods.; Surfactants Inc; Universal Preserv-A-Chem

**Trade Names:** Incroquat SDQ-25; Nissan Cation S2-100

**Trade Names Containing:** Carsoquat® SDQ-25

## Stearamide

CAS 124-26-5; EINECS/ELINCS 204-693-2

**Synonyms:** Amide C-18; Octadecanamide; Stearic acid amide

**Classification:** Aliphatic amide

**Empirical:**  $C_{18}H_{37}NO$

**Formula:**  $CH_3(CH_2)_{16}CONH_2$

**Properties:** Colorless leaflets; sl. sol. in alcohol, ether; insol. in water; m.w. 283.56; m.p. 98-102 C; b.p. 250-251 C (12 mm)

**Toxicology:** TDLo (implant, mouse) 1000 mg/kg; questionable carcinogen; experimental tumorigen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Uses:** Slip/antiblock agent for LDPE, HDPE, PP; mold release agent, internal lubricant for coatings, films; builder, foam visc. stabilizer, and foam booster in syn. detergent formulations, cosmetics; water repellent for textiles; oil-well corrosion inhibitor; improves dye solubility in printing inks, dyes, carbon paper coatings, and fusible coatings for glassware and ceramics; intermediate for syn. waxes; pigment dispersant; thickener for paint; release agent in food pkg.; in food-pkg. adhesives; in closure-sealing gaskets for food containers; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 177.1210, 178.3860, 178.3910, 179.45, 181.22, 181.28

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Chemax; Cognis/Chems. Group; Croda Universal Ltd; Eastech; Ferro; Fluka; Lutianhua; Uniqema N. Am.

**Trade Names:** Armid® 18

## Stearamide DEA

CAS 93-82-3; EINECS/ELINCS 202-280-1

**Synonyms:** N,N-Bis (2-hydroxyethyl) octadecanamide; N,N-Bis (2-hydroxyethyl) stearamide; Diethanolamine stearic acid amide; Stearic acid diethanolamide; Stearic acid polydiethanolamide; Stearoyl diethanolamide

**Definition:** Mixture of ethanolamides of stearic acid

**Empirical:**  $C_{22}H_{45}NO_3$

**Formula:**  $CH_3(CH_2)_{16}CON(CH_2CH_2OH)_2$

**Properties:** M.w. 371.61; nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, opacifier, thickener, emulsion stabilizer, lubricant, condi-

tioner, softener, pearlescent, dye carrier, gelling agent, lubricant used in skin and hair care prod., dermatologicals, textiles, metal treatment; petroleum anti-icing additive; emulsifier/corrosion inhibitor in sol. cutting oils; in food-pkg. adhesives; in food-contact paper/paperboard; in resin-bonded filters for food contact; in food-contact textiles

*Regulatory:* FDA 21CFR §175.105, 176.180, 177.2260, 177.2800

#### Stearamide MEA

CAS 111-57-9; EINECS/ELINCS 203-883-2

*Synonyms:* N-(2-Hydroxyethyl) octadecanamide; N-(2-Hydroxyethyl) stearamide; Monoethanolamine stearic acid amide; Stearic acid monoethanolamide; Stearoyl monoethanolamide

*Definition:* Mixture of ethanolamides of stearic acid

*Empirical:* C<sub>20</sub>H<sub>41</sub>NO<sub>2</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CONHCH<sub>2</sub>CH<sub>2</sub>OH

*Properties:* Wh. to yel. flakes; m.w. 327.55; nonionic

*Toxicology:* TSCA listed

*Uses:* Opacifier, pearlescent, conditioner, lubricant, thickener, gelling agent, mold release agent, binder, detergent, superfatting agent; base for antiperspirant and makeup sticks; emulsion stabilizer; emulsifier/pearlescent/thickener for soaps, toiletries, cosmetics; foam stabilizer for laundry detergents

*Trade Names Containing:* Mackester™ SP

#### Stearamide MEA-stearate

CAS 14351-40-7; EINECS/ELINCS 238-310-5

*Synonyms:* Octadecanoic acid, 2-[(1-oxooctadecyl) amino] ethyl ester; Stearic monoethanolamide stearate; 2-[(1-Oxooctadecyl) amino] ethyl octadecanoate

*Classification:* Substituted ethanolamide

*Empirical:* C<sub>38</sub>H<sub>75</sub>NO<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CONH(CH<sub>2</sub>)<sub>2</sub>OCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>

*Properties:* Flakes; insol. in water; gels in min. oil, IPM; m.p. 76-82 C; sapon. no. 97-107; nonionic

*Toxicology:* No known toxicity

*Uses:* Thickener, opacifier, conditioner, lubricant, gellant for cosmetics, household, institutional liq. soaps; aux. emulsifier for hydrocarbon propellant gas in aq. aerosol systems; in polishes; coating agent for paper and textiles; mold release agent for industrial processing; additive for raising melting pts. of petrol. waxes or glyceride waxes and fats; ingred. of insulating coatings or barriers, and of water-repellent compds.; pharmaceutical emulsifier

*Trade Names:* Witcamide® MAS

#### Stearamidopropyl dimethyl-2-hydroxyethyl ammonium nitrate

CAS 2764-13-8; EINECS/ELINCS 220-432-5

*Synonyms:* Stearamidopropyl dimethyl-β-hydroxyethylammonium nitrate; 1-Propanaminium, N-(2-hydroxyethyl)-N,N-dimethyl-3-(1-oxooctadecyl amino)-, nitrate

*Empirical:* C<sub>25</sub>H<sub>53</sub>N<sub>3</sub>O<sub>5</sub>

*Formula:* C<sub>25</sub>H<sub>53</sub>N<sub>3</sub>O<sub>5</sub> · NO<sub>3</sub>

*Properties:* M.w. 475

*Uses:* Antistat for polymers, paper, glass, other materials

*Trade Names Containing:* Cystat® SN

**Stearamidopropyl dimethyl-β-hydroxyethylammonium nitrate.** See Stearamidopropyl dimethyl-2-hydroxyethyl ammonium nitrate

#### Stearamine

CAS 124-30-1; EINECS/ELINCS 204-695-3

*Synonyms:* 1-Aminooctadecane; Monoctadecylamine; 1-Octadecanamine; Octadecylamine; n-Octadecylamine; Stearylamine; n-Stearylamine

*Classification:* Aliphatic amine

*Empirical:* C<sub>18</sub>H<sub>37</sub>N

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>NH<sub>2</sub>

*Properties:* Cryst. solid; m.w. 269.58; m.p. 55-57 C; b.p. 183 C (5 mm); flash pt. > 230 F; cationic

*Toxicology:* LD50 (oral, rat) 2395 mg/kg, (IP, mouse) 250 mg/kg; poison by IP route; skin irritant; TSCA listed

*Precaution:* Corrosive

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>

*Uses:* Flotation agent for potash ores; anticorrosive agent; germicide; wetting agent; softener; emulsifier; intermediate; corrosion inhibitor; in textiles, water treatment, boiler water treatment, concrete, asphalt, agriculture; filler

dispersant in paper prod.; pigment grinding/dispersing agent; bitumen adhesion promoter; anticaking agent in fertilizers; ceramics; plastics antistat; mold release agent for rubber and plastics; processing aid for rubber

*Regulatory:* FDA 21CFR §173.310 (3 ppm max. in steam)

*Manuf./Distrib.:* Aldrich; Fluka; Sigma

#### Stearamine acetate

CAS 2190-04-7

*Synonyms:* Octadecanamine acetate; Octadecylamine acetate; 1-Octadecylamine acetate; Stearyl amine acetate; Stearyl ammonium acetate

*Empirical:* C<sub>20</sub>H<sub>43</sub>NO<sub>2</sub>

*Formula:* C<sub>18</sub>H<sub>37</sub>NH<sub>2</sub> · HOOCCH<sub>3</sub>

*Properties:* Wh. to lt. yel. flake; m.w. 329.64; m.p. 60 C; solid. pt. 72-82 C; HLB 10.7; cationic

*Toxicology:* LD50 (oral, mouse) 1 g/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub>

*Uses:* Wetting agent, emulsifier, dispersant, corrosion inhibitor, flotation agent for pigment flushing, froth flotation of mins., flocculation; anticaking agent for fertilizers; dispersant, drainage aid, pitch emulsifier in paper prod.; corrosion inhibitor, germicide (duckweed killer) in water treatment and petrol. industries; dispersant in paints; anticorrosive in metals; organophilic surf. treatment agent for china clay

*Trade Names:* Nissan Cation SA

#### Steareth

CAS 9005-00-9 (generic)

*Synonyms:* POE stearyl ether; Stearyl alcohol ethoxylates

*Definition:* PEG ether of stearyl alcohol

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>17</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, n = 2-100

*Properties:* Wh. solids; sol. in alcohol; disp. in water (higher EO); HLB 4.0-15.3 (2-20 EO); nonionic

*Uses:* Emollient, lubricant, emulsifier in cosmetics and pharmaceuticals

*Trade Names:* Genapol® S-020

#### Steareth-2

CAS 9005-00-9 (generic); 16057-43-5

*Synonyms:* PEG-2 stearyl ether; POE (2) stearyl ether; PEG 100 stearyl ether

*Definition:* PEG ether of stearyl alcohol

*Empirical:* C<sub>22</sub>H<sub>46</sub>O<sub>3</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 2

*Properties:* Oily liq.; HLB 4.9; nonionic

*Toxicology:* Moderately toxic by ingestion; TSCA listed

*Uses:* Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent; pulp and paper industry, textiles, paints, adhesives, corrosion inhibitors, petrol. oils; surfactant and emulsifier in topical pharmaceuticals; thickener; emollient; solubilizer, coupling agent; stabilizer

*Regulatory:* FDA approved for topicals

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* Nonionic S-2; Volpo S2

#### Steareth-10

CAS 9005-00-9 (generic); 13149-86-5

*Synonyms:* 3,6,9,12,15,18,21,24,27,30-Dexaooctatetracontan-1-ol; PEG-10 stearyl ether; PEG 500 stearyl ether; POE (10) stearyl alcohol; POE (10) stearyl ether; Stearyl alcohol EO (10)

*Definition:* PEG ether of stearyl alcohol

*Empirical:* C<sub>38</sub>H<sub>78</sub>O<sub>11</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10

*Properties:* HLB 12.4; nonionic

*Toxicology:* LD50 (oral, rat) 2900 mg/kg; mod. toxic by ing.; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent in pulp and paper industry, textiles, paints, adhesives, corrosion inhibitors, petroleum oils; solubilizer, coupling agent; antistat; surfactant and emulsifier in pharmaceuticals; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800; FDA approved for rectals, topicals

*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma

*Trade Names:* Nonionic S-10; Volpo S10



**Stearth-20**

CAS 9005-00-9 (generic)

*Synonyms:* PEG-20 stearyl ether; PEG 1000 stearyl ether; POE (20) stearyl alcohol; POE (20) stearyl ether; Stearyl alcohol EO (20)*Definition:* PEG ether of stearyl alcohol*Empirical:* C<sub>58</sub>H<sub>118</sub>O<sub>21</sub>*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 20*Properties:* HLB 15.3; nonionic*Toxicology:* LD50 (oral, rat) 2900 mg/kg; mod. toxic by ing.; TSCA listed  
*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent in pulp and paper industry, textiles, paints, adhesives, corrosion inhibitors, petroleum oils; emulsifier for wax in fruit coatings; visc. modifier, emollient for cosmetics; emulsifier, gellant, stabilizer in pharmaceuticals; in food-contact textiles*Regulatory:* FDA 21CFR §177.2800*Manuf./Distrib.:* Aldrich; Fluka; Seabrook Ind.; Sigma*Trade Names:* Nonionic S-20; Volpo S20**Stearthate 40.** See PEG-40 stearate**Stearic acid**

CAS 57-11-4; 67701-03-5

EINECS/ELINCS 200-313-4; 266-928-5; FEMA 3035

*Synonyms:* Carboxylic acid C<sub>18</sub>; 1-Heptadecanecarboxylic acid; Octadecanoic acid; n-Octadecanoic acid; Pearl stearic; Stearophanic acid*Classification:* Fatty acid*Empirical:* C<sub>18</sub>H<sub>36</sub>O<sub>2</sub>*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOH<sub>9</sub>*Properties:* Wh. to yllsh.-wh. amorphous waxy solid, tallow-like odor and taste; very sl. sol. in water; sol. in alcohol, ether, acetone, CCl<sub>4</sub>; m.w. 284.47; dens. 0.847 (70 C); m.p. 69.3 C; b.p. 383 C; acid no. 195-200; iodine no. 4 max.; flash pt. (CC) 385 F; ref. index 1.4299 (80 C)*Toxicology:* LD50 (IV, rat) 21.5 ± 1.8 mg/kg; poison by IV route; human skin irritant; possible sensitizer for allergic persons; questionable carcinogen; experimental tumorigen by implant; TSCA listed*Precaution:* Combustible when exposed to heat or flame; heats spontaneously*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1; Flammability 1; Reactivity 0

*Uses:* Candles; chemicals; dispersant; softener in rubber compds., food packaging, suppositories, ointments; PVC lubricant/heat costabilizer; direct food additive (flavoring, lubricant, defoamer, anticaking agent); clarifying agent (wine); textile aux.; intermediate for paints; emollient/superfating agent in cosmetics; paper sizing ingred.; masticatory substance in chewing gum; pharmaceuticals (tablet and suppository lubricant, emulsifier, solubilizer); sunscreens; stearates as pharmaceutical aids; in food-pkg. adhesives; surf. lubricant in food-contact coatings*Regulatory:* FDA 21CFR §172.210, 172.615, 172.860, 175.105, 175.300, 175.320, 176.170, 176.200, 176.210, 177.1010, 177.1200, 177.2260, 177.2600, 177.2800, 178.3570, 178.3910, 184.1090, GRAS; FEMA GRAS; Europe listed; FDA approved for buccals, implants, orals, topicals, vaginals; USP/NF, BP, JP compliance*Manuf./Distrib.:* ADA Int'l.; Akrochem; Akzo Nobel; Aldrich; Alfa Chem; Allchem Ind.; Am. Int'l.; Anar; Ashland; BCH Brühl; Browning; C.P. Hall; Cognis/Chems. Group; Collaborative Labs/Oleochems.; Condor; Ferro; Fluka; Frank B. Ross; Generichem; Genzyme; Grau Aromatics; Great Western; Inchema; Independent Chem.; Int'l. Paper; J.T. Baker; Jarchem Ind.; Kraft Chem.; Lonza; Norman, Fox; O.C. Lugo; Penta Mfg.; Protameen; R.E. Carroll; Robeco; Ruger; Sea-Land; Sigma; Stevenson Cooper; Uniqema/Oleochems.; Van Waters & Rogers; Varsal Instruments; Vivion; Whyte Chems. Ltd*Trade Names:* Loxiol® G 20*Trade Names Containing:* Kotamite®; Lumulse™ DGS-C; Lumulse™ DGS-N; Ross Beeswax Substitute No. 628/5; Ross Synthetic Candelilla Wax**Stearic acid, aluminum dihydroxide salt.** See Aluminum stearate**Stearic acid, aluminum salt.** See Aluminum stearate; Aluminum tristearate**Stearic acid amide.** See Stearamide**Stearic acid, ammonium salt.** See Ammonium stearate**Stearic acid, calcium salt.** See Calcium stearate**Stearic acid diethanolamide.** See Stearamide DEA**Stearic acid ester with lactate of lactic acid calcium salt.** See Calcium stearyl lactylate**Stearic acid, ethylenediamine diamide.** See Ethylene distearamide**Stearic acid, 2-ethylhexyl ester.** See Octyl stearate**Stearic acid, 2-(2-hydroxyethoxy) ethyl ester.** See PEG-2 stearate**Stearic acid, isobutyl ester.** See Isobutyl stearate**Stearic acid, isopropyl ester.** See Isopropyl stearate**Stearic acid, magnesium salt.** See Magnesium stearate**Stearic acid, methyl ester.** See Methyl stearate**Stearic acid, 2-methylpropyl ester.** See Isobutyl stearate**Stearic acid, monoester with ethylene glycol.** See Glycol stearate**Stearic acid, monoester with glycerol.** See Glyceryl stearate**Stearic acid, monoester with 1,2-propanediol.** See Propylene glycol stearate**Stearic acid monoethanolamide.** See Stearamide MEA**Stearic acid polydiethanolamide.** See Stearamide DEA**Stearic acid, potassium salt.** See Potassium stearate**Stearic acid, sodium salt.** See Sodium stearate**Stearic acid, zinc salt.** See Zinc stearate**Stearic monoethanolamide stearate.** See Stearamide MEA-stearate**Stearic monoglyceride.** See Glyceryl stearate**Stearin.** See Tristearin**Stearol.** See Stearyl alcohol**Stearophanic acid.** See Stearic acid**N-(2-Stearoylaminoethyl) oleamide.** See N-Oleoyl-N'-stearoyl ethylenediamine**Stearoyl diethanolamide.** See Stearamide DEA**Stearoyl lactic acid***Synonyms:* Stearyl-2-lactic acid*Definition:* Ester of stearic acid and lactyl lactate*Empirical:* C<sub>24</sub>H<sub>44</sub>O<sub>3</sub>*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>COOCHCH<sub>3</sub>COOCHCH<sub>3</sub>COOH*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* O/w emulsifier; emulsifier for food shortenings; in paper/paperboard in contact with aq./fatty foods*Use Level:* Limitation 3% (shortening for cake icings/fillings)*Regulatory:* FDA 21CFR §176.170; USDA 9CFR §318.7**Stearoyl monoethanolamide.** See Stearamide MEA**Steartrimonium chloride**

CAS 112-03-8; EINECS/ELINCS 203-929-1

*Synonyms:* STAC; Ammonium, trimethyloctadecyl-, chloride; Monostearyl trimethyl ammonium chloride; Octadecyl trimethyl ammonium chloride; Quaternium-10; Stearyl trimethyl ammonium chloride; N,N,N-Trimethyl-1-octadecanaminium chloride; Trimethyl octadecyl ammonium chloride; Trimethyl stearyl ammonium chloride*Classification:* Quaternary ammonium salt*Empirical:* C<sub>21</sub>H<sub>46</sub>N • Cl*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub>]<sup>+</sup>Cl<sup>-</sup>*Properties:* M.w. 348.13; cationic*Toxicology:* LD50 (oral, mouse) 536 mg/kg, (skin, mouse) 1600 mg/kg; poison by ing.; mod. toxic by skin contact; TSCA listed*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub>, NH<sub>3</sub>, Cl<sup>-</sup>*Uses:* Germicide in water treatment, petrol., paper, foods and textile industries; antistat in plastics, pulp and paper industries; rinse agent; pigment coating agent; dispersant; coagulant; softener; hair rinse base; conditioner, antistat, and softener in cosmetics*Manuf./Distrib.:* Fluka*Trade Names:* Nissan Cation AB*Trade Names Containing:* Arquad® 18-50**Stearyl alcohol**

CAS 112-92-5; EINECS/ELINCS 204-017-6

*Synonyms:* C18 linear alcohol; Decyl octyl alcohol; Octadecanol; 1-Octadecanol; n-Octadecanol; Octadecyl alcohol; n-Octadecyl alcohol; Stearol*Classification:* Fatty alcohol*Empirical:* C<sub>18</sub>H<sub>38</sub>O*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>16</sub>CH<sub>2</sub>OH

**Properties:** Wh. unctuous flakes or gran., faint odor, bland taste; sol. in alcohol, acetone, ether; insol. in water; m.w. 270.56; dens. 0.8124 (59/4 C); m.p. 55-60 C; b.p. 210.5 C (15 mm); acid no. 2 max.; iodine no. 2 max.; hyd. no. 195-220

**Toxicology:** LD50 (oral, rat) 20 g/kg; TDLo (implant, mouse) 1000 mg/kg; mildly toxic by ing.; irritating to skin and eyes; may cause skin sensitivity; nonallergenic; questionable carcinogen; experimental neoplastigen; TSCA listed

**Precaution:** Flamm. when exposed to heat or flame; can react with oxidizers  
**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**HMS:** Health 1; Flammability 1; Reactivity 0

**Uses:** Perfumery; cosmetics; intermediate; surface active agents; lubricant for plastics processing; resins; antifoam agent; food additive; intermediate in mfg. of food additives; pharmaceutical surfactant, emulsion stabilizer, emulsifier, astringent; cosolvent; emollient; thickener; in food-pkg. adhesives; in food-contact coatings; defoamer in food-contact coatings and paper/paperboard; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §172.755, 172.864, 175.105, 175.300, 176.200, 176.210, 177.1010, 177.1200, 177.2800, 178.3480, 178.3910; FDA approved for orals, topicals, vagina; USP/NF, BP, Ph. Eur. compliance

**Manuf./Distrib.:** AC Ind.; Aarhus Ölfabrik A/S; Albemarle; Aldrich; Allchem Ind.; Amerchol; Brown; Chemron; Cognis/Chems. Group; Condea Vista; Croda Inc; Fluka; Jarchem Ind.; Kraft Chem.; Lipo; Lonza; M. Michel; Procter & Gamble; Protameen; R.W. Greeff; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Whyte Chems. Ltd

**Trade Names Containing:** Carsoquat® SDQ-25; Nafol® 1822; Nafol® 1822 B; Nafol® 1822 C

**Stearyl alcohol EO (10).** See Steareth-10

**Stearyl alcohol EO (20).** See Steareth-20

**Stearyl alcohol ethoxylates.** See Steareth

**Stearylamine.** See Stearamine

**n-Stearylamine.** See Stearamine

**Stearyl amine acetate.** See Stearamine acetate

**Stearylamine ethoxylates.** See PEG stearamine

**Stearyl/aminopropyl methicone copolymer**

CAS 110720-64-4

**Classification:** Silicone polymer

**Formula:**  $(\text{CH}_3)_3\text{SiO}[\text{CH}_2\text{SiO}(\text{CH}_2)_{17}\text{CH}_3]_x[\text{CH}_2\text{SiO}(\text{CH}_2)_3\text{NH}_2]_y\text{Si}(\text{CH}_3)_3$

**Uses:** Lubricant, water repellent, antiblocking agent, processing aid, release agent for plastics, rubber, paper, textiles, inks, candles, glass bottle molding, aluminum prod.

**Trade Names:** EXP-61 Amine Functional Silicone Wax

**Stearylammium acetate.** See Stearamine acetate

**Stearyl benzyl dimethyl ammonium chloride.** See Stearalkonium chloride

**Stearyl-cetyl alcohol.** See Cetearyl alcohol

**Stearyl citrate**

CAS 1337-33-3; EINECS/ELINCS 215-654-4

**Synonyms:** Citric acid, octadecyl ester; 2-Hydroxy-1,2,3-propanetricarboxylic acid, monoctadecyl ester; Monostearyl citrate; Octadecyl citrate

**Definition:** Ester of stearyl alcohol and citric acid

**Empirical:**  $\text{C}_{24}\text{H}_{44}\text{O}_7$

**Formula:**  $\text{HOCH}_2\text{COOHCCOOHCH}_2\text{COOCH}_2(\text{CH}_2)_{16}\text{CH}_3$

**Toxicology:** TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Moisture-sensitive

**Uses:** Chelating agent; stabilizer for oils; synergistic with antioxidants; sequestrant in food and feed applics.; flavor preservative; plasticizer or component in food-pkg. materials; pharmaceutical creams and ointments; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §166.40, 166.110, 175.300, 178.3910, 181.22, 181.27, 182.6851 (0.15% max. as sequestrant), GRAS, 582.6851

**Manuf./Distrib.:** Aldrich

**Trade Names:** Monostearyl Citrate (MSC)

**Stearyl-3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate.** See Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate

**Stearyl dimethyl benzyl ammonium chloride.** See Stearalkonium chloride

**Stearyl hydroxyethyl imidazole**

CAS 95-19-2; 68937-01-9; EINECS/ELINCS 202-397-8

**Synonyms:** 2-Heptadecyl-4,5-dihydro-1H-imidazole; 2-Heptadecyl-1-hydroxyethylimidazoline; 2-Heptadecyl-2-imidazoline-1-ethanol; 1-Hydroxyethyl-2-heptadecylimidazoline; Stearyl imidazoline

**Classification:** Heterocyclic compd.

**Empirical:**  $\text{C}_{22}\text{H}_{44}\text{N}_2\text{O}$

**Properties:** Dissolves readily in nonpolar solvs.; m.w. 352.60; cationic

**Toxicology:** LD50 (oral, rat) 3800 mg/kg; mod. toxic by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of  $\text{NO}_x$

**Uses:** Oil-sol. emulsifier for industrial detergents, adhesives, pesticides; dispersant; detergent; intermediate for quat. ammonium compds.; strongly absorbed on textiles, paper, many metal surfs.; for asphalt, cleaners, demulsifiers, metalworking, paints; corrosion inhibitor for lubricant additives, oil field chems.; flotation collector for sulfide ores; petrol. anti-icing additive; pigment grinding; inks, wax emulsions; softener, antistat for syn. fabrics, textile finishes

**Trade Names:** Imidazoline SOH; LamChem C-100-S; Schercozoline S

**Stearyl imidazoline.** See Stearyl hydroxyethyl imidazoline

**Stearyl-2-lactylic acid.** See Stearoyl lactylic acid

**Stearyl methacrylate**

CAS 32360-05-7

**Synonyms:** Alkyl (C16-C18) methacrylate; Octadecyl methacrylate

**Empirical:**  $\text{C}_{22}\text{H}_{42}\text{O}_2$

**Formula:**  $\text{CH}_2\text{C}(\text{CH}_3)\text{COOC}_{18}\text{H}_{37}$

**Properties:** Liq.; insol. in water; m.w. 338.58; dens. 0.864 (25/15 C); f.p. 15 C; b.p. 310-370 C

**Precaution:** DOT: Nonhazardous

**Uses:** Monomer for plastics, molding powds.; lube oil additive; pour pt. depressant; paper coatings; textile finishes; paints, varnishes; pressure-sensitive adhesives; emulsions for textile, leather, paper finishing; modifier for fibers; coating agent for papers

**Manuf./Distrib.:** Aldrich; CPS; Rohm & Haas; Rohm Tech; Sartomer

**Trade Names:** Ageflex FM-68; Blemmer SMA

**Stearyl trimethyl ammonium chloride.** See Steartrimonium chloride

**Sterculia gum.** See Karaya (Sterculia urens) gum

**Sterculia urens.** See Karaya (Sterculia urens) gum

**Sterculia urens gum.** See Karaya (Sterculia urens) gum

**Stibic anhydride.** See Antimony pentoxide

**Stick lac.** See Shellac

**2,2'-Stilbenedisulfonic acid, 4,4'-bis ((4-anilino-6-bis (2-hydroxyethyl) amino-s-triazinyl) amino)-, disodium salt.** See Disodium 2,2'-(1,2-ethenediyl) bis [5-[4-[bis (2-hydroxyethyl) amino]-6-(phenylamine)-1,3,5-triazin-2-yl] amino] benzenesulfonate

**2,2'-Stilbenedisulfonic acid, 4,4'-bis ((4-bis (2-hydroxyethyl) amino)-6-(p-sulfoanilino)-s-triazin-2-yl) amino)-, tetrasodium salt.** See Benzenesulfonic acid, 2,2'-(1,2-ethenediyl) bis [5-[4-[bis (2-hydroxyethyl) amino]-6-[(4-sulfophenyl) amino]-1,3,5-triazin-2-yl] amino]-, tetrasodium salt

**2,2'-Stilbenedisulfonic acid, 4,4'-diamino-.** See 4,4'-Diaminostilbene-2,2'-disulfonic acid

**Stink damp.** See Hydrogen sulfide

**St. John's bread.** See Locust bean (Ceratonia siliqua) gum

**STO.** See Sorbitan trioleate

**STP.** See Pentasodium triphosphate

**STPP.** See Pentasodium triphosphate

**Straight-run kerosene.** See Kerosene

**Strong ammonia solution.** See Ammonium hydroxide

**Strontium sulfate**

CAS 7759-02-6; EINECS/ELINCS 231-850-2

**Classification:** Sulfate

**Definition:** Occurs in nature as the mineral celestine or celestite

**Empirical:**  $\text{O}_4\text{SSr}$

**Formula:**  $\text{SrSO}_4$

**Properties:** Wh. cryst. powd.; odorless; 1 g dissolves in  $\approx$  8800 ml water, 800 ml 2% HCl, 700 ml 3%  $\text{HNO}_3$ ; appreciably sol. in alkali chloride sol'ns.; insol. in alcohol, dil. sulfuric acid; m.w. 183.68; dens. 3.96; m.p. 1605 C

**Toxicology:** TSCA listed

**Uses:** Filler, extender for coatings, ceramics, rubber, plastics, adhesives,

caulks, and refractories; in pyrotechnics; paper mfg.  
*Manuf./Distrib.:* Aldrich; Barium & Chems.; Fluka; R.E. Carroll

**STS.** See Sorbitan tristearate

**Styrene/acrylate copolymer.** See Styrene/acrylates copolymer

**Styrene/acrylates copolymer**

CAS 9010-92-8

*Synonyms:* Styrene/acrylate copolymer; Styrene/acrylic; Styrene/acrylic copolymer; Styrene/acrylic resin

*Definition:* Polymer of styrene and a monomer consisting of acrylic acid, methacrylic acid, or their simple esters

*Formula:* (C<sub>6</sub>H<sub>5</sub> + C<sub>3</sub>H<sub>5</sub>NO)<sub>x</sub>

*Toxicology:* Strong irritant; TSCA listed

*Uses:* For inj. molding and extrusion applics.; specialty medical, pharmaceutical, food, and cosmetic pkg.; advertising displays; high-str. toys; binder for floor coverings, concrete roof tiles; binder in paints; in mastics; thermal insulation; adhesives; pigment grinding vehicle and dispersant; paper sizing agent; thickener; vehicle for latex, coatings; extender vehicle for coatings and inks; opacifier in liq. detergents, pharmaceutical preps.; in food-contact coatings; in coatings for paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170, 177.1010, 177.1830

*Manuf./Distrib.:* Air Prods.; Dianal Am.; Dock Resins; Frank E. Dempsey; Goodyear; McWhorter Tech.; Polysat; Reichhold; Seegott

*Trade Names:* Basoplast® 400 DS; Cartacol® SI Liq.; Cartacol® XP Liq.; Cypres® 310 Surface Size; DSP 15; DSP 70; DSP 80; DynaCoat XL; Jetsize® Emulsion; NC Size C-25; NovaCote™ 1933; Perglutin® 204; Perglutin® 395; Perglutin® 450/220; Perglutin® 450/240; Perglutin® 450/280; Perglutin® A 281; Perglutin® K 333; Perglutin® K 440; Perglutin® K 485; Pliolite® AC; Pliolite® AC-L; PSA-28; PSA-34; Rhoplex® NW-1715K; Rhoplex® NW-1845K; Rhoplex® P-308; Rhoplex® P-322; Rhoplex® P-376; Ropaque® BC-643; Ropaque® HP-1055; Ropaque® HP-543P; Sequabond® 7880; Sequabond® TR 7830; Sequatone® 2000; Starcote®; Synthamin 7000; Synthemul® 40430-20; Uniq-Print® 8000; XZ 26001.00; XZ 26005.00

**Styrene/acrylic.** See Styrene/acrylates copolymer

**Styrene/acrylic acid copolymer**

*Synonyms:* SAA

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

*Trade Names Containing:* Jetsize® Sol'n.

**Styrene/acrylic copolymer.** See Styrene/acrylates copolymer

**Styrene/acrylic copolymer ammonium salt**

CAS 35209-54-2

*Classification:* Polystyrene emulsion

*Uses:* Opacifier, surf. size for acid or alkaline papermaking, food-contact paper

*Trade Names:* Plasmine KN-500

**Styrene/acrylic resin.** See Styrene/acrylates copolymer

**Styrene/allyl alcohol copolymer**

CAS 25119-62-4

*Synonyms:* Poly(styrene-co-allyl alcohol); Vinylbenzene, compd. with prop-2-en-1-ol

*Definition:* Copolymer of styrene and allyl alcohol

*Formula:* [CH<sub>2</sub>CH(C<sub>6</sub>H<sub>5</sub>)][CH<sub>2</sub>CH(CH<sub>2</sub>OH)]<sub>x</sub>

*Properties:* M.w. 2200 avg.; dens. 1.050; hyd. no. 255; flash pt. > 110 C

*Toxicology:* TSCA listed

*Uses:* Hard thermoplastic material; additive to improve adhesion, heighten gloss, improve weatherability, increase water and chem. resist. in coatings; carrier in inks; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* Aldrich; Salor

*Trade Names Containing:* Modacure® Resin

**Styrene, β-bromo-β-nitro-** See β-Bromo-β-nitrostyrene

**Styrene/butadiene/acrylic copolymer**

*Uses:* Binder for coating paper and board

*Trade Names:* Styronal™ NX 4626

**Styrene/butadiene copolymer.** See Styrene/butadiene polymer

**Styrene/1,3-butadiene copolymer.** See Styrene/butadiene polymer

**Styrene/butadiene polymer**

CAS 9003-55-8

*Synonyms:* S/B; B/S; SBR; Benzene, ethenyl-, polymer with 1,3-butadiene; Butadiene/styrene copolymer; 1,3-Butadiene/styrene copolymer; Butadiene/styrene polymer; 1,3-Butadiene/styrene polymer; Butadiene/styrene resin; 1,3-Butadiene/styrene resin; Butadiene/styrene rubber; Ethenylbenzene polymer with 1,3-butadiene; Polybutadiene/polystyrene copolymer; Poly(styrene-co-butadiene); Styrene/butadiene copolymer; Styrene/1,3-butadiene copolymer; Styrene polymer with 1,3 butadiene

*Classification:* Polymer; synthetic rubber

*Formula:* PCH<sub>2</sub>CH(C<sub>6</sub>H<sub>5</sub>)<sub>x</sub>(CH<sub>2</sub>CH=CHCH<sub>2</sub>)<sub>y</sub>

*Properties:* Amorphous solid; odorless; insol. in water and most org. solvs.; dens. 0.965

*Toxicology:* Eye irritant; may cause irritation; questionable carcinogen; tumorigen; TSCA listed

*Hazardous Decom. Prods.:* Heated to decom., emits acrid smoke and irritating fumes

*Uses:* Inj. and blow molding, extrusion, thermoforming resin for housings, blister packs, tubes, toys, containers, medical devices, bottles, tech. parts; reinforcing agent for rubber; extrusion aid; binder for zinc-rich coatings; latex as binder, for coatings, paper/paperboard, sealants, adhesives, carpet backing; SBR for tires, footwear, mech. goods; processing aid, modifier; masticatory substance in chewing gum base; food containers; paper/paperboard used in food pkg.; in food-pkg. adhesives and pressure-sensitive adhesives; in food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in food-contact articles for repeated use; in food-contact textiles

*Regulatory:* FDA 21CFR §172.615, 175.105, 175.125, 175.300, 176.170, 177.1810, 177.2600, 177.2800, 181.30

*Manuf./Distrib.:* Acros Org.; Aldrich; Anderson Development; Ashland; BASF; BFGoodrich; ChevronPhillips; Dow Plastics; E.L. Puskas; Firestone Syn. Rubber; Goodyear; Hampshire; Huntsman; Mitsubishi Int'l./Plastics; Polyad; Reichhold; Rhodia; Salor; Shell; Van Waters & Rogers

*Trade Names:* Ameripol Synpol 1013; Bayer SBR Latex 310 C; Darex® 620L; Good-Rite® 2570X59; Pliolite® S-5D; Pliolite® S-5E; Ricon 100; Styrofan®; Tylac® 037; Tylac® 692; Tylac® 757; Tylac® 820; Tylac® 936; Tylac® 979-RG; Tylac® 68217-00; Tylac® 97936-00

*Trade Names Containing:* Pensize® Binder

**Styrene/butadiene/vinylidene chloride copolymer**

*Uses:* In coatings for paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Styrene/butyl acrylate copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

*Trade Names:* Acronal® NX 4786; Acronal® S 728

**Styrene/dimethylstyrene/α-methylstyrene copolymer**

*Uses:* In coatings for paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Styrene/2-ethylhexyl acrylate copolymer**

*Uses:* In resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**Styrene/isobutylene copolymer**

*Uses:* In food-contact coatings; in resinous/polymeric food-contact coatings; in coatings for paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.300, 175.320, 176.170

**Styrene/MA copolymer**

CAS 9011-13-6

*Synonyms:* SMA; 2,5-Furandione, polymer with ethenylbenzene; Maleic anhydride/styrene copolymer; Maleic anhydride/styrene polymer; Poly(styrene-co-maleic anhydride); Styrene/maleic anhydride copolymer; Styrene/maleic anhydride polymer; Styrene/maleic anhydride resin

*Classification:* Engineering thermoplastic; styrene polymer

**Definition:** Polymer of styrene and maleic anhydride monomers, with varying ratios of styrene : MA of 1:1 to 3:1

**Formula:**  $(C_8H_8 \cdot C_4H_2O_3)_n$

**Properties:** Dens. 1.100-1.270; ref. index 1.5810

**Toxicology:** ACGIH TLV/TWA 50 ppm (styrene), STEL 100 ppm (skin, styrene); LD50 (oral, rat) 21 g/kg, (IP, mouse) 800 mg/kg; mod. toxic by IP route; mildly toxic by ing.; harmful if ing., inh., or absorbed thru skin; may be irritating to eyes, skin, mucous membranes, upper respiratory tract; cancer suspect agent; mutagen; may cause heritable genetic damage; target organ: CNS; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits acrid smoke and irritating fumes; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in cool, dry place

**Uses:** Inj. molding (mech. and automotive parts, appliance and electronic housings); adhesion promoter; floor wax ingred.; sizing ingred. for paper, textiles; processing aid for PVC; binder, thickener for aq. paints, printing inks; emulsion polymerization; emulsifier; stabilizer; pigment dispersant; protective colloid; leveling agent; adhesives; coatings; polishes; in coatings for paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §176.170, 177.1200, 177.1210, 177.1820

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Atofina; Bayer; Celanese Canada; Chemical; Focus; Lyondell; Monomer-Polymer & Dajac Labs; Monsanto; Sigma

**Trade Names:** Cartacol® ASN Liq.; Cartacol® NP Liq.; Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425; NovaCote™ 1936; NovaCote™ 2000; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; SMA® 1000; SMA® 2000; SMA® 3000

**Trade Names Containing:** Jetsize® Sol'n.

#### Styrene/MA copolymer, sodium salt

**Uses:** Emulsifier; dispersant; thickener; thickener for food-contact coatings; as surf. size in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Trade Names:** Scripset® 500

**Styrene/maleic anhydride copolymer.** See Styrene/MA copolymer

**Styrene/maleic anhydride polymer.** See Styrene/MA copolymer

**Styrene/maleic anhydride resin.** See Styrene/MA copolymer

#### Styrene/methacrylate copolymer

**Uses:** Surface sizing agent for graphic papers

**Trade Names:** Perglutin® A 200

#### Styrene/methacrylic acid copolymer

**Uses:** In resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.300, 175.320, 176.170

#### Styrene/methacrylic acid copolymer, potassium salt

**Uses:** In food-pkg. adhesives; thickener for food-contact coatings; in paper/paperboard in contact with dry food

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180

#### Styrene/methyl methacrylate copolymer

CAS 25034-86-0

**Synonyms:** Poly (styrene-co-methyl methacrylate)

**Classification:** Styrene/acrylic polymer

**Definition:** Copolymer of styrene and methyl methacrylate

**Formula:**  $[CH_2C(CH_3)(CO_2CH_3)]_x[CH_2CH(C_6H_5)]_y$

**Properties:** Pellets; m.w. ≈ 100,000-150,000

**Toxicology:** May be harmful by inh., ing., or skin absorption; eye irritant; may cause irritation to skin, mucous membranes, upper respiratory tract; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents; capable of creating a dust explosion; may dec. on heating; do not heat above 300 C

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO<sub>2</sub>, acrylic, butadiene, and styrene monomers; emits toxic fumes under fire conditions

**Storage:** Keep tightly closed; store in a cool, dry place

**Uses:** For medical applics. (catheter tubes, closures, IV flow regulators, thermoformed medical pkg.); meter covers; brush blocks; clarity applics.;

in food-contact coatings; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.300, 175.320, 176.170, 177.1830

**Manuf./Distrib.:** Aldrich

**Styrene, β-nitro-.** See β-Nitrostyrene

**Styrene polymer.** See Polystyrene

**Styrene polymer with 1,3 butadiene.** See Styrene/butadiene polymer

**Styrene, polymerized.** See Polystyrene

#### Styrene/PVP copolymer

CAS 25086-29-7

**Synonyms:** 1-Ethenyl-2-pyrrolidinone, polymer with ethenylbenzene; PVP/styrene copolymer; 2-Pyrrolidinone, 1-ethenyl-, polymer with ethenylbenzene; 2-Pyrrolidinone, 1-vinyl-, polymer with styrene; Styrene-vinylpyrrolidinone polymer; Styrene-vinylpyrrolidone copolymer; Styrene-N-vinylpyrrolidone polymer; 1-Vinyl-2-pyrrolidinone polymer with styrene; Vinylpyrrolidinone-styrene polymer; Vinylpyrrolidone/styrene copolymer

**Definition:** Copolymer from vinylpyrrolidone and styrene monomers

**Empirical:**  $(C_8H_8 \cdot C_6H_9NO)_x$

**Toxicology:** LD50 (oral, rat) > 40 g/kg; low toxicity by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic vapors of NO<sub>x</sub> and Cl<sup>-</sup>

**Uses:** Binder and adhesive for wood, cotton, paper, glass fiber, flour, concrete; stabilizer and opacifier; laundry processing; stabilizer for detergents, textiles, paper coatings, latex rug backings, floor wax emulsions, and cosmetics

**Manuf./Distrib.:** Aldrich

**Trade Names:** Pollectron® 430

#### Styrene/vinylidene chloride copolymer

**Uses:** In coatings for paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Styrene-vinylpyrrolidinone polymer.** See Styrene/PVP copolymer

**Styrene-vinylpyrrolidone copolymer.** See Styrene/PVP copolymer

**Styrene-N-vinylpyrrolidone polymer.** See Styrene/PVP copolymer

**Sublimed sulfur.** See Sulfur

**Subtilisin.** See Protease

**Subtilisin Carlsberg.** See Protease

**Subtilisins.** See Protease

**Succinic acid, dimethyl ester.** See Dimethyl succinate

#### Sucrose benzoate

CAS 12738-64-6; EINECS/ELINCS 235-795-5

**Synonyms:** β-D-Fructofuranosyl-α-D-glucopyranoside benzoate

**Classification:** Disaccharide ester

**Empirical:** C<sub>19</sub>H<sub>26</sub>O<sub>12</sub>

**Properties:** Dens. 1.25; m.p. 98 C; flash pt. (COC) 260 C; ref. index 1.577

**Uses:** Plasticizer for PVC, PVAc, VCA, PS, cellulose; modifier for coatings; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105

**Manuf./Distrib.:** Century Multech; Synasia Fine Chem.; Unitek; Universal Preserv-A-Chem; Velsicol

**Trade Names:** Sucrose Benzoate Regular and Coatings Grade; Uniplex 280 CG

#### Sulfamic acid

CAS 5329-14-6; EINECS/ELINCS 226-218-8; UN No. 2967 (DOT)

**Synonyms:** Amidosulfonic acid; Amidosulfuric acid; Aminosulfonic acid;

Sulfamidic acid; Sulphamic acid

**Empirical:** H<sub>3</sub>NO<sub>3</sub>S

**Formula:** NH<sub>2</sub>SO<sub>3</sub>H

**Properties:** Wh. cryst.; odorless; very sol. in water, liq. NH<sub>3</sub>, formamide; sl. sol. in org. solvs.; m.w. 97.09; dens. 2.13 kg/l; m.p. 200 C (dec.); b.p. dec.

**Toxicology:** LD50 (oral, rat) 3160 mg/kg; LDLo (IP, rat) 100 mg/kg; harmful; poison by IP route; mod. toxic by ing.; human skin irritant; corrosive irritant to skin, eyes, and mucous membranes; migrates to food from pkg. materials; TSCA listed

**Precaution:** DOT: Corrosive material; combustible; violent or explosive reactions with chlorine; metal nitrates + heat; fuming HNO<sub>3</sub>

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of SO<sub>x</sub> and NO<sub>x</sub>

## Sulfamic acid, monoammonium salt

HMIS: Health 2; Flammability 0; Reactivity 2

*Uses:* Metal/ceramic cleaning; nitrite removal in azo-dyeing; gas-liberating compositions; organic synthesis; analytical standard; chlorine stabilizer; bleaching paper pulp and textiles; catalyst for urea-formaldehyde resins; sulfation reagent; electroplating bath ingred.; industrial cleaning/boiler descaling agent; pH control, corrosion/scale control in cooling water treatment; mfg. aid for food-pkg. paper

*Regulatory:* FDA 21CFR §186.1093, GRAS

*Manuf./Distrib.:* Aldrich; Alfa Chem; Allan; Am. Int'l.; BCH Brühl; Dastech Int'l.; Dharamsi Morarji; Fallek; Fluka; General Chem.; Harcross; Indofine; Jarchem Ind.; Kimson; Miljac; Morre-Tec Ind.; PMC Spec.; Ruger; Schaefer Tech.; Schweizerhall; Sigma; Spectrum Quality Prods.; Transol Chems. UK Ltd; Vivion; Wego Chem. & Min.; Whyte Chems. Ltd

**Sulfamic acid, monoammonium salt.** See Ammonium sulfamate

**Sulfamidic acid.** See Sulfamic acid

**Sulfan blue.** See Acid blue 1

**Sulfate of ammonia.** See Ammonium sulfate

### Sulfated butyl oleate

CAS 101975-70-6

*Synonyms:* Butyl oleate sulfate; Butyl oleate, sulfated

*Properties:* Anionic

*Toxicology:* LD50 (IV, mouse) 63 mg/kg; poison by IV route; irritating to eyes  
*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>  
*Uses:* Detergent, wetting and leveling agent, emulsifier, softener, industrial lubricant for textiles, metalworking; to dehydrate grapes in raisin prod.; in paper/paperboard in contact with aq./fatty foods; in food-contact textiles  
*Use Level:* 2% max. aq. emulsion for dehydrating grapes, 100 ppm residue on raisins

*Regulatory:* FDA 21CFR §172.270, 176.170, 177.2800

*Manuf./Distrib.:* BFGoodrich/Textile; Sun-Chem Int'l.

### Sulfated butyl tallate

CAS 42808-36-6; EINECS/ELINCS 287-533-4

*Synonyms:* Fatty acids, tall oil, butyl esters, sulfated

*Uses:* Wetting and rewetting agent, lubricant, penetrant for textiles, leather, paper; industrial lubricant; emulsifier in textiles; dye assistant

### Sulfated castor oil

CAS 8002-33-3; 68187-76-8; EINECS/ELINCS 232-306-7

*Synonyms:* Alizarin oil; Castor oil sulfated; Castor oil, sulfonated; Red oil; Sulfonated castor oil; Turkey-red oil

*Definition:* Oil consisting primarily of sodium salt of the sulfated triglyceride of ricinoleic acid

*Properties:* Reddish visc. liq.; char. odor; sol. in water; dens. 0.95; acid no. 175-180; flash pt. (CC) 476 F; anionic

*Toxicology:* Irritant; TSCA listed

*Precaution:* Combustible exposed to heat or flame

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>x</sub>

HMIS: Health 1; Flammability 1; Reactivity 1

*Uses:* Wetting agent; emulsifier; plasticizer; dispersant; scouring agent; textile softener; in textile dyeing; adhesives; cleaning formulations; emulsifier for raw oils/solvs., water-based paints, metalworking fluids, latex; lubricant for fibers, amino resins, starch adhesives; cosmetics superfatting agent; shampoos; antisag/antisetling agent in paints; flotation collector (phosphate ores); surfactant in pharmaceuticals; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 177.1200

*Manuf./Distrib.:* Aldrich; Atlas Refinery; Fluka; Graden; Rhodia HPCI; Ruger; Sea-Land; Sigma; Spectrum Quality Prods.; Sun-Chem Int'l.; Welch, Holme & Clark

*Trade Names:* Cuirol® RZ 80; Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Leukonöl LBA-2; Norfox® C-75; Norfox® Sulfated Castor Oil #75

### Sulfated isobutyl oleate

*Synonyms:* Isobutyl oleate sulfate; Isobutyl oleate, sulfated

*Uses:* In paper/paperboard in contact with aq./fatty food; in food-contact textiles

*Regulatory:* FDA 21CFR §176.170, 177.2800

*Manuf./Distrib.:* Uniqema N. Am.

### Sulfated mustardseed oil

*Uses:* Defoamer in food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170, 176.200

*Manuf./Distrib.:* BFGoodrich/Textile

### Sulfated oleic acid

*Synonyms:* Oleic acid, sulfated; Red oil, sulfated

*Uses:* Intermediate used in textile and industrial cleaning; defoamer in food-contact coatings; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200

*Manuf./Distrib.:* Actrachem; Atlas Refinery; BFGoodrich/Textile

**Sulfated oleic acid, potassium salt.** See Potassium oleic sulfate

**Sulfated oleic acid, sodium salt.** See Sodium oleic sulfate

### Sulfated peanut oil

CAS 73138-79-1; EINECS/ELINCS 277-298-6

*Synonyms:* Oils, peanut, sulfated; Peanut oil, sulfated

*Definition:* Prod. obtained by sulfation of peanut oil

*Properties:* Anionic

*Uses:* Emulsifier, wetting agent, dispersant, antistat for nylon finishes; in food-pkg. adhesives; defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §175.105, 176.200

### Sulfated rapeseed oil

CAS 617788-68-9

*Uses:* Lubricant, emulsifier in pigment flushing, cleaners, textiles, paper processing, metalworking, extreme pressure lubricants; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

*Trade Names:* Actrasol 6092

### Sulfated ricebran oil

*Uses:* In paper/paperboard in contact with aq./fatty foods; defoamer in food-contact coatings

*Regulatory:* FDA 21CFR §176.170, 176.200

*Manuf./Distrib.:* BFGoodrich/Textile

### Sulfated sperm oil

*Uses:* Defoamer in food-contact coatings; in paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170, 176.200

### Sulfated tall oil, potassium salt

EINECS/ELINCS 272-349-9

*Synonyms:* Fatty acids, tall oil, sulfated, potassium salts

*Properties:* Anionic

*Uses:* Lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing

*Trade Names:* Actrasol SP 175K

### Sulfated tall oil, sodium salt

EINECS/ELINCS 268-372-9

*Synonyms:* Fatty acids, tall oil, sulfated, sodium salts

*Properties:* Anionic

*Uses:* Wet process phosphoric acid defoamer; lubricant, emulsifier for pigment flushing, cleaners, textiles, paper processing

*Trade Names:* Actrasol SP

### Sulfated tallow

*Synonyms:* Tallow, sulfated

*Properties:* Anionic

*Uses:* Softener for cotton goods; defoamer for beet sugar and yeast processing; defoamer in food-contact paper coatings; in closure-sealing gaskets for food containers; plasticizer for starches; furniture polish base

*Regulatory:* FDA 21CFR §173.340, 176.200, 177.1210

*Manuf./Distrib.:* BFGoodrich/Textile

### Sulfated tallow acid

*Synonyms:* Tallow fatty acids, sulfated

*Uses:* Defoamer in food-contact paper coatings

*Regulatory:* FDA 21CFR §176.200

*Manuf./Distrib.:* BFGoodrich/Textile

**Sulfated tallow, sodium salt.** See Sodium tallow sulfate

**Sulfated vegetable oil, sodium salt**

*Uses:* Rheology additive for coating colors  
*Trade Names:* Leukoglanzöl® BPA 50

**Sulfite lignin.** See Lignin sulfonate

**Sulfobutanedioic acid 1,4-bis(2-ethylhexyl) ester sodium salt.** See Dioctyl sodium sulfosuccinate

**Sulfobutanedioic acid, 1,4-ditridecyl ester, sodium salt.** See Ditridecyl sodium sulfosuccinate

**Sulfobutanedioic acid, 4-[1-methyl-2-[(1-oxo-9-octadecenyl) amino] ethyl] ester, disodium salt.** See Disodium oleamido MIPA-sulfosuccinate

**Sulfobutanedioic acid, monoctadecyl ester, disodium salt.** See Disodium stearyl sulfosuccinamate

**2-Sulfoethyl methacrylate, sodium salt.** See Sodium 2-sulfoethyl methacrylate

**Sulfonated castor oil.** See Sulfated castor oil

**Sulfonated petroleum, sodium salt.** See Sodium petroleum sulfonate

**Sulfonylbis (trichloromethane).** See Bis (trichloromethyl) sulfone

**9-(Sulfooxy) octadecanoate acid, disodium salt.** See Sodium oleic sulfate

**Sulfopolyester**

*Definition:* Derived by polycondensation reaction of selected dicarboxylic acids and glycols

*Uses:* Coresin for improving film-forming chars. of other polyester polymers and acrylic ink resins; pigment dispersing/grinding; preprint primer for film; processing aid for cigarette liner pkg.

*Trade Names:* Eastek 1200

**3-Sulfopropyl acrylate, potassium salt.** See Potassium (3-sulfopropyl) acrylate

**Sulfopropyl methacrylate, K salt.** See Potassium sulfopropyl methacrylate

**3-Sulfopropyl methacrylate, potassium salt.** See Potassium sulfopropyl methacrylate

**Sulfosalicylic acid.** See 5-Sulfosalicylic acid

**5-Sulfosalicylic acid**

CAS 97-05-2; EINECS/ELINCS 202-555-6; UN No. 1759

*Synonyms:* 3-Carboxy-4-hydroxybenzenesulfonic acid; 2-Hydroxybenzoic-5-sulfonic acid; 2-Hydroxy-5-sulfobenzoic acid; Salicylsulfonic acid; Sulfosalicylic acid

*Classification:* Aromatic organic compd.

*Definition:* Avail. as the dihydrate

*Empirical:* C<sub>7</sub>H<sub>6</sub>O<sub>6</sub>S

*Formula:* HOC<sub>6</sub>H<sub>3</sub>(COOH)SO<sub>3</sub>H

*Properties:* Wh. or pink cryst. powd.; sol. in water, ethanol, ether, oxygenated solvs.; m.w. 218.19; m.p. 113 C

*Toxicology:* LD50 (oral, rat) 2450 mg/kg; mod. toxic by ing.; skin and mucous membrane irritant; TSCA listed

*Precaution:* DOT: Corrosive material

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of SO<sub>2</sub>

*Storage:* Light-sensitive; store @ R.T.

*Uses:* Colorimetric reagent for iron; in urine testing for bilirubin; intermediate for dyes, surfactants, catalysts, grease additives; solubilizer for vitamin B<sub>2</sub>; mfg. of antibiotics, reprographic paper; electrolyte in metal finishing; aluminum etching; colored aluminum anodizing reagent

*Regulatory:* BP compliance

*Manuf./Distrib.:* AMRESO; Aldrich; Croda Colloids Ltd; Falleg; Fluka; Jarchem Ind.; Sigma

**5-Sulfosalicylic acid dihydrate**

CAS 5965-83-3; EINECS/ELINCS 202-555-6

*Synonyms:* 3-Carboxy-4-hydroxybenzenesulfonic acid, dihydrate; 2-Hydroxy-5-sulfobenzoic acid, dihydrate

*Classification:* Aromatic organic compd.

*Empirical:* C<sub>7</sub>H<sub>6</sub>O<sub>6</sub>S • 2H<sub>2</sub>O

*Formula:* HOC<sub>6</sub>H<sub>3</sub>(COOH)SO<sub>3</sub>H • 2H<sub>2</sub>O

*Properties:* Wh. cryst. solid; very sol. in water, ethanol; sol. in ether, polar solvs.; m.w. 254.22; m.p. 113 C

*Toxicology:* Irritating to skin and mucous membranes; TSCA listed

HMS: Health 2; Flammability 0; Reactivity 1

*Storage:* Protect from light; keep well closed

*Uses:* Colorimetric reagent for iron; in urine testing for bilirubin; intermediate for dyes, surfactants, catalysts, grease additives; solubilizer for vitamin B<sub>2</sub>; mfg. of antibiotics, reprographic paper; electrolyte in metal finishing; alumi-

num etching; metal chelating agent

*Regulatory:* BP compliance

*Manuf./Distrib.:* AMRESO; Aldrich; Croda Colloids Ltd; Fluka; Jarchem Ind.; Ruger; Sigma

**Sulfosuccinic acid 1,4-bis(2-ethylhexyl) ester sodium salt.** See Dioctyl sodium sulfosuccinate

**Sulfosuccinic acid diisobutyl ester, sodium salt.** See Diisobutyl sodium sulfosuccinate

**Sulfosuccinic acid, sulfo-, 1,4-dihexyl ester, sodium salt.** See Dihexyl sodium sulfosuccinate

**Sulfourea.** See Thiourea

**Sulfur**

CAS 7704-34-9; EINECS/ELINCS 231-722-6; UN No. NA 1350 (DOT); NA 2448 (DOT)

*Synonyms:* Brimstone; Flour sulfur; Flowers of sulfur; Precipitated sulfur; Soluble sulfur; Sublimed sulfur; Sulfur flower; Sulfur flowers; Sulfur soluble; Sulfur sublimed; Sulphur; Wettable powder sulfur

*Classification:* Nonmetallic element

*Empirical:* S

*Properties:* Sol. in carbon disulfide, CCl<sub>4</sub>, benzene, chlorinated and aromatic solvs.; sl. sol. in alcohol, ether; insol. in water; at.wt. 32.064; α: rhombic yel. crystals; dens. 2.06; β: monoclinic pale yel. crystals; dens. 1.96; vapor pressure 1 mm Hg (183.8 C); m.p. 119 C; b.p. 444.6 C; flash pt. 405 F

*Toxicology:* LD (oral, rat) > 8437 mg/kg; LDLo (IV, rat) 8 mg/kg, (IP, guinea pig) 55 mg/kg; poison by ing., IV, and IP routes; skin, eye, mucous membrane irritant; human eye irritant; TSCA listed

*Environmental:* Nontoxic to fish and bees

*Precaution:* DOT: Flamm. solid; explosive as dust exposed to flame; reactive with oxidizers; violent reactions possible with halogens, carbides, zinc, uranium, tin, Na, lithium, nickel, phosphorus, potassium, aluminum, ammonia, etc.

*Hazardous Decomp. Prods.:* When heated, it burns and emits highly toxic fumes of SO<sub>2</sub>

NFPA: Health 2; Flammability 1; Reactivity 0

*Uses:* Sulfuric acid mfg.; petroleum refining; dyes; chemicals; fungicide; acaricide; insecticide; explosives; gunpowder; matches; detergents; plastics; rubber vulcanizer/processing aid; pulp and paper mfg.; soil conditioner; bleaching wood pulp, textiles; nucleating agent for photographic film; enamels; cement sealant, binder; asphalt extender; mortars; precipitant for heavy metal removal in wastewater treatment; keratolytic in dermatitis and psoriasis preps.; pharmaceuticals; in food-pkg. adhesives; vulcanizing agent in vulcanized nat. or syn. rubber closure-sealing gaskets for food containers

*Regulatory:* FDA 21CFR §175.105, 177.1210, 177.2600

*Manuf./Distrib.:* ABCR; Akrochem; Aldrich; Allan; Ashland; Atofina; BP Amoco; Cuproquim; Dow; Drexel; Exxon; Fluka; H.M. Royal; Helm AG; Kraft Chem.; Lohmann; Lyondell/Perf. Chems.; Norsk Hydro AS; Reade Advanced Materials; Rhodia; Riedel-deHaën; Ruger; San Yuan; Shell; Skylighter; Solvay GmbH; Spectrum Quality Prods.; Uniroyal; Universal Preserv-A-Chem; Wilbur-Ellis

*Trade Names Containing:* Dilurit 464 C; Dilurit 953

**Sulfur dioxide**

CAS 7446-09-5; EINECS/ELINCS 231-195-2; UN No. 1079 (DOT); FEMA 3039

*Synonyms:* Bisulfate; Bisulfite; Sulfurous acid anhydride; Sulfurous anhydride; Sulfurous oxide; Sulfur oxide; Sulphur dioxide, liquefied

*Classification:* Inorganic sulfur compd.

*Empirical:* O<sub>2</sub>S

*Formula:* O=S=O

*Properties:* Colorless gas, strong suffocating odor; condenses @ -10 C to colorless liq.; sol. 8.5% in water, 25% in alcohol, 32% in methanol; sol. in ether, chloroform, oxygenated solvs.; m.w. 64.06; dens. 1.5 (liq.); vapor pressure 2538 mm Hg (21.1 C); m.p. -72 C; b.p. -10 C (liq.); nonflamm.

*Toxicology:* ACGIH TLV/TWA 2 ppm; STEL 5 ppm; LCLo (inh., human, 5 min) 3000 ppm; poison gas; mildly toxic to humans by inh.; corrosive irritant to eyes, respiratory tract; gas causes skin irritation, liq. may cause burns due to freezing; human systemic effects by inh. (pulmonary changes); causes upper respiratory/bronchi effects; can cause respiratory paralysis;

## Sulfur dioxide sol'n.

questionable carcinogen; experimental tumorigen, teratogen, reproductive effects; human mutagenic data; TSCA listed

**Precaution:** Incompat. with bases, chlorates, fluorine, interhalogens, powd. metals, metal oxides, metal acetylides, sodium hydroxide, diethyl zinc; violent reactions, ignition, explosions possible; common air contaminant

**Hazardous Decomp. Prods.:** Forms an acid sol'n. (sulfurous acid) on contact with moisture; heated to decomp., emits toxic fumes of SO<sub>x</sub>

**NFPA:** Health 3; Flammability 0; Reactivity 0

**Storage:** Store cylinders in cool, dry, well-ventilated, fireproof area away from flamm. materials and corrosive atmospheres, out of direct sunlight

**Uses:** Chem. intermediate; bleaching of paper pulp; ore and metal refining; soybean protein; extraction solvent; catalyst; bleaching oils and starch; sulfonation of oils; reducing agent; antioxidant; fungicide; oxygen scavenger; disinfectant in breweries; dechlorination and silica activation in water treatment (potable, sewage, effluent); bleaching agent, antimicrobial, fumigant, preservative for foods; corn processing; antioxidant, preservative for pharmaceuticals; air pollutant, major contributor to acid rain

**Use Level:** Up to 0.05%; ADI 0-0.7 mg/kg (EU)

**Regulatory:** FDA 21CFR §182.3862, GRAS; BATF 27CFR §240.1051; FEMA GRAS; Japan approved (0.03-5 g/kg); Europe listed; UK approved; USP/NF, BP compliance; SARA reportable

**Manuf./Distrib.:** Air Prods.; Aldrich; Alexander; Boliden Intertrade; Calabrian; Celanese; Clariant; Coyne; Kuehne Chem.; MG Ind.; Olin/Chlor Alkali; Outokumpu Mintec Oy; PVS; Peridot; Rhodia; Scott Spec. Gases; Thatcher

**Sulfur dioxide sol'n.** See Sulfurous acid

**Sulfureted hydrogen.** See Hydrogen sulfide

**Sulfur flower.** See Sulfur

**Sulfur flowers.** See Sulfur

**Sulfur hydride.** See Hydrogen sulfide

## Sulfuric acid

CAS 7664-93-9; EINECS/ELINCS 231-639-5; UN No. 1830 (DOT), 1832 (DOT)

**Synonyms:** Battery acid; Dihydrogen sulfate; Dipping acid; Electrolyte acid; Hydrogen sulfate; Matting acid; Nordhausen acid; Oil of vitriol; Sulphuric acid; Vitriol brown oil; Vitriol, oil of

**Classification:** Inorganic acid

**Empirical:** H<sub>2</sub>O<sub>7</sub>S<sub>2</sub>

**Formula:** (HO)<sub>2</sub>S(=O)<sub>2</sub>

**Properties:** Colorless to dk. brn. dense oily liq.; misc. with water and alcohol; m.w. 98.08; dens. 1.84; vapor pressure 1 mm (145.8 C); m.p. 10.4 C; b.p. 290 C; dec. 340 C

**Toxicology:** ACGIH TLV/TWA 1 mg/m<sup>3</sup>; STEL 3 ppm; LD50 (oral, rat) 2.14 g/kg; LC50 (inh., rat, 2 h) 510 mg/m<sup>3</sup>; poison by inh.; mod. toxic by ing.; human poison; strongly corrosive; strong irritant to tissue, eyes; can cause severe burns, chronic bronchitis; inh. of conc. vapors from hot acid can cause serious lung damage and unconsciousness; severe exposure causes chem. pneumonitis, tooth effects; experimental teratogen; TSCA listed

**Precaution:** Caustic; corrosive; powerful acidic oxidizer; ignites or explodes on contact with many materials; reacts with water to produce heat; reactive with oxidizing/reducing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub>

**NFPA:** Health 3; Flammability 0; Reactivity 2

**Uses:** Fertilizers; chemicals; dyes and pigments; laboratory reagents; electroplating baths; aluminum brightening agent; steel pickling agent; battery electrolyte; pH control, scale control in cooling water treatment; silica activation; sizing paper; petroleum refining reagent; dehydration agent (chlorine); leaching agent (uranium/copper ores, zinc/copper prod.); bleaching, carbonizing, mercerizing textiles; dehydrating agent; catalyst in alkylation process for high octane gasoline mfg.; foods (acidulant, pH control, processing aid); pharmaceuticals (acidifier; astringent; diarrhea treatment; appetite stimulants); in sanitizing sol'ns. for food contact

**Use Level:** Limitation 0.014% (alcoholic beverages), 0.0003% (cheeses)

**Regulatory:** FDA 21CFR §172.560, 172.892, 173.385, 178.1010, 184.1095, GRAS; BATF 27CFR §240.1051a; Japan restricted; Europe listed; UK approved; FDA approved for parenterals, inhalants, injectables, ophthalmics, orals; USP/NF, BP compliance; SARA reportable

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Altivia; Amyl; Arch Chems.; Asarco; Atofina; Boliden Intertrade; DuPont; Fisher Scientific; Fluka; General

Chem.; Harcros; Integra; Mallinckrodt Baker; Metallgesellschaft AG; Moss Soap & Chem.; Nissan Chem. Ind.; Occidental; Olin/Chlor Alkali; PVS; Phelps Dodge Refining; Rasa Ind.; Rhodia; Romil Ltd; Ruger; Sal Chem.; Sigma; Spectrum Quality Prods.; Technichem; Universal Preserv-A-Chem; Van Waters & Rogers

**Trade Names Containing:** Neocin™-HSC; TurboCLEAR™ PC-1

**Sulfuric acid, aluminum ammonium salt (2:1:1), dodecahydrate.** See Ammonium alum

**Sulfuric acid, aluminum potassium salt (2:1:1).** See Potassium alum anhydrous

**Sulfuric acid, aluminum potassium salt (2:1:1), dodecahydrate.** See Potassium alum dodecahydrate

**Sulfuric acid aluminum salt.** See Aluminum sulfate

**Sulfuric acid, aluminum salt (3:2).** See Aluminum sulfate

**Sulfuric acid, aluminum sodium salt (2:1:1).** See Sodium alum

**Sulfuric acid barium salt (1:1).** See Barium sulfate

**Sulfuric acid, chromium salt, basic.** See Chromium sulfate, basic

**Sulfuric acid, copper salt.** See Cupric sulfate anhydrous

**Sulfuric acid diammonium salt.** See Ammonium sulfate

**Sulfuric acid, disodium salt.** See Sodium sulfate

**Sulfuric acid, dodecyl ester, triethanolamine salt.** See TEA-lauryl sulfate

**Sulfuric acid, lauryl ester, ammonium salt.** See Ammonium lauryl sulfate

**Sulfuric acid magnesium salt (1:1).** See Magnesium sulfate anhydrous

**Sulfuric acid, magnesium salt (1:1) heptahydrate.** See Magnesium sulfate heptahydrate

**Sulfuric acid, monododecyl ester, ammonium salt.** See Ammonium lauryl sulfate

**Sulfuric acid, monododecyl ester, compd. with 2,2',2''-nitritoltris [ethanol] (1:1).** See TEA-lauryl sulfate

**Sulfuric acid, monododecyl ester, magnesium salt.** See Magnesium lauryl sulfate

**Sulfuric acid, monododecyl ester, potassium salt.** See Potassium lauryl sulfate

**Sulfuric acid monododecyl ester sodium salt.** See Sodium lauryl sulfate

**Sulfuric acid, mono (2-ethylhexyl) ester sodium salt.** See Sodium 2-ethylhexyl sulfate

**Sulfuric acid, monoctyl ester, sodium salt.** See Sodium octyl sulfate

**Sulfuric acid monosodium salt.** See Sodium bisulfate

**Sulfuric acid, monotallow alkyl esters, sodium salts.** See Sodium tallow sulfate

## Sulfurous acid

CAS 7782-99-2; EINECS/ELINCS 231-973-1; UN No. 1833 (DOT)

**Synonyms:** Sulfur dioxide sol'n.

**Definition:** A sol'n. of sulfur dioxide in water

**Empirical:** H<sub>2</sub>O<sub>3</sub>S

**Formula:** H<sub>2</sub>SO<sub>3</sub>

**Properties:** Colorless liq.; suffocating sulfur odor (in sol'n.); sol. in water; m.w. 82.08; dens. 1.03; unstable; oxidizes in air to sulfuric acid

**Toxicology:** TDLo (oral, human) 500 µg/kg; poison by ing. and inh.; corrosive irritant to skin, eyes, mucous membranes; human systemic effects by ing. (nausea, vomiting, hypermotility, diarrhea, other GI effects); TSCA listed

**Precaution:** DOT: Corrosive material; reacts violently with water

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of SO<sub>2</sub>

**Storage:** Air-sensitive; handle under nitrogen

**Uses:** Organic synthesis; bleaching textiles; paper mfg.; wine mfg., brewing; metallurgy; ore flotation; medicine (antiseptic); analytical reagent; sulfites as preservative for fruits, nuts, foods, wines; dental bleach

**Regulatory:** FDA approved for injectables; BP compliance

**Manuf./Distrib.:** Aldrich; Fisher Scientific; Spectrum Quality Prods.

**Sulfurous acid anhydride.** See Sulfur dioxide

**Sulfurous acid, calcium salt (1:1).** See Calcium sulfite

**Sulfurous acid disodium salt.** See Sodium sulfite

**Sulfurous acid monosodium salt.** See Sodium bisulfite

**Sulfurous acid sodium salt (1:2).** See Sodium sulfite

**Sulfurous anhydride.** See Sulfur dioxide

**Sulfurous oxide.** See Sulfur dioxide

**Sulfur oxide.** See Sulfur dioxide

**Sulfur soluble.** See Sulfur

**Sulfur sublimed.** See Sulfur



**Sulphamic acid.** See Sulfamic acid

**Sulphur.** See Sulfur

**Sulphur dioxide, liquefied.** See Sulfur dioxide

**Sulphuric acid.** See Sulfuric acid

**Sumac wax.** See Japan (*Rhus succedanea*) wax

#### Sunflower (*Helianthus annuus*) seed oil

CAS 8001-21-6; EINECS/ELINCS 232-273-9

**Synonyms:** *Helianthus annuus*; *Helianthus annuus* oil; Sunflower oil; Sunflower seed oil

**Definition:** Oil expressed from seeds of the sunflower, *Helianthus annuus*

**Properties:** Amber liq., pleasant odor, mild taste; sol. in alcohol, ether, chloroform, CS<sub>2</sub>; negligible sol. in water; dens. 0.924-0.926; vapor pressure very low; m.p. -18 C; iodine no. 125-140; sapon. no. 188-194; ref. index 1.4611

**Toxicology:** No known toxicity; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** CO<sub>2</sub> from combustion; heated to decomp., emits acrid smoke and irritating fumes

**HMS:** Health 0; Flammability 1; Reactivity 0

**Uses:** Raw material in plastics, polymers, alkyd resins, rubbers, soaps, pharmaceuticals; drying oil for paints, alkyd resins; emollient for cosmetics; edible oil; in prep. of margarine; food coating agent, emulsifier, formulation aid, texturizer; dietary supplement; pharmaceuticals (diluent, carrier, emulsifier, emollient, tablet binder; diuretic; expectorant); soybean oil replacement; drying oil, defoamer in food-contact paper coatings; in resinous/polymeric food-contact coatings

**Regulatory:** FDA 21CFR §175.300, 176.200, GRAS; BP compliance

**Manuf./Distrib.:** ABITEC; ADM; Alnor Oil; Arista Ind.; Cargill Ind. Oils & Lubes; Charkit; Int'l. Chem. Inc.; Int'l. Flora Tech.; Lipo; Penta Mfg.; Protameen; Ruger; Sea-Land; Sigma; Tri-K Ind.; Welch, Holme & Clark; Werner G. Smith

**Sunflower oil.** See Sunflower (*Helianthus annuus*) seed oil

**Sunflower seed oil.** See Sunflower (*Helianthus annuus*) seed oil

**Suzorite mica.** See Mica

**SXS.** See Sodium xylenesulfonate

**Syndiotactic polypropylene.** See Polypropylene

#### Synthetic beeswax

CAS 71243-51-1; 97026-94-0; EINECS/ELINCS 275-286-5

**Synonyms:** Beeswax, synthetic

**Definition:** Synthetic wax with composition and properties generally indistinguishable from natural beeswax

**Uses:** Lipophilic emulsifier; suspending agent for anhyd. systems; w/o emulsifier, thickener, gellant; emollient; opacifier; emulsion stabilizer; used where pure beeswax not required; for creams, lotions, lipstick, makeup; depilatories; ointments, salves; sustained-release pharmaceuticals; furniture, wood, and leather polishes; leather, textile, wood, and paper finishes

#### Synthetic wax

CAS 8002-74-2; 123237-14-9; EINECS/ELINCS 232-315-6

**Synonyms:** Fischer-Tropsch wax; Fischer-Tropsch wax, oxidized

**Definition:** Hydrocarbon wax derived by Fischer-Tropsch or ethylene polymerization processes

**Toxicology:** TSCA listed

**Uses:** As ingredient, finish or processing aid, release agent, lubricant in adhesives, ammunition, asphalt, explosives, paints, paper, pyrotechnics, lubricants, powd. metallurgy, floor wax, candles, hot melts, inks; color dispersant; elec. insulation; anticorrosion prods.; processing lubricant for PVC; textile finishing agent; modifier wax; binder for pressed powds.; masticatory substance in chewing gum; protective coating on fruits/vegetables; food defoamer; food pkg.; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §172.615, 172.888, 173.340, 175.105, 175.250, 176.170, 177.1200, 178.3720, 1778.3850

**Manuf./Distrib.:** Aldrich; Astor Corp.; Baker Petrolite; Degussa-Hüls AG; Frank B. Ross; Micro Powders; Presperse; Rheox; Shamrock Tech.; Spec. Ingreds. & Perfume; Strahl & Pitsch; Vivion

**Trade Names:** MP-12; MP-22; MP-22C; MP-22VF; MP-22XF; MP-26; MP-26VF; MP-28C; Ross Wax #160; Shamrock Hydrocer 145; Shamrock Neptune 968; Shamrock S-400 N1; Shamrock S-400 N5; Shamrock S-400 SP5; Vestowax® C 60; Vybar® 103; Vybar® 260

See also Paraffin; Petroleum wax

**Table salt.** See Sodium chloride

**Tabular alumina.** See Alumina

#### Talc

CAS 14807-96-6; EINECS/ELINCS 238-877-9

**Synonyms:** CI 77019; CI 77718; Cosmetic talc; French chalk; Hydrous magnesium calcium silicate; Hydrous magnesium silicate; Industrial talc; Magnesium hydrogen metasilicate; Pigment white 26; Platy talc; Talcum

**Definition:** Native, hydrous magnesium silicate sometimes containing small portion of aluminum silicate and containing < 1% cryst. silica

**Empirical:** MgO · nSiO<sub>2</sub>

**Formula:** Mg<sub>3</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> or 3MgO · 4SiO<sub>2</sub> · HOH

**Properties:** Wh., apple green, gray or gray fine powd., pearly or greasy luster, greasy feel; odorless, tasteless; insol. in water, cold acids or in alkalis; dens. 2.7-2.8; bulking value 0.044 gal/lb; oil absorp. 30-55; GE brightness 75-94; ref. index 1.59-1.60; hardness (Mohs) 1.0-1.5

**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup> (respirable dust); TLo (inh., rat, 1 yr, intermittent) 11 mg/m<sup>3</sup>; toxic by inhalation; talc with < 1% asbestos is nuisance dust, > 1% may be human carcinogen; human skin irritant; prolonged/repeated exposure can produce talc pneumoconiosis; talc-based powds. linked to ovarian cancer; experimental tumorigen; common air contaminant; TSCA listed

**HMS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Reinforcing agent, filler, pigment in rubber, paints, plastics, paper, soaps, ceramics, cosmetics, pharmaceuticals; flattening agent (paints, printing inks); dusting agent; lubricant; electrical insulation; antiblocking agent for plastic film; polishes; filtration aid; foods (anticaking agent, coating agent, texturizer, lubricant, release agent, surface-finisher, filter aid); pharmaceuticals (glidant, anticaking, tablet lubricant, color additive, dusting powd.); lubricant for surgical gloves; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Use Level:** 0.003-220.4 mg (oral solids)

**Regulatory:** FDA 21CFR §73.1550, 175.300, 175.380, 175.390, 176.170, 177.1210, 177.1350, 177.1460, 178.3297, 182.70, 182.90; GRAS; Japan restricted (5000 ppm); Europe listed; UK approved; FDA approved for orals, rectals, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aldrich; Archway Sales; Brooks Ind.; Celite; Chem-Materials; Costec; D.N. Lukens; Fluka; H.M. Royal; Hammill & Gillespie; Harcros; Kraft Chem.; L.A. Salomon; Landers-Segal Color; Lomas Int'l.; Luzenac Am.; Mins. Tech.; O.C. Lugo; Pfizer Int'l.; Presperse; Punda Mercantile; R.T. Vanderbilt; Reade Advanced Materials; Ruger; Seegott; Sigma; Spec. Ingreds. & Perfume; Specialty Mins.; Tamms Ind.; Universal Preserv-A-Chem; Van Waters & Rogers; Warner-Jenkinson; Wego Chem. & Min.; Whittaker, Clark & Daniels

**Trade Names:** Celkate® T-21; Mistrol®; Mistron® 100; Mistron® 102; Mistron® Slurry; Mistron® Vapor; Vantalc® 6H

**Talcum.** See Talc

#### Tallamide DEA

CAS 68153-57-1; 68155-20-4; EINECS/ELINCS 268-949-5

**Synonyms:** Diethanolamine tall oil acid amide; Tall oil acid diethanolamide; Tall oil diethanolamide; Tall oil fatty acid diethanolamide; Tall oil fatty acid polydiethanolamide

**Definition:** Mixture of ethanolamides of fatty acids derived from tall oil acid

**Formula:** RCO-N(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, RCO- rep. fatty acids from tall oil

**Properties:** Amber clear liq.; anionic/nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier in hard-surf. cleaners; emulsifier/corrosion inhibitor in sol. cutting oils; corrosion inhibitor, lubricant, emulsifier, detergent for syn. coolants, chain lubricants, emulsion cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2800

**Talleol.** See Tall oil

#### Tall oil

CAS 8002-26-4; EINECS/ELINCS 232-304-6

**Synonyms:** Lignin liquor; Liquid rosin; Talleol; Tallol

**Definition:** Byprod. of wood pulp contg. rosin acids, oleic and linoleic acids, and long chain alcohols

**Properties:** Dk. brn. liq., acrid odor; dens. 0.95; acid no. 178 min.; flash pt. 182 C

**Toxicology:** LD50 (unreported, mouse) 7300 mg/kg; mild allergen; may cause

**Sulphamic acid.** See Sulfamic acid  
**Sulphur.** See Sulfur  
**Sulphur dioxide, liquefied.** See Sulfur dioxide  
**Sulphuric acid.** See Sulfuric acid  
**Sumac wax.** See Japan (*Rhus succedanea*) wax

**Sunflower (*Helianthus annuus*) seed oil**

CAS 8001-21-6; EINECS/ELINCS 232-273-9

**Synonyms:** Helianthus annuus; Helianthus annuus oil; Sunflower oil; Sunflower seed oil

**Definition:** Oil expressed from seeds of the sunflower, *Helianthus annuus*

**Properties:** Amber liq., pleasant odor, mild taste; sol. in alcohol, ether, chloroform, CS<sub>2</sub>; negligible sol. in water; dens. 0.924-0.926; vapor pressure very low; m.p. -18 C; iodine no. 125-140; sapon. no. 188-194; ref. index 1.4611

**Toxicology:** No known toxicity; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** CO<sub>2</sub> from combustion; heated to decomp., emits acrid smoke and irritating fumes

**HMIS:** Health 0; Flammability 1; Reactivity 0

**Uses:** Raw material in plastics, polymers, alkyd resins, rubbers, soaps, pharmaceuticals; drying oil for paints, alkyd resins; emollient for cosmetics; edible oil; in prep. of margarine; food coating agent, emulsifier, formulation aid, texturizer; dietary supplement; pharmaceuticals (diluent, carrier, emulsifier, emollient, tablet binder; diuretic; expectorant); soybean oil replacement; drying oil, defoamer in food-contact paper coatings; in resinous/polymeric food-contact coatings

**Regulatory:** FDA 21CFR §175.300, 176.200, GRAS; BP compliance

**Manuf./Distrib.:** ABITEC; ADM; Alnor Oil; Arista Ind.; Cargill Ind. Oils & Lubes; Charkit; Int'l. Chem. Inc.; Int'l. Flora Tech.; Lipo; Penta Mfg.; Protameen; Ruger; Sea-Land; Sigma; Tri-K Ind.; Welch, Holme & Clark; Werner G. Smith

**Sunflower oil.** See Sunflower (*Helianthus annuus*) seed oil  
**Sunflower seed oil.** See Sunflower (*Helianthus annuus*) seed oil  
**Suzorite mica.** See Mica

**SXS.** See Sodium xylenesulfonate

**Syndiotactic polypropylene.** See Polypropylene

**Synthetic beeswax**

CAS 71243-51-1; 97026-94-0; EINECS/ELINCS 275-286-5

**Synonyms:** Beeswax, synthetic

**Definition:** Synthetic wax with composition and properties generally indistinguishable from natural beeswax

**Uses:** Lipophilic emulsifier; suspending agent for anhyd. systems; w/o emulsifier, thickener, gellant; emollient; opacifier; emulsion stabilizer; used where pure beeswax not required; for creams, lotions, lipstick, makeup; depilatories; ointments, salves; sustained-release pharmaceuticals; furniture, wood, and leather polishes; leather, textile, wood, and paper finishes

**Synthetic wax**

CAS 8002-74-2; 123237-14-9; EINECS/ELINCS 232-315-6

**Synonyms:** Fischer-Tropsch wax; Fischer-Tropsch wax, oxidized

**Definition:** Hydrocarbon wax derived by Fischer-Tropsch or ethylene polymerization processes

**Toxicology:** TSCA listed

**Uses:** As ingredient, finish or processing aid, release agent, lubricant in adhesives, ammunition, asphalt, explosives, paints, paper, pyrotechnics, lubricants, powd. metallurgy, floor wax, candles, hot melts, inks; color dispersant; elec. insulation; anticorrosion prods.; processing lubricant for PVC; textile finishing agent; modifier wax; binder for pressed powds.; masticatory substance in chewing gum; protective coating on fruits/vegetables; food defoamer; food pkg.; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §172.615, 172.888, 173.340, 175.105, 175.250, 176.170, 177.1200, 178.3720, 1778.3850

**Manuf./Distrib.:** Aldrich; Astor Corp.; Baker Petrolite; Degussa-Hüls AG; Frank B. Ross; Micro Powders; Presperse; Rheox; Shamrock Tech.; Spec. Ingreds. & Perfume; Strahl & Pitsch; Vivion

**Trade Names:** MP-12; MP-22; MP-22C; MP-22VF; MP-22XF; MP-26; MP-26VF; MP-28C; Ross Wax #160; Shamrock Hydrocer 145; Shamrock Neptune 968; Shamrock S-400 N1; Shamrock S-400 N5; Shamrock S-400 SP5; Vestowax® C 60; Vybar® 103; Vybar® 260

See also Paraffin; Petroleum wax

**Table salt.** See Sodium chloride

**Tabular alumina.** See Alumina

**Talc**

CAS 14807-96-6; EINECS/ELINCS 238-877-9

**Synonyms:** CI 77019; CI 77718; Cosmetic talc; French chalk; Hydrous magnesium calcium silicate; Hydrous magnesium silicate; Industrial talc; Magnesium hydrogen metasilicate; Pigment white 26; Platy talc; Talcum

**Definition:** Native, hydrous magnesium silicate sometimes containing small portion of aluminum silicate and containing < 1% cryst. silica

**Empirical:** MgO · nSiO<sub>2</sub>

**Formula:** Mg<sub>3</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> or 3MgO · 4SiO<sub>2</sub> · HOH

**Properties:** Wh., apple green, gray or gray fine powd., pearly or greasy luster, greasy feel; odorless, tasteless; insol. in water, cold acids or in alkalis; dens. 2.7-2.8; bulking value 0.044 gal/lb; oil absorp. 30-55; GE brightness 75-94; ref. index 1.59-1.60; hardness (Mohs) 1.0-1.5

**Toxicology:** ACGIH TLV/TWA 2 mg/m<sup>3</sup> (respirable dust); TClO (inh., rat, 1 yr, intermittent) 11 mg/m<sup>3</sup>; toxic by inhalation; talc with < 1% asbestos is nuisance dust, > 1% may be human carcinogen; human skin irritant; prolonged/repeated exposure can produce talc pneumoconiosis; talc-based powds. linked to ovarian cancer; experimental tumorigen; common air contaminant; TSCA listed

**HMIS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Reinforcing agent, filler, pigment in rubber, paints, plastics, paper, soaps, ceramics, cosmetics, pharmaceuticals; flattening agent (paints, printing inks); dusting agent; lubricant; electrical insulation; antiblocking agent for plastic film; polishes; filtration aid; foods (anticaking agent, coating agent, texturizer, lubricant, release agent, surface-finisher, filter aid); pharmaceuticals (glidant, anticaking, tablet lubricant, color additive, dusting powd.); lubricant for surgical gloves; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Use Level:** 0.003-220.4 mg (oral solids)

**Regulatory:** FDA 21CFR §73.1550, 175.300, 175.380, 175.390, 176.170, 177.1210, 177.1350, 177.1460, 178.3297, 182.70, 182.90; GRAS; Japan restricted (5000 ppm); Europe listed; UK approved; FDA approved for orals, rectals, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aldrich; Archway Sales; Brooks Ind.; Celite; Chem-Materials; Costec; D.N. Lukens; Fluka; H.M. Royal; Hammill & Gillespie; Harcros; Kraft Chem.; L.A. Salomon; Landers-Segal Color; Lomas Int'l.; Luzenac Am.; Mins. Tech.; O.C. Lugo; Pfizer Int'l.; Presperse; Punda Mercantile; R.T. Vanderbilt; Reade Advanced Materials; Ruger; Seegott; Sigma; Spec. Ingreds. & Perfume; Specialty Mins.; Tamms Ind.; Universal Preserv-A-Chem; Van Waters & Rogers; Warner-Jenkinson; Wego Chem. & Min.; Whittaker, Clark & Daniels

**Trade Names:** Celkate® T-21; Mistrol®; Mistron® 100; Mistron® 102; Mistron® Slurry; Mistron® Vapor; Vantalc® 6H

**Talcum.** See Talc

**Tallamide DEA**

CAS 68153-57-1; 68155-20-4; EINECS/ELINCS 268-949-5

**Synonyms:** Diethanolamine tall oil acid amide; Tall oil acid diethanolamide; Tall oil diethanolamide; Tall oil fatty acid diethanolamide; Tall oil fatty acid polydiethanolamide

**Definition:** Mixture of ethanolamides of fatty acids derived from tall oil acid

**Formula:** RCO-N(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, RCO- rep. fatty acids from tall oil

**Properties:** Amber clear liq.; anionic/nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier in hard-surf. cleaners; emulsifier/corrosion inhibitor in sol. cutting oils; corrosion inhibitor, lubricant, emulsifier, detergent for syn. coolants, chain lubricants, emulsion cleaners; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 176.210, 177.2800

**Talleol.** See Tall oil

**Tall oil**

CAS 8002-26-4; EINECS/ELINCS 232-304-6

**Synonyms:** Lignin liquor; Liquid rosin; Talleol; Tallol

**Definition:** Byprod. of wood pulp contg. rosin acids, oleic and linoleic acids, and long chain alcohols

**Properties:** Dk. brn. liq., acrid odor; dens. 0.95; acid no. 178 min.; flash pt. 182 C

**Toxicology:** LD50 (unreported, mouse) 7300 mg/kg; mild allergen; may cause

## Tall oil acid

wt. loss, blood changes; migrates to food from pkg. materials

**Precaution:** Combustible when exposed to heat or flame; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Drying oil for paints, in food-contact coatings; paint vehicles; source of rosin; alkyd resins; soaps; cutting oils; flotation agents; core oils; lubricants and greases; asphalt derivs.; rubber reclaiming; chemical intermediate; emulsifier in oil-based drilling fluids; fungicide for topical pharmaceuticals; synthesis of cortisone and sex hormones; in food-pkg. adhesives; in food-contact rubber articles for repeated use; in food-contact textiles; defoamer in food-contact paper coatings, paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.200, 176.210, 177.2600, 177.2800, 181.22, 181.26, 182.70, 186.1557, GRAS as indirect food additive; FDA approved for topicals

**Manuf./Distrib.:** Atrachem; Arakawa USA; Arizona; Bencorp Int'l.; Chemcentral; Chemical; Eastech; Geo. Pfau's Sons; Georgia-Pacific Resins; Harcros; Int'l. Paper; Lomas Int'l.; Nat'l. Purity; Norman, Fox; Nottingham; Sea-Land; Spectrum Quality Prods.; Total Spec. Chems.; Union Carbide; Van Waters & Rogers; Welch, Holme & Clark; Westvaco

## Tall oil acid

CAS 61790-12-3; EINECS/ELINCS 263-107-3

**Synonyms:** TOFA; Acids, tall oil; Disproportionated tall oil fatty acid; Fatty acids, tall oil; Tall oil acids; Tall oil fatty acid; Tall oil fatty acids

**Definition:** Mixture of rosin acids and fatty acids recovered from the hydrolysis of tall oil

**Properties:** Liq.; anionic

**Toxicology:** Mildly irritating to skin; repeated skin contact may result in allergic reactions such as rash or dermatitis; inh. of mists can cause irritation; TSCA listed

**Precaution:** Combustible

**Uses:** Polymerization emulsifier; emulsifier for metalworking fluids; mfg. of surfactants, soaps, amines, imidazolines; cosmetics; dyes; leather; coatings; petroleum industry; latex stabilizer; dispersant (as soap) for pigments and fillers; flotation collector; plasticizer for rubber; in food-pkg. adhesives; in resinous/polymeric food-contact coatings; defoamer in food-contact coatings and paper/paperboard; activator in food-contact rubber articles for repeated use; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.200, 176.210, 177.2600, 177.2800, 178.3570, 178.3910

**Manuf./Distrib.:** Acme-Hardesty; Atrachem; Akzo Nobel; Allchem Ind.; Arizona; C.P. Hall; D.B. Becker; Darwin; Eastech; Geo. Pfau's Sons; J.H. Calo; Nat'l. Purity; Nottingham; Rhodia; S & S Chem.; Sea-Land; Stanson; Technichem; Welch, Holme & Clark; Westvaco

**Tall oil acid diethanolamide.** See Tallamide DEA

**Tall oil acid, potassium salt.** See Potassium tallate

**Tall oil acids.** See Tall oil acid

**Tall oil diethanolamide.** See Tallamide DEA

**Tall oil fatty acid.** See Tall oil acid

**Tall oil fatty acid diethanolamide.** See Tallamide DEA

**Tall oil fatty acid polydiethanolamide.** See Tallamide DEA

**Tall oil fatty acids.** See Tall oil acid

**Tall oil fatty acids, ammonium salts.** See Ammonium tallate

## Tall oil glycerides

CAS 97722-02-6; EINECS/ELINCS 307-751-6

**Synonyms:** Glycerides, tall oil mono-, di- and tri-

**Definition:** Mixt. of the mono, di, and triglycerides derived from tall oil

**Uses:** Thermoplastic resin ester for chewing gums, adhesives, contact cements, and coatings; tackifier for rubber; food-pkg. adhesives, pressure-sensitive adhesives, coatings, paper, closure-sealing gaskets for food containers; defoamer in food-contact coatings, paper/paperboard

**Trade Names:** Zonester® 85

## Tall oil hydroxyethyl imidazoline

CAS 61791-39-7; EINECS/ELINCS 263-171-2

**Synonyms:** 4,5-Dihydro-7-nortall oil-1H-imidazole-1-ethanol; 1-Hydroxyethyl-2-tall oil imidazoline; Tall oil imidazoline; 2-Talloyl-1-(hydroxyethyl) imidazoline

**Classification:** Heterocyclic compd.

**Toxicology:** TSCA listed

**Uses:** Emulsifier, corrosion inhibitor in oil burning systems, pickling bath operations, asphalt emulsions, oil-based drilling fluids, industrial detergents; dispersant for clay and pigments; in protective metal coatings, printing ink additive

**Trade Names:** Burco® Imidazoline T; LamChem C-100-T

**Tall oil imidazoline.** See Tall oil hydroxyethyl imidazoline

## Tall oil triglycerides

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Talloyl.** See Tall oil

## Tallow

CAS 61789-97-7; EINECS/ELINCS 263-099-1

**Synonyms:** Adeps bovis; Beef tallow; Bleached deodorized tallow; Mutton tallow; Tallow, beef; Tallow, mutton

**Definition:** Fat derived from fatty tissue of sheep or cattle; consists primarily of fatty acid glycerides

**Properties:** Off-wh. to pale yel. fat; insol. in water; iodine no. 40-55; sapon. no. 282-286

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Lubricity additive in lubricants; lubricant for steel cold-rolling; softener for textile warp sizing; soap stock; leather dressing; candles; greases; mfg. of stearic and oleic acids; adherent in tire molds; chewing gum base; food coating agent, emulsifier, formulation aid, texturizer; animal feeds; in food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; in food-contact textiles

**Regulatory:** FDA 21CFR §175.105, 175.210, 176.170, 176.200, 176.210, 177.2800, 182.70, GRAS

**Manuf./Distrib.:** ABITEC; Atlas Refinery; BFGoodrich/Textile; Geo. Pfau's Sons; Norman, Fox; Sea-Land

## Tallow acid

CAS 61790-37-2; 67701-06-8; EINECS/ELINCS 263-129-3

**Synonyms:** Acids, tallow; Fatty acids, tallow; Tallow fatty acid

**Definition:** Mixture of fatty acids derived from tallow

**Formula:** RCOOH, R = tallow-

**Properties:** Wh. to yel. solid; insol. in water; m.p. 38-42°C; acid no. 200-205; iodine no. 50-62

**Toxicology:** TSCA listed

**Uses:** Chemical intermediate in alkyd resins, polishes, soaps, abrasives, cutting oils, candles, crayons, emulsifiers; food lubricant, release agent, binder, defoamer; intermediate for food emulsifiers; in food-contact textiles; food-pkg. adhesives; in resinous/polymeric food-contact coatings for polyolefin films; defoamer in food-contact coatings and paper/paperboard; grinding agent; waterproofing agent; plasticizer; activator in rubber compding.; in pharmaceutical pastes; in resin-bonded filters for food contact; in lubricants for incidental food contact; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.200, 176.210, 177.2260, 177.2800, 178.3570, 178.3910

**Manuf./Distrib.:** Akzo Nobel; Anar; Ashland; Eastech; Geo. Pfau's Sons; Norman, Fox; Sea-Land

**Tallow acid diethanolamide.** See Tallowamide DEA

**Tallow acid, hydrogenated.** See Hydrogenated tallow acid

## Tallow alcohol

EINECS/ELINCS 308-980-4

**Synonyms:** Alcohols, tallow; Tallow fatty alcohols

**Definition:** Mixt. of fatty alcohols derived from tallow

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>n</sub>OH, n = 16, 18

**Properties:** Waxy solid; m.p. 46°C

**Uses:** Emollient, consistency giving agent, cosolvent for cosmetics, skin creams and lotions; defoamer; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170, 176.210

**Manuf./Distrib.:** Ashland; Cognis/Care Chems.; Condea Vista; Goldschmidt; Indofine; Jarchem Ind.; Lipo; Procter & Gamble; RTD

**Tallow alcohol, hydrogenated.** See Hydrogenated tallow alcohol

**Tallow amide**

EINECS/ELINCS 297-355-9

*Synonyms:* Amides, tallow*Classification:* Amide*Definition:* Mixt. of amides*Formula:* RCO-NH<sub>2</sub>, RCO- rep. fatty acids derived from tallow*Uses:* In food-pkg. adhesives, food contact coatings; defoamer for food contact paper/paperboard*Regulatory:* FDA 21CFR §175.105, 175.320, 176.210**Tallowamide DEA**

CAS 68140-08-9; EINECS/ELINCS 268-772-3

*Synonyms:* Tallow diethanolamide; Tallow acid diethanolamide; Diethanolamine tallow acid amide; N,N-Bis(2-hydroxyethyl)tallow amides; N,N-Bis(2-hydroxyethyl)tallow acid amide*Definition:* Mixture of ethanolamides of tallow acid*Formula:* RCO-N(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub>, RCO- rep. fatty acids from tallow*Properties:* Anionic/nonionic*Toxicology:* TSCA listed*Uses:* W/o emulsifier; detergent for laundry and specialty cleaners; visc. builder; lubricant; in food-pkg. adhesives; defoamer in food-contact paper/paperboard; in food-contact textiles; antistat/antifog in food pkg.*Regulatory:* FDA 21CFR §175.105, 176.210, 177.2800, 178.3130**Tallow, beef.** See Tallow**Tallow diethanolamide.** See Tallowamide DEA**Tallow diisopropanolamide***Synonyms:* N,N-Diisopropanolamide of tallow fatty acids*Uses:* Adjuvant to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods*Regulatory:* FDA 21CFR §176.170, 176.180*Manuf./Distrib.:* Akzo Nobel; Anar; Ashland; Eastern Chem.; Geo. Pfau's Sons**Talloweth-6**

CAS 61791-28-4 (generic)

*Synonyms:* PEG-6 tallow ether; PEG 300 tallow ether; POE (6) tallow ether*Definition:* PEG ether of tallow alcohol*Formula:* R(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, R rep. alkyl groups from tallow, avg. n = 6*Properties:* Nonionic*Uses:* Emulsifier; in food-pkg. adhesives; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §175.105, 176.210**Talloweth-6 phosphate***Properties:* Anionic*Uses:* Surfactant for prod. of textile and dyeing auxs., antistats, dry cleaning detergents*Trade Names:* Servoxy® VPRZ 006/100**Talloweth-11 phosphate***Uses:* Surfactant for prod. of dry cleaning detergents with antistatic props., textile and dyeing auxiliaries; o/w emulsifier for cosmetic creams, lotions, and gels; aux. for textiles, agric., paper, cleaning, and metal processing industries; emulsifier; antistat; hydrotrope*Trade Names:* Servoxy® VPRZ 0011/100**Tallow fatty acid.** See Tallow acid**Tallow fatty acids, isobutyl esters.** See Isobutyl tallowate**Tallow fatty acids, isopropyl esters.** See Isopropyl tallowate**Tallow fatty acids, potassium salts.** See Potassium tallowate**Tallow fatty acids, sulfated.** See Sulfated tallow acid**Tallow fatty alcohols.** See Tallow alcohol**Tallow glyceride**

CAS 61789-13-7; EINECS/ELINCS 263-035-2

*Synonyms:* Tallow monoglyceride; Glycerides, tallow mono-*Definition:* Monoglyceride derived from tallow*Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Emulsifier, stabilizer, dispersant, opacifier for foods, cosmetics, pharmaceuticals; in food-pkg. adhesives; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §175.105, 176.210**Tallow glycerides***Synonyms:* Tallow mono, di and tri glycerides; Glycerides, tallow mono-, di- and tri-*Definition:* Mixture of mono, di and triglycerides derived from tallow*Properties:* Nonionic*Uses:* Emulsifier, stabilizer, dispersant, emollient, opacifier for cosmetics, foods and drugs; in food-pkg. adhesives; defoamer in food-contact paper/paperboard*Regulatory:* FDA 21CFR §175.105, 176.210**Tallow, hardened.** See Hydrogenated tallow**Tallow, hydrogenated.** See Hydrogenated tallow**Tallow mono, di and tri glycerides.** See Tallow glycerides**Tallow monoglyceride.** See Tallow glyceride**Tallow, mutton.** See Tallow**Tallow phosphate***Properties:* Anionic*Uses:* Surfactant for textiles, agric., paper, cleaning, metal processing*Trade Names:* Servoxy® VPRZ 100**Tallow, sodium salt.** See Sodium tallowate**Tallow, sulfated.** See Sulfated tallow**Tallow sulfated, ammonium salt.** See Ammonium tallow sulfate**Tallow sulfated, potassium salt.** See Potassium tallow sulfate**Tallow, sulfated, sodium salt.** See Sodium tallow sulfate**Tallow trimethyl ammonium chloride.** See Tallowtrimonium chloride**Tallowtrimonium chloride**

CAS 8030-78-2; 7491-05-2; 68002-61-9; EINECS/ELINCS 232-447-4

*Synonyms:* Quaternary ammonium compds., tallow alkyl trimethyl, chlorides; Tallow trimethyl ammonium chloride; Trimethyl tallow ammonium chloride*Classification:* Quaternary ammonium salt*Formula:* [R-N(CH<sub>3</sub>)<sub>3</sub>]<sup>+</sup>Cl<sup>-</sup>, R rep. alkyl groups derived from tallow*Properties:* Cationic*Toxicology:* TSCA listed*Uses:* Dispersant; external antistat for plastics; emulsifier; used in corrosion inhibitor formulations for oil field brines and HCl acidizing systems; textile softener, dyeing aid; base for hair conditioners, cream rinses; in textiles, paper, cosmetics, agric., plastics, petrol., industrial applics.; pharmaceutical emulsifier*Trade Names:* Arquad® T-27W**2-Talloyl-1-(hydroxyethyl)imidazoline.** See Tall oil hydroxyethylimidazoline**Tamarind (Tamarindus indica) seed kernel powder***Uses:* In food-contact paper/paperboard*Regulatory:* FDA 21CFR §176.350*Manuf./Distrib.:* Dr. Madis Labs**Tangantangan oil.** See Castor (Ricinus communis) oil**Tannic acid**

CAS 1401-55-4; 72401-53-7; EINECS/ELINCS 215-753-2; 276-638-0; FEMA 3042

*Synonyms:* Gallotannic acid; Gallotannin; Glycerite; Tannin*Definition:* Mixt. of organic acids occurring in the bark and fruit of many plants, e.g., oak species, sumac*Empirical:* C<sub>76</sub>H<sub>52</sub>O<sub>46</sub>*Properties:* Ylsh.-wh. to lt. brn. powd. or flakes, faint char. odor, strongly astringent taste; very sol. in alcohol, acetone; pract. insol. in benzene, chloroform, ether, petrol. ether, carbon disulfide, CCl<sub>4</sub>; m.w. 1701.23; m.p. 200 C; dec. 210-215 C; flash pt. (OC) 390 F*Toxicology:* LD50 (oral, rat) 2260 mg/kg, (intramuscular, mouse) 350 mg/kg; LDLo (subcut., mouse) 75 mg/kg, (IV, mouse) 10 mg/kg; poison by ing., intramuscular, IV, subcut. routes; mod. toxic by parenteral route; may cause liver damage; experimental carcinogen, tumorigen, reproductive effects; mutagenic data; TSCA listed*Precaution:* Combustible exposed to heat or flame; incompat. with salts of heavy metals, alkaloids, gelatin, starch, oxidizers*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 0; Flammability 1; Reactivity 0

*Storage:* Keep well closed, protect from light

**Uses:** Mordant in dyeing; mfg. of ink, imitation tortoise shell; sizing paper; mordant, fixative, printing textiles; tanning; in photography; as coagulant in rubber; analytical chemistry reagent; alcohol denaturant; electroplating; deodorizing crude oil; enzyme immobilization; protein adsorption; boiler water additive for food processing; food additive (flavoring, pH control, processing aid, fat rendering aid; clarifying beer and wine); pharmaceuticals; astringent; minor burns treatment

**Use Level:** Limitation 0.01% (baked goods/mixes), 0.015% (alcoholic beverages), 0.005% (nonalcoholic beverages), 0.4% (frozen dairy desserts), 0.013% (hard candy), 0.001% (meat prods.), 3 g/L (apple juice, wine), 0.8 g/L (white wine); ADI 0-0.6 mg/kg (FAO/WHO)

**Regulatory:** FDA 21CFR §173.310, 184.1097, GRAS; 9CFR §318.7; BATF 27CFR §240.1051; FEMA GRAS; FDA approved for rectals; BP compliance

**Manuf./Distrib.:** Aceto; Aldrich; Alfa Chem; Am. Roland; Atomergic Chemicals; Burlington Bio-Medical; Burlington Chem.; Charkit; Crompton & Knowles; Fuji Chem. Ind.; Independent Chem.; Int'l. Sourcing; Integra; Mallinckrodt Baker; Penta Mfg.; Ruger; Sigma; Spectrum Quality Prods.; Universal Preserv-A-Chem

**Tannin.** See Tannic acid

**Tapioca.** See Dextrin

**Tapioca starch.** See Starch

**Tar oil.** See Pine (*Pinus palustris*) tar oil

**Tar oil, wood.** See Pine (*Pinus palustris*) tar oil

### Tartrazine

CAS 1934-21-0; EINECS/ELINCS 217-699-5

**Synonyms:** Acid yellow 23; Acid yellow 23 trisodium salt; 3-Carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole trisodium salt; CI 19140; D&C Yellow No. 5; 4,5-Dihydro-5-oxo-1-(4-sulfophenyl)-4-[(4-sulfophenyl)azo]-1H-pyrazole-3-carboxylic acid trisodium salt; FD&C Yellow No. 5; Food yellow 4; 1H-Pyrazole-3-carboxylic acid, 4,5-dihydro-5-oxo-1-(4-sulfophenyl)-4-[(4-sulfophenyl)azo]-, trisodium salt; Tartrazine yellow; Trisodium-3-carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole

**Classification:** Pyrazole color

**Empirical:**  $C_{16}H_9N_4Na_3O_9S_2$

**Formula:**  $C_{16}H_9N_4O_9S_2 \cdot 3Na$

**Properties:** Bright orange-yel. powd., gran.; greenish-yel. in sol'n.; sol. in water, conc. sulfuric acid; sol. (oz/gal): 28 oz glycerin, 12 oz propylene glycol; m.w. 534.37

**Toxicology:** LD50 (oral, mouse) 12,750 mg/kg, (IP, rat) 3800 mg/kg; mildly toxic by ing.; allergen; those allergic to aspirin are often allergic to tartrazine; may cause urticaria, anaphylactoid reactions, angioedema, rhinitis, bronchial asthma, contact dermatitis, hyperactivity, thyroid tumors; experimental teratogen, reproductive effects; human mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of  $NO_x$ ,  $SO_x$ , and  $Na_2O$

**Storage:** Hygroscopic

**Uses:** Dye for polyamide fibers; pigment in printing inks; colorant for cosmetics, hair dyes, foods, and pharmaceutical orals and topicals; colorant in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FD&C Yellow No. 5; FDA 21CFR §74.705, 74.1705, 74.2705, 82.705, 176.170; Europe listed; banned in Norway, Austria; UK approved; FDA approved for buccals, orals, topicals, vaginales

**Manuf./Distrib.:** Aldrich; Alfa Chem; BFGoodrich Hilton Davis; Costec; Crompton & Knowles; Fluka; Ruger; Sigma; Spectrum Quality Prods.; Tricon Colors; Warner-Jenkinson

**Tartrazine yellow.** See Tartrazine

**TBA.** See t-Butyl alcohol

**TBEP.** See Tributoxethyl phosphate

**TBHP.** See t-Butyl hydroperoxide

**TBP.** See Tributyl phosphate

**TBPA.** See Tetrabromophthalic anhydride

**TBT.** See Tributyltin oxide

**TBTO.** See Tributyltin oxide

**TBZ.** See Thiabendazole

**TCI.** See Terephthaloyl chloride

**TCMTB.** See 2-Thiocyanomethylthiobenzothiazole

**TEA.** See Triethanolamine

### TEA cocoate

CAS 61790-64-5; EINECS/ELINCS 263-155-5

**Synonyms:** Fatty acids, coconut oil, triethanolamine salts; Triethanolamine cocoate

**Definition:** Triethanolamine soap derived from coconut fatty acids

**Uses:** Surfactant for cosmetics; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact

**Regulatory:** FDA 21CFR §176.210, 177.2260

### TEA-lauryl sulfate

CAS 139-96-8; 68908-44-1; EINECS/ELINCS 205-388-7

**Synonyms:** Sulfuric acid, dodecyl ester, triethanolamine salt; Sulfuric acid, monododecyl ester, compd. with 2,2',2''-nitritoltris[ethanol] (1:1); Triethanolamine dodecyl sulfate; Triethanolamine lauryl sulfate; Triethanolammonium lauryl sulfate; Trolamine lauryl sulfate

**Definition:** Triethanolamine salt of lauryl sulfuric acid

**Empirical:**  $C_{18}H_{41}NO_7S$

**Formula:**  $CH_3(CH_2)_{10}CH_2OSO_3H \cdot N(CH_2CH_2OH)_3$

**Properties:** Liq. or paste; m.w. 415.66; HLB 34.0; anionic

**Toxicology:** Skin and eye irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits very toxic fumes of  $NO_x$ ,  $SO_x$ , and  $CN^-$

**HMS:** Health 2; Flammability 1; Reactivity 0

**Uses:** Emulsifier, detergent, wetting agent, dispersant, visc. builder, foaming agent used for industrial and household cleaning prods., cosmetics (shampoos, bubble baths), toothpaste, emulsion polymerization, topical pharmaceuticals; industrial firefighting foams; emulsifier in mfg. of food-contact articles; food-contact paper/paperboard

**Regulatory:** FDA approved for topicals

**Manuf./Distrib.:** Chemron; Clariant; Lonza; Norman, Fox; Ruger; Stepan

**Trade Names:** Paxnol TLS; Texapon® T 42

### TEA-oleate

CAS 2717-15-9; EINECS/ELINCS 220-311-7

**Synonyms:** 9-Octadecenoic acid, compd. with 2,2',2''-nitritoltris[ethanol] (1:1); Triethanolamine monooleate ester; Triethanolamine oleate; Triethanolamine oleate soap; Trihydroxyethylamine oleate

**Classification:** Salt of oleic acid

**Empirical:**  $C_{24}H_{49}NO_5$

**Formula:**  $C_{18}H_{34}O_2 \cdot C_6H_{15}NO_3$

**Properties:** HLB 12.0; anionic

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** W/o emulsifier, surfactant for electronics, lubricants, polishes, wax emulsions, cosmetics, foods, pharmaceuticals; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact

**Regulatory:** FDA 21CFR §176.210, 177.2260

### TEA-stearate

CAS 4568-28-9; EINECS/ELINCS 224-945-5

**Synonyms:** Triethanolamine stearate; Trihydroxyethylamine stearate; Octadecanoic acid, compd. with 2,2',2''-nitritoltris[ethanol] (1:1)

**Definition:** Triethanolamine salt of stearic acid

**Empirical:**  $C_{23}H_{51}NO_5$

**Formula:**  $(HOCH_2CH_2)_3N \cdot HOOC C_{16}H_{35}$

**Properties:** Cream-colored wax-like solid; faint fatty odor; sol. in methanol, ethanol, min. and veg. oils; disp. in hot water; dens. 0.968; m.p. 42-44°C; pH 8.8-9.2 (5% aq. disp.)

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Dispersant, emulsifier for waxes, paraffins, bitumen; film-former; adhesion aid for hot-melts; emulsifier, solubilizer for cosmetics and pharmaceuticals; defoamer in food-contact paper/paperboard; in resin-bonded filters for food contact

**Regulatory:** FDA 21CFR §176.210, 177.2260

**TEBAC.** See Benzyltriethyl ammonium chloride

**TEC.** See Triethyl citrate

**TEDMA.** See PEG-3 dimethacrylate

**Teel oil.** See Sesame (*Sesamum indicum*) oil

**TEG.** See PEG-4

**TEGMA.** See PEG-3 dimethacrylate

**TELA.** See Triethanolamine

**TEPA.** See Tetraethylenepentamine

**Terebenthine.** See Turpentine

**Terephthalic acid chloride.** See Terephthaloyl chloride

**Terephthalic acid dichloride.** See Terephthaloyl chloride

**Terephthalic dichloride.** See Terephthaloyl chloride

#### Terephthaloyl chloride

CAS 100-20-9; EINECS/ELINCS 202-829-5

*Synonyms:* TCl; 1,4-Benzenedicarbonyl chloride; 1,4-Benzenedicarbonyl dichloride; p-Phenylenedicarbonyl dichloride; p-Phthaloyl chloride; p-Phthaloyl dichloride; Terephthalic acid chloride; Terephthalic acid dichloride; Terephthalic dichloride; Terephthaloyl dichloride

*Classification:* Difunctional acid chloride

*Empirical:* C<sub>8</sub>H<sub>4</sub>Cl<sub>2</sub>O<sub>2</sub>

*Formula:* C<sub>8</sub>H<sub>4</sub>(COCl)<sub>2</sub>

*Properties:* Colorless cryst.; char. odor; m.w. 203.02; vapor pressure 0.02 mm; m.p. 79-83 C; b.p. 266 C; flash pt. 180 C

*Toxicology:* LD50 (oral, rat) 2500 mg/kg; LC50 (inh., rat, 4 h) 700 mg/m<sup>3</sup>; toxic by inh.; inh. may cause cough, nausea, vomiting, spasm/inflamm./edema of larynx/bronchi, chem. pneumonitis, pulmonary edema; corrosive; causes burns; lachrymator; irritating to eyes, skin, respiratory tract; eye contact may cause redness, pain; ing. may cause burning sensation, cough, nausea; may cause sensitization by skin contact; may cause somnolence, dyspnea

*Precaution:* Combustible; finely dispersed particles form explosive mixts. in air; incompat. with water, alcohols, strong oxidizers, strong bases; reacts violently with water (water hydrolyzes material liberating acidic acid gas)

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrogen chloride gas, phosgene gas; emits toxic fumes under fire conditions; dec. on warming, producing corrosive gas (hydrogen chloride); reacts with water and moisture producing corrosive fumes (hydrogen chloride)

NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* Moisture-sensitive; keep tightly closed; store in cool, dry, well-ventilated area

*Uses:* Chem. intermediate for polycarbonates, aramid fibers, carbonless paper, performance polymers, encapsulants; in automotive, chem. processing, composites, computer industries; imparts flame resistance, chemical resistance, temp. stability

*Manuf./Distrib.:* ABCR; Acros Org.; Aldrich; Bayer; DuPont; Fluka; ICN Biomed. Research Prods.; Ihara Nikkei; Isotec; Lancaster Synthesis; Pfaltz & Bauer; Spectrum Quality Prods.; TCI Am.

**Terephthaloyl dichloride.** See Terephthaloyl chloride

#### Terpene-phenolic resin

*Uses:* Tackifier for adhesives; adhesive tapes; in food-pkg. adhesives and pressure-sensitive adhesives; rubber industry; surgical tapes; plywood planks; printing inks; surf. coatings

*Regulatory:* FDA 21CFR §175.105, 175.125

*Manuf./Distrib.:* Allchem Ind.; Arakawa USA; Arizona; Dujodwala Resins & Terpenes

*Trade Names:* Nirez® 7042

**Terpene polymer resin.** See Terpene resin

#### Terpene resin

CAS 9003-74-1

*Synonyms:* Polyterpene resin; Terpene polymer resin

*Classification:* Unsat. hydrocarbon; thermoplastic resin

*Definition:* Thermoplastic resin obtained by polymerization of turpentine in presence of catalysts

*Properties:* Sol. in most org. solvs.

*Toxicology:* LD50 (oral, rat) > 15 g/kg; somnolent effect; general depressed activity; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Tackifier in hot-melt and pressure-sensitive adhesives; modifier resin in rubber compounding, coatings, laminations, waxes; extender for paints; binder in printing inks; impregnating paper; reinforcing agent; tires; imparts tack and adhesion to elastomers, polymers, adhesives, coatings, concrete-curing compds.; foods (color diluent, moisture barrier; as masticatory agents and solvent for elastomers in chewing gum); antiseptic in oral pharmaceuticals; in food-pkg. adhesives and pressure-sensitive adhesives; plasticizer in food-contact rubber articles for repeated use; in food-

contact PP film; in food-contact coatings; in cellophane for food pkg.

*Use Level:* Limitation 0.07% (of wt. of capsule) 7% (of ascorbic acid and salts)

*Regulatory:* FDA 21CFR §73.1, 172.280, 172.615, 175.105, 175.125, 175.300, 175.320, 177.1200, 177.2600, 178.3930; FDA approved for orals

*Manuf./Distrib.:* Arizona; Cardolite; Chemcentral; Dujodwala Resins & Terpenes; Hercules; Langley-Smith Ltd; Monomer-Polymer & Dajac Labs

*Trade Names:* Nevta<sup>®</sup> 10<sup>°</sup>; Nevta<sup>®</sup> 80; Nevta<sup>®</sup> 100; Nevta<sup>®</sup> 115; Super Nevta<sup>®</sup> 99; Zonarez<sup>®</sup> 1040; Zonarez<sup>®</sup> 1085; Zonarez<sup>®</sup> 1115T; Zonarez<sup>®</sup> 1125; Zonarez<sup>®</sup> 1135; Zonarez<sup>®</sup> 7115; Zonarez<sup>®</sup> 7115 LT; Zonarez<sup>®</sup> 7125; Zonarez<sup>®</sup> 7125 LT; Zonarez<sup>®</sup> A-25; Zonarez<sup>®</sup> B-115; Zonarez<sup>®</sup> B-125; Zonarez<sup>®</sup> M-1115; Zonarez<sup>®</sup> T-4115; Zonatac<sup>®</sup> 105; Zonatac<sup>®</sup> 105L; Zonatac<sup>®</sup> 115L; Zonatac<sup>®</sup> 501; Zonatac<sup>®</sup> 501L; Zonatac<sup>®</sup> M-105

**Terra alba.** See Calcium sulfate dihydrate

**TET.** See Triethylenetetramine

**TETA.** See Triethylenetetramine

#### Tetraammonium EDTA

*Uses:* Chelating agent in photographic developer baths, replenishment of blix baths, water treatment, boiler cleaning, cosmetics, pharmaceuticals, textiles, soaps, metal cleaning/protection, polymer prod., enhanced oil recovery; drug stabilization; treatment for heavy metal poisoning

*Trade Names:* Versene Tetraammonium EDTA

**1,3,5,7-Tetrazaadamantane.** See Hexamethylenetetramine

**1,4,7,10-Tetraazadecane.** See Triethylenetetramine

**1,3,5,7-Tetraazatricyclo [3,3,1,1] decane.** See Hexamethylenetetramine

#### 1,3,6,8-Tetraazatricyclo (6.2.1.13,6) dodecane

*Uses:* Slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**Tetraborate, pentahydrate.** See Sodium tetraborate pentahydrate

**2',4',5',7'-Tetrabromo-3',6'-dihydroxyspiro [isobenzofuran-1(3H),9'-[9H] xanthen]-3-one disodium salt.** See Acid red 87

**Tetrabromofluorescein.** See Acid red 87

#### Tetrabromophthalic anhydride

CAS 632-79-1; EINECS/ELINCS 211-185-4

*Synonyms:* TBPA; Bromphthal; 1,3-Isobenzofurandione, 4,5,6,7-tetrabromo-

*Empirical:* C<sub>8</sub>Br<sub>4</sub>O<sub>3</sub>

*Formula:* C<sub>8</sub>Br<sub>4</sub>C<sub>2</sub>O<sub>3</sub>

*Properties:* Wh. to pale yel. cryst. solid; sl. sol. in ketone, chlorinated, and aromatic solvs.; insol. in water, alcohol; m.w. 463.72; dens. 2.91; m.p. 280 C

*Toxicology:* LD50 (oral, rat) > 10,000 mg/kg, (dermal, rabbit) > 10,000 mg/kg; irritant; TSCA listed

*Storage:* Moisture-sensitive

*Uses:* Reactive flame retardant filler for plastics (unsat. polyesters), paper, textiles; reactive intermediate for the preparation of polyols, esters and imides, paints

*Manuf./Distrib.:* Albemarle; Aldrich; Ceca SA; Great Lakes; Ocean Chems.

#### Tetrachloronaphthalene

CAS 1335-88-2

*Synonyms:* Halowax; Naphthalene, tetrachloro

*Formula:* C<sub>10</sub>H<sub>4</sub>Cl<sub>4</sub>

*Properties:* Colorless to pale yel. solid; aromatic odor; insol. in water; m.w. 265.96; sp. gr. 1.59-1.65; m.p. 115 C; b.p. 311.5-360 C; flash pt. 210 C

*Toxicology:* NIOSH TWA/TLV: 2 mg/m<sup>3</sup> (in air, 10 h); toxic by inh. and skin contact; TSCA listed

*Precaution:* Combustible; incompat. with strong oxidizers

*Hazardous Decom. Prods.:* Heated to decomp. emits highly toxic fumes of Cl<sup>-</sup>

*Uses:* Electrical insulating materials; in resins and polymers for coating textiles, wood, and paper; additive in cutting oils

#### 3,3,4,4-Tetrachlorotetrahydrothiophene-1,1-dioxide

*Uses:* Slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**Tetracosanoic acid, tetradecyl ester.** See Myristyl lignocerate

**Tetradecanoic acid.** See Myristic acid

**Tetradecanoic acid, butyl ester.** See Butyl myristate

**Tetradecanoic acid isopropyl ester.** See Isopropyl myristate

**Tetradecanoic acid, magnesium salt.** See Magnesium myristate

**Tetradecanoic acid, methyl ester.** See Methyl myristate

**Tetradecanoic acid, 1-methylethyl ester.** See Isopropyl myristate

**Tetradecanoic acid, monoester with 1,2-propanediol.** See Propylene glycol myristate

**Tetradecanoic acid, monoester with 1,2,3-propanetriol.** See Glyceryl myristate

**Tetradecanoic acid, potassium salt.** See Potassium myristate

**Tetradecanoic acid sodium salt.** See Sodium myristate

**1-Tetradecanol.** See Myristyl alcohol

**1-Tetradecanol, 2-decyl-.** See 2-Decyl-1-tetradecanol

**N-Tetradecanol-1.** See Myristyl alcohol

**Tetradecene.** See Tetradecene-1

### Tetradecene-1

CAS 1120-36-1; EINECS/ELINCS 272-493-2

**Synonyms:** C<sub>14</sub> linear alpha olefin; Tetradecene; 1-Tetradecene;  $\alpha$ -Tetradecylene

**Empirical:** C<sub>14</sub>H<sub>28</sub>

**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH:CH<sub>2</sub>

**Properties:** Colorless liq., mild hydrocarbon odor; sl. sol. in alcohol, ether; insol. in water; m.w. 196.38; dens. 0.775; m.p. -13 C; pour pt. -18 C; b.p. 251 C; flash pt. (Seta) 226 F; ref. index 1.4360

**Toxicology:** Irritating to eyes and skin; low acute inhalation toxicity; low acute ingestion toxicity but ingestion may cause vomiting, aspiration of vomitus

**Precaution:** Combustible; avoid contact with air or oxygen; explosion danger from peroxide formation

**Storage:** Store under nitrogen blanket

**Uses:** Intermediate for surfactants and specialty industrial chemicals (polymers, plasticizers, lubricants, gasoline additives, paper sizing, PVC lubricants); prod. of amines, amine oxides, oxo alcohols, alkylated aromatics, tanning oils, alpha olefin sulfonates, epoxides, syn. fatty acids; solvent in perfumes, flavors, medicines, dyes, oils, resins

**Manuf./Distrib.:** Albemarle; Aldrich; BP Amoco; Fluka; Shell; Sigma; Spectrum Quality Prods.

**Trade Names:** Gulfene® 14

**1-Tetradecene.** See Tetradecene-1

**n-Tetradecoic acid.** See Myristic acid

**Tetradecyl alcohol.** See Myristyl alcohol

**N-Tetradecyl alcohol.** See Myristyl alcohol

**Tetradecylamine acetate.** See Myristamine acetate

**Tetradecyl dimethyl benzyl ammonium chloride.** See Myristalkonium chloride

### Tetradecyleicosanol

CAS 68187-86-0

**Synonyms:** 1-Eicosanol, 2-tetradecyl-; Myristyl eicosanol; 2-Tetradecyl-1-eicosanol

**Classification:** Aliphatic alcohol

**Empirical:** C<sub>34</sub>H<sub>70</sub>O

**Properties:** Lt. colored soft wax; sol. in min. oil, isopropyl myristate, oleyl alcohol, castor oil; m.p. 33-40 C

**Uses:** Emollient wax for cosmetic and pharmaceutical topical preps.; opacifier and emollient in specialty bath oils

**Trade Names Containing:** Jarcol™ I-34T

**2-Tetradecyl-1-eicosanol.** See Tetradecyleicosanol

**$\alpha$ -Tetradecylene.** See Tetradecene-1

### 2-Tetradecyloctadecanol

CAS 32582-32-4; EINECS/ELINCS 251-110-2

**Synonyms:** Myristyloctadecanol; 2-Tetradecyl-1-octadecanol

**Classification:** Aliphatic alcohol

**Empirical:** C<sub>32</sub>H<sub>66</sub>O

**Uses:** Skin softener in personal care stick formulations

**Manuf./Distrib.:** Jarchem Ind.

**Trade Names:** Jarcol™ I-32

**Trade Names Containing:** Jarcol™ I-34T

**2-Tetradecyl-1-octadecanol.** See 2-Tetradecyloctadecanol

**Tetradecyl tetracosanoate.** See Myristyl lignocerate

**Tetraethyldiamino-o-carboxyphenyl xanthenyl chloride.** See Basic violet 10

**Tetraethylene dicocoate.** See PEG-4 dicocoate

**Tetraethylene glycol.** See PEG-4

**Tetraethylene glycol diacrylate.** See PEG-4 diacrylate

**Tetraethylene glycol dimethacrylate.** See PEG-4 dimethacrylate

### Tetraethylenepentamine

CAS 112-57-2; EINECS/ELINCS 203-986-2; UN No. 2320 (DOT)

**Synonyms:** TEPA; 1,2-Ethanediamine, N-(2-aminoethyl)-N'-(2-(2-aminoethyl)amino)ethyl-; 1,4,7,10,13-Pentaazatridecane

**Empirical:** C<sub>8</sub>H<sub>23</sub>N<sub>5</sub>

**Formula:** NH<sub>2</sub>(CH<sub>2</sub>CH<sub>2</sub>NH)<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>

**Properties:** Amber visc. liq.; sol. in most org. solvs. and water; m.w. 189.31; dens. 0.9980 (20/20 C); vapor pressure < 0.01 mm Hg (20 C); m.p. -30 C; b.p. 340 C (dec.); flash pt. (OC) 325 F; ref. index 1.5055

**Toxicology:** LD50 (oral, rat) 3990 mg/kg, (dermal, rabbit) 660 mg/kg, (IV, mouse) 320 mg./kg; poison by ing. and IV route; mod. toxic by skin contact; corrosive; strong primary irritant to skin, eyes, mucous membranes; causes burns; mutagen; TSCA listed

**Precaution:** Combustible exposed to heat or flame; corrosive; can react with oxidizing materials

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub>

**Storage:** Hygroscopic

**Uses:** Solvent for sulfur, acid gases, various resins and dyes; saponifying agent for acidic materials; mfg. of syn. rubber; dispersant in motor oils; intermediate for oil additives; ion-exchange resins; surfactants; in food-pkg. adhesives; R.T. curing agent in two-pkg. protective coating systems; nickel plating brightening agent; amino resin modifier in paper/paperboard in contact with aq./fatty foods; polymerization crosslinking agent in paper/paperboard in contact with dry food; catalyst activator in acrylic food pkg.

**Regulatory:** FDA 21CFR §175.105, 176.170, 176.180, 177.1010

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Artek; Ashland; Brook-Chem; Coyne; Diamines & Chems. Ltd; Fluka; Great Western; Houghton Chem.; J.H. Calo; Loos & Dilworth; Tosoh; Union Carbide

**Trade Names:** Ancamine® TEPA

**Tetraethylrhodamine.** See Basic violet 10

**Tetrafluoroethene homopolymer.** See Polytetrafluoroethylene

**Tetrafluoroethylene polymer.** See Polytetrafluoroethylene

**Tetrafluoroethylene polymers.** See Polytetrafluoroethylene

**Tetrafluoroethylene resin.** See Polytetrafluoroethylene

### Tetrafluoroethylene telomer

CAS 65530-85-0; 79070-11-4

**Uses:** Release agent for molds for plastics and elastomers

**Trade Names Containing:** MS-122DF

**Tetraglycol.** See PEG-4

### 1,4,4a,9a-Tetrahydro-9,10-anthracenedione

CAS 56136-14-2; EINECS/ELINCS 260-009-2

**Synonyms:** 1,4,4a,9a-Tetrahydroanthraquinone

**Classification:** Aromatic ketone

**Empirical:** C<sub>14</sub>H<sub>12</sub>O<sub>2</sub>

**Properties:** M.w. 212.25; m.p. 99-101 C

**Toxicology:** Irritant

**Uses:** Catalyst in alkaline pulping of lignocellulosics in mfg. of paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Aldrich

**1,4,4a,9a-Tetrahydroanthraquinone.** See 1,4,4a,9a-Tetrahydro-9,10-anthracenedione

**Tetrahydro-3,5-dimethyl-1,3,5-thiadiazine-2-thione.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione

**Tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine-2-thione.** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione

### Tetrahydrofuran

CAS 109-99-9; EINECS/ELINCS 203-726-8; UN No. 2056 (DOT)

**Synonyms:** THF; Butane, 1,4-epoxy-; Butylene oxide; Cyclo-tetramethylene oxide; Diethylene oxide; 1,4-Epoxybutane; Furanidine; Furan, tetrahydro-;

**Hydrofuran:** Oxacyclopentane; Oxolone; Tetramethylene oxide

**Classification:** Sat. cyclic aliphatic ether



*Empirical:* C<sub>8</sub>H<sub>10</sub>O

*Formula:* CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>O

*Properties:* Water-wh. liq.; ethereal odor; very sol. in water; sol. in alcohols, ketones, esters, ethers, hydrocarbons, oxygenated solvs.; m.w. 72.11; dens. 0.888 (20/4 C); vapor pressure 114 mm (15 C); f.p. -65 C; m.p. -108.5 C; b.p. 66 C; flash pt. (OC) -15 C; ref. index 1.4070

*Toxicology:* ACGIH TLV/TWA 200 ppm; STEL 250 ppm; LD50 (oral, rat) 1650 mg/kg, (IP, rat) 2900 mg/kg; LC50 (inh., rat, 3 h) 21,000 ppm; mod. toxic by ing., IP; mildly toxic by inh.; eye/mucous membrane irritant; essentially nonirritating to skin; CNS depressant; narcotic, anesthetic at high concs.; may injure liver and kidneys; 25,000 ppm reported lethal in humans; tumorigen; mutagen; reproductive effects; TSCA listed

*Precaution:* Extremely flamm.; flamm. limits in air 2-11.8%; incompat. with strong oxidizing agents (increases fire/explosion risk), bromine (reacts vigorously with gas evolution), caustic alkalis (violent reactions possible)

*Hazardous Decomp. Prods.:* Peroxides may form and accumulate on exposure to air and light, in the absence of inhibitors; heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 2; Flammability 3; Reactivity 1

*Storage:* Store in cool, dry, well-ventilated area, out of direct sunlight

*Uses:* Solvent for Grignard reactions, reductions, polymerizations, sol'n. S/ B prod., resins, paints, adhesives, magnetic tapes, printing inks; chemical intermediate; polyacetal resin comonomer; extraction solvent (pharmaceuticals); pharmaceutical intermediate; steroid hormone prod. for use in birth control pills; preservative for histological samples; in food-pkg. adhesives; adjuvant in resinous/polymeric food-contact coatings; adjuvant in slimicides in food-contact paper; in cellophane for food pkg.; solvent in casting of food-contact film

*Regulatory:* FDA 21CFR §175.105, 175.320, 176.300, 177.1200, 178.3950; BP compliance

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; BASF; Burdick & Jackson; Chemcentral; Coyne; DuPont; Fisher Scientific; Fluka; Great Lakes; Haltermann Prods. UK; Harcross; Houghton Chem.; Hukill; ISP; J.T. Baker; Kessler; Lyondell Europe; Lyondell; Richman; Romil Ltd; Sigma; Spectrum Quality Prods.; Van Waters & Rogers; Whyte Chems. Ltd

**Tetrahydro-2-furancarbinol.** *See* Tetrahydrofurfuryl alcohol

**Tetrahydro-2-furanmethanol.** *See* Tetrahydrofurfuryl alcohol

### Tetrahydrofurfuryl alcohol

CAS 97-99-4; EINECS/ELINCS 202-625-6; FEMA 3056

*Synonyms:* THFA; Tetrahydro-2-furancarbinol; Tetrahydro-2-furanmethanol; Tetrahydro-2-furylmethanol

*Classification:* Cyclic alcohol

*Empirical:* C<sub>5</sub>H<sub>10</sub>O<sub>2</sub>

*Formula:* C<sub>4</sub>H<sub>7</sub>OCH<sub>2</sub>OH

*Properties:* Colorless liq., mild odor; misc. with water, alcohol, ether, acetone, chloroform, benzene, oxygenated solvs.; m.w. 102.14; dens. 1.053 (20/4 C); visc. 6.24 cp (20 C); m.p. < -80 C; b.p. 173-177 C; flash pt. (TOC) 84 C; ref. index 1.453 (20 C); surf. tens. 37 dyne/cm

*Toxicology:* LD50 (oral, rat) 2500 mg/kg, (IV, rabbit) 725 mg/kg; mod. toxic by ing., IV, IP routes; severe eye irritant; mod. irritating to skin, mucous membranes; TSCA listed

*Precaution:* Combustible exposed to heat, flame; explosive limit 1.5-9.7% by vol.; explosive as vapor exposed to heat or flame; incompat. with oxidizing materials; violent or explosive reaction with 3-nitro-N-bromophthalimide

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Hygroscopic

*Uses:* Solvent for vinyl resins, paints, paint strippers, cleaners, dyes for leather, chlorinated rubber, cellulose esters; coupling agent; coupling solvent for pesticides, textile auxs.; solvent-softener for nylon; in food-pkg. adhesives; syn. flavoring agent for foods and pharmaceuticals; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §172.515, 175.105, 176.210; FEMA GRAS

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Bencorp Int'l.; Continental Ind. Group; Fluka; Great Lakes; Great Western; Int'l. Furan Chems. USA; Penta Mfg.; Schweizerhall; Sigma; Van Waters & Rogers; Westpro

*Trade Names:* QO® Tetrahydrofurfuryl Alcohol (THFA®)

**Tetrahydro-2-furylmethanol.** *See* Tetrahydrofurfuryl alcohol

**Tetrahydro-1,4-isoxazine.** *See* Morpholine

**Tetrahydro-p-isoxazine.** *See* Morpholine

**Tetrahydro-1,4-oxazine.** *See* Morpholine

**Tetrahydro-2H-1,4-oxazine.** *See* Morpholine

**Tetrahydro-4H-1,4-oxazine.** *See* Morpholine

**Tetrahydro-p-oxazine.** *See* Morpholine

**1,2,3,6-Tetrahydro-N-(trichlorophenylthio) phthalimide.** *See* Captan

### Tetrakis (hydroxymethyl) phosphonium sulfate

CAS 55566-30-8; EINECS/ELINCS 259-709-0; UN No. 2810

*Synonyms:* THPS; TMPS; Bis tetrakis (hydroxymethyl) phosphonium sulfate; Octakis (hydroxymethyl) phosphonium sulfate; Phosphonium, tetrakis (hydroxymethyl)-, sulfate (2:1)

*Empirical:* C<sub>8</sub>H<sub>24</sub>O<sub>12</sub>P<sub>2</sub>S

*Formula:* C<sub>8</sub>H<sub>24</sub>O<sub>12</sub>P<sub>2</sub> • O<sub>4</sub>S

*Properties:* M.w. 406.32

*Toxicology:* LD50 (oral, rat) 248 mg/kg; poison by ing.; questionable carcinogen; mutagenic data; TSCA listed

*Environmental:* Degrades to a virtually nontoxic compd.

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of PO<sub>x</sub> and SO<sub>x</sub>

*Uses:* Biocide for water treatment, sec. oil field recovery; flame retardant for cellulosic fabrics and blends

*Manuf./Distrib.:* Albright & Wilson Am.; Cytec Ind.

*Trade Names:* Tolcide® PS; Tolcide® PS25; Tolcide® PS 75; Tolcide® PS 75LT; Tolcide® PS75M; Tolcide® PS 200; Tolcide® PS352CM

*Trade Names Containing:* Tolcide® PS 352C; Tolcide® PS 355A

**Tetrakis [methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate)] methane.**

*See* Pentaerythrityl tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]

**Tetrakis [methylene-3(3',5'-di-t-butyl-4-hydroxyphenyl) propionate] methane.** *See* Pentaerythrityl tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]

**32-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3,6,9,12,15,18,21,24,27,30-decaoxadotriacontan-1-ol.** *See* Octoxynol-11

**38-[4-(1,1,3,3-Tetramethylbutyl)phenoxy]-3,6,9,12,15,18,21,24,27,30,33,36-dodecaoxaoctatriacontan-1-ol.** *See* Octoxynol-13

**2-[p-(1,1,3,3-Tetramethylbutyl) phenoxy] ethanol.** *See* Octoxynol-1

**2-[2-[2-[p-(1,1,3,3-Tetramethylbutyl) phenoxy] ethoxy] ethoxy] ethanol.** *See* Octoxynol-3

**2,4,7,9-Tetramethyl-5-decyn-4,7-diol.** *See* Tetramethyl decynediol

### Tetramethyl decynediol

CAS 126-86-3; EINECS/ELINCS 204-809-1

*Synonyms:* Acetylenic glycol; 2,4,7,9-Tetramethyl-5-decyn-4,7-diol; 2,4,7,9-Tetramethyl-5-decyne-4,7-diol

*Classification:* Unsaturated alcohol

*Empirical:* C<sub>14</sub>H<sub>26</sub>O<sub>2</sub>

*Formula:* (CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</sub>CCH<sub>2</sub>OHCCCOHCH<sub>2</sub>CH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Wh. waxy solid or pale yel. sol'ns.; m.w. 226.36; m.p. 42-44 C; b.p. 255 C; flash pt. > 230 F; nonionic

*Toxicology:* Irritant; TSCA listed

*Uses:* Defoamer and dye dispersant in paints, printing inks, dyestuffs; defoamer for cement additives, pesticides; defoamer, antishock agent for paper coatings; surfactant in food-contact coatings; wetting agent for pesticides, rinse aids, metal cleaners; substrate pigment wetting agent for industrial coatings and adhesives; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 175.300

*Manuf./Distrib.:* Aldrich

*Trade Names:* Surfynol® PC

*Trade Names Containing:* Surfynol® 104A; Surfynol® 104BC; Surfynol® 104DPM; Surfynol® 104E; Surfynol® 104H; Surfynol® 104NP; Surfynol® 104PA; Surfynol® 104PG-50; Surfynol® DF-110D; Surfynol® DF-110L; Surfynol® PG-50; Surfynol® SE; Surfynol® TG

**2,4,7,9-Tetramethyl-5-decyne-4,7-diol.** *See* Tetramethyl decynediol

**Tetramethyl decynediol ethoxylate.** *See* PEG tetramethyl decynediol

**2,4,7,9-Tetramethyl-5-decyne-4,7-diol ethoxylate.** *See* PEG tetramethyl decynediol

**Tetramethylene oxide.** *See* Tetrahydrofuran

**Tetramethylthiurammonium sulfide.** *See* Tetramethylthiuram monosulfide

### Tetramethylthiuram monosulfide

CAS 97-74-5

*Synonyms:* TMTM; Bis (dimethylthiocarbamoyl) sulfide; Bis (dimethylthio-

carbonyl) monosulfide; Carbamic acid, dimethylthio-, anhydrosulfide; Monothiuram; Tetramethylthiurammonium sulfide; Tetramethylthio carbamic anhydride; 1,1'-Thiobis (N,N-dimethylthio) formamide

*Empirical:* C<sub>6</sub>H<sub>12</sub>N<sub>2</sub>S<sub>3</sub>

*Properties:* Yel. powd.; odorless; sol. in acetone, benzene, ethylene dichloride, aromatic solvs.; insol. in water, gasoline; m.w. 208.37; dens. 1.40; m.p. 104-107 C; flash pt. 156 C

*Toxicology:* LD50 (oral, rat) 1250-1390 mg/kg, (IP, rat) 383 mg/kg; poison by ing. and IP routes; harmful if swallowed; may cause skin sensitization on repeated exposure; questionable carcinogen, tumorigen; mutagenic data; experimental teratogen; TSCA listed

*Precaution:* Combustible; avoid strong acids and oxidizers

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub> and SO<sub>x</sub>

*Uses:* Ultra-accelerator for rubber; accelerator for food-contact rubber articles for repeated use; retarder in CR; activator for thiazoles; fungicide, insecticide; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105, 177.2600

*Manuf./Distrib.:* Aceto; Akzo Nobel; Micro S.A. de C.V.; R.T. Vanderbilt

*Trade Names:* Monex®

**Tetramethylthio carbamic anhydride.** See Tetramethylthiuram monosulfide  
**2,4,8,10-Tetraoxa-3,9-diphosphaspiro (5.5) undecane, 3,9-bis (2,4-bis (1,1-dimethylethyl) phenoxy)-.** See Bis (2,4-di-*t*-butylphenyl) pentaerythritol diphosphate

**2,4,8,10-Tetraoxa-3,9-diphosphaspiro (5.5) undecane, 3,9-bis (octadecyloxy)-.** See Distearyl pentaerythritol diphosphate

**3,6,9,12-Tetraoxadocosan-1-ol.** See Deceth-4

**3,6,9,12-Tetraoxatetracosan-1-ol.** See Laureth-4

**Tetrapotassium diphosphate.** See Tetrapotassium pyrophosphate

**Tetrapotassium pyrophosphate**

CAS 7320-34-5; EINECS/ELINCS 230-785-7

*Synonyms:* TKPP; Diphosphoric acid tetrapotassium salt; Potassium diphosphate; Potassium pyrophosphate; Potassium pyrophosphate, normal; Tetrapotassium diphosphate

*Classification:* Inorganic phosphate salt

*Empirical:* K<sub>4</sub>O<sub>7</sub>P<sub>2</sub>

*Formula:* K<sub>4</sub>(PO<sub>3</sub>OPO<sub>3</sub>)

*Properties:* Wh. gran. or colorless cryst.; odorless; very sol. in water forming alkaline sol'ns.; insol. in alcohol; m.w. 330.4; sp.gr. 2.33; m.p. 1090 C; pH 10.5 (1%)

*Toxicology:* LD50 (oral, rat) 2980 mg/kg, (dermal, rabbit) > 7940 mg/kg; nuisance dust; can cause skin and eye irritation; ing. may cause diarrhea, nausea, vomiting, cramps, abdominal pain; TSCA listed

*Precaution:* Incompat. with strong acids (may react violently); hydrolyzes to phosphate under acidic conditions; hydrolyzes slowly in neutral aq. sol'n.

*Hazardous Decomp. Prods.:* Thermal decomp. can produce toxic fumes of PO<sub>x</sub> and potassium oxide

*Storage:* Deliq., hygroscopic; store in cool, dry, well-ventilated area, out of direct sunlight, away from incompat. materials, in dust-tight containers; avoid generating mists

*Uses:* Soap and detergent builder; sequestering agent (Ca, Mg, Fe); peptizer; dispersing agent; pigment dispersant and stabilizer in emulsion paints; clarifying agent in liq. soaps; mfg. of syn. rubber; clay thinner in drilling muds; deflocculant; dispersant; corrosion/scale control in drinking water treatment; flume wash water additive for sugar beets; boiler water treatment; foods (sequestant, emulsifier, suspending agent, texturizer, moisture binder, alkaline agent)

*Use Level:* Limitation 5% (pickle for meat prods.), 0.5% (meat prods.), 0.5% (total poultry)

*Regulatory:* FDA 21CFR §173.315; USDA 9CFR §318.7, 381.147; Japan approved; Europe listed; UK approved

*Manuf./Distrib.:* Albright & Wilson Am.; Aldrich; Atofina; Browning; FMC; Monsanto; Rhodia; Sal Chem.; Seeler Ind.; Sigma; Solutia; Spectrum Quality Prods.; Telechem Int'l.

*Trade Names:* Kalipol™ 4KP

**Tetrapropylene.** See Dodecene-1

**Tetrasodium dicarboxyethyl octadecyl sulfosuccinamate.** See Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

**Tetrasodium N-(1,2-dicarboxyethyl)-N-octadecylsulfosuccinamate.** See Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

**Tetrasodium N-(1,2-dicarboxyethyl)-N-octadecyl sulfosuccinate.** See Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

**Tetrasodium dicarboxyethyl stearyl sulfosuccinamate**

CAS 3401-73-8; 37767-39-8; 38916-42-6; EINECS/ELINCS 222-273-7

*Synonyms:* L-Aspartic acid, N-(3-carboxy-1-oxosulfo-propyl)-N-octadecyl-, tetrasodium salt; L-Aspartic acid, N-(3-carboxy-1-oxo-2-sulfo-propyl)-N-octadecyl-, tetrasodium salt; N-(3-Carboxy-1-oxosulfo-propyl)-N-octadecyl-L-aspartic acid, tetrasodium salt; N-Octadecyl-N-(sulfosuccinyl) aspartic acid, tetrasodium salt; Tetrasodium dicarboxyethyl octadecyl sulfosuccinamate; Tetrasodium N-(1,2-dicarboxyethyl)-N-octadecylsulfosuccinamate; Tetrasodium N-(1,2-dicarboxyethyl)-N-octadecyl sulfosuccinate

*Classification:* Organic compd.

*Empirical:* C<sub>26</sub>H<sub>43</sub>NO<sub>10</sub>S • 4Na

*Formula:* NaOOCCH<sub>2</sub>CHNaOOCNC<sub>18</sub>H<sub>37</sub>COCH<sub>2</sub>CHSO<sub>3</sub>NaCOONa

*Properties:* M.w. 653.65; anionic

*Toxicology:* TSCA listed

*Uses:* Emulsifier, dispersant, solubilizer, surfactant for textile, cosmetics, agric. applics.; dispersant/solubilizer for industrial, household, metal cleaners; flotation collector for cassiterite ores; emulsion polymerization; polishing waxes; surf. tension depressant for inks; demulsifier; in food-pkg. adhesives; emulsifier in rosin size aq. disp. and resin latex coatings for mfg. of paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.180, 178.3400

*Manuf./Distrib.:* Sigma

*Trade Names:* Aerosol® 22; Monawet SNO-35; Rewopol® B 2003

**Tetrasodium diphosphate.** See Tetrasodium pyrophosphate

**Tetrasodium edetate.** See Tetrasodium EDTA

**Tetrasodium EDTA**

CAS 64-02-8; EINECS/ELINCS 200-573-9

*Synonyms:* EDTA Na<sub>4</sub>; Acetic acid, (ethylenedinitrilo) tetra-, tetrasodium salt; Edathaniil tetrasodium; Edetate sodium; Edetic acid tetrasodium salt; EDTA sodium salt; EDTA tetrasodium salt; N,N'-1,2-Ethanediybis (N-(carboxymethyl)) glycine tetrasodium salt; Ethylenebis (iminodiacetic acid) tetrasodium salt; N,N'-Ethylenediaminediacetic acid tetrasodium salt; Ethylenediaminetetraacetic acid, sodium salt; Ethylenediaminetetraacetic acid, tetrasodium salt; Sodium ethylenediaminetetraacetate; Tetrasodium edetate; Tetrasodium ethylenediamine tetraacetate; Tetrasodium (ethylenedinitrilo) tetraacetate

*Classification:* Substituted amine

*Definition:* Powdered sodium salt that reacts with metals

*Empirical:* C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>8</sub> • 4Na

*Formula:* (NaOOCCH<sub>2</sub>)<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>N(CH<sub>2</sub>COONa)<sub>2</sub>

*Properties:* Wh. amorphous powd.; freely sol. in water; m.w. 380.20; dens. 6.9 lb/gal; m.p. > 300 C

*Toxicology:* LD50 (IP, mouse) 330 mg/kg; poison by IP route; primary irritant; skin and eye irritant; can deplete the body of calcium if taken internally; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub> and Na<sub>2</sub>O

HMIS: Health 2; Flammability 1; Reactivity 0

*Uses:* Sequestant/chelating agent for water softening, enhanced oil recovery, pharmaceuticals, soaps, cleaning, cosmetics, photography, textile, paper, leather, metal treatment, rubber, plastics; catalyst in SBR mfg.; antioxidant in cosmetics; redox activator (S/B rubber); descaling agent (industrial metal cleaners); scale inhibitor (boiler water); boiler water additive for food contact; flume wash water additive; poultry scald agent; drug stabilization; heavy metal poisoning treatment; detergent builder; in food-pkg. adhesives and pressure-sensitive adhesives; can end cement for food contact; chelating agent in food-contact paper/paperboard mfg.; defoamer in food-contact paper/paperboard; in food-contact textiles

*Use Level:* Limitation 0.1 ppm (in wash water)

*Regulatory:* FDA 21CFR §173.310, 173.315, 175.105, 175.125, 175.300, 176.150, 176.170, 176.210, 177.2800, 178.3120, 178.3910; USDA 9CFR §381.147; FDA approved for injectables (IM, IV), inhalants, ophthalmics, orals, topicals

*Manuf./Distrib.:* Akzo Nobel; Am. Int'l.; Burlington Chem.; Charkit; Chemplex Chems.; Ciba Spec. Chems. Switzerland; Complex Quimica SA; GFS; Great Western; Hampshire; Huntsman; Int'l. Sourcing; Jarchem Ind.; Jungbunzlauer; Kraft Chem.; Lowenstein Dyes & Cosmetics; RTD; Rhodia; Ruger; Spectrum Quality Prods.; Surfactants Inc; Tri-K Ind.;

Universal Preserv-A-Chem; V.L. Clark

**Trade Names:** Sequestrene® 30A; Trilon® B; Versene 100; Versene 100 EP; Versene 100 LS; Versene 100 SRG; Versene 100 XL; Versene 220  
**Trade Names Containing:** Trilon® BVT

**Tetrasodium ethylenediamine tetraacetate.** See Tetrasodium EDTA

**Tetrasodium (ethylenedinitrilo) tetraacetate.** See Tetrasodium EDTA

#### Tetrasodium etidronate

CAS 3794-83-0; EINECS/ELINCS 223-267-7

**Synonyms:** Na<sub>2</sub>HEDP; Ethane-1-hydroxy-1,1-diphosphonic acid, tetrasodium salt; (1-Hydroxyethylidene) bisphosphonic acid, tetrasodium salt; (1-Hydroxyethylidene) diphosphonic acid, tetrasodium salt; 1-Hydroxyethylidene-1,1-diphosphonic acid, tetrasodium salt; Phosphonic acid, (1-hydroxyethylidene) bis-, tetrasodium salt; Tetrasodium 1-hydroxyethane-1,1-diphosphonate

**Classification:** Diphosphonic acid deriv.

**Empirical:** C<sub>2</sub>H<sub>4</sub>O<sub>7</sub>P<sub>2</sub> • 4Na

**Properties:** M.w. 293.96

**Toxicology:** LD50 (oral, rat) 990 mg/kg; mod. toxic by ing.; TSCA listed  
**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of PO<sub>4</sub> and Na<sub>2</sub>O

**Uses:** Chelating agent for heavy metal ions; deflocculant and sequestrant for water treatment, I&I cleaners, personal care prods.; stabilizer for cosmetic hair/skin preps., topical pharmaceuticals; sequestrant, dispersant, scale inhibitor for I&I cleaning, detergents, metal cleaning, pulp and paper bleaching, dairy cleaners, bottle washing, electroplating, oil field water treatment, peroxide stabilization, textile applics., flash desalination

**Regulatory:** FDA 21CFR §173.310

**Trade Names:** Dequest® 2016 D Powder; SPE 9528

**Tetrasodium 1-hydroxyethane-1,1-diphosphonate.** See Tetrasodium etidronate

#### Tetrasodium iminodisuccinate

**Synonyms:** Iminodisuccinate tetrasodium salt

**Uses:** Chelating agent for metal ions for detergent, agric., oil, pharmaceutical, pulp/paper, and textile industries; water hardness reducing agent; stabilizer for oxidation agents in aq. sol'n.

**Manuf./Distrib.:** Bayer

**Trade Names:** TP OC 370

#### Tetrasodium pyrophosphate

CAS 7722-88-5; 13472-36-1 (decahydrate); EINECS/ELINCS 231-767-1

**Synonyms:** TSPP; Diphosphoric acid tetrasodium salt; Sodium diphosphate; Sodium pyrophosphate; n-Sodium pyrophosphate; Sodium tetrapyrophosphate; Tetrasodium diphosphate

**Classification:** Inorganic phosphate salt

**Empirical:** Na<sub>4</sub>O<sub>7</sub>P<sub>2</sub>

**Formula:** Na<sub>4</sub> • (PO<sub>3</sub>OPO<sub>3</sub>)

**Properties:** Wh. cryst. powd., gran.; sol. 8 g/100 g water; insol. in alcohol; m.w. 265.91; dens. 2.534; m.p. 988 C; pH 10.2 (1%)

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 4000 mg/kg, (IP, rat) 59 mg/kg, (IV, rat) 100 mg/kg; poison by ing., IP, IV, subcut. routes; not a cholinesterase inhibitor; TSCA listed

**Precaution:** Incompat. with strong acids (may react violently); may attack aluminum, iron, and other reactive metals; hydrolyzes under acidic conditions; slowly hydrolyzes in neutral aq. sol'n.

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of PO<sub>4</sub>, phosphine, and/or Na<sub>2</sub>O

**HMS:** Health 1; Flammability 0; Reactivity 0

**Storage:** Store in cool, dry, well-ventilated area, out of direct sunlight in dust-tight containers; avoid generating mist or dust

**Uses:** Syn. detergent builder; emulsifier; metal cleaner; viscosifier for drilling muds; deinking newsprint; synthetic rubber; textile dyeing; wool scouring; deflocculant in paper, ceramics, oil drilling; stabilizer in food pkg.; water softener, boiler water treatment, drinking water treatment, corrosion/scale inhibitor, sequestrant; degreasing agent in metallurgy; sequestrant, dispersant in detergents; dye dispersant; foods (sequestrant, emulsifier, buffer, nutrient, dispersant, coagulant, cryst. inhibitor); pharmaceuticals (buccals, dentals); in food-contact coatings

**Use Level:** Up to 3% (cheese); ADI 0-70 mg/kg (EU, total phosphates)

**Regulatory:** FDA 21CFR §133.169, 133.173, 133.179, 173.310, 175.210, 175.300, 181.22, 181.29, 182.70, 182.6787, 182.6789, GRAS; Japan approved; Europe listed; UK approved; FDA approved for buccals, dentals

**Manuf./Distrib.:** Albright & Wilson Am.; Aldrich; Browning; FMC Foret; FMC; Farleyway Chem. Ltd; Fluka; Lohmann; Monsanto; Rhodia; Ruger; Sal Chem.; Seeler Ind.; Sigma; Spectrum Quality Prods.; Veckridge; Yoneyama Chem. Ind.

**Trade Names Containing:** Laponite® JS

**TGM3.** See PEG-3 dimethacrylate

**Thalo green No. 1.** See Phthalocyanine green

**Thermal acetylene black.** See Carbon black

**Thermal atomic black.** See Carbon black

**Thermal black.** See Carbon black

**THF.** See Tetrahydrofuran

**THFA.** See Tetrahydrofurfuryl alcohol

**Thiaben.** See Thiabendazole

#### Thiabendazole

CAS 148-79-8; EINECS/ELINCS 205-725-8

**Synonyms:** TBZ; 4-(2-Benzimidazolyl) thiazol; Thiaben; 2-(4-Thiazolyl) benzimidazole; 2-(Thiazol-4-yl) benzimidazole

**Empirical:** C<sub>10</sub>H<sub>7</sub>N<sub>3</sub>S

**Properties:** Colorless cryst. powd.; sol. in DMF, DMSO; sl. sol. in alcohol, esters, chlorinated hydrocarbons, water, oxygenated solvs.; m.w. 201.25; m.p. 300 C (subl.)

**Toxicology:** LD50 (oral, rat) 3100 mg/kg; toxic; harmful if swallowed; may irritate skin; experimental teratogen; TSCA listed

**Uses:** Systemic fungicide for citrus fruits; preservative for paints; food preservative, fungicide; anthelmintic drug

**Regulatory:** SARA reportable; Europe listed; UK approved

**Manuf./Distrib.:** Aldrich; Merck KGaA; Sigma

**Trade Names Containing:** Metasol® TK-100 Disp. W

#### Thiabendazole hypophosphite salt

CAS 28558-32-9

**Synonyms:** Benzimidazole, 2-(4-thiazolyl)-, monophosphinate; Phosphinic acid, compd. with 2-(4-thiazolyl)-1H-benzimidazole (1:1)

**Empirical:** C<sub>10</sub>H<sub>10</sub>N<sub>3</sub>O<sub>2</sub>PS

**Formula:** C<sub>10</sub>H<sub>7</sub>N<sub>3</sub>S • H<sub>3</sub>O<sub>2</sub>P

**Properties:** M.w. 267.26

**Toxicology:** LD50 (oral, rat) 3100 mg/kg

**Uses:** Fungicide for mildew control in adhesive films, interior/exterior paint films, paper and paperboard prods. (for nonfood use such as soap wrappers), hard surfaces, and natural and syn. fibers such as canvas textiles and nylon carpets

**2H-1,3,5-Thiadiazine-2-thione, tetrahydro-3,5-dimethyl-** See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione

**2-(4-Thiazolyl) benzimidazole.** See Thiabendazole

**2-(Thiazol-4-yl) benzimidazole.** See Thiabendazole

#### 4,4'-Thiobis-6-(t-butyl-m-cresol)

CAS 96-69-5

**Synonyms:** Bis (3-t-butyl-4-hydroxy-6-methylphenyl) sulfide; Bis (4-hydroxy-5-t-butyl-2-methylphenyl) sulfide; 4,4'-Thiobis (2-t-butyl-5-methylphenol); 4,4'-Thiobis (6-t-butyl-3-methylphenol); 4,4'-Thiobis (6-t-butyl-3,3-methylphenol); 4,4'-Thiobis (3-methyl-6-t-butylphenol); 1,1'-Thiobis (2-methyl-4-hydroxy-5-t-butylbenzene)

**Classification:** Hindered phenol

**Empirical:** C<sub>22</sub>H<sub>30</sub>O<sub>2</sub>S

**Formula:** [(CH<sub>3</sub>)<sub>2</sub>CC<sub>6</sub>H<sub>2</sub>(CH<sub>3</sub>)OH]<sub>2</sub>S

**Properties:** Wh. to tan powd.; m.w. 358.58; dens. 1.10; m.p. 163-165 C; flash pt. (COC) 205 C

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup>; LD50 (oral, rat) 2345 mg/kg, (IP, mouse) 50 mg/kg; poison by IP route and probably by ing. and inh.; irritant; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits highly toxic fumes of SO<sub>2</sub>

**Uses:** Antioxidant for latexes, adhesives, rubber, plastics, crosslinked polymers, polyamide, polyesters, polyolefins, PVC, PS, lubricants; protects light-colored rubber from oxidation and nonstaining neoprene compds. against deterioration; antiscorching agent in PU; in food-pkg. adhesives; antioxidant in food-contact rubber articles for repeated use; antioxidant/stabilizer for food-grade polymers

**Regulatory:** FDA 21CFR §175.105, 177.2600, 178.2010

**Manuf./Distrib.:** Aceto; Aldrich; Ft. James Spec. Chems.; Great Lakes; Int'l.

## 4,4'-Thiobis (2-t-butyl-5-methylphenol)

Fiber; Monsanto

Trade Names: Santonox® TBMC

4,4'-Thiobis (2-t-butyl-5-methylphenol). See 4,4'-Thiobis-6-(t-butyl-m-cresol)

4,4'-Thiobis (6-t-butyl-3-methylphenol). See 4,4'-Thiobis-6-(t-butyl-m-cresol)

4,4'-Thiobis (6-t-butyl-3,3-methylphenol). See 4,4'-Thiobis-6-(t-butyl-m-cresol)

1,1'-Thiobis (N,N-dimethylthio) formamide. See Tetramethylthiouam monosulfide

4,4'-Thiobis (3-methyl-6-t-butylphenol). See 4,4'-Thiobis-6-(t-butyl-m-cresol)

1,1'-Thiobis (2-methyl-4-hydroxy-5-t-butylbenzene). See 4,4'-Thiobis-6-(t-butyl-m-cresol)

**Thiocarbamide.** See Thiourea

**Thiocyanate sodium.** See Sodium thiocyanate

**Thiocyanic acid, 2-(benzothiazolylthio) methyl ester.** See 2-Thiocyanomethylthiobenzothiazole

**Thiocyanic acid, 1-chloro-1,2-ethanediyl ester.** See Chloroethylenebisthiocyanate

**Thiocyanic acid, chloroethylene ester.** See Chloroethylenebisthiocyanate

**Thiocyanic acid, 1,2-ethanediyl ester.** See Vinylene bisthiocyanate

**Thiocyanic acid, methylene ester.** See Methylenebis (thiocyanate)

**Thiocyanic acid potassium salt.** See Potassium thiocyanate

**Thiocyanic acid, sodium salt.** See Sodium thiocyanate

**Thiocyanic acid, vinylene ester.** See Vinylene bisthiocyanate

### 2-Thiocyanomethylthiobenzothiazole

CAS 21564-17-0

**Synonyms:** TCMTB; 2-(Benzothiazolylthio) methyl ester; (2-Benzothiazolylthio) methyl isocyanate; Thiocyanic acid, 2-(benzothiazolylthio) methyl ester

**Empirical:** C<sub>9</sub>H<sub>6</sub>N<sub>2</sub>S<sub>3</sub>

**Properties:** M.w. 238.35

**Toxicology:** LD50 (oral, rat) 1590 mg/kg, (IP, mouse) 73 mg/kg, (subcut., rat) 1300 mg/kg, (skin, rabbit) 10 g/kg; poison by IP, subcut. routes; mod. toxic by ing.

**Hazardous Decom. Prods.:** Heated to decomp., emits toxic fumes of SO<sub>2</sub> and NO<sub>x</sub>

**Uses:** Microbicide, fungicide, preservative in paints, adhesives, and metal-working; fungicide for wood; slimicide in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.300

**Trade Names:** Busan® 1118; Paxgard BU 30; Paxgard BU 30 L; Paxgard BU 60; Paxgard TC

**Trade Names Containing:** Busan® 1105; Paxgard BSL

2,2'-Thiodiethyl bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate. See Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate

Thiodiethyl bis-(3,5-di-t-butyl-4-hydroxyphenyl) propionate. See Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate

**Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate**

CAS 41484-35-9

**Synonyms:** Benzenepropanoic acid, 3,5-bis (1,1-dimethylethyl)-4-hydroxy-, thiodi-2,1-, ethanediyl ester; 4-Hydroxy-3,5-di-t-butylphenyl propionic acid thioglycolate; 2,2'-Thiodiethyl bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate; Thiodiethyl bis-(3,5-di-t-butyl-4-hydroxyphenyl) propionate; Thiodiglycol bis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate

**Empirical:** C<sub>38</sub>H<sub>50</sub>O<sub>6</sub>S

**Properties:** M.w. 643.02

**Toxicology:** LD50 (oral, rat) 6300 mg/kg; TSCA listed

**Uses:** Antioxidant/stabilizer for polyolefins, polyamides, PU, PVC, PS, rubbers, cellulose, food-grade polymers, food-pkg. adhesives; antioxidant in lubricants for incidental food-contact use; metal deactivator

**Regulatory:** FDA 21CFR §175.105, 178.2010, 178.3570

**Manuf./Distrib.:** Ciba Spec. Chems./Addit.

**Trade Names:** Irganox® 1035

Thiodiglycol bis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate]. See Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate

2-Thio-3,5-dimethyltetrahydro-1,3,5-thiadiazine. See 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazine-2-thione

**Thiodiphenylamine.** See Phenothiazine

**β-Thiopseudourea.** See Thiourea

**Thiosulfuric acid, diammonium salt.** See Ammonium thiosulfate

**Thiosulfuric acid disodium salt.** See Sodium thiosulfate anhydrous

**Thiosulfuric acid disodium salt pentahydrate.** See Sodium thiosulfate penta-

hydrate

### Thiourea

CAS 62-56-6; EINECS/ELINCS 200-543-5; UN No. 2811 (DOT), 2877 (DOT)

**Synonyms:** Isothiourea; Pseudothiourea; Sulfourea; Thiocarbamide; β-Thiopseudourea; 2-Thiourea

**Empirical:** CH<sub>4</sub>N<sub>2</sub>S

**Formula:** NH<sub>2</sub>CSNH<sub>2</sub>

**Properties:** Wh. cryst. solid; bitter taste; sol. in water, alcohol; m.w. 76.12; dens. 1.406; m.p. 180 C

**Toxicology:** LD50 (oral, rat) 125 mg/kg, (IP, rat) 436 mg/kg; LDLo (subcut., guinea pig) 4000 mg/kg; experimental poison by ing., IP routes; human poison; skin irritant, allergenic; human systemic effects by ing.: hemorrhage, cell count changes; chronic doses cause hepatic tumors; experimental carcinogen, neoplastigen, tumorigen, teratogenic and reproductive effects; human mutagenic data; TSCA listed

**Precaution:** May react violently with acrolein; incompat. with acrylaldehyde, H<sub>2</sub>O<sub>2</sub>, HNO<sub>3</sub>

**Hazardous Decom. Prods.:** Heated to decomp., emits very toxic fumes of NO<sub>x</sub> and SO<sub>x</sub>

**HMS:** Health 3; Flammability 1; Reactivity 1

**Uses:** Photographic chem.; photocopy papers; organic synthesis (intermediate, dyes, drugs, hair preps.); rubber accelerator; analytical reagent; amino resins; mold inhibitor; corrosion inhibitor; agrochemicals; surfactant; dispersant in animal glue, proteins; chrome/nickel plating reagent; thiolation reagent; pharmaceutical synthesis

**Regulatory:** FDA 21CFR §189.190 (prohibited from direct addition or use in human food); SARA reportable; BP compliance

**Manuf./Distrib.:** AMC Chems.; Aldrich; Alfa Chem; Allchem Ind.; Am. Int'l.; Atofina; Dastech Int'l.; Fairmount; Fluka; ICC Ind.; Independent Chem.; Kimson; Miljac; Monomer-Polymer & Dajac Labs; R.W. Greeff; Rambach; Rochem Int'l.; Ruger; Sakai Chem. Ind.; Sal Chem.; Sigma; Spectrum Quality Prods.; Technichem; U.S. Chems.; Universal Preserv-A-Chem; Varsal Instruments; Wego Chem. & Min.; Whyte Chems. Ltd

2-Thiourea. See Thiourea

### Thiourea dioxide

CAS 1758-73-2; EINECS/ELINCS 217-157-8

**Synonyms:** Aminoiminomethane sulfinic acid; Formamidine sulfinic acid; Thiourea S,S-dioxide

**Empirical:** CH<sub>4</sub>N<sub>2</sub>O<sub>2</sub>S

**Formula:** NH<sub>2</sub>C(NH)SO<sub>2</sub>H

**Properties:** Wh. cryst. powd.; sol. 30 g/l in water (20 C); insol. in most org. solvs.; m.w. 108.12; m.p. 124-127 dec.

**Toxicology:** Irritant

**Storage:** Moisture-sensitive

**Uses:** Disperse dye reducing agent for textile printing, blueprint papermaking; restripping of dyeings; reductive bleaching of cotton and polyamide; reagent for reduction of ketones to sec. alcohols; redox catalyst component (melamine resins)

**Manuf./Distrib.:** AMC Chems.; Aldrich; Alfa Chem; Allchem Ind.; Arol Chem. Prods.; Burlington Chem.; Degussa-Hüls; Fluka; Independent Chem.; Kimson; Miljac; Rochem Int'l.; Sigma; Varsal Instruments; Wego Chem. & Min.; Whyte Chems. Ltd

Thiourea S,S-dioxide. See Thiourea dioxide

THPS. See Tetrakis (hydroxymethyl) phosphonium sulfate

Tiger orange. See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

Tin chloride. See Stannic chloride

Tin (IV) chloride. See Stannic chloride

Tin (IV) chloride (1:4). See Stannic chloride

Tin (IV) chloride anhydrous. See Stannic chloride

Tin chloride, fuming. See Stannic chloride

Tin chloride (ic). See Stannic chloride

Tin oleate. See Stannous oleate

Tin perchloride. See Stannic chloride

Tin sodium oxide. See Sodium stannate

Tin tetrachloride. See Stannic chloride

Tin tetrachloride, anhydrous. See Stannic chloride

TIPA. See Triisopropanolamine

Titania. See Titanium dioxide

**Titanic acid anhydride.** See Titanium dioxide

**Titanic anhydride.** See Titanium dioxide

**Titanic earth.** See Titanium dioxide

**Titanic oxide.** See Titanium dioxide

#### Titanium dioxide

CAS 1317-80-2; 13463-67-7; EINECS/ELINCS 236-675-5

**Synonyms:** CI 77891; Pigment white 6; Titania; Titanic acid anhydride; Titanic anhydride; Titanic earth; Titanic oxide; Titanium oxide; Titanium peroxide; Titanium white

**Classification:** Inorganic oxide

**Definition:** Two crystalline forms: anatase and rutile

**Empirical:** O<sub>2</sub>Ti

**Formula:** TiO<sub>2</sub>

**Properties:** Wh. amorphous powd., odorless, tasteless; sol. in HF, hot conc. H<sub>2</sub>SO<sub>4</sub>; insol. in water, HCl, HNO<sub>3</sub>, dil. H<sub>2</sub>SO<sub>4</sub>; m.w. 79.90; dens. 3.90 (anatase), 4.23 (rutile); m.p. 1855 C; Anatase: dens. 3.90; bulking value 0.031 gal/lb; oil absorp. 24; Rutile: dens. 4.23

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> of total dust (when toxic impurities not present); TLo (inh., rat) 250 mg/m<sup>3</sup>; nuisance dust; common air contaminant; human skin irritant; questionable carcinogen; experimental carcinogen, neoplastigen, tumorigen; TSCA listed

**Precaution:** Violent or incandescent reaction with metals (e.g., aluminum, calcium, magnesium, potassium, sodium, zinc, lithium)

**HMS:** Health 1; Flammability 0; Reactivity 0

**Uses:** Wh. pigment, filler, opacifier in paints, paper, rubber, plastics, sealants, caulks, foods, pharmaceuticals (tableted drugs), cosmetics (lipsticks, nail enamels, face powds., eye makeup, rouge); pigment in printing inks, polishes, ceramics; floor coverings; glassware; enamel frits; delustering syn. fibers; welding rods; pharmaceutical coating agent; sunscreen agent; radioactive decontamination of skin; antiperspirants; in food-pkg. adhesives; in cellophane for food pkg.; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods; filler in food-contact rubber articles for repeated use; in food-contact textiles; strong anti-ozone chars.

**Use Level:** Limitation 1% (in food), 0.5% (canned ham salad spread, creamed canned prods.), 0.5% (poultry salads)

**Regulatory:** FDA 21CFR §73.575, 73.1575, 73.2575, 175.105, 175.210, 175.300, 175.380, 175.390, 176.170, 177.1200, 177.1210, 177.1350, 177.1400, 177.1460, 177.1650, 177.2260, 177.2600, 177.2800, 178.3297, 181.22, 181.30; USDA 9CFR §318.7, 381.147; Japan restricted as colorant; Europe listed; UK approved; prohibited in Germany; FDA approved for ophthalmics, orals, topicals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aceto; Aldrich; Ashland; Atlantic Equip. Engrs.; BCH Brühl; BFGoodrich Hilton Davis; Bayer NV; British Traders & Shippers; Brøste; Chemcentral; Chemical; Costec; D.N. Lukens; Degussa-Hüls; DuPont; Engelhard; Ferro/Transelco; Fluka; Hamill & Gillespie; Harcross; ICC Chem.; J.T. Baker; Kerr-McGee; Lambert Tech.; Landers-Segal Color; Lenape Ind.; Millennium Inorg. Chems.; Ore & Chem.; Royale Pigments & Chems.; Ruger; Sachtleben Chemie GmbH; Seegott; Spectrum Quality Prods.; TOR Mins.; Tioxide Am.; Titan Kogyo; Tricon Colors; Van Waters & Rogers; Varsal Instruments; Warner-Jenkinson; Whittaker, Clark & Daniels

**Trade Names:** Hitox®; Hombitan® R 610 L; Kronos® 1000; Kronos® 1070; Kronos® 1072; Kronos® 1074; Kronos® 2090; Kronos® 2131; Octotint 138; Octotint 601; Tiona® A-2000; Tiona® A-3000; Tiona® RCS-P; Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPD Vantage®; Ti-Pure® RPS Vantage®; Tronox A-X; Tronox R-PL-1

**Trade Names Containing:** Kronos® 2020; Kronos® 2073; Kronos® 2081; Kronos® 2101; Kronos® 2160; Kronos® 2200; Kronos® 2210; Kronos® 2220; Kronos® 2230; Kronos® 2310

**Titanium oxide.** See Titanium dioxide

**Titanium peroxide.** See Titanium dioxide

**Titanium white.** See Titanium dioxide

**TKPP.** See Tetrapotassium pyrophosphate

**TMAEMC.** See Dimethylaminoethyl methacrylate methyl chloride quat.

**TMPS.** See Tetrakis (hydroxymethyl) phosphonium sulfate

**TMPTA.** See 1,1,1-Trimethylolpropane triacrylate

**TMTM.** See Tetramethylthiuram monosulfide

**TOF.** See Trioctyl phosphate

**TOFA.** See Tall oil acid

#### Toluene

CAS 108-88-3; EINECS/ELINCS 203-625-9; UN No. 1294 (DOT)

**Synonyms:** Methylbenzene; Methylbenzol; Phenylmethane; Toluol

**Classification:** Aromatic hydrocarbon

**Empirical:** C<sub>7</sub>H<sub>8</sub>

**Formula:** C<sub>6</sub>H<sub>5</sub>CH<sub>3</sub>

**Properties:** Colorless clear liq., benzene odor; sol. in alcohol, benzene, ether, acetone, chloroform, petrol. ether, ethyl acetate; misc. with most org. solvs.; very sl. sol. in water; m.w. 92.13; dens. 0.866 (20/4 C); vapor pressure 36.7 mm Hg (30 C); m.p. -94.5 C; b.p. 110.7 C; flash pt. (CC) 4.4 C; ref. index 1.4967 (20 C); KB value 105

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 7.53 g/kg, (skin, rabbit) 12,124 mg/kg; toxic by ing., inh., IP, and skin absorption; irritant to eyes, skin, respiratory tract; severe dermatitis on direct contact; ing. may cause lung aspiration; overexposure by inh. may cause CNS excitation/depression; high concs. may cause paresthesia, vision disturbances, dizziness, nausea, headache, narcosis, death; experimental teratogen, reproductive effector; mutagenic data; TSCA listed

**Precaution:** Highly flamm.; incompat. with strong oxidizers, nitric acid, sulfuric acid, nitrogen tetroxide, silver perchlorate, sulfur dichloride, etc.; fire and explosion risk; potential violent reactions; common air contaminant

**Hazardous Decom. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

**Storage:** Store in cool well-ventilated area out of direct sunlight, away from heat/ignition sources, away from corrosives

**Uses:** Aviation gasoline additive; octane booster in gasoline; solvent for paints, gums, resins, rubber, inks, cleaners, adhesives; diluent and thinner in nitrocellulose lacquers; thinner for perfumes, dyes; alcohol denaturant; process solvent; adhesive solvent in plastic toys; in extraction of various principles from plants; mfg. of benzene, benzoic acid, benzaldehyde, toluene diisocyanate for PU resins, dyes, TNT for explosives, toluene sulfonates for detergents and dyestuffs; adjuvant in resinous/polymeric food-contact coatings; in paper/paperboard in contact with dry food; in acrylic food pkg.; in cellophane for food pkg.; adjuvant for PC food-pkg. resins; solvent in food-contact PPO resins; in food-pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 175.320, 176.180, 177.1010, 177.1200, 177.1440, 177.1580, 177.1650, 177.2460, 178.3010, 27CFR §21.131; SARA reportable

**Manuf./Distrib.:** Aldrich; Amyl; Arch Chems.; Ashland; Atofina Bruxelles; BASF AG; BP Amoco; BP Chems. Ltd; Baychem; Burdick & Jackson; Chemcentral; ChevronPhillips; Condea Chemie GmbH; Coyne; EniChem Elastomeri SpA; Equistar; Exxon; Ferro/Grant; Fisher Scientific; Fluka; Harcross; Houghton Chem.; Hukill; Huntsman; Idemitsu Petrochem.; J.T. Baker; Koch Ind.; LG Petrochem. Co. Ltd; Lyondell; Marathon Ashland Petrol.; Maruzen Petrochem.; Miljac; Mitsubishi Oil; Mitsui Chems.; Mobil; Nova Ltd; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Shell; Sigma; Spectrum Quality Prods.; Sunoco; Tonen Chem.; Triple Crown Am.; Van Waters & Rogers

**Trade Names Containing:** Metalure® L-53520

**Toluene-2,4-diamine, 5-(phenylazo)-, monohydrochloride.** See Basic orange 1

**p-Toluene ethylsulfonamide.** See Ethyl toluenesulfonamide

**p-Toluenesulfonamide, N-cyclohexyl-.** See N-Cyclohexyl-p-toluenesulfonamide

**Toluenesulfonamide/epoxy resin.** See Tosylamide/epoxy resin

**Toluenesulfonamide/formaldehyde resin.** See Tosylamide/formaldehyde resin

**Toluene sulfonic acid.** See p-Toluene sulfonic acid

**4-Toluenesulfonic acid.** See p-Toluene sulfonic acid

**Toluene-4-sulfonic acid.** See p-Toluene sulfonic acid

#### p-Toluene sulfonic acid

CAS 104-15-4; EINECS/ELINCS 203-180-0; UN No. 2585

**Synonyms:** PTSA; p-TSA; 4-Methylbenzenesulfonic acid; p-Methylbenzenesulfonic acid; p-Methylphenylsulfonic acid; Toluene sulfonic acid; 4-Toluenesulfonic acid; Toluene-4-sulfonic acid; Toluene-p-sulfonic acid; p-Tolylsulfonic acid; Tosic acid

**Classification:** Substituted aromatic acid; sulfonic acid

**Empirical:** C<sub>7</sub>H<sub>6</sub>O<sub>3</sub>S

**Formula:** C<sub>6</sub>H<sub>4</sub>(SO<sub>3</sub>H)(CH<sub>3</sub>)

**Properties:** Colorless leaflets; pungent odor; very sol. in water; sol. in

alcohol, ether, diethyl ether; m.w. 172.21; m.p. 107 C; b.p. 140 C (20 mm); flash pt. (CC) 184 C; strong acid; anionic  
**Toxicology:** LD50 (oral, rat) 2480 mg/kg; mod. toxic by ing.; strong skin and mucous membrane irritant; TSCA listed  
**Precaution:** DOT: Corrosive material; combustible; potentially explosive reaction with acetic anhydride + water  
**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>; heated to decomp., emits toxic fumes of SO<sub>x</sub>  
**NFPA:** Health 3; Flammability 1; Reactivity 1  
**Storage:** Hygroscopic  
**Uses:** Curing agent for amino/phenolic/acrylic resins, furan foundry resins; esterification/condensation/acetylation catalyst; acid catalyst for resins in foundry cores; descaling agent (industrial metal cleaners); electroplating bath additive; neutralizer in acrylonitrile prod.; plastics; coatings; dyes; organic synthesis; pharmaceutical intermediate; hydrotrope; coupling agent; wetting agent; anticaking agent; in food-pkg. adhesives  
**Regulatory:** FDA 21CFR §175.105; BP compliance  
**Manuf./Distrib.:** Aceto; Albright & Wilson Am.; Alchemie USA; Allan; Allchem Ind.; BCH Brühl; BYK-Chemie GmbH; Bayer/Fiber, Addits., Rubber; Biddle Sawyer; Boliden Intertrade; Brook-Chem; C & P Sales; Charkit; Chugai Boyeki Am.; Eastman; Ferro/Grant; Hexagon Enterprises; Hinton & Hillman; Howard Hall; Intertrade Holdings; Itochu Spec. Chems.; Kaltron/Pettibone; Miljac; Nissan Chem. Ind.; PMC Spec.; Rutgers Org.; Schweizerhall; Sloss Ind.; Spectrum Quality Prods.  
**Trade Names:** Cycat® 4040; K-Cure® 1040W; Nacure® 2522; Nacure® XC-2211; Nacure® XC-8224; Nacure® XP-386  
**Trade Names Containing:** K-Cure® 1040; Nacure® 2530

**Toluene-p-sulfonic acid.** See p-Toluene sulfonic acid

**Toluidine red.** See Pigment red 3

**Toluidine toner.** See Pigment red 3

**Toluol.** See Toluene

**p-Tolylsulfonic acid.** See p-Toluene sulfonic acid

**TOP.** See Trioctyl phosphate

**Toxic acid.** See p-Toluene sulfonic acid

#### Tosylamide/epoxy resin

**Synonyms:** Toluenesulfonamide/epoxy resin

**Definition:** Toluenesulfonamide of the condensation prod. of 4,4'-isopropylidenediphenol with epichlorohydrin, also known as the diglycidyl ether of bisphenol A

**Uses:** Nail enamel resin; plasticizer for nitrocellulose

**Trade Names:** Lustrabrite® S; Nagellite® 3050

#### Tosylamide/formaldehyde resin

CAS 1338-51-8; 25035-71-6; EINECS/ELINCS 215-667-5

**Synonyms:** Benzenesulfonamide, 4-methyl-, polymer with formaldehyde; Poly (p-toluenesulfonamide-co-formaldehyde); Toluenesulfonamide/formaldehyde resin

**Definition:** Polymer derived from toluenesulfonamide and formaldehyde

**Properties:** Solid

**Toxicology:** TSCA listed

**Uses:** Modifier and adhesion promoter for resins in adhesives and coatings; extender in polyamide resins; in side seam cements for food-contact containers; in paper/paperboard in contact with aq./fatty foods; adjuvant for SAN copolymer food pkg.; in cellophane for food pkg.

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 177.1040, 177.1200, 177.2260

**Manuf./Distrib.:** Akzo Nobel; Aldrich; Allchem Ind.

**Trade Names:** Uniplex 600

**N-Tosyl ethylamine.** See Ethyl toluenesulfonamide

**Toxic anhydride.** See Maleic anhydride

**TPGDA.** See PPG-3 diacrylate

**TPGME.** See PPG-3 methyl ether

**TPM.** See PPG-3 methyl ether

**TPP.** See Triphenyl phosphate

**TPU.** See Polyurethane, thermoplastic

#### Triacetin

CAS 102-76-1; EINECS/ELINCS 203-051-9; FEMA 2007

**Synonyms:** Acetic, 1,2,3-propanetriyl ester; Acetin; Enzactin; Glycerine triacetate; Glycerol triacetate; Glyceryl triacetate; 1,2,3-Propanetriol triacetate; Triacetyl glycerol; Triacetyl glycerin

**Definition:** Triester of glycerin and acetic acid

**Empirical:** C<sub>9</sub>H<sub>14</sub>O<sub>6</sub>

**Formula:** C<sub>3</sub>H<sub>5</sub>(OCOCH<sub>3</sub>)<sub>3</sub>

**Properties:** Colorless or pale yel. oily liq., sl. fatty odor, bitter taste; sol. in water, alcohol, ether, other org. solvs.; sl. sol. in CS<sub>2</sub>; m.w. 218.20; dens. 1.160 (20 C); m.p. -78 C; b.p. 258-260 C; sapon. no. 765-775; flash pt. 300 F; ref. index 1.4307 (20 C)

**Toxicology:** LD50 (oral, rat) 3000 mg/kg, (IV, mouse) 1600 ± 81 mg/kg, (IP, rat) 2100 mg/kg, (subcut., rat) 2800 mg/kg; poison by ing.; mod. toxic by IP, IV, subcut. routes; eye irritant; TSCA listed

**Precaution:** Combustible exposed to heat, flame, or powerful oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 1; Flammability 1; Reactivity 0

**Uses:** Plasticizer for vinyl, cellulose, and acrylic resins, in food-contact coatings; fixative in perfumery; mfg. of cosmetics; specialty solvent; solvent for dyes; mfg. of celluloid, photographic films; adhesives; coatings; paper; setting agent for sodium silicate foundry mold/soil consolidation binders; syn. flavoring agent in foods, pharmaceuticals; food additive, nutrient, solvent, vehicle, humectant, formulation aid; OTC drug; topical antifungal

**Use Level:** 190 ppm (nonalcoholic beverages), 60-2000 ppm (ice cream), 560 ppm (candy), 1000 ppm (baked goods), 4100 ppm (chewing gum); ADI not specified (JECFA)

**Regulatory:** FDA 21CFR §175.300, 175.320, 181.22, 181.27, 184.1901, GRAS; FEMA GRAS; FDA approved for orals; USP/NF, BP compliance

**Manuf./Distrib.:** A.P.; Aceto; Akzo Nobel; Aldrich; Allan; Ashland; B&D Nutritional Ingreds.; Bayer AG; Brown; CTC Orgs.; ChemUSA; Chemical SpA; Eastman; Fluka; Industrias Monfel; K3; Penta Mfg.; Ruger; Sigma; Spectrum Quality Prods.; Uniqema/Oleochems.; Universal Preserv-A-Chem

**Triacetyl glycerin.** See Triacetin

**Triacetyl glycerol.** See Triacetin

**2,4,6-Triamino-1,3,5-triazine.** See Melamine

**2,4,6-Triamino-s-triazine.** See Melamine

**2,4,6-Triamino-sym-triazine.** See Melamine

**sym-Triaminotriazine.** See Melamine

#### Triaryl phosphate

**Empirical:** C<sub>9</sub>H<sub>15</sub>O<sub>4</sub>P

**Formula:** (CH<sub>2</sub>:CHCH<sub>2</sub>O)<sub>3</sub>PO

**Properties:** Water-wh. liq.; dens. 1.064 (25/15 C); f.p. -50 C; b.p. 80 C (0.5 mm); ref. index 1.448 (25 C)

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Flame-retardant plasticizer for PVC, NC lacquers and coatings; compatibilizing agent; intermediate; catalyst carrier and pigment vehicle for polyurethane; processing aid in rubber belting and mech. goods; as flame-retardant hydraulic fluids, lubricants; antiwear, EP agent, lubricant additive; dispersing media for peroxide catalysts

**Manuf./Distrib.:** Akzo Nobel; Albright & Wilson Am.; Ashland; C.P. Hall; FMC; Harwick; Monsanto; Velsicol

**Trade Names:** Durad® 220B; Reofos® 1884

#### Triaryl sulfonium hexafluoroantimonate

**Properties:** Dens. 1.390; ref. index 1.4960

**Toxicology:** Irritating to eyes, skin, respiratory system; sensitizer; possible mutagen; TSCA listed

**Storage:** Light-sensitive

**Manuf./Distrib.:** Aldrich

**Trade Names Containing:** SR-1010

#### Triaryl sulfonium hexafluorophosphate

**Properties:** Dens. 1.320; ref. index 1.5000

**Toxicology:** Irritant; possible sensitizer; TSCA listed

**Storage:** Light-sensitive

**Manuf./Distrib.:** Aldrich

**Trade Names Containing:** SR-1011

**Triatomic oxygen.** See Ozone

**1,3,5-Triazine-2,4,6-triamine.** See Melamine

**1,3,5-Triazine-2,4,6-triamine compd. with formaldehyde, methylated.** See

Melamine-formaldehyde resin, methylated

**1,3,5-Triazine-2,4,6-triamine, N,N,N',N',N',N'-hexakis (methoxymethyl)-.** See Hexamethoxymethylmelamine

**1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde.** See Melamine-formaldehyde resin

**1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde, methylated.** See Melamine-formaldehyde resin, methylated

**s-Triazine, 2,4,6-triamino-.** See Melamine

**1,3,5-Triazine-1,3,5-(2H,4H,6H)-triethanol.** See Hydroxyethyl-s-triazine

**s-Triazine-1,3,5 (2H,4H,6H)-triethanol.** See Hydroxyethyl-s-triazine

**1,3,5-Triazine, 1,3,5-triethylhexahydro-.** See Hexahydro-1,3,5-triethyl-s-triazine

**s-Triazine, 1,3,5-triethylhexahydro-.** See Hexahydro-1,3,5-triethyl-s-triazine

**Triazol fast scarlet 3B.** See Direct red 39

**Tribasic aluminum stearate.** See Aluminum tristearate

**Tribasic sodium phosphate.** See Sodium phosphate tribasic

**Tribenzoin.** See Glyceryl tribenzoate

**Tributoxyethyl phosphate**

CAS 78-51-3; EINECS/ELINCS 201-122-9

*Synonyms:* TBEP; 2-Butoxyethanol phosphate; Ethanol, 2-butoxy-, phosphate (3:1); Tris (2-butoxyethyl) phosphate

*Empirical:* C<sub>18</sub>H<sub>30</sub>O<sub>7</sub>P

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>3</sub>O(CH<sub>2</sub>)<sub>2</sub>O]<sub>3</sub>PO

*Properties:* Sl. yel. oily liq.; sol. in most org. liqs.; insol. or limited sol. in glycerol, glycols, certain amines; m.w. 398.48; dens. 1.020 (20 C); vapor pressure 0.03 mm Hg (150 C); m.p. -70 C; b.p. 215-228 C (4 mm); flash pt. 438 F; ref. index 1.4380

*Toxicology:* LD50 (oral, rat) 3000 mg/kg, (IV, mouse) 180 mg/kg, (skin, rabbit) > 16 ml/kg; mod. toxic by ing.; poison by IV route; irritant; TSCA listed

*Precaution:* Combustible; can react with oxidizing materials

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of PO<sub>x</sub>

*Uses:* Primary plasticizer for most resins and elastomers; coalescing solvent/plasticizer for acrylic-based polish, gloss paints, adhesives; leveling agent in floor finishes and waxes; flame-retarding agent for plastics; in food-pkg. adhesives; lubricant; antiwear additive; defoamer for drilling muds, cements, fracturing fluids, plasters, paper coatings, pulp bleaching, aq. emulsion paints, adhesives, textiles, mercerizing liquors/dye baths, antifreeze, fermentation, detergents; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210

*Manuf./Distrib.:* Akzo Nobel; Albright & Wilson Am.; Aldrich; Ashland; C.P. Hall; Celanese; Chemcor; FMC; Harwick; Houghton Chem.; Rhodia HPCII; Surfactants Inc; Velsicol

*Trade Names:* Amgard® TBEP; KP-140®; Phosflex® TBEP

**Tributyl acetyl citrate.** See Acetyl tributyl citrate

**Tri-n-butyl O-acetyl citrate.** See Acetyl tributyl citrate

**Tributyl O-acetyl citrate.** See Acetyl tributyl citrate

**Tributyl 2-(acetyloxy)-1,2,3-propanetricarboxylate.** See Acetyl tributyl citrate

**Tributyl citrate acetate.** See Acetyl tributyl citrate

**Tri-n-butyl citrate acetate.** See Acetyl tributyl citrate

**(Tributyl) peroxide.** See Di-t-butyl peroxide

**Tributyl phosphate**

CAS 126-73-8; EINECS/ELINCS 204-800-2

*Synonyms:* TBP; Butyl phosphate; n-Butyl phosphate; Phosphoric acid tributyl ester; Phosphoric acid, tri-n-butyl ester; Tri-n-butyl phosphate

*Classification:* Organophosphate

*Empirical:* C<sub>12</sub>H<sub>27</sub>O<sub>4</sub>P

*Formula:* (C<sub>4</sub>H<sub>9</sub>)<sub>3</sub>PO<sub>4</sub>

*Properties:* Stable colorless liq., odorless; misc. with alcohol, ether, most org. solvs.; insol. in water; m.w. 266.32; dens. 0.978 (20/20 C); m.p. < -80 C; b.p. 292 C (dec.); flash pt. (COC) 146 C; ref. index 1.4215 (25 C)

*Toxicology:* ACGIH TLV/TWA 0.2 ppm; LD50 (oral, rat) 1400 mg/kg, (IP, rat) 251 mg/kg; LDLo (IV, rat) 100 mg/kg; LC50 (inh., mouse) 1300 mg/m<sup>3</sup>; poison by IP, IV routes; mod. toxic by ing., inh., subcut. routes; irritant to skin, mucous membranes, eyes; experimental reproductive effects; TSCA listed

*Precaution:* Combustible exposed to heat or flame

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of PO<sub>x</sub>

NFPA: Health 2; Flammability 1; Reactivity 0

*Uses:* Heat-exchange medium; extraction agent (rare earths, uranium, pluto-

nium, phosphoric acid); plasticizer for cellulose esters, lacquers, plastics, vinyl resins; dielectric; flame retardant for plastics, cellulose, coatings; fire-resist. hydraulic fluid; plasticizer; (lubricant; antiwear additive; defoamer for drilling muds, cements, paper coatings, pulp bleaching, mold coating, aq. paints, adhesives, mercerizing liquors/dye baths, antifreeze, fermentation, detergents; in food-pkg. adhesives; defoamer in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 176.210

*Manuf./Distrib.:* ABCR; AC Ind.; Acros Org.; Akzo Nobel; Albright & Wilson Am.; Aldrich; Allchem Ind.; Ashland; Bayer; C.P. Hall; Chemron; EM Ind.; F.T.L. Int'l.; FMC; Fluka; Harwick; Houghton Chem.; Independent Chem.; Sigma; Spectrum Quality Prods.; Van Waters & Rogers; Velsicol

*Trade Names:* Kronitex® TBP; Phosflex® 4; Reomol® TBP; TBP

**Tri-n-butyl phosphate.** See Tributyl phosphate

**Tri-n-butyl-stannane oxide.** See Tributyltin oxide

**Tributyltin oxide**

CAS 56-35-9; EINECS/ELINCS 200-268-0

*Synonyms:* BTO; HBD; TBT; TBTO; Bis (tributylstannyl) oxide; Bis(tributyltin) oxide; Bis (tri-n-butyltin) oxide; Hexabutylidistannoxane; Oxybis (tributyltin); Tri-n-butyl-stannane oxide

*Empirical:* C<sub>24</sub>H<sub>54</sub>OSn<sub>2</sub>

*Formula:* (CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>)<sub>3</sub>SnOSn(CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>)<sub>3</sub>

*Properties:* Colorless to pale yel. liq.; sol. in many org. solvs.; insol. in water; m.w. 596.08; dens. 1.17; solidifies < -45 C; b.p. 180 C (2 mm)

*Toxicology:* ACGIH TLV/TWA 0.1 mg(Sn)/m<sup>3</sup> (skin); LD50 (oral, rat) 87 mg/kg, (IP, rat) 7210 mg/kg, (dermal, rat) 11,700 mg/kg; poison by ing., IP, IV routes; mod. toxic by skin contact; severe eye irritant; experimental teratogen and reproductive effects; mutagen; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Air-sensitive

*Uses:* Biocide, bactericide, fungicide, mildewcide, (preservative in underwater and antifouling paints, pesticides, plastics, cooling water, sec. oil recovery, hospital use, textiles, paper preservation; paper mill slimeicide; biostabilizer for plastics and adhesives; wood preservative; intermediate; PVAc latex paints; preservative in food-pkg. adhesives

*Regulatory:* FDA 21CFR §175.105; SARA reportable

*Manuf./Distrib.:* Aceto; Akzo Nobel; Aldrich; Atofina; Fluka; KMZ Chem. Ltd

*Trade Names:* bioMeT TBTO

**Tricarballic acid-β-acetoxytributyl ester.** See Acetyl triethyl citrate

**Tricetylmonium chloride**

CAS 52467-63-7; 71060-72-5

*Synonyms:* Tricetyl monomethyl ammonium chloride

*Classification:* Quaternary ammonium salt

*Empirical:* C<sub>49</sub>H<sub>102</sub>N • Cl

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>14</sub>CH<sub>2</sub>N(CH<sub>2</sub>(CH<sub>2</sub>)<sub>14</sub>CH<sub>3</sub>)<sub>2</sub>CH<sub>3</sub>]<sup>+</sup>Cl<sup>-</sup>

*Uses:* Industrial surfactant for pigment dispersing, coatings, inks, paper processing; hair conditioner, antistat

**Tricetyl monomethyl ammonium chloride.** See Tricetylmonium chloride

**Trichloroacetaldehyde hydrate.** See Chloral hydrate

**Trichloroacetaldehyde, hydrated.** See Chloral hydrate

**Trichloroacetaldehyde monohydrate.** See Chloral hydrate

**1,1,1-Trichloro-2,2-dihydroxyethane.** See Chloral hydrate

**1,1,1-Trichloro-2,2-ethanediol.** See Chloral hydrate

**2,2,2-Trichloro-1,1-ethanediol.** See Chloral hydrate

**Trichloro ethylidene glycol.** See Chloral hydrate

**N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide.** See Captan

**N-Trichloromethylthio-4-cyclohexene-1,2-dicarboximide.** See Captan

**N-(Trichloromethylthio) cyclohex-4-ene-1,2-dicarboximide.** See Captan

**N-Trichloromethylthiotetrahydrophthalimide.** See Captan

**2,4,5-Trichlorophenol, sodium salt.** See Sodium-2,4,5-trichlorophenate

**(2,4,5-Trichlorophenoxy) sodium.** See Sodium-2,4,5-trichlorophenate

**1-Tridecanecarboxylic acid.** See Myristic acid

**1-Tridecanecarboxylic acid, isopropyl ester.** See Isopropyl myristate

**Tridecanol.** See Tridecyl alcohol

**1-Tridecanol.** See Tridecyl alcohol

**n-Tridecanol.** See Tridecyl alcohol

**Tridecanol condensed with 6 moles ethylene oxide.** See Trideceth-6



## Trideceth

### Trideceth

CAS 24938-91-8 (generic)

**Synonyms:** Ethoxylated tridecyl alcohol; Isotridecanol ethoxylates

**Definition:** PEG ether of tridecyl alcohol; commercial prods. contain 3-20 moles EO

**Formula:**  $(C_2H_5O)_x C_{13}H_{28}O$ , x = 3-20

**Properties:** Liq. to paste; HLB 8-16.3 (3-20 moles EO); nonionic

**Toxicology:** TDL<sub>o</sub> (oral, rat, 13 wk continuous) 45 g/kg; primary irritant; TSCA listed

**Uses:** Emulsifier for olein, oils, solvs., waxes; foam booster for detergents; low-temp. scouring/wetting agent for household/industrial cleaners; wetting agent for metal pickling baths

**Trade Names:** Merpol® SH; Rhodasurf® TR15/40

**Trade Names:** Imbentin-T/050 I; Volpo T5

### Trideceth-2

CAS 678213-23-0 (generic)

**Synonyms:** PEG 100 tridecyl ether; POE (2) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{17}H_{36}O_3$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 2

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Detergent; emulsifier; coemulsifier; base for emulsifiers, textile antistats, scouring and wetting agents, and specialty cleaners; intermediate for sulfation used in personal care prods.; defoamer in food-contact paper coatings

**Regulatory:** FDA 21CFR §176.200

### Trideceth-6

CAS 24938-91-8 (generic); 78330-21-9 (generic)

**Synonyms:** Alkyl (C-13) polyethoxylates (ethoxy 5); PEG-6 tridecyl ether; PEG 300 tridecyl ether; POE (6) alkyl (13) ether; POE (6) tridecyl ether; Tridecanol condensed with 6 moles ethylene oxide

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{25}H_{52}O_7$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 6

**Properties:** HLB 11.4; nonionic

**Toxicology:** Skin irritant; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent in pulp and paper industry, textiles, corrosion inhibitors, petroleum oils, paints, adhesives; penetrant; leveling agent; stabilizer; coupling agent; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Seabrook Ind.; Sigma

**Trade Names:** DeSonic™ 6T; DeTHOX TDA-6; Imbentin-T/060; Nonionic TD-6

### Trideceth-7

CAS 24938-91-8 (generic); 78330-21-9 (generic); 68213-23-0 (generic)

**Synonyms:** PEG-7 tridecyl ether; POE (7) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{27}H_{56}O_8$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 7

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Detergent; wetting agent; dispersant; homogenizing agent; textile emulsifier; for cleaning food handling equip.; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Sigma

**Trade Names:** Imbentin-T/070; T-Det® A467

### Trideceth-8

CAS 24938-91-8 (generic)

**Synonyms:** PEG-8 tridecyl ether; PEG 400 tridecyl ether; POE (8) tridecyl alcohol; POE (8) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{29}H_{60}O_9$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 8

**Properties:** HLB 12.7; nonionic

**Toxicology:** TSCA listed

**Uses:** Foam builder; solubilizer; coemulsifier; homogenizing agent; textile emulsifier; scouring and dye leveling agent; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Seabrook Ind.; Sigma

**Trade Names:** Imbentin-T/080

### Trideceth-9

CAS 24938-91-8 (generic); 78330-21-9 (generic)

**Synonyms:** PEG-9 tridecyl ether; PEG 450 tridecyl ether; POE (9) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{31}H_{64}O_{10}$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 9

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent in pulp and paper industry, textiles, corrosion inhibitors, petroleum oils; in food-pkg. adhesives; penetrant; scouring/dye leveling in textiles; homogenizing agent; emollient, lubricant for skin care; solubilizer for fragrances and oils; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Seabrook Ind.; Sigma

**Trade Names:** DeTHOX TDA-8.5; Imbentin-T/090; Rhodasurf® TDA-8.5;

### Trideceth-3

CAS 4403-12-7; 24938-91-8 (generic); EINECS/ELINCS 224-540-3

**Synonyms:** PEG-3 tridecyl ether; PEG (3) tridecyl ether; POE (3) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{19}H_{40}O_4$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 3

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent in pulp and paper industry, textiles, corrosion inhibitors, petroleum oils; penetrant; scouring/dye leveling in textiles; coupling agent; stabilizer; gellant; homogenizing agent; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §176.200, 176.210

**Manuf./Distrib.:** Sigma

**Trade Names:** Imbentin-T/030

### Trideceth-4

CAS 24938-91-8 (generic)

**Synonyms:** PEG-4 tridecyl ether; POE (4) tridecyl alcohol; POE (4) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 4

**Properties:** HLB 9.3; nonionic

**Toxicology:** TSCA listed

**Uses:** Surfactant; dispersant; wetting agent; cleaner; soil suspending agent; emulsifier for textiles; homogenizing agent; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §176.200, 176.210

**Manuf./Distrib.:** Sigma

**Trade Names:** Imbentin-T/040

### Trideceth-5

CAS 24938-91-8 (generic)

**Synonyms:** PEG-5 tridecyl ether; POE (5) tridecyl ether

**Definition:** PEG ether of tridecyl alcohol

**Empirical:**  $C_{23}H_{48}O_6$

**Formula:**  $CH_3(CH_2)_{11}CH_2(OCH_2CH_2)_nOH$ , avg. n = 5

**Properties:** Nonionic

**Toxicology:** TSCA listed

**Uses:** Emulsifier, detergent, dispersant, gellant, solubilizer for cosmetics, industrial cleaners, metal degreasing, agric., textile processing; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210

**Manuf./Distrib.:** Sigma

Synperonic 13/9; Trycol® 5941

### Trideceth-10

CAS 24938-91-8 (generic); 78330-21-9 (generic)  
**Synonyms:** PEG-10 tridecyl ether; PEG 500 tridecyl ether; POE (10) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>33</sub>H<sub>68</sub>O<sub>11</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 10  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Emulsifier, detergent, wetting agent, foam builder, solubilizer used for household, industrial cleaners, textile processing, paper industry, topical pharmaceuticals; in food-pkg. adhesives; homogenizing agent; stabilizer; scouring/dye leveling agent; gellant; defoamer in food-contact coatings and paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210; FDA approved for topicals  
**Manuf./Distrib.:** Sigma  
**Trade Names:** Carsonon® TD-10; Imbentin-T/65 100%; Imbentin-T/100 90%; Synperonic 13/10; Volpo T10

### Trideceth-11

CAS 24938-91-8 (generic)  
**Synonyms:** PEG-11 tridecyl ether; POE (11) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>35</sub>H<sub>71</sub>O<sub>12</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 11  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Detergent, foam builder, emulsifier, wetting agent for household and industrial cleaners; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210  
**Manuf./Distrib.:** Sigma

### Trideceth-12

CAS 24938-91-8 (generic); 78330-21-9 (generic)  
**Synonyms:** PEG-12 tridecyl ether; PEG 600 tridecyl ether; POE (12) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>37</sub>H<sub>76</sub>O<sub>13</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 12  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Intermediate in the mfg. of high-foaming surfactants; emulsifier, detergent, dispersant, wetting agent in pulp and paper industry, textiles, corrosion inhibitors, petroleum oils, paints, adhesives; in food-pkg. adhesives; dye leveling agent; penetrant; stabilizer; coupling agent; defoamer in food-contact coatings and paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210  
**Manuf./Distrib.:** Sigma  
**Trade Names:** Imbentin-T/120; Nonionic TD-12

### Trideceth-14

CAS 24938-91-8 (generic); 78330-21-9 (generic)  
**Synonyms:** PEG-14 tridecyl ether; POE (14) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>41</sub>H<sub>83</sub>O<sub>15</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 14  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Emulsifier, stabilizer for syn. latexes, textile wetting; solubilizer for essential oils, solvs., fats, waxes; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210  
**Manuf./Distrib.:** Sigma

### Trideceth-15

CAS 24938-91-8 (generic); 78330-21-9 (generic)  
**Synonyms:** PEG-15 tridecyl ether; POE (15) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>43</sub>H<sub>87</sub>O<sub>16</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 15

**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Solubilizer; foam builder; detergent; emulsifier and stabilizer for syn. latexes; leveling and scouring agent; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard  
**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210  
**Manuf./Distrib.:** Seabrook Ind.; Sigma  
**Trade Names:** DeTHOX TDA-15; Imbentin-T/150; Nonionic TD-15; Volpo T15

### Trideceth-18

CAS 24938-91-8 (generic)  
**Synonyms:** PEG-18 tridecyl ether; POE (18) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>49</sub>H<sub>99</sub>O<sub>19</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 18  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Emulsifier, dispersant, detergent, wetting agent used in paper and textile industries; leveling agent; solubilizer; foam stabilizer; intermediate; defoamer in food-contact coatings  
**Regulatory:** FDA 21CFR §176.200  
**Manuf./Distrib.:** Sigma

### Trideceth-20

CAS 24938-91-8 (generic)  
**Synonyms:** PEG-20 tridecyl ether; PEG 1000 tridecyl ether; POE (20) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>53</sub>H<sub>107</sub>O<sub>21</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 20  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Detergent; solubilizer; dispersant; stabilizer; gellant; defoamer in food-contact paper coatings  
**Regulatory:** FDA 21CFR §176.200  
**Manuf./Distrib.:** Sigma

### Trideceth-23

CAS 24938-91-8 (generic)  
**Synonyms:** PEG-23 tridecyl ether; POE (23) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 23  
**Properties:** Nonionic  
**Uses:** Emulsifier; wetting agent; scouring agent; raw material for sulfation and phosphation; dispersant for essential oils; dye leveling agent; defoamer in food-contact paper coatings  
**Regulatory:** FDA 21CFR §176.200

### Trideceth-25

CAS 24938-91-8 (generic)  
**Synonyms:** PEG-25 tridecyl ether; POE (25) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>63</sub>H<sub>127</sub>O<sub>26</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 25  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Wetting agent, surfactant, solubilizer for cosmetics and industrial use; defoamer in food-contact paper coatings  
**Regulatory:** FDA 21CFR §176.200  
**Manuf./Distrib.:** Sigma

### Trideceth-29

CAS 24938-91-8 (generic)  
**Synonyms:** PEG-29 tridecyl ether; POE (29) tridecyl ether  
**Definition:** PEG ether of tridecyl alcohol  
**Empirical:** C<sub>71</sub>H<sub>143</sub>O<sub>30</sub>  
**Formula:** CH<sub>3</sub>(CH<sub>2</sub>)<sub>11</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 29  
**Properties:** Nonionic  
**Toxicology:** TSCA listed  
**Uses:** Surfactant; defoamer in food-contact paper coatings  
**Regulatory:** FDA 21CFR §176.200  
**Manuf./Distrib.:** Sigma

**Trideceth-30**

CAS 24938-91-8 (generic)

*Synonyms:* PEG-30 tridecyl ether; POE (30) tridecyl ether*Definition:* PEG ether of tridecyl alcohol*Formula:*  $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 30$ *Properties:* Nonionic*Uses:* Emulsifier for emulsion polymerization; defoamer in food-contact paper coatings*Regulatory:* FDA 21CFR §176.200**Trideceth-40**

CAS 24938-91-8 (generic)

*Synonyms:* PEG-40 tridecyl ether; POE (40) tridecyl ether*Definition:* PEG ether of tridecyl alcohol*Formula:*  $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 40$ *Properties:* Nonionic*Uses:* Emulsifier for emulsion polymerization; defoamer in food-contact paper coatings*Regulatory:* FDA 21CFR §176.200*Trade Names:* Imbentin-T/400 G**Trideceth-50**

CAS 24938-91-8 (generic)

*Synonyms:* PEG-50 tridecyl ether; POE (50) tridecyl ether*Definition:* PEG ether of tridecyl alcohol*Empirical:*  $\text{C}_{113}\text{H}_{227}\text{O}_{51}$ *Formula:*  $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 50$ *Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Emulsifier for emulsion polymerization; defoamer in food-contact paper coatings*Regulatory:* FDA 21CFR §176.200*Manuf./Distrib.:* Sigma**Trideceth-100**

CAS 24938-91-8 (generic)

*Synonyms:* PEG-100 tridecyl ether; POE (100) tridecyl ether*Definition:* PEG ether of tridecyl alcohol*Empirical:*  $\text{C}_{213}\text{H}_{427}\text{O}_{101}$ *Formula:*  $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 100$ *Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Emulsifier, wetting agent for cosmetic, pharmaceutical, and industrial applics.; defoamer in food-contact paper coatings*Regulatory:* FDA 21CFR §176.200*Manuf./Distrib.:* Sigma**Trideceth-150**

CAS 24938-91-8 (generic)

*Synonyms:* PEG-150 tridecyl ether; POE (150) tridecyl ether*Definition:* PEG ether of tridecyl alcohol*Empirical:*  $\text{C}_{313}\text{H}_{627}\text{O}_{151}$ *Formula:*  $\text{CH}_3(\text{CH}_2)_{11}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OH}$ , avg.  $n = 150$ *Properties:* Nonionic*Toxicology:* TSCA listed*Uses:* Surfactant for hard surface cleaners; defoamer in food-contact paper coatings*Regulatory:* FDA 21CFR §176.200*Manuf./Distrib.:* Sigma**Trideceth-6 phosphate**

CAS 9046-01-9 (generic); 73070-47-0 (generic)

*Synonyms:* PEG-6 tridecyl ether phosphate; PEG 300 tridecyl ether phosphate; POE (6) tridecyl ether phosphate*Definition:* Complex mixture of esters of phosphoric acid and trideceth-6*Properties:* Anionic*Toxicology:* TSCA listed*Uses:* Pesticide emulsifier; dry-cleaning detergent; textile wetting agent, anti-stat; penetrant, lubricant for fiber and metal treatment; emulsion polymerization; emulsifier in mfg. of food-contact articles; in lubricants for incidental food contact*Regulatory:* FDA 21CFR §178.3400, 178.3570*Trade Names:* Rhodafac® RS-610**Trideceth-10 phosphate**

CAS 9046-01-9 (generic); 73070-47-0 (generic)

*Synonyms:* PEG-10 tridecyl ether phosphate; PEG 500 tridecyl ether phosphate; POE (10) tridecyl ether phosphate*Definition:* Complex mixture of esters of phosphoric acid and trideceth-10*Properties:* Anionic*Uses:* Detergent, wetting agent, emulsifier, dispersant for textile wet processing, industrial cleaners, pesticides, dry-cleaning, metal treatment; antistat for plastics; emulsifier in mfg. of food-contact articles*Regulatory:* FDA 21CFR §178.3400*Trade Names:* Rhodafac® RS-710**Tridecyl alcohol**

CAS 112-70-9; EINECS/ELINCS 203-998-8

*Synonyms:* C13 linear primary alcohol; Tridecanol; 1-Tridecanol; n-Tridecanol; n-Tridecyl alcohol*Classification:* Synthetic alcohol; commercial mixt. of isomers*Empirical:*  $\text{C}_{13}\text{H}_{28}\text{O}$ *Formula:*  $\text{C}_{12}\text{H}_{25}\text{CH}_2\text{OH}$ *Properties:* Low melting wh. solid, pleasant odor; insol. in water; m.w. 200.41; dens. 0.845 (20/20 C); m.p. 31 C; b.p. 274 C; flash pt. (PMCC) 118 C*Toxicology:* LD50 (oral, rat) 17,200 mg/kg, (skin, rabbit) 5600 mg/kg; mildly toxic by ingestion and skin contact; skin irritant; TSCA listed*Precaution:* Combustible exposed to heat or flame*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes*Uses:* Esters for synthetic lubricants, detergents, antifoam agents, other tridecyl compds.; perfumery; solvent for paints; metal extraction solvent; oiliness additive for lubricants; in food-pkg. adhesives; processing aid in PVC food-contact coatings and paper/paperboard*Regulatory:* FDA 21CFR §175.105, 175.300, 176.210*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; Bencorp Int'l.; Berje; Browning; Celanese; Chemcentral; Exxon; Fluka; ICC Ind.; Indofine; Jarchem Ind.; Kyowa HAKKO USA; Penta Mfg.; Sigma**n-Tridecyl alcohol.** See Tridecyl alcohol**Tridecylbenzenesulfonic acid, sodium salt.** See Sodium tridecylbenzenesulfonate**Trien.** See Triethylenetetramine**Trientine.** See Triethylenetetramine**Triethanolamine**

CAS 102-71-6; EINECS/ELINCS 203-049-8

*Synonyms:* TEA; TELA; 2,2',2''-Nitrioltris(ethanol); 2,2',2''-Nitrioltriethanol; 2,2',2''-Trihydroxytriethylamine; Trolamine; Triethylolamine; Trihydroxytriethylamine; Tris (2-hydroxyethyl) amine; Tri (2-hydroxyethyl)amine*Classification:* Aliphatic amino alcohol; alkanolamine*Empirical:*  $\text{C}_6\text{H}_{15}\text{NO}_3$ *Formula:*  $\text{N}(\text{CH}_2\text{CH}_2\text{OH})_3$ *Properties:* Colorless to pale yel. visc. liq., sl. ammoniacal odor; sol. in water, alcohol, acetone, chloroform; sl. sol. in benzene, ether; m.w. 149.19; dens. 1.126; m.p. 21.2 C; b.p. 335 C (dec.); flash pt. (OC) 375 F; ref. index 1.4835; pH 10.5 (0.1N aq.)*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup>; LD50 (oral, rat) 8 g/kg; mod. toxic by IP; mildly toxic by ing. (irritation of mouth, abdominal pain, vomiting, diarrhea); human skin irritant; eye irritant; skin sensitizer; TSCA listed*Precaution:* Combustible when exposed to heat or flame; incompat. with oxidizers, strong acids; can react vigorously with oxidizing materials; increased risk of fire or explosion*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of  $\text{NO}_x$  and CN<sup>-</sup>

NFPA: Health 2; Flammability 1; Reactivity 1

*Storage:* Very hygroscopic; light-sensitive; store in cool, dry, well-ventilated area away from heat/ignition sources*Uses:* Intermediate in mfg. of surfactants, textile specialties, waxes, polishes, toiletries, herbicides, cutting oils, fatty acid soaps (dry-cleaning), cosmetics, household detergents, emulsions; solvent for casein, shellac, dyes; water repellent; electroplating; corrosion inhibitor; dispersant for dyes, casein, shellac, rubber latex; activator; neutralizer; grinding aid; sequestrant; rubber accelerator; emulsifier for pharmaceuticals; flume wash water additive (foods); food coating; in food-pkg. adhesives; pH adjuster for amino resins in mfg. of paper/paperboard in contact with aq./fatty/dry

foods; defoamer in food-contact coatings and paper/paperboard; curing agent in food-contact PU resins

*Use Level:* Limitation 2 ppm (in wash water)

*Regulatory:* FDA 21CFR §173.315, 175.105, 175.300, 175.380, 175.390, 176.170, 176.180, 176.200, 176.210, 177.1210, 177.1680, 177.2260, 177.2600, 177.2800, 178.3120, 178.3910; FDA approved for orals, topicals, vaginals; USP/NF, BP compliance

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Ashland; BASF AG; Bencorp Int'l.; Brown; Bruchem; Coyne; Degussa-Hüls AG; Dow; Duso; Expo Chem.; Fluka; HCl Chemtech Distribution; Harcros; Harwick; Houghton Chem.; Huntsman; Int'l. Chem. Inc.; Kramer; Mays; Mutchler; Occidental; Oxiteno; Research Organics; Ruger; Sal Chem.; Schweizerhall; Sigma; Spectrum Quality Prods.; Union Carbide; Universal Preserv-A-Chem; Van Waters & Rogers; Varsal Instruments; Venus Ethoxyethers; Whyte Chems. Ltd

**Triethanolamine coconut acid.** See TEA cocoate

**Triethanolamine dodecyl sulfate.** See TEA-lauryl sulfate

**Triethanolamine lauryl sulfate.** See TEA-lauryl sulfate

**Triethanolamine monooleate ester.** See TEA-oleate

**Triethanolamine oleate.** See TEA-oleate

**Triethanolamine oleate soap.** See TEA-oleate

**Triethanolamine stearate.** See TEA-stearate

**Triethanolammonium lauryl sulfate.** See TEA-lauryl sulfate

**Triethyl acetylacrylate.** See Acetyl triethyl citrate

**Triethyl o-acetylacrylate.** See Acetyl triethyl citrate

**N,N,N-Triethylbenzenemethanaminium chloride.** See Benzyltriethyl ammonium chloride

**Triethyl benzyl ammonium chloride.** See Benzyltriethyl ammonium chloride

**Triethyl citrate**

CAS 77-93-0; EINECS/ELINCS 201-070-7; FEMA 3083

*Synonyms:* TEC; Ethyl citrate; 2-Hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester

*Definition:* Triester of ethyl alcohol and citric acid

*Empirical:* C<sub>12</sub>H<sub>20</sub>O<sub>7</sub>

*Formula:* C<sub>3</sub>H<sub>5</sub>O(COOC<sub>2</sub>H<sub>5</sub>)<sub>3</sub>

*Properties:* Colorless mobile oily liq., odorless, bitter taste; sol. 65 g/100 cc water; sol. 0.8 g/100 cc oil; sol. in oxygenated solvs.; misc. with alcohol, ether; m.w. 276.32; dens. 1.136 (25°C); vapor pressure 1 mm Hg (107°C); b.p. 294°C; flash pt. (COC) 303°F; ref. index 1.4420

*Toxicology:* LD50 (oral, rat) 5900 mg/kg, (IP, mouse) 1750 mg/kg, (subcut., rat) 6600 mg/kg; LC50 (inh., rat, 6 h) 1300 ppm; mod. toxic by IP route; mildly toxic by ing., inh.; no known skin toxicity; TSCA listed

*Precaution:* Combustible exposed to heat or flame

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Solvent and plasticizer for nitrocellulose and natural resins; plasticizer for lacquers, printing inks, cigarette filters; softener; paint removers; agglutinant; perfume base/fixative; food additive, sequestrant; flavoring agent, plasticizer in pharm; deodorant active; plasticizer in food-contact coatings

*Use Level:* Limitation 0.25% (in dried egg whites)

*Regulatory:* FDA 21CFR §175.300, 175.320, 181.22, 181.27, 182.1911, GRAS; FEMA GRAS; FDA approved for orals; USP/NF compliance

*Manuf./Distrib.:* Aldrich; Chemical SpA; Fluka; Great Western; H&R Florasynth; Int'l. Chem. Inc.; Jungbunzlauer; Morflex; Penta Mfg.; Unitek; Universal Preserv-A-Chem; Wilshire

*Trade Names:* Citroflex® 2; TEC

**Triethylene glycol di-2-ethylhexanoate.** See PEG-3 di-2-ethylhexoate

**Triethylene glycol di-2-ethylhexoate.** See PEG-3 di-2-ethylhexoate

**Triethylene glycol dimethacrylate.** See PEG-3 dimethacrylate

**Triethylene glycol dioctoate.** See PEG-3 dioctoate

**Triethylene glycol dodecyl ether.** See Laureth-3

**Triethylenetriamine**

CAS 112-24-3; EINECS/ELINCS 203-950-6; UN No. 2259 (DOT)

*Synonyms:* TET; TETA; N,N'-Bis (2-aminoethyl)-1,2-diaminoethane; N,N'-Bis (2-aminoethyl)-1,2-ethanediamine; N,N'-Bis (2-aminoethyl) ethylenediamine; N,N'-Bis (2-aminoethyl)-1,2-ethylenediamine; 3,6-Diazaoctane-1,8-diamine; 1,4,7,10-Tetraazadecane; Trien; Trientine

*Classification:* Aliphatic polyamine

*Empirical:* C<sub>6</sub>H<sub>18</sub>N<sub>4</sub>

*Formula:* NH<sub>2</sub>(C<sub>2</sub>H<sub>5</sub>NH)<sub>2</sub>C<sub>2</sub>H<sub>5</sub>NH<sub>2</sub>

*Properties:* Ylsh. mod. visc. oily liq.; weak ammoniacal odor; sol. in water, alcohol, acetone, benzene, ethyl ether; misc. with oxygenated and aromatic solvs.; sl. sol. in heptane; immisc. with aliphatic solvs.; m.w. 146.23; dens. 0.9818 (20/20°C); m.p. 12°C; b.p. 277.5°C; pour pt. < -40°C; flash pt. (CC) 275°F; ref. index 1.4971 (20°C); pH 14

*Toxicology:* LD50 (oral, rat) 2.5 g/kg, (IV, mouse) 350 mg/kg, (dermal, rabbit) 805 mg/kg; poison by IV route; mod. toxic by ing. and skin contact; strong irritant to tissue, mucous membranes; skin burns, eye damage; causes skin sensitization; experimental teratogen, reproductive effector; mutagenic data; TSCA listed

*Precaution:* DOT: Corrosive material; combustible exposed to heat or flame; can react with oxidizers; ignites on contact with cellulose nitrate (high surf. area); may absorb CO<sub>2</sub> from air to form carbamate salts

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, hydrogen cyanide, ammonia, volatile amines, irritating aldehydes and ketones; heated to decomp., emits toxic fumes of NO<sub>x</sub>

NFPA: Health 3; Flammability 1; Reactivity 0

*Storage:* Hygroscopic

*Uses:* Detergents and softeners; synthesis of dyestuffs, pharmaceuticals; rubber accelerator; as thermosetting resin; lubricating oil additive; analytical reagent for Cu, Ni; paper additive; surfactants; lubricating oil additive; curing agent, hardener, stabilizer for epoxy resins; for civil engineering; protective coatings; adhesives; biomaterial in pharmaceutical topicals, slow-release, and microencapsulation prods.; treatment of Wilson's disease; amino resin modifier in mfg. of paper/paperboard in contact with aq./fatty foods; polymerization crosslinking agent in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.170, 177.2600

*Manuf./Distrib.:* Aldrich; Allchem Ind.; Artek; Ashland; Bencorp Int'l.; Brook-Chem; Coyne; Diamines & Chems. Ltd; Fluka; Great Western; Houghton Chem.; J.H. Calo; Loos & Dilworth; Rit-Chem; Sigma; Sumitomo Seika; Tosoh; Union Carbide

*Trade Names:* Ancamine® TETA

**1,3,5-Triethylhexahydro-1,3,5-triazine.** See Hexahydro-1,3,5-triethyl-s-triazine

**1,3,5-Triethylhexahydro-s-triazine.** See Hexahydro-1,3,5-triethyl-s-triazine

**N,N',N''-Triethylhexahydrotriazine.** See Hexahydro-1,3,5-triethyl-s-triazine

**Triethylhexahydro-s-triazine.** See Hexahydro-1,3,5-triethyl-s-triazine

**Triethylhexyl phosphate.** See Trioctyl phosphate

**Tri (2-ethylhexyl) phosphate.** See Trioctyl phosphate

**Triethylolamine.** See Triethanolamine

**Triethyltrimethylenetriamine.** See Hexahydro-1,3,5-triethyl-s-triazine

**Trifluorochloroethylene polymer.** See Chlorotrifluoroethylene polymer

**Trifluoromethanesulfonic acid amine salt**

*Trade Names Containing:* FC-520

**Triglycine.** See Nitrilotriacetic acid

**Triglycollamic acid.** See Nitrilotriacetic acid

**Trihydrated alumina.** See Aluminum hydroxide

**3,4,5-Trihydroxybenzoic acid.** See Gallic acid

**Tri (2-hydroxyethyl)amine.** See Triethanolamine

**Trihydroxyethylamine oleate.** See TEA-oleate

**Trihydroxyethylamine stearate.** See TEA-stearate

**1,2,6-Trihydroxyhexane.** See 1,2,6-Hexanetriol

**1,1,1-(Trihydroxymethyl) propane triester acrylic acid.** See 1,1,1-Trimethylolpropane triacrylate

**Trihydroxyphosphine.** See Phosphonic acid

**Trihydroxytriethylamine.** See Triethanolamine

**2,2',2''-Trihydroxytriethylamine.** See Triethanolamine

**Triiron tetraoxide.** See Iron oxide black

**Triisopropanolamine**

CAS 122-20-3; EINECS/ELINCS 204-528-4

*Synonyms:* TIPA; 1,1',1''-Nitrilotri-2-propanol; 1,1',1''-Nitrilotris-2-propanol; Tri-2-propanolamine; Tris (2-hydroxypropyl) amine; Tris (2-propanol) amine

*Classification:* Aliphatic amine; amino alcohol

*Empirical:* C<sub>9</sub>H<sub>21</sub>NO<sub>3</sub>

*Formula:* N(CH<sub>2</sub>CHOHCH<sub>3</sub>)<sub>3</sub>

*Properties:* Wh. cryst. solid; ammoniacal odor; very sol. in water; sol. in ethanol, oxygenated and aromatic solvs.; m.w. 191.27; dens. 0.9996 (50

## Triisopropylbenzene

20 C); vapor pressure < 0.01 mm Hg (20 C); m.p. 45 C; b.p. 305 C; flash pt. (OC) 160 C

**Toxicology:** LD50 (oral, rat) 6500 mg/kg; LDLo (skin, rabbit) 10 g/kg; mod. toxic by ingestion; mildly toxic by skin contact; skin and severe eye irritant; TSCA listed

**Precaution:** Combustible; can burn if strongly heated; corrosive

**Hazardous Decomp. Prods.:** Thermal decomp. prods.: CO, CO<sub>2</sub>, NO<sub>x</sub>, CN

**NFPA:** Health 2; Flammability 1; Reactivity 0

**Storage:** Hygroscopic; avoid temps. above 160 C

**Uses:** Crosslinking agent for rubber; emulsifier, corrosion inhibitor for metal-working fluids; surfactant; solubilizer; in food-pkg. adhesives; defoamer in food-contact coatings and paper/paperboard; cyanide-free zinc plating; emulsifier for soaps, cosmetics, pharmaceuticals, textile specialties, agric., polymer curing chems., adhesives, antistats, coatings, rubber, gas conditioning chems.; catalyst deactivator and antioxidant in prod. of polyolefin for food pkg.; curing agent in food-contact PU resins

**Regulatory:** FDA 21CFR §175.105, 176.200, 176.210, 177.1520, 177.1680

**Manuf./Distrib.:** Aldrich; Ashland; BASF AG; Continental Trading; Dow; Fluka; Spectrum Quality Prods.; Universal Preserv-A-Chem

**Triisopropylbenzene.** See 1,3,5-Triisopropylbenzene

### 1,3,5-Triisopropylbenzene

CAS 717-74-8; EINECS/ELINCS 211-941-3

**Synonyms:** Triisopropylbenzene

**Classification:** Aromatic hydrocarbon

**Empirical:** C<sub>15</sub>H<sub>24</sub>

**Properties:** Liq.; m.w. 204.36; dens. 0.845; b.p. 232-236 C; flash pt. (CC) 188 F; ref. index 1.4880

**Toxicology:** TSCA listed

**Precaution:** Combustible

**Uses:** Carbonless paper; elec. industry

**Manuf./Distrib.:** Aldrich; Fluka

**Trade Names:** Sure Sol®-450

### Trilauryl phosphate

**Synonyms:** Phosphoric acid, trilauryl ester

**Definition:** Triester of lauryl alcohol and phosphoric acid

**Uses:** Wetting agent, antistat, conditioning base for textiles, paper, cosmetics; dry cleaning detergent

### Trilinoleic acid

CAS 7049-66-3; 68937-90-6

**Synonyms:** Fatty acids, C18, unsaturated, trimers; 9,12-Octadecadienoic acid, trimer; Trimer acid

**Definition:** 54-carbon tricarboxylic acid formed by the catalytic trimerization of linoleic acid

**Empirical:** C<sub>54</sub>H<sub>96</sub>O<sub>6</sub>

**Properties:** Visc. liq.; dens. 1.0 kg/l; acid no. 180-190; sapon. no. 195-205

**Toxicology:** TSCA listed

**Uses:** Corrosion inhibitor; lubricant; epoxy curing agent/flexibilizer; alkyl resin/epoxy ester resin comonomer; polymer building block; used in polyamino-amides for PVC plastisols to be used as car underbody coatings and in water-sol. alkyl resins; surfactant for industrial applics., lubricants; intermediate for mfg. of soaps, emulsions, ethoxylates, buffing compds., lubricants; defoamer in food-contact paper coatings; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §176.200, 178.3910

**Manuf./Distrib.:** Intl. Paper; Uniqema N. Am.

**Trimer acid.** See Trilinoleic acid

**Trimethoxyphenylsilane.** See Phenyltrimethoxysilane

**(Trimethoxysilyl) benzene.** See Phenyltrimethoxysilane

**Trimethylammoniummethyl methacrylate chloride.** See Dimethylaminoethyl methacrylate methyl chloride quat.

**2-Trimethylammoniummethyl methacrylate chloride.** See Dimethylaminoethyl methacrylate methyl chloride quat.

**2-Trimethylammoniummethyl methacrylic chloride.** See Dimethylaminoethyl methacrylate methyl chloride quat.

### 2,4,6-Trimethylbenzophenone

CAS 954-16-5

**Empirical:** C<sub>16</sub>H<sub>12</sub>O

**Manuf./Distrib.:** Salor

**Trade Names Containing:** Esacure® KT37; Esacure® TZT

**Trimethyl carbinol.** See t-Butyl alcohol

**N,N,N-Trimethyl-1-docosaminium chloride.** See Behenrimonium chloride

**N,N,N-Trimethyl-1-dodecanaminium chloride.** See Laurrimonium chloride

**Trimethyl glycol.** See Propylene glycol

**N,N,N-Trimethyl-1-hexadecanaminium chloride.** See Cetrimonium chloride

**2,6,8-Trimethyl-4-nonyl polyethylene glycol ether.** See Isolaureth-3

**N,N,N-Trimethyl-1-octadecanaminium chloride.** See Stearrimonium chloride

**Trimethyl octadecyl ammonium chloride.** See Stearrimonium chloride

**Trimethylolpropane triacrylate.** See 1,1,1-Trimethylolpropane triacrylate

### 1,1,1-Trimethylolpropane triacrylate

CAS 15625-89-5; EINECS/ELINCS 239-701-3

**Synonyms:** TMPTA; 2-Ethyl-2-(hydroxymethyl)-1,3-propanediol triacrylate; 1,1,1-(Trihydroxymethyl) propane triester acrylic acid; Trimethylolpropane triacrylate

**Empirical:** C<sub>15</sub>H<sub>20</sub>O<sub>6</sub>

**Formula:** (H<sub>2</sub>C=CHCO<sub>2</sub>CH<sub>2</sub>)<sub>3</sub>CC<sub>2</sub>H<sub>5</sub>

**Properties:** M.w. 296.31; dens. 1.100; flash pt. > 230 F; ref. index 1.4740

**Toxicology:** LD50 (oral, rat) 5190 mg/kg, (dermal, rabbit) 5170 mg/kg; mildly toxic by ing. and skin contact; primary irritant; human skin irritant; tumorigen; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Storage:** Hygroscopic; light-sensitive; store away from heat

**Uses:** Crosslinker, reactive diluent for UV-cured adhesives, wood fillers, coatings, lacquers, inks, vinyl acrylic latex paint, highly crosslinked polybutadiene rubber

**Manuf./Distrib.:** Aldrich; CPS; Monomer-Polymer & Dajac Labs; Rhodia; UCB Radcure

**Trade Names:** SR 351

**Trade Names Containing:** CN 112 C60; CN 120 C60; CN 120 C80; Ebecryl® 586; Ebecryl® 3701-20T; Ebecryl® 3720-TH20

### Trimethylolpropane triglycidyl ether

CAS 30499-70-8

**Empirical:** C<sub>15</sub>H<sub>26</sub>O<sub>6</sub>

**Properties:** M.w. 302.37; dens. 1.570; ref. index 1.4770

**Toxicology:** Severe eye irritant; irritating to skin, respiratory system; possible mutagen; TSCA listed

**Uses:** Epoxy resin diluent, modifier

**Manuf./Distrib.:** Aldrich

**Trade Names:** Epiol TMP-100

**2,2,4-Trimethyl-1,3-pentanediol bis (2-methylpropanoate).** See Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate

### Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate

CAS 6846-50-0; EINECS/ELINCS 229-934-9

**Synonyms:** Isobutyric acid, 1-isopropyl-2,2-dimethyltrimethylene ester; 2,2,4-Trimethyl-1,3-pentanediol bis (2-methylpropanoate); 2,2,4-Trimethylpentanediol-1,3-diisobutyrate; 2,2,4-Trimethyl-1,3-pentanediol diisobutyrate

**Empirical:** C<sub>16</sub>H<sub>30</sub>O<sub>4</sub>

**Formula:** (CH<sub>3</sub>)<sub>2</sub>CHCH[O<sub>2</sub>CCH(CH<sub>3</sub>)<sub>2</sub>]C(CH<sub>3</sub>)<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CCH(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Colorless liq.; m.w. 286.4; dens. 0.945; f.p. -70 C; b.p. 280 C; flash pt. (COC) 143 C; ref. index 1.4300

**Toxicology:** Skin irritant; TSCA listed

**Precaution:** Combustible exposed to heat or flame

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Plasticizer for PVC, PS, cellulose; primary plasticizer used in surf. coatings, vinyl floorings, moldings, and vinyl prods.; compatible with film-forming vehicles used in lacquers for wood, paper, and metals; plasticizer in food-contact cellulosic plastics; in food-pkg. adhesives; in cellophane coatings for food pkg.

**Regulatory:** FDA 21CFR §175.105, 177.1200, 178.3740

**Manuf./Distrib.:** Aldrich; Chisso Am.; Eastman; Houghton Chem.

**Trade Names:** Eastman® TXIB

**2,2,4-Trimethylpentanediol-1,3-diisobutyrate.** See Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate

**2,2,4-Trimethyl-1,3-pentanediol diisobutyrate.** See Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate  
 **$\alpha$ -(Trimethylsilyl)- $\omega$ -methylpoly [oxy (dimethylsilylene)].** See Dimethicone  
 **$\alpha$ -(Trimethylsilyl)- $\omega$ -methylpoly[oxy(dimethylsilylene)], mixt. with silicon dioxide.** See Simethicone  
 **$\alpha$ -(Trimethylsilyl) poly (oxy (dimethylsilylene))- $\omega$ -methyl.** See Dimethyl siloxane  
 **$\alpha$ -(Trimethylsilyl)- $\omega$ -(trimethylsilyl) oxy.** See Dimethyl siloxane  
**Trimethyl stearyl ammonium chloride.** See Steartrimonium chloride  
**Trimethyl tallow ammonium chloride.** See Tallowtrimonium chloride  
 **$\alpha,\alpha,\alpha'$ -Trimethyltrimethyleneglycol.** See Hexylene glycol  
**Trinidad pitch.** See Asphalt

### Triocetyl phosphate

CAS 78-42-2; EINECS/ELINCS 201-116-6

**Synonyms:** TOF; TOP; 2-Ethylhexanol phosphate; 2-Ethyl-1-hexanol phosphate; 2-Ethylhexanol, phosphate triester; 1-Hexanol, 2-ethyl-, phosphate; Octyl phosphate; Phosphoric acid, tris (2-ethylhexyl) ester; Triethylhexyl phosphate; Tri (2-ethylhexyl) phosphate; Tris (2-ethylhexyl) phosphate

**Classification:** Phosphoric acid ester

**Empirical:** C<sub>24</sub>H<sub>50</sub>O<sub>4</sub>P

**Formula:** [CH<sub>3</sub>(CH<sub>2</sub>)<sub>3</sub>CH(C<sub>2</sub>H<sub>5</sub>)CH<sub>2</sub>O]<sub>3</sub>PO

**Properties:** Colorless to pale yel. clear liq.; sl. sharp odor; sol. in alcohol, acetone, ether, min. oil, gasoline; pract. insol. in water; m.w. 434.72; dens. 0.924 (26 C); vapor pressure 1.9 mm Hg (20 C); f.p. -90 C (sets to glass); pour pt. -74 C; b.p. 190-233 C (dec.); flash pt.(OC) 207 C; ref. index 1.4440; anionic

**Toxicology:** LD50 (oral, rat) 37 g/kg, (dermal, rabbit) 20 g/kg; mildly toxic by ing., skin contact; irritating to eyes, skin, respiratory system; suspected carcinogen; tumorigen; TSCA listed

**Precaution:** Combustible exposed to heat or flame; can react with oxidizing materials; may soften or deteriorate certain plastics/elastomers; incompat. with cellulose acetate, cellulose acetate butyrate

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of PO<sub>x</sub>, CO, CO<sub>2</sub>, phosphoric acid

**Storage:** Store under ambient temps.

**Uses:** Solvent, antifoaming agent for paints; flame-retardant plasticizer for vinyl resins, rubbers, nitrocellulose; imparts fungus resist.; cosolvent for hydrogen peroxide prod.; defoamer in food-contact paper/paperboard; in food pkg. adhesives

**Regulatory:** FDA 21CFR §175.105, 176.210

**Manuf./Distrib.:** Akzo Nobel; Albright & Wilson Am.; Aldrich; Ashland; Bayer; FMC; Ferro/Kelil; Fluka; Rhodia HPCII; Sigma

### Triolein

CAS 122-32-7; 67701-30-8; EINECS/ELINCS 204-534-7; 266-948-4

**Synonyms:** Glycerol trioleate; Glyceryl trioleate; Olein; 9-Octadecenoic acid, 1,2,3-propanetriyl ester

**Definition:** Triester of glycerin and oleic acid

**Empirical:** C<sub>57</sub>H<sub>104</sub>O<sub>6</sub>

**Formula:** (CH<sub>2</sub>O)2CHO[CO(CH<sub>2</sub>)<sub>7</sub>CH=CH(CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>]<sub>3</sub>

**Properties:** Colorless to yish. oily liq., tasteless, odorless; sol. in chloroform, ether, CCl<sub>4</sub>, chlorinated solvs.; sl. sol. in alcohol; pract. insol. in water; m.w. 885.40; dens. 0.915 (15/4 C); m.p. -4 to -5 C; b.p. 235-240 C (15 mm); HLB 0.8; sapon. no. 188-195; cloud pt. -10 C; ref. index 1.4676 (20 C); nonionic

**Toxicology:** No known toxicity; TSCA listed

**Precaution:** Combustible

**Uses:** Lubricant, emollient, emulsifier for cosmetics, metals, leather, textiles; carbon source in antibiotic culture broths; raw material for engineering plastics; impact modifier; plasticizer; stabilizer; solvent for carbon paper, printing ink dyes; food emulsifier/stabilizer; solubilizer for flavors, vitamin oils; pharmaceutical lubricant, emollient, solubilizer, stabilizer; in food-contact textiles

**Regulatory:** FDA 21CFR §177.2800

**Manuf./Distrib.:** A.P.; ABITEC; Ashland; Fluka; Sigma; Uniqema N. Am.

**Trioxymethylene.** See Paraformaldehyde

**Trioxymethylene.** See Paraformaldehyde

### Triphenyl phosphate

CAS 115-86-6; EINECS/ELINCS 204-112-2

**Synonyms:** TPP; Phosphoric acid, triphenyl ester

**Classification:** Phosphate

**Empirical:** C<sub>18</sub>H<sub>15</sub>O<sub>4</sub>P

**Formula:** PO(OC<sub>6</sub>H<sub>5</sub>)<sub>3</sub>

**Properties:** Colorless cryst. powd. or needles, odorless; sol. in benzene, chloroform, ether, acetone, lacquers, solvent, thinners, oil; insol. in water; m.w. 326.28; dens. 1.268 (60 C); m.p. 50 C; b.p. 245 C (11 mm); flash pt. (CC) 220 C; ref. index 1.550

**Toxicology:** ACGIH TLV/TWA 3 mg/m<sup>3</sup>; LD50 (oral, rat) 3500 mg/kg, (subcut., cat) 100 mg/kg, (skin, rabbit) > 7900 mg/kg; poison by subcut. route; mod. toxic by ing.; toxic by inhalation; absorbed slowly, esp. by skin contact; not a potent cholinesterase inhibitor; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of PO<sub>x</sub>, NFPA: Health 2; Flammability 1; Reactivity 0

**Uses:** Flame retardant plasticizer for cellulotics, coatings, triacetate film and sheet, engineering thermoplastics (PPO, HIPS, ABS-PC); noncombustible substitute for camphor in celluloid; extreme pressure additive in lubricants; in lacquers; varnishes; impregnating roofing paper; in food-pkg. adhesives; solvent for adjuvants in food-contact crosslinked polyesters

**Regulatory:** FDA 21CFR §175.105, 177.2420

**Manuf./Distrib.:** AC Ind.; Akzo Nobel; Alchemie USA; Aldrich; Ashland; Bayer; FMC; Fluka; Harwick; Monsanto

**Triphosphoric acid pentapotassium salt.** See Potassium tripolyphosphate

**Triphosphoric acid pentasodium salt.** See Pentasodium triphosphate

**Triphosphoric acid sodium salt.** See Pentasodium triphosphate

**Tripolyphosphate.** See Pentasodium triphosphate

**Tripotassium hexacyanoferrate.** See Potassium ferricyanide

**Tripotassium hexakis (cyano-C) ferrate (3-).** See Potassium ferricyanide

**Tri-2-propanolamine.** See Triisopropanolamine

**Tripropylene glycol diacrylate.** See PPG-3 diacrylate

**Tripropylene glycol methyl ether.** See PPG-3 methyl ether

**Tripropylene glycol monomethyl ether.** See PPG-3 methyl ether

**Tris (2-butoxyethyl) phosphate.** See Tributyoxyethyl phosphate

**Tris [5,6-dihydro-5-(hydroxyimino)-6-oxo-2-naphthalenesulfonato(2-)-N<sup>6</sup>,O<sup>4</sup>] ferrate (3), trisodium.** See Acid green 1

**Tris (2-ethylhexyl) phosphate.** See Triocetyl phosphate

**Tris (2-hydroxyethyl) amine.** See Triethanolamine

**1,3,5-Tris (2-hydroxyethyl) hexahydrotriazine.** See Hydroxyethyl-s-triazine

**1,3,5-Tris (2-hydroxyethyl) hexahydro-1,3,5-triazine.** See Hydroxyethyl-s-triazine

**N,N',N''-Tris (2-hydroxyethyl) hexahydrotriazine.** See Hydroxyethyl-s-triazine

**N,N',N''-Tris (β-hydroxyethyl) hexahydro-1,3,5-triazine.** See Hydroxyethyl-s-triazine

**Tris (2-hydroxypropyl) amine.** See Triisopropanolamine

**Tris [1-(2-methyl-aziridinyl) phosphine oxide]**

CAS 57-39-6

**Synonyms:** Metepa; Methyl aphoxide; Metaphoxide

**Empirical:** C<sub>9</sub>H<sub>16</sub>N<sub>3</sub>OP

**Formula:** (C<sub>3</sub>H<sub>6</sub>N)<sub>3</sub>PO

**Properties:** Amber liq.; amine odor; misc. with water and org. solvs.; m.w. 215.27; dens. 1.079; b.p. 118-125 C (1 mm)

**Toxicology:** LD50 (oral, rat) 136 mg/kg; toxic by ing., skin absorption, IP and subcut. routes; strong irritant to skin; tumorigen; mutagen; TSCA listed

**Hazardous Decomp. Prods.:** Very toxic fumes of NO<sub>x</sub> and PO<sub>x</sub>

**Uses:** Textile treatments; resin raw material; crosslinker; adhesion promoter; insect chemosterilant; adhesives; paper; rubber processing; crosslinking agent in polymer systems

**Trisodium β-alanine diacetate**

**Environmental:** Readily biodeg.

**Uses:** Chelating agent for detergents, pulp/paper, electroplating, water softening, textiles

**Trisodium-3-carboxy-5-hydroxy-1-p-sulfophenyl-4-p-sulfophenylazopyrazole.** See Tartrazine

**Trisodium edetate.** See Trisodium EDTA

**Trisodium EDTA**

CAS 150-38-9; EINECS/ELINCS 205-758-8

**Synonyms:** Acetic acid, (ethylenedinitrilo) tetra-, trisodium salt; Edetate trisodium; EDTA trisodium; EDTA trisodium salt; N,N'-1,2-Ethanediybis [N-

(carboxymethyl) glycine], trisodium salt; Ethylenediamine acetic acid trisodium salt; Ethylenediaminetetraacetic acid, trisodium salt; Trisodium edetate; Trisodium ethylenediamine tetraacetate; Trisodium hydrogen ethylene diaminetetraacetate; Trisodium hydrogen (ethylenedinitrilo) tetraacetate; Trisodium versenate

**Classification:** Substituted amine

**Empirical:** C<sub>10</sub>H<sub>13</sub>N<sub>2</sub>O<sub>8</sub> • 3Na

**Formula:** (NaOOCCH<sub>2</sub>)<sub>3</sub>NCH<sub>2</sub>CH<sub>2</sub>NCH<sub>2</sub>COOH

**Properties:** Wh. powd.; sol. in water; m.w. 358.22

**Toxicology:** LD50 (oral, rat) 2150 mg/kg, (IP, mouse) 300 mg/kg; poison by IP route; mod. toxic by ing.; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub> and Na<sub>2</sub>O

**HMIS:** Health 2; Flammability 1; Reactivity 0

**Uses:** Chelating agent in cosmetics, topical pharmaceuticals, textile processing; stabilizer for resin systems; photographic baths; metal finishing; water treatment (controls hardness, boiler water treatment); catalyst in SBR mfg.; in food-pkg. adhesives; in food-contact paper/paperboard; in food-contact textiles; in surf. lubricants for mfg. of food-contact metallic articles

**Regulatory:** FDA 21CFR §175.105, 176.170, 177.2800, 178.3910; FDA approved for topicals; BP compliance

**Manuf./Distrib.:** Am. Int'l.; Chemplex Chems.; Eastech; Fluka; Hampshire; Ruger; Spectrum Quality Prods.; Surfactants Inc; Universal Preserv-A-Chem

**Trisodium ethylenediamine tetraacetate.** See Trisodium EDTA

#### Trisodium HEDTA

CAS 139-89-9; EINECS/ELINCS 205-381-9

**Synonyms:** HEDTANA<sub>3</sub>; HEEDTANA<sub>3</sub>; N-[2-[Bis(carboxymethyl) amino] ethyl]-N-(2-hydroxyethyl) glycine, trisodium salt; N-(Carboxymethyl)-N'-(2-hydroxyethyl)-N,N'-ethylenedi-, trisodium salt; HEDTA, trisodium salt; HEEDTA, trisodium salt; Hydroxyethylethylenediaminetriacetic acid, trisodium salt; Trisodium hydroxyethyl ethylenediaminetriacetate; Trisodium N-hydroxyethyl ethylenediamine triacetate

**Classification:** Substituted amine

**Empirical:** C<sub>10</sub>H<sub>18</sub>N<sub>2</sub>O<sub>7</sub> • 3Na

**Formula:** (CH<sub>2</sub>COONa)<sub>3</sub>NCH<sub>2</sub>CH<sub>2</sub>NHOCH<sub>2</sub>CH<sub>2</sub>

**Properties:** Lt. yel. liq.; sol. in water forming alkaline sol<sup>n</sup>s.; m.w. 347.27; dens. 1.285; f.p. < -5 C; b.p. 107 C

**Toxicology:** TSCA listed

**Uses:** Chelating agent for alkaline industrial cleaners, latex prod., cosmetics, pharmaceuticals, water treatment, textiles, electroless copper plating, polymer prod., disinfectants, pulp/paper, photography, metal finishing, enhanced oil recovery; complexing agent for rare earth separation; drug stabilization; heavy metal poisoning treatment; in food-pkg. adhesives; chelating agent in food-contact paper/paperboard mfg.

**Regulatory:** FDA 21CFR §175.105, 176.150; FDA approved for topicals

**Manuf./Distrib.:** Akzo Nobel; Chemplex Chems.; Eastech; Fluka; Hampshire; Rhodia Phosphorus Prods.; Sigma

**Trade Names:** Versenol 120

**Trisodium hydrogen ethylene diaminetetraacetate.** See Trisodium EDTA

**Trisodium hydrogen (ethylenedinitrilo) tetraacetate.** See Trisodium EDTA

**Trisodium hydroxyethyl ethylenediaminetriacetate.** See Trisodium HEDTA

**Trisodium N-hydroxyethyl ethylenediamine triacetate.** See Trisodium HEDTA

**Trisodium nitrilotriacetate.** See Trisodium NTA

**Trisodium nitrilotriacetic acid.** See Trisodium NTA

#### Trisodium NTA

CAS 5064-31-3; EINECS/ELINCS 225-768-6

**Synonyms:** NTA; NTANA<sub>3</sub>; N,N-Bis (carboxymethyl) glycine trisodium salt; Glycine, N,N-bis (carboxymethyl)-, trisodium salt; Nitriloacetic acid trisodium salt; Nitrilotriacetic acid sodium salt; Nitrilotriacetic acid, trisodium salt; Sodium nitrilotriacetate; Trisodium nitrilotriacetate; Trisodium nitrilotriacetic acid

**Definition:** Trisodium salt of nitrilotriacetic acid

**Empirical:** C<sub>6</sub>H<sub>8</sub>NO<sub>6</sub> • 3Na

**Formula:** NaOOCCH<sub>2</sub>N(CH<sub>2</sub>COONa)<sub>2</sub>

**Properties:** Solid; m.w. 257.10

**Toxicology:** LD50 (oral, rat) 1100 mg/kg, (IP, rat) 254 mg/kg; poison by IP route; mod. toxic by ing.; questionable carcinogen; experimental neoplas-tigen, reproductive effects; mutagenic data; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of NO<sub>x</sub> and Na<sub>2</sub>O

**Uses:** Chelating agent in household and industrial detergents, laundry detergents, specialty cleaning prods., water treatment, textiles, metal finishing, pulp and paper processing, and petrol. industry; nonphosphate detergent builder; scale inhibitor; controls hardness ions; antifoam; boiler water additive for food contact except milk prods.

**Regulatory:** FDA 21CFR §173.310 (5 ppm max. in boiler feedwater)

**Manuf./Distrib.:** Sigma

**Trade Names:** Hampshire® NTA 150; Trilon® A-92; Trilon® A Liq.

**Trisodium orthophosphate.** See Sodium phosphate tribasic

**Trisodium phosphate.** See Sodium phosphate tribasic

**Trisodium versenate.** See Trisodium EDTA

**Tris (phosphonomethyl) amine.** See Aminotrimethylene phosphonic acid

**Tris (2-propanol) amine.** See Triisopropanolamine

#### Tristearin

CAS 555-43-1; EINECS/ELINCS 209-097-6

**Synonyms:** Glyceryl monotristerate; Glyceryl tristearate; Octadecanoic acid, 1,2,3-propanetriyl ester; 1,2,3-Propanetriol trioctadecanoate; Stearin

**Definition:** Triester of glycerin and stearic acid

**Empirical:** C<sub>57</sub>H<sub>110</sub>O<sub>6</sub>

**Formula:** [CH<sub>2</sub>(CH<sub>2</sub>)<sub>16</sub>COOCH<sub>2</sub>]<sub>3</sub>CHOCO(CH<sub>2</sub>)<sub>16</sub>CH<sub>3</sub>

**Properties:** Colorless to wh. crystals or powd., odorless, tasteless; sol. in hot alcohol, benzene, chloroform, carbon disulfide, chlorinated and aromatic solvs.; pract. insol. in cold alcohol, ether, petrol. ether; insol. in water; m.w. 891.45; dens. 0.943 (65 C); m.p. 71.6 C; ref. index 1.4385 (80 C); nonionic

**Toxicology:** No known toxicity; TSCA listed

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Soap; candles; adhesive pastes; metal polishes; waterproofing paper; textile sizes; leather stuffing; mfg. of stearic acid; processing aid for EPS; dispersant/lubricant for colorants; lubricant for PVC, textile processing; plastics mold release agent; polishing/grinding pastes; crystallization accelerator, fermentation aid, formulation aid, lubricant, release agent, surface-finishing agent for foods; pharmaceuticals (lubricant, mold release, binder, retarding agent in tablets); in food-contact textiles

**Use Level:** Limitation 1% (cocoa), 0.5% (formulation aid, lubricant, release), 3% (confections), 1% (formulation aid in fats, oils)

**Regulatory:** FDA 21CFR §172.811, 177.2800; FDA approved for orals

**Manuf./Distrib.:** Fluka; Sigma; Spectrum Quality Prods.

#### Tristearyl phosphate

**Uses:** Defoamer in food-contact paper/paperboard

**Regulatory:** FDA 21CFR §176.210

**Trolamine.** See Triethanolamine

**Trolamine lauryl sulfate.** See TEA-lauryl sulfate

**TRPGDA.** See PPG-3 diacrylate

**p-TSA.** See p-Toluene sulfonic acid

**TSP.** See Sodium phosphate tribasic

**TSP-0.** See Sodium phosphate tribasic

**TSPP.** See Tetrasodium pyrophosphate

**Tung nut oil.** See Tung oil

#### Tung oil

CAS 8001-20-5

**Synonyms:** Chinawood oil; Chinese tung oil; Tung nut oil

**Definition:** Drying oil from seeds of *Aleurites cordata*

**Properties:** Pale yel. liq., char. disagreeable odor; sol. in chloroform, ether, carbon disulfide, oils; dens. 0.936-0.943; iodine no. 163-171; sapon. no. 190-197; flash pt. 288.9 C; ref. index 1.5030

**Toxicology:** Toxic by ing.; ing. causes nausea, vomiting, cramps, diarrhea, dizziness, lethargy, disorientation; large doses can cause fever, tachycardia, respiratory effects; contact causes dermatitis

**Precaution:** Combustible exposed to heat or flame; can react with oxidizing materials

**Uses:** Mfg. of quick-drying wood varnishes, exterior paint, linoleum, floor cloth; in India rubber substitutes; insulating masses; for waterproofing paper, etc.; drying oil for printing inks; drying oil in resins for food pkg.

**Regulatory:** FDA 21CFR §175.300, 181.26



*Manuf./Distrib.:* Acme-Hardesty; Aldrich; Alnor Oil; Degen; Industrial Oil Prods.; Lomas Int'l.; Sea-Land; Van Waters & Rogers; Vliengenthart BV; Walltrade; Welch, Holme & Clark

**Turkey red.** See Iron oxide red

**Turkey-red oil.** See Sulfated castor oil

### Turpentine

CAS 8006-64-2; 8052-14-0; 9005-90-7; UN No. 1299 (DOT); 1300 (DOT); FEMA 3088

*Synonyms:* Gum turpentine; Pine balsam; Pine gum; Purified gum spirits; Spirit of turpentine; Spirits of turpentine; Terebenthine; Turpentine gum; Turpentine oil; Turpentine oil, rectified; Turpentine oil, rectifier; Turpentine, purified; Turpentine, rectified; Turpentine steam distilled; Wood turpentine

*Classification:* Unsat. alicyclic hydrocarbon

*Definition:* Volatile essential oil obtained by distillation and rectification from turpentine, an oleoresin obtained from *Pinus* spp., contg. pinene and diterpene

*Formula:*  $\approx C_{10}H_{16}$

*Properties:* Colorless sticky visc. balsamic liq.; sharp penetrating piney odor; sol. in alcohol, benzene,  $CS_2$ ,  $CS_2$ , petrol. ether, ether, chloroform, glac. acetic acid; insol. in water; m.w.  $\approx 136$ ; dens. 0.854-0.868; b.p. 154-170 C; m.p. -50 to -60 C; flash pt. (CC) 32-46 C; ref. index 1.463-1.483 (20 C)

*Toxicology:* ACGIH TLV/TWA 100 ppm; LD50 (oral, rat) 5760 mg/kg, (IV, mouse) 1180  $\mu$ g/kg; LC50 (inh., mouse, 2 h) 29 g/m<sup>3</sup>; poison by IV route; mildly toxic by ing., inh.; mod. toxic to humans by ing.; irritating to skin, eyes, respiratory tract; allergen; skin absorp. and inh. can cause CNS depression, headaches, confusion, delirium, convulsions, and death due to respiratory failure; serious kidney irritant; questionable carcinogen; experimental tumorigen; common air contaminant

*Precaution:* Highly flamm.; mod. explosive hazard as vapor; lower explosive limit 0.8%; incompat. with oxidizers, halogens, stannic chloride, hexachloromelamine, diatomaceous earth; violent reactions possible; avoid impregnation of combustibles with turpentine

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area away from heat/ignition sources; protect from light

*Uses:* Source of turpentine oil and gum rosin; natural flavoring agent in foods and pharmaceuticals; solvent in shoe polishes, printing inks, cleaning compds., waxes, paper prods.; solvent, thinner for paints, lacquers; solvent, reclaiming agent for rubber; synthesis of camphor and menthol; medicines (liniments); perfumery; pesticide mfg.; pharmaceutical solvent; rubefacient; diuretic; preps. for respiratory tract disorders; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.510, 175.105; FDA approved for inhalants; FEMA GRAS; BP compliance

*Manuf./Distrib.:* Ascona; Bencorp Int'l.; Berje; Dujodwala Resins & Terpenes; George Uhe; J.H. Calo; J.H. Hinz; Mutchler; PDM; Penta Mfg.; Polarome Int'l.; Quest Int'l. Fragrances; Ruger; Sea-Land; Spectrum Quality Prods.; Technichem; Vliengenthart BV

**Turpentine gum.** See Turpentine

**Turpentine oil.** See Turpentine

**Turpentine oil, rectified.** See Turpentine

**Turpentine oil, rectifier.** See Turpentine

**Turpentine, purified.** See Turpentine

**Turpentine, rectified.** See Turpentine

**Turpentine steam distilled.** See Turpentine

**Turpentine substitutes.** See Mineral spirits

**Two-stage resin.** See Phenolic resin

**UF.** See Urea/formaldehyde resin

**ULDPE.** See Polyethylene, very low-density

### Ultramarine blue

CAS 1317-97-1; 57455-37-5

EINECS/ELINCS 309-928-3

*Synonyms:* CI 77007; Pigment blue 29

*Classification:* Inorganic pigment

*Definition:* Calcined mixt. of kaolin, sulfur, sodium carbonate, and carbon over 700 C

*Empirical:*  $Al_3Na_2O_{24}S_3Si_6$

*Formula:*  $Na_3Al_3Si_6O_{24}S_3$

*Properties:* Blue powd.; m.w. 971.50; dens. 2.35 kg/l

*Toxicology:* Nuisance dust

*Precaution:* Noncombustible

*Uses:* Pigment for printing inks, thermoplastics, rubber compds., paints, soaps and laundry blues, cosmetics, textile printing; in food-contact textiles; strong anti-ozone chars.

*Regulatory:* FDA 21CFR §177.2800

*Manuf./Distrib.:* Aarbor Int'l.; BFGoodrich Hilton Davis; Browning; Cleveland Pigment & Color; Costec; D.N. Lukens; Fallek; Ferro/Color; Landers-Segal Color; PMC Spec.; Quadra; Royale Pigments & Chems.; Spectrum Quality Prods.; Tamms Ind.; Tiarco; Universal Color Disps.; Warner-Jenkinson; Whittaker, Clark & Daniels

*Trade Names:* Octotint 120; Octotint 572

**Ultramarine green.** See Chromium oxide (ic)

**1-Undecanecarboxylic acid.** See Lauric acid

**3,6,9,12,15,18,21,24,27,3,33-Undecaioxapentatriacontane-1,35-diol.** See PEG-12

### Undeceth-3

CAS 127036-24-2 (generic)

*Synonyms:* PEG (3) undecyl ether; POE (3) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:*  $C_{17}H_{36}O_4$

*Formula:*  $CH_3(CH_2)_9CH_2(OCH_2CH_2)_nOH$ , avg. n = 3

*Properties:* Nonionic

*Uses:* Detergent intermediate, emulsifier for general industrial use, hard surf. cleaning

*Trade Names:* Imbentin-U/030

### Undeceth-5

CAS 34398-01-1; 127036-24-2 (generic)

*Synonyms:* PEG (5) undecyl ether; POE (5) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:*  $C_{23}H_{44}O_6$

*Formula:*  $CH_3(CH_2)_9CH_2(OCH_2CH_2)_nOH$ , avg. n = 5

*Properties:* Nonionic

*Uses:* Detergent intermediate, surfactant

*Trade Names:* Imbentin-U/050

### Undeceth-6

CAS 127036-24-2 (generic)

*Synonyms:* PEG (6) undecyl ether; POE (6) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:*  $C_{23}H_{48}O_7$

*Formula:*  $CH_3(CH_2)_9CH_2(OCH_2CH_2)_nOH$ , avg. n = 6

*Properties:* Nonionic

*Uses:* Emulsifier for agric., cleaning, metal processing

*Trade Names:* Imbentin-U/060

### Undeceth-7

CAS 127036-24-2 (generic)

*Synonyms:* PEG (7) undecyl ether; POE (7) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:*  $C_{25}H_{52}O_8$

*Formula:*  $CH_3(CH_2)_9CH_2(OCH_2CH_2)_nOH$ , avg. n = 7

*Properties:* Nonionic

*Uses:* Detergent, wetting agent for general industrial use, hard surf. cleaners, laundry and liq. detergents

*Trade Names:* Genapol® UD-070; Genapol® UD-079; Imbentin-U/070

### Undeceth-8

CAS 127036-24-2 (generic)

*Synonyms:* PEG (8) undecyl ether; POE (8) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:*  $C_{27}H_{56}O_9$

*Formula:*  $CH_3(CH_2)_9CH_2(OCH_2CH_2)_nOH$ , avg. n = 8

*Properties:* Nonionic

*Uses:* Surfactant, emulsifier for household/industrial detergents, textiles, leather, agric., paper processing, metal cleaning, cosmetics, toiletries, metalworking fluids and lubricants, paints/coatings, emulsion polymerization

*Trade Names:* Genapol® UD-080; Imbentin-U/080

*Manuf./Distrib.:* Acme-Hardesty; Aldrich; Alnor Oil; Degen; Industrial Oil Prods.; Lomas Int'l.; Sea-Land; Van Waters & Rogers; Vliengenthart BV; Walltrade; Welch, Holme & Clark

**Turkey red.** See Iron oxide red  
**Turkey-red oil.** See Sulfated castor oil

### Turpentine

CAS 8006-64-2; 8052-14-0; 9005-90-7; UN No. 1299 (DOT); 1300 (DOT); FEMA 3088

*Synonyms:* Gum turpentine; Pine balsam; Pine gum; Purified gum spirits; Spirit of turpentine; Spirits of turpentine; Terebenthine; Turpentine gum; Turpentine oil; Turpentine oil, rectified; Turpentine oil, rectifier; Turpentine, purified; Turpentine, rectified; Turpentine steam distilled; Wood turpentine

*Classification:* Unsat. alicyclic hydrocarbon

*Definition:* Volatile essential oil obtained by distillation and rectification from turpentine, an oleoresin obtained from *Pinus* spp., contg. pinene and diterpene

*Formula:* ≈ C<sub>10</sub>H<sub>16</sub>

*Properties:* Colorless sticky visc. balsamic liq.; sharp penetrating piney odor; sol. in alcohol, benzene, CS<sub>2</sub>, CS<sub>2</sub>, petrol. ether, ether, chloroform, glac. acetic acid; insol. in water; m.w. ≈ 136; dens. 0.854-0.868; b.p. 154-170 C; m.p. -50 to -60 C; flash pt. (CC) 32-46 C; ref. index 1.463-1.483 (20 C)

*Toxicology:* ACGIH TLV/TWA 100 ppm; LD50 (oral, rat) 5760 mg/kg, (IV, mouse) 1180 µg/kg; LC50 (inh., mouse, 2 h) 29 g/m<sup>3</sup>; poison by IV route; mildly toxic by ing., inh.; mod. toxic to humans by ing.; irritating to skin, eyes, respiratory tract; allergen; skin absorp. and inh. can cause CNS depression, headaches, confusion, delirium, convulsions, and death due to respiratory failure; serious kidney irritant; questionable carcinogen; experimental tumorigen; common air contaminant

*Precaution:* Highly flamm.; mod. explosive hazard as vapor; low explosive limit 0.8%; incompat. with oxidizers, halogens, stannic chloride, hexachloromelamine, diatomaceous earth; violent reactions possible; avoid impregnation of combustibles with turpentine

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

NFPA: Health 1; Flammability 3; Reactivity 0

*Storage:* Store in cool, dry, well-ventilated area away from heat/ignition sources; protect from light

*Uses:* Source of turpentine oil and gum rosin; natural flavoring agent in foods and pharmaceuticals; solvent in shoe polishes, printing inks, cleaning compds., waxes, paper prods.; solvent, thinner for paints, lacquers; solvent, reclaiming agent for rubber; synthesis of camphor and menthol; medicines (liniments); perfumery; pesticide mfg.; pharmaceutical solvent; rubefacient; diuretic; preps. for respiratory tract disorders; in food-pkg. adhesives

*Regulatory:* FDA 21CFR §172.510, 175.105; FDA approved for inhalants; FEMA GRAS; BP compliance

*Manuf./Distrib.:* Ascona; Bencorp Int'l.; Berje; Dujodwala Resins & Terpenes; George Uhe; J.H. Calo; J.H. Hinz; Mutchler; PDM; Penta Mfg.; Polarome Int'l.; Quest Int'l. Fragrances; Ruger; Sea-Land; Spectrum Quality Prods.; Technichem; Vliengenthart BV

**Turpentine gum.** See Turpentine

**Turpentine oil.** See Turpentine

**Turpentine oil, rectified.** See Turpentine

**Turpentine oil, rectifier.** See Turpentine

**Turpentine, purified.** See Turpentine

**Turpentine, rectified.** See Turpentine

**Turpentine steam distilled.** See Turpentine

**Turpentine substitutes.** See Mineral spirits

**Two-stage resin.** See Phenolic resin

**UF.** See Urea/formaldehyde resin

**ULDPE.** See Polyethylene, very low-density

### Ultramarine blue

CAS 1317-97-1; 57455-37-5

EINECS/ELINCS 309-928-3

*Synonyms:* CI 77007; Pigment blue 29

*Classification:* Inorganic pigment

*Definition:* Calcined mixt. of kaolin, sulfur, sodium carbonate, and carbon over 700 C

*Empirical:* Al<sub>3</sub>Na<sub>3</sub>O<sub>24</sub>S<sub>3</sub>Si<sub>6</sub>

*Formula:* Na<sub>3</sub>Al<sub>3</sub>Si<sub>6</sub>O<sub>24</sub>S<sub>3</sub>

*Properties:* Blue powd.; m.w. 971.50; dens. 2.35 kg/l

*Toxicology:* Nuisance dust

*Precaution:* Noncombustible

*Uses:* Pigment for printing inks, thermoplastics, rubber compds., paints, soaps and laundry blues, cosmetics, textile printing; in food-contact textiles; strong anti-ozone chars.

*Regulatory:* FDA 21CFR §177.2800

*Manuf./Distrib.:* Aarbor Int'l.; BFGoodrich Hilton Davis; Browning; Cleveland Pigment & Color; Costec; D.N. Lukens; Faliek; Ferro/Color; Landers-Segal Color; PMC Spec.; Quadra; Royale Pigments & Chems.; Spectrum Quality Prods.; Tamms Ind.; Tiarco; Universal Color Disps.; Warner-Jenkinson; Whittaker, Clark & Daniels

*Trade Names:* Octotint 120; Octotint 572

**Ultramarine green.** See Chromium oxide (ic)

**1-Undecanecarboxylic acid.** See Lauric acid

**3,6,9,12,15,18,21,24,27,3,33-Undeca-oxapentatriacontane-1,35-diol.** See PEG-12

### Undeceth-3

CAS 127036-24-2 (generic)

*Synonyms:* PEG (3) undecyl ether; POE (3) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:* C<sub>17</sub>H<sub>36</sub>O<sub>4</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>9</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 3

*Properties:* Nonionic

*Uses:* Detergent intermediate, emulsifier for general industrial use, hard surf. cleaning

*Trade Names:* Imbentin-U/030

### Undeceth-5

CAS 34398-01-1; 127036-24-2 (generic)

*Synonyms:* PEG (5) undecyl ether; POE (5) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:* C<sub>23</sub>H<sub>44</sub>O<sub>6</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>9</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 5

*Properties:* Nonionic

*Uses:* Detergent intermediate, surfactant

*Trade Names:* Imbentin-U/050

### Undeceth-6

CAS 127036-24-2 (generic)

*Synonyms:* PEG (6) undecyl ether; POE (6) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:* C<sub>23</sub>H<sub>48</sub>O<sub>7</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>9</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 6

*Properties:* Nonionic

*Uses:* Emulsifier for agric., cleaning, metal processing

*Trade Names:* Imbentin-U/060

### Undeceth-7

CAS 127036-24-2 (generic)

*Synonyms:* PEG (7) undecyl ether; POE (7) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:* C<sub>25</sub>H<sub>52</sub>O<sub>8</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>9</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 7

*Properties:* Nonionic

*Uses:* Detergent, wetting agent for general industrial use, hard surf. cleaners, laundry and liq. detergents

*Trade Names:* Genapol® UD-070; Genapol® UD-079; Imbentin-U/070

### Undeceth-8

CAS 127036-24-2 (generic)

*Synonyms:* PEG (8) undecyl ether; POE (8) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:* C<sub>27</sub>H<sub>56</sub>O<sub>9</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>9</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 8

*Properties:* Nonionic

*Uses:* Surfactant, emulsifier for household/industrial detergents, textiles, leather, agric., paper processing, metal cleaning, cosmetics, toiletries, metalworking fluids and lubricants, paints/coatings, emulsion polymerization

*Trade Names:* Genapol® UD-080; Imbentin-U/080

## Undeceth-10

### Undeceth-10

CAS 127036-24-2 (generic)

*Properties:* Nonionic

*Uses:* O/w emulsifier for household/industrial detergents, cosmetics, toiletries, textiles, leather, agric., paints/coatings, emulsion polymerization, lubricants, silicon and wax emulsions, metal treatment

*Trade Names:* Imbentin-U/100

### Undeceth-11

CAS 127036-24-2 (generic)

*Synonyms:* PEG (11) undecyl ether; POE (11) undecyl ether

*Definition:* PEG deriv. of undecyl alcohol

*Empirical:* C<sub>33</sub>H<sub>68</sub>O<sub>12</sub>

*Formula:* CH<sub>3</sub>(CH<sub>2</sub>)<sub>8</sub>CH<sub>2</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>OH, avg. n = 11

*Properties:* Nonionic

*Uses:* Surfactant for household cleaners, textile wet processing, paper processing, metal cleaning, detergents, hard-surf. cleaners, metalworking fluids and lubricants

*Trade Names:* Genapol® UD-110

**Unsaturated polyester resin.** See Polyester resin, thermosetting

**Unslaked lime.** See Calcium oxide

**UPR.** See Polyester resin, thermosetting

## Urea

CAS 57-13-6; EINECS/ELINCS 200-315-5

*Synonyms:* Carbamide; Carbamide resin; Carbamidic acid; Carbamimidic acid; Carbonyl diamide; Carbonyldiamine; Isourea; Pseudourea

*Classification:* Organic compd.

*Definition:* Prod. of protein metabolism excreted from human urine

*Empirical:* CH<sub>4</sub>N<sub>2</sub>O

*Formula:* NH<sub>2</sub>CONH<sub>2</sub>

*Properties:* Colorless to wh. cryst. or powd., almost odorless; sl. ammonia odor on standing; sol. in water, boiling alcohol, benzene, oxygenated solvs.; sl. sol. in ether; insol. in chloroform; m.w. 60.06; dens. 1.335; m.p. 132.7 C; b.p. dec.

*Toxicology:* LD50 (oral, rat) 14,300 mg/kg, (IV, rat) 5300 mg/kg, (subcut., rat) 8200 mg/kg; mod. toxic by ing., IV, subcut. routes; human skin irritant; experimental carcinogen, neoplastigen, reproductive effects; human reproductive effects by intraplacental route; human mutagenic data; TSCA listed

*Precaution:* Incompat. with NaNO<sub>2</sub>, P<sub>2</sub>Cl<sub>5</sub>, nitrosyl perchlorate; reacts with sodium or calcium hypochlorite to form explosive nitrogen trichloride; prep. of <sup>15</sup>N urea is hazardous

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of NO<sub>x</sub>, NFPA: Health 1; Flammability 0; Reactivity 0

*Storage:* Store @ R.T.

*Uses:* Fertilizer; animal feed supplement; stabilizer for resins, plastics, explosives; in paper industry to soften cellulose; deodorizer; penetrant; cure accelerator and activator; airport runway deicing agent; dispersant (animal glue, proteins); plasticizer for starch adhesives; food additive, yeast nutrient, fermentation aid; diuretic, antiseptic in pharmaceuticals; keratin softener for dry skin prods.; in ammoniated dentifrices; in side seam cements for food-contact containers

*Use Level:* Limitation 2 lb/1000 gal (wine)

*Regulatory:* FDA 21CFR §175.300, 177.1200, 184.1923, GRAS; BATF 27CFR §240.1051; FDA approved for injectables, orals; BP, Ph.Eur. compliance

*Manuf./Distrib.:* AMRESCO; Agrium U.S.; Air Prods.; Aldrich; Am. Biorganics; Am. Int'l.; Atofina SA; Bio-Rad Labs; Brøste; Chemical; Chisso Am.; Costec; Coyne; EM Ind.; Fluka; Harcross; Heico; LaRoche Ind.; Lutianhua; Mallinckrodt Baker; Miljac; Nissan Chem. Ind.; Norsk Hydro AS; O.C. Lugo; Occidental; Research Organics; Rit-Chem; Robeco; Rona; Ruger; Sal Chem.; Showa Denko; Sigma; Southeastern Mins.; Spectrum Quality Prods.; Terra Int'l.; Universal Preserv-A-Chem; Veckridge

*Trade Names Containing:* Optiblanc® NL

**Urea, N-[1,3-bis(hydroxymethyl)-2,5-dioxo-4-imidazolidinyl-N,N'-bis(hydroxymethyl)]-**. See Diazolidinyl urea

**Urea/ethanedial/formaldehyde/propionaldehyde polymer**

CAS 106569-82-8

*Uses:* Starch/protein reactant in paper/paperboard coatings in contact with dry

food

*Regulatory:* FDA 21CFR §176.180

**Urea/formaldehyde adduct.** See Urea/formaldehyde resin

**Urea/formaldehyde condensate.** See Urea/formaldehyde resin

**Urea/formaldehyde copolymer.** See Urea/formaldehyde resin

**Urea/formaldehyde oligomer.** See Urea/formaldehyde resin

**Urea/formaldehyde polymer.** See Urea/formaldehyde resin

**Urea/formaldehyde precondensate.** See Urea/formaldehyde resin

**Urea/formaldehyde prepolymer.** See Urea/formaldehyde resin

**Urea/formaldehyde resin**

CAS 9011-05-6

*Synonyms:* UF; Formaldehyde copolymer with urea; Formaldehyde/urea condensate; Formaldehyde/urea copolymer; Formaldehyde/urea polymer; Formaldehyde/urea precondensate; Formaldehyde/urea prepolymer; Formaldehyde/urea resin; Formalin/urea copolymer; Methylolurea resin; Paraformaldehyde/urea polymer; Paraformaldehyde/urea resin; Polynoxylin; Polyoxymethylene urea; Urea/formaldehyde adduct; Urea/formaldehyde condensate; Urea/formaldehyde copolymer; Urea/formaldehyde oligomer; Urea/formaldehyde polymer; Urea/formaldehyde precondensate; Urea/formaldehyde prepolymer; Urea, polymer with formaldehyde

*Classification:* Amino resin; thermosetting resin

*Definition:* Thermosetting resin formed from condensation reaction of formaldehyde with urea

*Formula:* (CH<sub>4</sub>N<sub>2</sub>O · CH<sub>2</sub>O)<sub>x</sub>

*Toxicology:* LD50 (oral, rat) 8394 mg/kg; low toxicity by ing.; mutagenic data; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of NO<sub>x</sub>

*Uses:* Pigment-grinding medium; adhesion promoter, toughener, binder for coatings; wet strength additive in paper, starch adhesives; dinnerware; foundry core binder; flexible foams; insulation; adhesives (chipboard, plywood, furniture); molding compds.; textile finishing agent; fabric stiffener; in automotive enamels and primers, metal decorating finishes; modifier for water-sol. polymers; visc. control agent in cosmetics; in food-contact paper/paperboard; in food-pkg. adhesives; in food-contact coatings; in cellophane for food pkg.; in food-contact polysulfide polymer/polyeoxy resins; as food-contact surf. in molded articles

*Regulatory:* FDA 21CFR §175.105, 175.300, 177.1200, 177.1650, 177.1900, 181.30

*Manuf./Distrib.:* Akzo Nobel; BASF; BFGoodrich/Textile; Bakelite GmbH; Chemical; Cytec Ind.; DSM UK; EMCO Chem. Distributors; Georgia-Pacific Resins; Harborchem; Hercules; McWhorter Tech.; Monomer-Polymer & Dajac Labs; Monsanto; Nemesis Int'l.; Neste Resins; Reichhold; Sybron

*Trade Names:* Amres® C382; Amres® LOPR; Amres® PR-247 HV; Amres® PR-335 CU; Kaurit®; Pergopak M2; Prox® 923

*Trade Names Containing:* Beetle® 216-8; Beetle® 227-8

**Urea/formaldehyde resin, butylated**

CAS 68002-19-7; 93686-54-5; EINECS/ELINCS 297-708-7

*Synonyms:* Butylated polyoxymethylene urea; Poly (urea-co-formaldehyde), butylated; Urea, polymer with formaldehyde, butylated; Urea, reaction prods. with butyl alcohol and formaldehyde

*Classification:* Formaldehyde copolymer

*Definition:* Amino resin reaction prod. of butylated urea and formaldehyde

*Properties:* Colorless liq.; sol. in hydrocarbon solvs.; insol. in water

*Toxicology:* Highly toxic; may be fatal if inh., ing., or absorbed thru skin; lachrymator; sensitizer; readily absorbed thru skin; cancer suspect agent; mutagen; reproductive hazard; target organs: CNS, ears, liver, kidneys, blood; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, formaldehyde, methanol; emits toxic fumes under fire conditions

*Storage:* Keep tightly closed; store in cool dry place

*Uses:* Alkyd-amino acid-cured resins for industrial and clear wood finishes; alkyd-amino stoving resins for domestic equip. finishes; binder in printing inks; film-former in cosmetics; food-contact coatings, paper/paperboard

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* Aldrich

*Trade Names Containing:* Beetle® 1050; Resimene® U-901; Resimene® U-918; Resimene® U-920

**Urea/formaldehyde resin, isobutylated**

*Synonyms:* Poly (urea-co-formaldehyde), isobutylated

*Classification:* Formaldehyde copolymer

*Uses:* Crosslinking agent for pigmented enamels; food-contact coatings, paper/paperboard

*Trade Names Containing:* Beetle® 1032-10; Beetle® 1047

**Urea-formaldehyde resin, methylated**

CAS 68071-45-4

*Synonyms:* Poly (urea-co-formaldehyde), methylated

*Classification:* Formaldehyde copolymer

*Properties:* Colorless liq.; dens. 1.217; flash pt. > 110 C; ref. index 1.4840 (20 C)

*Toxicology:* Toxic; harmful if ing., inh. or absorbed thru skin; irritating to eyes, skin, respiratory system; sensitizer; may cause allergic skin reaction; cancer suspect agent; mutagen; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents; avoid heat

*Hazardous Decom. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, methanol, formaldehyde; emits toxic fumes under fire conditions

*Storage:* Keep tightly closed; store in a cool dry place

*Uses:* Crosslinking agent for coatings

*Manuf./Distrib.:* Aldrich

*Trade Names:* Resimene® U-975; Resimene® U-980

*Trade Names Containing:* Resimene® U-933; Resimene® U-970

**Urea, polymer with formaldehyde.** See Urea/formaldehyde resin

**Urea, polymer with formaldehyde, butylated.** See Urea/formaldehyde resin, butylated

**Urea, reaction prods. with butyl alcohol and formaldehyde.** See Urea/formaldehyde resin, butylated

**Urethane-acrylate.** See Urethane-acrylate resin

**Urethane-acrylate resin**

*Synonyms:* Polyurethane-acrylic; Urethane-acrylate; Urethane-acrylic

*Definition:* Acrylate-terminated PU prepolymers, producing inks and coatings characterized by toughness and good chem. resist.

*Uses:* Binder for radiation-cured wood/textile finishes, printing inks, paper-foil lacquers; as additive to other prods. to reduce cost, add toughness and anti-skid props.; in architectural coatings such as floor and brushing varnish; curing agent used for anaerobic adhesives, tile coatings, flexible overprint varnishes, outdoor applics., fiber optic coatings

*Manuf./Distrib.:* UCB Radcure

*Trade Names:* CN 972; CN 978; CN 980; CN 981; CN 983; Ebecryl® 6700

*Trade Names Containing:* CN 953 B70; CN 963 A80; CN 963 B80; CN 963 E75; CN 963 E80; CN 963 J85; CN 964 A85; CN 970 A60; CN 970 E60; CN 970 H75; CN 971 A80; CN 973 A80; CN 973 H85; CN 973 J75; CN 980 M50; CN 981 A75; CN 981 B88; CN 982 A75; CN 982 B88; CN 982 E75; CN 982 P90; CN 983 B88; CN 985 B88; Ebecryl® 4830; Upaco® 2956

**Urethane-acrylic.** See Urethane-acrylate resin

**Urethane diacrylate**

*Uses:* Additive improving flexibility of epoxy and urethane formulations; film-former for inks, coatings for plastic and metal, laminating adhesives

*Trade Names:* Photomer® 6010; Photomer® 6140; Photomer® 6210

*Trade Names Containing:* Ebecryl® 4849

**Urotropine.** See Hexamethylenetetramine

**VA/crotonates copolymer**

CAS 25609-89-6

*Synonyms:* 2-Butenoic acid, polymer with ethenyl acetate; Ethenyl acetate, polymer with 2-butenoic acid; Vinyl acetate/crotonates copolymer; Vinyl acetate/crotonic acid copolymer

*Definition:* Polymer of vinyl acetate and one or more monomers consisting of crotonic acid or any of its simple esters

*Formula:* (C<sub>4</sub>H<sub>6</sub>O<sub>2</sub> · C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>)<sub>x</sub>

*Properties:* Dens. 1.170

*Toxicology:* LD50 (oral, rat) > 1850 µl/kg

*Storage:* Hygroscopic

*Uses:* Film-former; hair fixative for aerosols, hair sprays, setting lotions, conditioners; in food pkg.; in paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR §175.350, 176.170, 176.180

*Manuf./Distrib.:* Aldrich

*See also:* Vinyl acetate/crotonic acid copolymer

**VA/crotonates/vinyl propionate copolymer**

*Synonyms:* Vinyl acetate/crotonic acid/vinyl propionate copolymer

*Definition:* Polymer formed from vinyl acetate, vinyl propionate, and one or more monomers consisting of crotonic acid or one of its simple esters

*Uses:* Film-former, hair fixative for hair-sprays and fixing lotions; in paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**VAE.** See Ethylene/VA copolymer

**VA/ethylene copolymer.** See Ethylene/VA copolymer

**VAM.** See Vinyl acetate

**Varnish linseed oil.** See Linseed (Linum usitatissimum) oil

**Varnish Makers naphtha.** See VM&P naphtha

**Varnish Makers and Painters naphtha.** See VM&P naphtha

**Vaseline.** See Petrolatum

**Vaterite.** See Calcium carbonate

**Vat golden yellow.** See Vat yellow 4

**Vat yellow 4**

CAS 128-66-5

*Synonyms:* Amanthrene golden yellow; CI 59100; CI vat yellow; Dibenzo (b,def) chrysene-7,14-dione; Dibenzo (a,b) pyrene-7,14-dione; 2,3,7,8-Dibenzopyrene-1,6-quinone; 1',2',6',7'-Dibenzopyrene-7,14-quinone; Golden yellow; Helanthrene yellow; Indanthrene golden yellow; Vat golden yellow

*Empirical:* C<sub>24</sub>H<sub>12</sub>O<sub>2</sub>

*Properties:* Orange visc. liq.; sol. in water, nitrobenzene, tetrahydronaphthalene, xylene; sl. sol. in alcohol, chloroform, o-chlorophenol, pyridine, benzene; sol. < 1 mg/ml in DMSO, 95% ethanol, acetone; m.w. 332.36; flash pt. > 93.3 C

*Toxicology:* Experimental carcinogen and tumorigen; TSCA listed

*Precaution:* Probably combustible

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Store under ambient temps.

*Uses:* Dye for textiles and paper; military smokescreen and signaling agent

**VBT.** See Vinylene bistiocyanate

**VC/VAC.** See Vinyl chloride/vinyl acetate copolymer

**VdC.** See Vinylidene chloride copolymer

**Vegetable carbon.** See Carbon black

**Vegetable gum.** See Dextrin

**Vegetable oil**

CAS 68956-68-3; 68938-35-2; EINECS/ELINCS 273-313-5

*Synonyms:* Oils, vegetable; Vegetable oil mist; Viscoleo oil

*Definition:* Expressed oil of vegetable origin consisting primarily of triglycerides of fatty acids

*Toxicology:* OSHA PEL/TWA 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction); nuisance mist; may cause contact dermatitis; TSCA listed

*Hazardous Decom. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Drying oils in paints; printing oil; lubricant and visc. modifier for engine lubricants, hydraulic fluids, greases, paints, plastics, textiles; in shortening, salad dressings; rubber softeners; pesticide carriers; dietary supplements; pharmaceutical filler

*Regulatory:* FDA approved for orals, topicals

*Manuf./Distrib.:* A.E. Staley Mfg.; ABITEC; Arista Ind.; Int'l. Flora Tech.; Koster Keunen; Lipo; Penwest Pharmaceuticals; Terry Labs; Welch, Holme & Clark

*Trade Names Containing:* Agitan® 301

**Vegetable oil, hydrogenated.** See Hydrogenated vegetable oil

**Vegetable oil mist.** See Vegetable oil

**Verona paper red.** See Basic red 12

**Victoria blue.** See Basic blue 7

**Vienna white.** See Calcium monocarbonate

**Vinegar acid.** See Acetic acid

**Vinegar naphtha.** See Ethyl acetate

**Vinyl acetal polymers, butyral.** See Polyvinyl butyral

**Urea/formaldehyde resin, isobutylated**

*Synonyms:* Poly (urea-co-formaldehyde), isobutylated  
*Classification:* Formaldehyde copolymer  
*Uses:* Crosslinking agent for pigmented enamels; food-contact coatings, paper/paperboard  
*Trade Names Containing:* Beetle® 1032-10; Beetle® 1047

**Urea-formaldehyde resin, methylated**

CAS 68071-45-4  
*Synonyms:* Poly (urea-co-formaldehyde), methylated  
*Classification:* Formaldehyde copolymer  
*Properties:* Colorless liq.; dens. 1.217; flash pt. > 110 C; ref. index 1.4840 (20 C)  
*Toxicology:* Toxic; harmful if ing., inh. or absorbed thru skin; irritating to eyes, skin, respiratory system; sensitizer; may cause allergic skin reaction; cancer suspect agent; mutagen; TSCA listed  
*Precaution:* Incompat. with strong oxidizing agents; avoid heat  
*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, NO<sub>x</sub>, methanol, formaldehyde; emits toxic fumes under fire conditions  
*Storage:* Keep tightly closed; store in a cool dry place  
*Uses:* Crosslinking agent for coatings  
*Manuf./Distrib.:* Aldrich  
*Trade Names:* Resimene® U-975; Resimene® U-980  
*Trade Names Containing:* Resimene® U-933; Resimene® U-970

**Urea, polymer with formaldehyde.** See Urea/formaldehyde resin

**Urea, polymer with formaldehyde, butylated.** See Urea/formaldehyde resin, butylated

**Urea, reaction prods. with butyl alcohol and formaldehyde.** See Urea/formaldehyde resin, butylated

**Urethane-acrylate.** See Urethane-acrylate resin

**Urethane-acrylate resin**

*Synonyms:* Polyurethane-acrylic; Urethane-acrylate; Urethane-acrylic  
*Definition:* Acrylate-terminated PU prepolymers, producing inks and coatings characterized by toughness and good chem. resist.  
*Uses:* Binder for radiation-cured wood/textile finishes, printing inks, paper-foil lacquers; as additive to other prods. to reduce cost, add toughness and anti-skid props.; in architectural coatings such as floor and brushing varnish; curing agent used for anaerobic adhesives, tile coatings, flexible overprint varnishes, outdoor applics., fiber optic coatings  
*Manuf./Distrib.:* UCB Radcure  
*Trade Names:* CN 972; CN 978; CN 980; CN 981; CN 983; Ebecryl® 6700  
*Trade Names Containing:* CN 953 B70; CN 963 A80; CN 963 B80; CN 963 E75; CN 963 E80; CN 963 J85; CN 964 A85; CN 970 A60; CN 970 E60; CN 970 H75; CN 971 A80; CN 973 A80; CN 973 H85; CN 973 J75; CN 980 M50; CN 981 A75; CN 981 B88; CN 982 A75; CN 982 B88; CN 982 E75; CN 982 P90; CN 983 B88; CN 985 B88; Ebecryl® 4830; Upaco® 2956

**Urethane-acrylic.** See Urethane-acrylate resin

**Urethane diacrylate**

*Uses:* Additive improving flexibility of epoxy and urethane formulations; film-former for inks, coatings for plastic and metal, laminating adhesives  
*Trade Names:* Photomer® 6010; Photomer® 6140; Photomer® 6210  
*Trade Names Containing:* Ebecryl® 4849

**Urotropine.** See Hexamethylenetetramine

**VA/crotonates copolymer**

CAS 25609-89-6  
*Synonyms:* 2-Butenoic acid, polymer with ethenyl acetate; Ethenyl acetate, polymer with 2-butenoic acid; Vinyl acetate/crotonates copolymer; Vinyl acetate/crotonic acid copolymer  
*Definition:* Polymer of vinyl acetate and one or more monomers consisting of crotonic acid or any of its simple esters  
*Formula:* (C<sub>4</sub>H<sub>6</sub>O<sub>2</sub> + C<sub>3</sub>H<sub>4</sub>O<sub>2</sub>)<sub>x</sub>  
*Properties:* Dens. 1.170  
*Toxicology:* LD50 (oral, rat) > 1850 µl/kg  
*Storage:* Hygroscopic  
*Uses:* Film-former; hair fixative for aerosols, hair sprays, setting lotions, conditioners; in food pkg.; in paper/paperboard in contact with aq./fatty/dry foods

*Regulatory:* FDA 21CFR \$175.350, 176.170, 176.180

*Manuf./Distrib.:* Aldrich

*See also* Vinyl acetate/crotonic acid copolymer

**VA/crotonates/vinyl propionate copolymer**

*Synonyms:* Vinyl acetate/crotonic acid/vinyl propionate copolymer  
*Definition:* Polymer formed from vinyl acetate, vinyl propionate, and one or more monomers consisting of crotonic acid or one of its simple esters  
*Uses:* Film-former, hair fixative for hair-sprays and fixing lotions; in paper/paperboard in contact with dry food  
*Regulatory:* FDA 21CFR \$176.180

**VAE.** See Ethylene/VA copolymer

**VA/ethylene copolymer.** See Ethylene/VA copolymer

**VAM.** See Vinyl acetate

**Varnish linseed oil.** See Linseed (Linum usitatissimum) oil

**Varnish Makers naphtha.** See VM&P naphtha

**Varnish Makers and Painters naphtha.** See VM&P naphtha

**Vaseline.** See Petrolatum

**Vaterite.** See Calcium carbonate

**Vat golden yellow.** See Vat yellow 4

**Vat yellow 4**

CAS 128-66-5

*Synonyms:* Amanthrene golden yellow; CI 59100; CI vat yellow; Dibenzo (b,def) chrysene-7,14-dione; Dibenzo (a,b) pyrene-7,14-dione; 2,3,7,8-Dibenzopyrene-1,6-quinone; 1',2',6',7'-Dibenzopyrene-7,14-quinone; Golden yellow; Helanthrene yellow; Indanthrene golden yellow; Vat golden yellow

*Empirical:* C<sub>24</sub>H<sub>12</sub>O<sub>2</sub>

*Properties:* Orange visc. liq.; sol. in water, nitrobenzene, tetrahydronaphthalene, xylene; sl. sol. in alcohol, chloroform, o-chlorophenol, pyridine, benzene; sol. < 1 mg/ml in DMSO, 95% ethanol, acetone; m.w. 332.36; flash pt. > 93.3 C

*Toxicology:* Experimental carcinogen and tumorigen; TSCA listed

*Precaution:* Probably combustible

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Storage:* Store under ambient temps.

*Uses:* Dye for textiles and paper; military smokescreen and signaling agent

**VBT.** See Vinylene bithiocyanate

**VC/VAC.** See Vinyl chloride/vinyl acetate copolymer

**VdC.** See Vinylidene chloride copolymer

**Vegetable carbon.** See Carbon black

**Vegetable gum.** See Dextrin

**Vegetable oil**

CAS 68956-68-3; 68938-35-2; EINECS/ELINCS 273-313-5

*Synonyms:* Oils, vegetable; Vegetable oil mist; Viscoleo oil

*Definition:* Expressed oil of vegetable origin consisting primarily of triglycerides of fatty acids

*Toxicology:* OSHA PEL/TWA 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction); nuisance mist; may cause contact dermatitis; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Drying oils in paints; printing oil; lubricant and visc. modifier for engine lubricants, hydraulic fluids, greases, paints, plastics, textiles; in shortening, salad dressings; rubber softeners; pesticide carriers; dietary supplements; pharmaceutical filler

*Regulatory:* FDA approved for orals, topicals

*Manuf./Distrib.:* A.E. Staley Mfg.; ABITEC; Arista Ind.; Int'l. Flora Tech.; Koster Keunen; Lipo; Penwest Pharmaceuticals; Terry Labs; Welch, Holme & Clark

*Trade Names Containing:* Agitan® 301

**Vegetable oil, hydrogenated.** See Hydrogenated vegetable oil

**Vegetable oil mist.** See Vegetable oil

**Verona paper red.** See Basic red 12

**Victoria blue.** See Basic blue 7

**Vienna white.** See Calcium monocarbonate

**Vinegar acid.** See Acetic acid

**Vinegar naphtha.** See Ethyl acetate

**Vinyl acetal polymers, butyral.** See Polyvinyl butyral

**Vinyl acetate**

CAS 108-05-4; EINECS/ELINCS 203-545-4; UN No. 1301 (DOT)

**Synonyms:** VAM; Acetic acid, ethenyl ester; Acetic acid, ethylene ether; Acetic acid, vinyl ester; 1-Acetoxyethylene; Ethanoic acid, ethenyl ester; Ethenyl acetate; Ethenyl ethanoate; Vinyl acetate, inhibited; Vinyl acetate monomer; Vinyl ethanoate

**Classification:** Unsaturated carboxylic acid ester**Empirical:** C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>**Formula:** CH<sub>3</sub>COOCH=CH<sub>2</sub>

**Properties:** Colorless liq.; char. odor; polymerizes in light to a colorless transparent mass; sol. 1 g/50 ml water (20 C); sol. in ethanol, ether, acetone, benzene, chloroform, most org. solvs.; m.w. 86.09; dens. 0.932 (20/4 C); vapor pressure 100 mm (21.5 C); m.p. -93 C; b.p. 71-73 C; flash pt. (CC) -8 C

**Toxicology:** ACGIH TLV/TWA 10 ppm; STEL 20 ppm; LD50 (oral, rat) 2.92 g/kg, (skin, rabbit) 2335 mg/kg; LC50 (inh., mouse, 4 h) 1550 ppm; mod. toxic by ing., inh., IP routes; skin and eye irritant; lachrymator; suspected carcinogen; experimental tumorigen, reproductive effector; human mutagenic data; TSCA listed

**Precaution:** Flamm.; dangerous fire risk exposed to heat, flame, or oxidizers; flamm. limits in air 2.6-13.4%; storage hazard, may undergo spontaneous exothermic polymerization; reactions with air or water can trigger explosions

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, acrid fumes

NFPA: Health 2; Flammability 3; Reactivity 2

**Uses:** Monomer for synthesis of nitrile rubber, PVAc emulsions, PVOH, EVA copolymers, vinyl chloride-vinyl acetate copolymers, PVBl, and vinyl acetate-acrylonitrile copolymers; in polymerized form for plastic masses, films, lacquers, latex paints, adhesives, textile finishing, safety glass interlayers; textile hand modifier; binder for paper coatings

**Regulatory:** FDA 21CFR §172.892

**Manuf./Distrib.:** Aldrich; Allchem Ind.; Ashland; BP Chems. Ltd; Celanese; Equistar; Fluka; Multichem; Sigma; Union Carbide; Wacker-Chemie GmbH

**Trade Names:** Resyn® 25-1151; Synthemul® 97635; Synthemul® 97635-00**Vinyl acetate/acrylamide copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/acrylate copolymer****Uses:** Used in interior, exterior, and semigloss paints, paper saturating, wallpaper topcoats, textile adhesives; binder for fabrics, glass fiber

**Trade Names:** Synthemul® 550; Synthemul® 551; Synthemul® 552; Synthemul® 40550-00; Synthemul® 40552-00

**Vinyl acetate/acrylic acid copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate-acrylic copolymer.** See Acrylates/VA copolymer**Vinyl acetate/acrylonitrile copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/butyl acrylate copolymer****Definition:** Latex contg. 45-55% solids

**Uses:** Binder in emulsion paints, paper sizing, textured coatings, wallpaper coatings, fabric wadding; impregnant for blinds, upholstery fabrics, knitted fabrics; heat-seal coatings; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/crotonates copolymer.** See VA/crotonates copolymer**Vinyl acetate/crotonic acid copolymer**

CAS 25609-89-6

**Synonyms:** 2-Butenoic acid, polymer with ethenyl acetate; Crotonic acid, polymer with vinyl acetate; Poly (vinyl acetate-co-crotonic acid); Poly (vinyl acetate-crotonic acid)

**Classification:** Vinyl ester copolymer**Formula:** (C<sub>4</sub>H<sub>6</sub>O<sub>2</sub> • C<sub>3</sub>H<sub>4</sub>O<sub>2</sub>)<sub>x</sub>

**Properties:** Beads; sol. in anhyd. ethanol; salt form sol. in water; dens. 1.170; soften. pt. 80-100 C

**Toxicology:** LD50 (oral, rat) > 18150 µl/kg; may be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

**Precaution:** Incompat. with strong oxidizing agents; capable of creating a dust explosion

**Hazardous Decomp. Prods.:** Toxic fumes of CO, CO<sub>2</sub>; emits toxic fumes under fire conditions

**Storage:** Hygroscopic; keep tightly closed; protect from moisture; store in cool, dry place

**Uses:** Adhesives; fixative and film-former in hair care prods.; coating or coating component in food-contact polyolefin films; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.350, 176.170**Manuf./Distrib.:** Aldrich

See also VA/crotonates copolymer

**Vinyl acetate/crotonic acid/vinyl propionate copolymer.** See VA/crotonates/vinyl propionate copolymer**Vinyl acetate/decyl acrylate copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/diallyl fumarate copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/diallyl maleate copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/diallyl phthalate copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/dibutyl maleate copolymer**

**Uses:** In coatings for metal foil in contact with dry food; in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §175.300, 176.170**Vinyl acetate/divinylbenzene copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/ethylacrylate copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate/ethylene copolymer.** See Ethylene/VA copolymer**Vinyl acetate/ethylene/N-(hydroxymethyl) acrylamide copolymer****Uses:** In coatings for paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate-ethylene-vinyl chloride copolymer.** See Vinyl acetate/ethylene/vinyl chloride terpolymer**Vinyl acetate/ethylene/vinyl chloride terpolymer**

**Synonyms:** Vinyl acetate-ethylene-vinyl chloride copolymer; Vinyl chloride/ethylene vinyl acetate copolymer

**Uses:** Binder, vehicle for emulsion paints, paper coatings, textured finishes, fabric coatings, flame retardant fabrics, construction adhesives, and thermal insulation systems; adhesive for flooring, walls, foam, tiles, paper/paperboard; binder for fabrics, glass fiber; textile auxiliary and coating; paper coatings

**Trade Names:** Airflex® 430; Airflex® 456; Airflex® CE35**Vinyl acetate/fumaric acid copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170**Vinyl acetate homopolymer.** See Polyvinyl acetate**Vinyl acetate, inhibited.** See Vinyl acetate**Vinyl acetate/maleic acid copolymer****Uses:** In paper/paperboard in contact with aq./fatty foods**Regulatory:** FDA 21CFR §176.170

**Vinyl acetate/methacrylic acid copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/methyl acrylate copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/methyl methacrylate copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate monomer.** See Vinyl acetate**Vinyl acetate polymer.** See Polyvinyl acetate**Vinyl acetate resin.** See Polyvinyl acetate**Vinyl acetate/styrene copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinyl butyrate copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinyl chloride copolymer.** See Vinyl chloride/vinyl acetate copolymer**Vinyl acetate/vinyl chloride polymer.** See Vinyl chloride/vinyl acetate copolymer**Vinyl acetate/vinyl crotonate copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinylidene chloride copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinyl propionate copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinyl pyrrolidone copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinyl stearate copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetate/vinyl sulfonic acid copolymer**

Uses: In paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §176.170

**Vinyl acetyl polymers, butyrates.** See Polyvinyl butyral**Vinyl acrylate**

CAS 2177-18-6; EINECS/ELINCS 218-538-1

Synonyms: Acrylic acid vinyl ester

Empirical:  $C_5H_8O_2$

Properties: Liq.; m.w. 98.1; dens. 0.942; b.p. 91-92 C; ref. index 1.4320

Precaution: Flamm.

Storage: Heat and light-sensitive; refrigerate

Uses: Coating binder for rotogravure coatings, board coatings, size press sol'ns., food-contact paper

Manuf./Distrib.: Aldrich

Trade Names: Resyn® 25-1140; Resyn® 25-1152

**Vinyl acrylic copolymer**

Uses: Binder, vehicle for paints, factory finishes, roof, paper, textile and industrial coatings, adhesives, caulks, sealants, tiles

Manuf./Distrib.: Air Prods.; Ashland; Hampshire; Nat'l. Starch & Chem.;

NeoResins; Reichhold; Rhodia; Rohm & Haas; StanChem; Thibaut &

Walker; Tri-Iso; Union Carbide; VYN-AC

Trade Names: Everflex® MA; Polyco® 3250; Sunbond® 925; SunCryl®

CP-50; SunCryl® CP-75; Synthemul® 40551-03; Synthemul® 40554-

00; X-Link 2833; X-Link 2893; X-Link 5627

Trade Names Containing: Sunbond® 853; Sunbond® 857; Sunbond® CP-58

**Vinyl alcohol polymer.** See Polyvinyl alcohol**Vinyl amide.** See Acrylamide**Vinylbenzene, compd. with prop-2-en-1-ol.** See Styrene/allyl alcohol copolymer**Vinylbenzene polymer.** See Polystyrene**Vinyl butyrate homopolymer.** See Polyvinyl butyrate**N-Vinylbutyrolactam polymer.** See PVP**N-Vinyl-2-caprolactam**

CAS 2235-00-9; EINECS/ELINCS 218-787-6

Classification: Nonaromatic amide

Empirical:  $C_8H_{13}NO$

Properties: Cryst. solid; m.w. 139.20; dens. 1.29; vapor pressure < 0.1 mm (20 C), 1.2 mm (70 C); m.p. 35 C; b.p. 116 C/910 mm)

Storage: Refrigerate

Uses: Reactive diluent for free radical radiation-curable systems (inks, coatings, adhesives)

Manuf./Distrib.: Aldrich

Trade Names: V-Cap™/RC

**Vinyl chloride/acrylonitrile copolymer**

Uses: In food-contact coatings; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods

Regulatory: FDA 21CFR §175.300, 175.320, 176.170

Manuf./Distrib.: Air Prods.; Eastern Chem.; Union Carbide

**Vinyl chloride copolymer with vinylidene chloride.** See Vinylidene chloride/vinyl chloride copolymer**Vinyl chloride-1,1-dichloroethylene copolymer.** See Vinylidene chloride/vinyl chloride copolymer**Vinyl chloride/ethylene copolymer**

Definition: Copolymer of vinyl chloride and ethylene

Formula:  $[CH_2CHCl]_x[CH_2CH_2]_y$

Uses: Carpetbacking latex; binder in water-based inks, industrial/barrier coatings, paper sizing; food pkg.

Regulatory: FDA 21CFR §177.1950

**Vinyl chloride/ethylene vinyl acetate copolymer.** See Vinyl acetate/ethylene/vinyl chloride terpolymer**Vinyl chloride homopolymer.** See Polyvinyl chloride**Vinyl chloride polymer.** See Polyvinyl chloride**Vinyl chloride resin.** See Polyvinyl chloride**Vinyl chloride/vinyl acetate copolymer**

CAS 9003-22-9; 39433-77-7

Synonyms: PVCA; VC/VAC; Acetic acid, vinyl ester compd. with chloroethene; Acetic acid, vinyl ester, polymer with chloroethylene; Acetic acid ethenyl ester polymer with chloroethene; Acetic acid ethenyl ester, polymer with chloroethene; Chloroethylenevinyl acetate polymer; Poly(vinyl chloride-co-vinyl acetate); Polyvinyl chloride/polyvinyl acetate; Poly(vinyl chloride-vinyl acetate); PVC/VA copolymer; Vinyl acetate/vinyl chloride copolymer; Vinyl acetate/vinyl chloride polymer; Vinyl chloride/vinyl acetate copolymers; Vinyl chloride/vinyl acetate polymer

Classification: Polymer

Definition: Thermoplastic contg. 5-20% vinyl acetate

Formula:  $[CH_2CH(Cl)]_x[CH_2CH(O_2CCH_3)]_y$

Properties: M.w. (148.59); dens. 1.360

Toxicology: TDLo (implant, mouse) 1200 mg/kg; harmful by inh., ing., skin contact; irritating to eyes, skin, respiratory system; cancer suspect agent; may cause heritable genetic damage; tumorigen; mutagen; target organs: liver, kidneys; TSCA listed

Hazardous Decomp. Prods.: Heated to decomp., emits toxic fumes of HCl

Uses: Binder for fabrics, glass fiber, marine antifouling paints, metal/plaster/concrete paints; textile auxiliary and coating; paste processing of floor coverings, carpet backings, adhesives/laminating coatings, spray coating, paper coatings; industrial fibers; plasticized compds. (flooring, sheet); rigid compds. (records, drawing equip., stencils); in food-contact coatings

Regulatory: FDA 21CFR §175.300, 175.320

Manuf./Distrib.: ABCR; Aldrich; Fluka; Sigma

Trade Names: Airflex® CF50; Ucar® VAGD; Ucar® VAGH; Ucar® VMCA; Ucar® VMCC; Ucar® VMCH

**Vinyl chloride/vinyl acetate copolymers.** See Vinyl chloride/vinyl acetate copolymer



**Vinyl chloride/vinyl acetate polymer.** See Vinyl chloride/vinyl acetate copolymer

**Vinyl chloride/vinylidene chloride copolymer.** See Vinylidene chloride/vinyl chloride copolymer

**Vinyl chloride/vinylidene chloride polymer.** See Vinylidene chloride/vinyl chloride copolymer

**Vinyl crotonate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

*Manuf./Distrib.:* Monomer-Polymer & Dajac Labs

**Vinyl cyanide.** See Acrylonitrile

**Vinyl cyanide copolymer.** See Acrylonitrile copolymer

**Vinylene bithiocyanate**

CAS 14150-71-1

*Synonyms:* VBT; Thiocyanic acid, 1,2-ethanediy l ester; Thiocyanic acid, vinylene ester

*Empirical:* C<sub>4</sub>H<sub>2</sub>N<sub>2</sub>S<sub>2</sub>

*Properties:* M.w. 142.2

*Toxicology:* LD50 (oral, rat) 77 mg/kg

*Uses:* Slimicide in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.300

**Vinyl ester resin**

*Definition:* Liq. comprising methacrylate-terminated epoxy resin prepolymers dissolved in styrene; cured with peroxide catalysts; high str. and elong.; resist. to attack by acids and solvs.

*Uses:* Thermoset used in chem. processing industry, pulp and paper mills, corrosive-resist. applics., coatings, chemically-resist./fiber-reinforced piping/tanks; food-contact crosslinked polyester resins

*Manuf./Distrib.:* Alpha/Owens-Corning; Ashland; Chemcentral; Cook Composites & Polymers; Dow; Eastech; ISP; Monomer-Polymer & Dajac Labs; Union Carbide

*Trade Names:* Derakane® 411-35; Derakane® 411-350

**Vinyl ethanoate.** See Vinyl acetate

**Vinylformic acid.** See Acrylic acid

**Vinyl hexoate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Vinylidene chloride/acrylamide copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Vinylidene chloride/acrylic acid copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1200

**Vinylidene chloride/acrylonitrile copolymer**

CAS 9010-76-8

*Synonyms:* Poly (vinylidene chloride-co-acrylonitrile)

*Classification:* Acrylic polymer

*Formula:* (CH<sub>2</sub>CCl<sub>2</sub>)<sub>x</sub>[CH<sub>2</sub>CH(CN)]<sub>y</sub>

*Properties:* Dens. 1.330

*Toxicology:* TSCA listed

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

*Manuf./Distrib.:* Aldrich

**Vinylidene chloride/butyl acrylate copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

**Vinylidene chloride/butyl methacrylate copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1200

**Vinylidene chloride copolymer**

*Synonyms:* VdC; Vinylidene chloride latex

*Definition:* Latex emulsion contg. vinylidene chloride and 7-50% comonomer

*Uses:* Binder for pigments, nonwovens, fire-retardant fabrics, textile backcoating, wallpaper coatings; base emulsion for fire-resist. paints, paper coatings, caulks, sealants, roof coatings; barrier coatings (paper, film, aluminum foil and board); impregnant and adhesive for papers; film and sheet extrusion for medicine, foods, cosmetics; coatings for food-contact nylon or PC film

*Regulatory:* FDA 21CFR §175.360, 175.365, 181.30

*Manuf./Distrib.:* BFGoodrich; Hampshire; Matteson-Ridolfi; NeoResins; Scott Bader

*Trade Names:* Darex® 550L; Polidene® 33-031

See also Polyvinylidene chloride

**Vinylidene chloride/ethyl acrylate copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

**Vinylidene chloride/ethyl methacrylate copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

**Vinylidene chloride/fumaric acid copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Vinylidene chloride homopolymer.** See Polyvinylidene chloride

**Vinylidene chloride latex.** See Polyvinylidene chloride; Vinylidene chloride copolymer

**Vinylidene chloride/methacrylic acid copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1200

**Vinylidene chloride/methyl acrylate copolymer**

CAS 25038-72-6

*Synonyms:* Poly (vinylidene chloride-co-methyl acrylate)

*Classification:* Vinylidene chloride

*Formula:* (CH<sub>2</sub>CCl<sub>2</sub>)<sub>x</sub>[CH<sub>2</sub>CH(CO<sub>2</sub>CH<sub>3</sub>)]<sub>y</sub>

*Properties:* Gran.; m.w. ≈ 90,000 avg.; dens. 1.780; m.p. 152 C

*Toxicology:* May be harmful by inh., ing., or skin absorp.; may cause eye/skin/respiratory tract irritation; avoid inh., contact with eyes, skin, clothing; avoid prolonged/repeated exposure; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents, strong bases, iron/iron salts, copper, zinc, aluminum; capable of creating a dust explosion

*Hazardous Decomp. Prods.:* CO, CO<sub>2</sub>, hydrogen chloride gas; emits toxic fumes under fire conditions

*Storage:* Store in cool, dry place; keep tightly closed

*Uses:* Gas and moisture barrier; food-pkg. film; flexible pkg. films; monofilament fibers; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.; food-contact surfaces

*Regulatory:* FDA 21CFR §175.320, 176.170, 177.1210, 177.1990, 178.1005

*Manuf./Distrib.:* Aldrich

**Vinylidene chloride/methyl methacrylate copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

**Vinylidene chloride/propyl acrylate copolymer**

*Uses:* Food pkg. film; in resinous/polymeric food-contact coatings; in paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §175.320, 176.170, 177.1210

**Vinylidene chloride/propyl methacrylate copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

**Vinylidene chloride/vinyl chloride copolymer**

CAS 9011-06-7

*Synonyms:* Chloroethylene-1,1-dichloroethylene polymer; 1,1-Dichloroethene polymer with chloroethene; 1,1-Dichloroethylene-monochloroethylene

polymer; 1,1-Dichloroethylene polymer with chloroethylene; Ethene, 1,1-dichloro-, polymer with chloroethylene; Ethylene, 1,1-dichloro-, polymer with chloroethylene; Poly (vinylidene chloride-co-vinyl chloride); Vinyl chloride copolymer with vinylidene chloride; Vinyl chloride-1,1-dichloroethylene copolymer; Vinyl chloride/vinylidene chloride copolymer; Vinyl chloride/vinylidene chloride polymer; Vinylidene chloride/vinyl chloride polymer

*Classification:* Vinyl/vinylidene chloride

*Empirical:*  $(C_2H_2Cl \cdot C_2H_2Cl)_x$

*Formula:*  $(CH_2CCl_2)_x(CH_2CHCl)_y$

*Properties:* Solid; dens. 1.690-1.730; m.p. 163 C

*Toxicology:* May be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents and bases, iron and iron salts, zinc, copper; avoid heat; capable of creating a dust explosion

*Hazardous Decomp. Prods.:* Toxic fumes of CO, CO<sub>2</sub>, hydrogen chloride gas; emits toxic fumes under fire conditions

*Storage:* Keep tightly closed; store in cool, dry place

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

*Manuf./Distrib.:* Aldrich

**Vinylidene chloride/vinyl chloride polymer.** See Vinylidene chloride/vinyl chloride copolymer

**Vinylidene chloride/vinyl sulfonic acid copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Vinyl isobutyl ether**

CAS 109-53-5; EINECS/ELINCS 203-678-8; UN No. 1304 (DOT)

*Synonyms:* IBVE; IVE; Isobutyl vinyl ether; Poly(vinyl isobutyl ether)

*Empirical:* C<sub>6</sub>H<sub>12</sub>O

*Formula:* CH<sub>2</sub>=CHOCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Colorless liq.; sol. in alcohol, ether, most org. solvs.; sl. sol. in water; m.w. 100.17; dens. 0.7706 (20/20 C); vapor pressure 68 mm Hg (20 C); m.p. -132 C; b.p. 83.3 C; flash pt. (OC) 15 F; ref. index 1.396 (20 C)

*Toxicology:* LD50 (oral, rat) 17 g/kg, (skin, rabbit) 20 g/kg; very mildly toxic by ing., inh., and skin contact; irritant; TSCA listed

*Precaution:* Highly flamm.; dangerous fire risk; severe explosion hazard exposed to sparks or open flame; can react vigorously with oxidizing materials

*Hazardous Decomp. Prods.:* Heated to decomp., emits arid smoke and fumes

*Storage:* Keep away from ignition sources

*Uses:* Polymer and copolymers in surgical adhesives, coatings, and lacquers; acrylic resin comonomer in adhesives, textiles, leather, paper coatings; plasticizer for nitrocellulose and other plastics; modifier for alkyd and polystyrene resins; chemical intermediate

*Manuf./Distrib.:* Aldrich; BASF AG; Fluka

**Vinyl pelargonate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Vinylphosphonic acid bis (2-chloroethyl) ester.** See Bis (β-chloroethyl) vinyl phosphonate

**1,2-Vinylpolybutadiene**

*Uses:* Thermosetting resin used in elec. potting and impregnation of transformers, capacitors, motors laminates, molding compds. and castings, rubber modifiers, mica paper binder, nuclear heat shield; for food pkg.; coagent for rubbers; peptizing agent; plasticizer; processing aid

*Trade Names:* Ricon 150

**Vinyl propionate homopolymer.** See Poly (vinyl propionate)

**1-Vinyl-2-pyrrolidinone polymer.** See PVP

**1-Vinyl-2-pyrrolidinone polymer with styrene.** See Styrene/PVP copolymer

**Vinylpyrrolidinone-styrene polymer.** See Styrene/PVP copolymer

**Vinylpyrrolidone/acrylic acid copolymer.** See PVP/acrylic acid copolymer

**Vinyl pyrrolidone homopolymer.** See PVP

**N-Vinylpyrrolidone polymer.** See PVP

**Vinylpyrrolidone/styrene copolymer.** See Styrene/PVP copolymer

**Vinyl stearate homopolymer.** See Polyvinyl stearate

**Vinyl sulfonic acid homopolymer**

*Synonyms:* Polyvinyl sulfonic acid

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Vinyl-toluene/acrylate copolymer**

*Uses:* Rheological modifier for paints, paper coatings, inks

*Trade Names:* Pliolite® AC-3; Pliolite® VTAC

**Vinyl-toluene/butadiene copolymer**

*Uses:* Film-former for paints, paper coatings, adhesives, laminates, inks, hot melts

*Trade Names:* Pliolite® VT; Pliolite® VT-L

**Vinyon.** See Polyvinyl chloride

**Violet 2.** See Acid violet 49

**Violet BNP.** See Acid violet 17

**Viscoleo oil.** See Vegetable oil

**Viscose rayon.** See Cellophane

**Vitriol brown oil.** See Sulfuric acid

**Vitriol, oil of.** See Sulfuric acid

**VLDPE.** See Polyethylene, very low-density

**VLO.** See Linseed (Linum usitatissimum) oil

**VM&P naphtha**

CAS 8032-32-4; EINECS/ELINCS 232-453-7; UN No. 1255 (DOT); 1271 (DOT)

*Synonyms:* Benzin; Benzine (light petroleum distillate); Ligroin; Ligroine; Mineral spirits; Naphtha, petroleum; Naphtha, VM&P; Painters naphtha; Petroleum ether; Petroleum naphtha; Petroleum spirit; Petroleum spirits; Petroleum thinner; Refined solvent naphtha; Solvent naphtha; Varnish Makers naphtha; Varnish Makers and Painters naphtha; White spirit

*Definition:* Narrow boiling fraction of petroleum with distillation range 119-143 C

*Properties:* Colorless clear liq.; nonfluorescent; volatile; dens. 0.850-0.870 (15.6/15.6 C); pour pt. -56 C; b.p. 93-204 C; flash pt. (TCC) -6.6 C; ref. index 1.3630

*Toxicology:* ACGIH TLV/TWA 300 ppm; LD50 (IV, mouse) 40 mg/kg; LC50 (inh., rat, 4 h) 3400 ppm; poison by IV; mildly toxic by inh.; eye, skin, and respiratory irritant; ing. can cause vomiting, diarrhea, drowsiness, pulmonary edema in severe cases; inh. of vapor can cause intoxication, headache; target organ: nerves; TSCA listed

*Precaution:* Flamm.; dangerous fire hazard exposed to heat, flame, sparks, or oxidizers; explosive as vapor exposed to heat or flame

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Solvent; thinner in paints and varnish; in wood preservatives for food contact

*Regulatory:* FDA 21CFR §178.3800

*Manuf./Distrib.:* Aldrich; Amyl; Romil Ltd; Sigma

*Trade Names:* Shell VM&P Naphtha HT

See also Mineral spirits; Naphtha

**Vulcan red R.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**Washing soda.** See Sodium carbonate

**Water**

CAS 7732-18-5; EINECS/ELINCS 231-791-2

*Synonyms:* Aqua; Deionized water; Distilled water; Hydrogen oxide; Ice; Purified water; Steam

*Classification:* Polar liq.

*Empirical:* H<sub>2</sub>O

*Properties:* Colorless liq.; odorless; tasteless; m.w. 18.02; dens. 1.00 (4 C); vapor pressure 760 mm Hg (100 C); f.p. 0 C; b.p. 100 C; ref. index 1.333; surf. tens. 73 dynes/cm (20 C); high dielec. const.; weak electrolyte

*Toxicology:* LD50 (IP, mouse) 190 g/kg, (IV, mouse) 25 g/kg; human systemic effects by ing. of very large amts. (body temp. inc., convulsions, diarrhea, fever, hypermotility, muscle contraction/spasticity, nausea, vomiting, tremors); human and experimental death reported at sufficiently large doses; TSCA listed

polymer; 1,1-Dichloroethylene polymer with chloroethylene; Ethene, 1,1-dichloro-, polymer with chloroethylene; Ethylene, 1,1-dichloro-, polymer with chloroethylene; Poly (vinylidene chloride-co-vinyl chloride); Vinyl chloride copolymer with vinylidene chloride; Vinyl chloride-1,1-dichloroethylene copolymer; Vinyl chloride/vinylidene chloride copolymer; Vinyl chloride/vinylidene chloride polymer; Vinylidene chloride/vinyl chloride polymer

*Classification:* Vinyl/vinylidene chloride

*Empirical:* (C<sub>2</sub>H<sub>2</sub>Cl • C<sub>2</sub>H<sub>2</sub>Cl)<sub>x</sub>

*Formula:* (CH<sub>2</sub>CCl<sub>2</sub>)<sub>x</sub>(CH<sub>2</sub>CHCl)<sub>y</sub>

*Properties:* Solid; dens. 1.690-1.730; m.p. 163 C

*Toxicology:* May be harmful by inh., ing., or skin absorption; may cause irritation to eyes, skin, mucous membranes, upper respiratory tract; TSCA listed

*Precaution:* Incompat. with strong oxidizing agents and bases, iron and iron salts, zinc, copper; avoid heat; capable of creating a dust explosion

*Hazardous Decomp. Prods.:* Toxic fumes of CO, CO<sub>2</sub>, hydrogen chloride gas; emits toxic fumes under fire conditions

*Storage:* Keep tightly closed; store in cool, dry place

*Uses:* In paper/paperboard in contact with aq./fatty foods; in cellophane for food pkg.

*Regulatory:* FDA 21CFR §176.170, 177.1210

*Manuf./Distrib.:* Aldrich

**Vinylidene chloride/vinyl chloride polymer.** See Vinylidene chloride/vinyl chloride copolymer

**Vinylidene chloride/vinyl sulfonic acid copolymer**

*Uses:* In paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §176.170

**Vinyl isobutyl ether**

CAS 109-53-5; EINECS/ELINCS 203-678-8; UN No. 1304 (DOT)

*Synonyms:* IBVE; IVE; Isobutyl vinyl ether; Poly(vinyl isobutyl ether)

*Empirical:* C<sub>6</sub>H<sub>12</sub>O

*Formula:* CH<sub>2</sub>=CHOCH<sub>2</sub>CH(CH<sub>3</sub>)<sub>2</sub>

*Properties:* Colorless liq.; sol. in alcohol, ether, most org. solvs.; sl. sol. in water; m.w. 100.17; dens. 0.7706 (20/20 C); vapor pressure 68 mm Hg (20 C); m.p. -132 C; b.p. 83.3 C; flash pt. (OC) 15 F; ref. index 1.396 (20 C)

*Toxicology:* LD50 (oral, rat) 17 g/kg, (skin, rabbit) 20 g/kg; very mildly toxic by ing., inh., and skin contact; irritant; TSCA listed

*Precaution:* Highly flamm.; dangerous fire risk; severe explosion hazard exposed to sparks or open flame; can react vigorously with oxidizing materials

*Hazardous Decomp. Prods.:* Heated to decomp., emits arid smoke and fumes

*Storage:* Keep away from ignition sources

*Uses:* Polymer and copolymers in surgical adhesives, coatings, and lacquers; acrylic resin comonomer in adhesives, textiles, leather, paper coatings; plasticizer for nitrocellulose and other plastics; modifier for alkyd and polystyrene resins; chemical intermediate

*Manuf./Distrib.:* Aldrich; BASF AG; Fluka

**Vinyl pelargonate homopolymer**

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Vinylphosphonic acid bis (2-chloroethyl) ester.** See Bis (β-chloroethyl) vinyl phosphonate

**1,2-Vinylpolybutadiene**

*Uses:* Thermosetting resin used in elec. potting and impregnation of transformers, capacitors, motors laminates, molding compds. and castings, rubber modifiers, mica paper binder, nuclear heat shield; for food pkg.; coagent for rubbers; peptizing agent; plasticizer; processing aid

*Trade Names:* Ricon 150

**Vinyl propionate homopolymer.** See Poly (vinyl propionate)

**1-Vinyl-2-pyrrolidinone polymer.** See PVP

**1-Vinyl-2-pyrrolidinone polymer with styrene.** See Styrene/PVP copolymer

**Vinylpyrrolidinone-styrene polymer.** See Styrene/PVP copolymer

**Vinylpyrrolidone/acrylic acid copolymer.** See PVP/acrylic acid copolymer

**Vinyl pyrrolidone homopolymer.** See PVP

**N-Vinylpyrrolidone polymer.** See PVP

**Vinylpyrrolidone/styrene copolymer.** See Styrene/PVP copolymer

**Vinyl stearate homopolymer.** See Polyvinyl stearate

**Vinyl sulfonic acid homopolymer**

*Synonyms:* Polyvinyl sulfonic acid

*Uses:* In paper/paperboard in contact with dry food

*Regulatory:* FDA 21CFR §176.180

**Vinyl-toluene/acrylate copolymer**

*Uses:* Rheological modifier for paints, paper coatings, inks

*Trade Names:* Pliolite® AC-3; Pliolite® VTAC

**Vinyl-toluene/butadiene copolymer**

*Uses:* Film-former for paints, paper coatings, adhesives, laminates, inks, hot melts

*Trade Names:* Pliolite® VT; Pliolite® VT-L

**Vinyon.** See Polyvinyl chloride

**Violet 2.** See Acid violet 49

**Violet BNP.** See Acid violet 17

**Viscoleo oil.** See Vegetable oil

**Viscose rayon.** See Cellophane

**Vitriol brown oil.** See Sulfuric acid

**Vitriol, oil of.** See Sulfuric acid

**VLDPE.** See Polyethylene, very low-density

**VLO.** See Linseed (Linum usitatissimum) oil

**VM&P naphtha**

CAS 8032-32-4; EINECS/ELINCS 232-453-7; UN No. 1255 (DOT); 1271 (DOT)

*Synonyms:* Benzin; Benzine (light petroleum distillate); Ligroin; Ligroine; Mineral spirits; Naphtha, petroleum; Naphtha, VM&P; Painters naphtha; Petroleum ether; Petroleum naphtha; Petroleum spirit; Petroleum spirits; Petroleum thinner; Refined solvent naphtha; Solvent naphtha; Varnish Makers naphtha; Varnish Makers and Painters naphtha; White spirit

*Definition:* Narrow boiling fraction of petroleum with distillation range 119-143 C

*Properties:* Colorless clear liq.; nonfluorescent; volatile; dens. 0.850-0.870 (15.6/15.6 C); pour pt. -56 C; b.p. 93-204 C; flash pt. (TCC) -6.6 C; ref. index 1.3630

*Toxicology:* ACGIH TLV/TWA 300 ppm; LD50 (IV, mouse) 40 mg/kg; LC50 (inh., rat, 4 h) 3400 ppm; poison by IV; mildly toxic by inh.; eye, skin, and respiratory irritant; ing. can cause vomiting, diarrhea, drowsiness, pulmonary edema in severe cases; inh. of vapor can cause intoxication, headache; target organ: nerves; TSCA listed

*Precaution:* Flamm.; dangerous fire hazard exposed to heat, flame, sparks, or oxidizers; explosive as vapor exposed to heat or flame

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Solvent; thinner in paints and varnish; in wood preservatives for food contact

*Regulatory:* FDA 21CFR §178.3800

*Manuf./Distrib.:* Aldrich; Amyl; Romil Ltd; Sigma

*Trade Names:* Shell VM&P Naphtha HT

See also Mineral spirits; Naphtha

**Vulcan red R.** See 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol

**Washing soda.** See Sodium carbonate

**Water**

CAS 7732-18-5; EINECS/ELINCS 231-791-2

*Synonyms:* Aqua; Deionized water; Distilled water; Hydrogen oxide; Ice; Purified water; Steam

*Classification:* Polar liq.

*Empirical:* H<sub>2</sub>O

*Properties:* Colorless liq.; odorless; tasteless; m.w. 18.02; dens. 1.00 (4 C); vapor pressure 760 mm Hg (100 C); f.p. 0 C; b.p. 100 C; ref. index 1.333; surf. tens. 73 dynes/cm (20 C); high dielec. const.; weak electrolyte

*Toxicology:* LD50 (IP, mouse) 190 g/kg, (IV, mouse) 25 g/kg; human systemic effects by ing. of very large amts. (body temp. inc., convulsions, diarrhea, fever, hypermotility, muscle contraction/spasticity, nausea, vomiting, tremors); human and experimental death reported at sufficiently large doses; TSCA listed

*Uses:* Suspending agent (papermaking, coal slurries); extraction solvent; diluent; hydration of lime; paper coatings; textile processing; industrial coolant; filtration; washing/scouring; sulfur mining; hydrolysis; Portland cement; hydraulic systems; power source; steam generation; hydrogen source; solvent in critical chromatography, semiconductor processing, pharmaceutical mfg., spectrophotometry, scintillation counting, spectrofluorescence, high purity org. synthesis, precision cleaning, etc.

*Regulatory:* FDA 21CFR §103.35

*Manuf./Distrib.:* Ruger

**Water glass.** See Sodium metasilicate; Sodium silicate

**Wax, chlorinated.** See Paraffin, chlorinated

**Waxes, carnauba.** See Carnauba (Copernicia cerifera) wax

**Waxes, microcrystalline.** See Microcrystalline wax

**Waxes, montan.** See Montan wax

**Waxes, montan fatty acids.** See Montan acid wax

**Wettable powder sulfur.** See Sulfur

**Wheat starch.** See Starch

**White asbestos.** See Asbestos

**White beeswax.** See Beeswax

**White caustic.** See Sodium hydroxide

**White ceresin wax.** See Ceresin

**White charcoal.** See Magnesium oxide

**White crystal.** See Sodium chloride

**White dextrin.** See Dextrin

**White gelatin.** See Gelatin

**White mineral oil.** See Mineral oil

**White ozokerite wax.** See Ceresin

**White petrolatum.** See Petrolatum

**White powder.** See Calcium monocarbonate

**White shellac.** See Shellac

**White soft paraffin.** See Petrolatum

**White spirit.** See VM&P naphtha

**White spirits.** See Mineral spirits

**White wax.** See Beeswax

## Whiting

CAS 471-34-1

*Synonyms:* Calcium carbonate, prepared; Calcium monocarbonate; Carbonic acid calcium salt; Drop chalk; English white; Paris white; Pigment white 18; Prepared chalk

*Definition:* Naturally occurring finely ground calcium carbonate with traces of silica, iron, aluminum, or magnesium

*Empirical:*  $\text{CCaO}_3$

*Properties:* Wh. to off-wh. powd.; odorless; tasteless; sol. in acids; insol. in water; m.w. 100.09; dens. 2.7; bulking value 0.044 gal/lb; oil absorp. 5-6 (dry ground), 15 (wet ground)

*Toxicology:* LD50 (oral, rat) 6450 mg/kg; primary irritant; TSCA listed

*Uses:* Filler in rubber, thermoplastics and thermosets, and paper coatings; in putties (with linseed oil); whitewashes; sealants

*Trade Names:* Snowcal 75E (Export)

See also Calcium carbonate; Calcium monocarbonate

**Wilkinite.** See Bentonite

**Willinite.** See Aluminum silicate

## Wollastonite

CAS 13983-17-0

*Definition:* A natural calcium silicate mineral found in metamorphic rock

*Empirical:* (1)  $\text{O}_3\text{Si} \cdot \text{Ca}$ ; (2)  $\text{CaH}_2\text{O}_3\text{Si}$

*Properties:* Wh. to brn., red, gray, or yel. cryst. solid, luster vitreous to pearly; m.w. 116.17 (1); dens. 2.8-2.9; bulking value 0.041 gal/lb; oil absorp. 22-45; GE brightness 85-93; ref. index 1.63; hardness (Mohs) 4.5-5.0

*Toxicology:* TDL<sub>0</sub> (implant, rat) 200 mg/kg; questionable carcinogen; experimental tumorigen; mutagen

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

*Uses:* Extender, filler, pigment for paints, plastics, rubber, friction, refractory, cements, wallboard, ceramics, construction, sealants, adhesives, welding rod coatings, silica gels, paper coatings; mineral wool; soil conditioner; flattening agent in powder coatings

*Manuf./Distrib.:* Am. Colloid; Hamill & Gillespie; Nyco Mins.; R.T. Vanderbilt;

Reade Advanced Materials

See also Calcium metasilicate

**Wood alcohol.** See Methyl alcohol

**Wood flock.** See Wood flour

## Wood flour

*Synonyms:* Wood flock

*Classification:* Cellulosic material

*Definition:* Pulverized dried wood from soft or hardwood wastes

*Properties:* Lt. brn. fibers; sp.gr. 0.7; bulking value 0.088 gal/lb; low aspect ratio

*Precaution:* Flamm.; dangerous fire risk, esp. suspended in air

*Uses:* Extender/filler in dynamite, thermoset plastics, rubber, paperboard; fur cleaning; polishing agents; Sorel cement

**Wood naphtha.** See Methyl alcohol

**Wood pulp, bleached.** See Cellulose

**Wood rosin.** See Rosin

**Wood spirit.** See Methyl alcohol

**Wood turpentine.** See Turpentine

**Wool fat.** See Lanolin

**Wool grease.** See Lanolin

**Wool orange G.** See Acid orange 10

**Wool violet.** See Acid violet 49

**Wool wax.** See Lanolin

**Xanthan.** See Xanthan gum

## Xanthan gum

CAS 11138-66-2; EINECS/ELINCS 234-394-2

*Synonyms:* Corn sugar gum; Xanthan

*Classification:* Polysaccharide gum

*Definition:* High m.w. hetero polysaccharide gum produced by a pure-culture fermentation of a carbohydrate with *Xanthomonas campestris*; contains D-glucose, D-mannose, and D-glucuronic acid and is prepared as the sodium, potassium, or calcium salt

*Properties:* Wh. to cream-colored powd., sl. organic odor, tasteless; sol. in hot or cold water producing visc. highly-pseudoplastic sol'ns.; insol. in oils, most org. solvs.; visc. 600 cps min.; unaffected by high or low pH

*Toxicology:* No known toxicity; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits acrid smoke and irritating fumes

HMIT: Health 1; Flammability 1; Reactivity 0

*Storage:* Very hygroscopic

*Uses:* Thickener, suspending agent, stabilizer, emulsifier, extender in ore flotation, foods, cosmetics, pharmaceuticals; conditioner/stabilizer in toiletries; viscosifier for oil-well workover fluids, cleaners, adhesives, pesticides, paints; lubricant for industrial applcs. incl. abrasives, adhesives, herbicides, fertilizers, ceramics, cleaners, emulsions, gels, mining, thixotropic paints, paper, petroleum, pigments; stabilizer for foods; suspending agent, stabilizer for aq. pigment slurries used in mfg. of paper/paperboard in contact with aq./fatty foods

*Use Level:* 0.1-0.5%; ADI 0-10 mg/kg (EU)

*Regulatory:* FDA 21CFR §133.124, 133.133, 133.134, 133.162, 133.178, 133.179, 172.695, 176.170; USDA 9CFR §318.7 (limitation 8%), 381.147; Japan, JCID, Europe, UK approvals; FDA approved for orals, rectals, topicals; USP/NF compliance

*Manuf./Distrib.:* ADA Int'l.; ADM; AEP Colloids; Alban Muller; Aldrich; Brown-ing; CarboMer; Charkit; Chart; Colony Ind.; Costec; Fluka; Folexco; Frutarom Meer; Gumix Int'l.; Independent Chem.; Jungbunzlauer; Monsanto; P.L. Thomas; Penta Mfg.; R.T. Vanderbilt; Rambach; Rhodia HPCII; Ruger; Sarcom; Sigma; Spectrum Quality Prods.; TIC Gums; Universal Preserv-A-Chem; V.L. Clark

*Trade Names:* KELZAN®; KELZAN® XC Polymer; Ticaxan® Regular; Xanthan Gum

**Xanthylum, 3,6-bis (diethylamino)-9-(2,4-disulfophenyl)-, hydroxide, inner salt, sodium salt.** See Acid red 52

**Xanthylum, 9-(2-(ethoxycarbonyl) phenyl)-3,6-bis (ethylamino)-2,7-dimethyl-, chloride.** See Basic red 1

**o-Xenol.** See o-Phenylphenol

## Xylene

CAS 1330-20-7; EINECS/ELINCS 215-535-7; UN No. 1307 (DOT)

## Water glass

**Uses:** Suspending agent (papermaking, coal slurries); extraction solvent; diluent; hydration of lime; paper coatings; textile processing; industrial coolant; filtration; washing/scouring; sulfur mining; hydrolysis; Portland cement; hydraulic systems; power source; steam generation; hydrogen source; solvent in critical chromatography, semiconductor processing, pharmaceutical mfg., spectrophotometry, scintillation counting, spectrofluorescence, high purity org. synthesis, precision cleaning, etc.

**Regulatory:** FDA 21CFR §103.35

**Manuf./Distrib.:** Ruger

**Water glass.** See Sodium metasilicate; Sodium silicate

**Wax, chlorinated.** See Paraffin, chlorinated

**Waxes, carnauba.** See Carnauba (*Copernicia cerifera*) wax

**Waxes, microcrystalline.** See Microcrystalline wax

**Waxes, montan.** See Montan wax

**Waxes, montan fatty acids.** See Montan acid wax

**Wettable powder sulfur.** See Sulfur

**Wheat starch.** See Starch

**White asbestos.** See Asbestos

**White beeswax.** See Beeswax

**White caustic.** See Sodium hydroxide

**White ceresin wax.** See Ceresin

**White charcoal.** See Magnesium oxide

**White crystal.** See Sodium chloride

**White dextrin.** See Dextrin

**White gelatin.** See Gelatin

**White mineral oil.** See Mineral oil

**White ozokerite wax.** See Ceresin

**White petrolatum.** See Petrolatum

**White powder.** See Calcium monocarbonate

**White shellac.** See Shellac

**White soft paraffin.** See Petrolatum

**White spirit.** See VM&P naphtha

**White spirits.** See Mineral spirits

**White wax.** See Beeswax

## Whiting

CAS 471-34-1

**Synonyms:** Calcium carbonate, prepared; Calcium monocarbonate; Carbonic acid calcium salt; Drop chalk; English white; Paris white; Pigment white 18; Prepared chalk

**Definition:** Naturally occurring finely ground calcium carbonate with traces of silica, iron, aluminum, or magnesium

**Empirical:**  $\text{CCaO}_3$

**Properties:** Wh. to off-wh. powd.; odorless; tasteless; sol. in acids; insol. in water; m.w. 100.09; dens. 2.7; bulking value 0.044 gal/lb; oil absorp. 5-6 (dry ground), 15 (wet ground)

**Toxicology:** LD50 (oral, rat) 6450 mg/kg; primary irritant; TSCA listed

**Uses:** Filler in rubber, thermoplastics and thermosets, and paper coatings; in putties (with linseed oil); whitewashes; sealants

**Trade Names:** Snowcal 75E (Export)

See also Calcium carbonate; Calcium monocarbonate

**Wilkinite.** See Bentonite

**Willinite.** See Aluminum silicate

## Wollastonite

CAS 13983-17-0

**Definition:** A natural calcium silicate mineral found in metamorphic rock

**Empirical:** (1)  $\text{O}_3\text{Si} \cdot \text{Ca}$ ; (2)  $\text{CaH}_2\text{O}_3\text{Si}$

**Properties:** Wh. to brn., red, gray, or yel. cryst. solid, luster vitreous to pearly; m.w. 116.17 (1); dens. 2.8-2.9; bulking value 0.041 gal/lb; oil absorp. 22-45; GE brightness 85-93; ref. index 1.63; hardness (Mohs) 4.5-5.0

**Toxicology:** TDL<sub>0</sub> (implant, rat) 200 mg/kg; questionable carcinogen; experimental tumorigen; mutagen

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Extender, filler, pigment for paints, plastics, rubber, friction, refractory, cements, wallboard, ceramics, construction, sealants, adhesives, welding rod coatings, silica gels, paper coatings; mineral wool; soil conditioner; flattening agent in powder coatings

**Manuf./Distrib.:** Am. Colloid; Hamill & Gillespie; Nyco Mins.; R.T. Vanderbilt;

Reade Advanced Materials

See also Calcium metasilicate

**Wood alcohol.** See Methyl alcohol

**Wood flock.** See Wood flour

## Wood flour

**Synonyms:** Wood flock

**Classification:** Cellulosic material

**Definition:** Pulverized dried wood from soft or hardwood wastes

**Properties:** Lt. brn. fibers; sp.gr. 0.7; bulking value 0.088 gal/lb; low aspect ratio

**Precaution:** Flamm.; dangerous fire risk, esp. suspended in air

**Uses:** Extender/filler in dynamite, thermoset plastics, rubber, paperboard; fur cleaning; polishing agents; Sorel cement

**Wood naphtha.** See Methyl alcohol

**Wood pulp, bleached.** See Cellulose

**Wood rosin.** See Rosin

**Wood spirit.** See Methyl alcohol

**Wood turpentine.** See Turpentine

**Wool fat.** See Lanolin

**Wool grease.** See Lanolin

**Wool orange G.** See Acid orange 10

**Wool violet.** See Acid violet 49

**Wool wax.** See Lanolin

**Xanthan.** See Xanthan gum

## Xanthan gum

CAS 11138-66-2; EINECS/ELINCS 234-394-2

**Synonyms:** Corn sugar gum; Xanthan

**Classification:** Polysaccharide gum

**Definition:** High m.w. hetero polysaccharide gum produced by a pure-culture fermentation of a carbohydrate with *Xanthomonas campestris*; contains D-glucose, D-mannose, and D-glucuronic acid and is prepared as the sodium, potassium, or calcium salt

**Properties:** Wh. to cream-colored powd., sl. organic odor, tasteless; sol. in hot or cold water producing visc. highly-pseudoplastic sol'ns.; insol. in oils, most org. solvs.; visc. 600 cps min.; unaffected by high or low pH

**Toxicology:** No known toxicity; TSCA listed

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

HMIS: Health 1; Flammability 1; Reactivity 0

**Storage:** Very hygroscopic

**Uses:** Thickener, suspending agent, stabilizer, emulsifier, extender in ore flotation, foods, cosmetics, pharmaceuticals; conditioner/stabilizer in toiletries; viscosifier for oil-well workover fluids, cleaners, adhesives, pesticides, paints; lubricant for industrial applcs. incl. abrasives, adhesives, herbicides, fertilizers, ceramics, cleaners, emulsions, gels, mining, thixotropic paints, paper, petroleum, pigments; stabilizer for foods; suspending agent, stabilizer for aq. pigment slurries used in mfg. of paper/paperboard in contact with aq./fatty foods

**Use Level:** 0.1-0.5%; ADI 0-10 mg/kg (EU)

**Regulatory:** FDA 21CFR §133.124, 133.133, 133.134, 133.162, 133.178, 133.179, 172.695, 176.170; USDA 9CFR §318.7 (limitation 8%), 381.147; Japan, JCID, Europe, UK approvals; FDA approved for orals, rectals, topicals; USP/NF compliance

**Manuf./Distrib.:** ADA Int'l.; ADM; AEP Colloids; Alban Muller; Aldrich; Brown-ing; CarboMer; Charkit; Chart; Colony Ind.; Costec; Fluka; Folexco; Frutarom Meer; Gumix Int'l.; Independent Chem.; Jungbunzlauer; Monsanto; P.L. Thomas; Penta Mfg.; R.T. Vanderbilt; Rambach; Rhodia HPCII; Ruger; Sarcom; Sigma; Spectrum Quality Prods.; TIC Gums; Universal Preserv-A-Chem; V.L. Clark

**Trade Names:** KELZAN®; KELZAN® XC Polymer; Ticaxan® Regular; Xanthan Gum

**Xanthylum, 3,6-bis (diethylamino)-9-(2,4-disulfophenyl)-, hydroxide, inner salt, sodium salt.** See Acid red 52

**Xanthylum, 9-(2-(ethoxycarbonyl) phenyl)-3,6-bis (ethylamino)-2,7-dimethyl-, chloride.** See Basic red 1

**o-Xenol.** See o-Phenylphenol

## Xylene

CAS 1330-20-7; EINECS/ELINCS 215-535-7; UN No. 1307 (DOT)

**Synonyms:** C<sub>8</sub> aromatics; Dimethylbenzene; Methyl toluene; Mixed xylenes; Xylene, mixed; Xylol

**Classification:** Aromatic hydrocarbon

**Definition:** Commercial mixture of 3 isomers: o-, m-, and p-xylene (1,3-dimethylbenzene, 1,2-dimethylbenzene, 1,4-dimethylbenzene)

**Empirical:** C<sub>8</sub>H<sub>10</sub>

**Formula:** C<sub>8</sub>H<sub>10</sub>(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Colorless clear liq., char. sweet odor; sol. in abs. alcohol, ethanol, diethyl ether, many org. liqs.; pract. insol. in water; m.w. 106.16; dens. 0.86; vapor pressure 6.72 mm Hg (21 C); b.p. 137-144 C; flash pt. (CC) 29 C; ref. index 1.4970; KB value 98

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 4300 mg/kg, (IP, rat) 2459 mg/kg; mod. toxic by IP and subcut. routes; mildly toxic by ing., inh.; irritant to eyes (severe), skin, respiratory tract; human systemic effects; may be narcotic in high concs. causing CNS depression, dizziness, nausea, unconsciousness; repeated skin contact causes defatting, dermatitis; possible liver damage; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** Highly flamm.; moderate fire risk; incompat. with strong oxidizing agents, nitric acid, dichlorohydroantoin; increased fire and explosion risk

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

**Storage:** Store in cool well-ventilated area out of direct sunlight, away from heat/ignition sources

**Uses:** Solvent for alkyd resins, lacquers, enamels, rubber cements, paints, printing inks, leather, gums, acrylic resins, rubber, adhesives, castor/linseed oils; raw material for prod. of benzoic acid, phthalic anhydride, dyes, paints, other organics; insecticide carrier; aviation gasoline; protective coating; degreaser, cleaning agent; carrier in epoxy resin prod.; chem. synthesis; mfg. of quartz crystal oscillators, perfumes, insect repellents; liq. scintillation; in food-pkg. adhesives; in paper/paperboard in contact with dry food; in acrylic food pkg.

**Regulatory:** FDA 21CFR §175.105, 176.180, 177.1010, 177.1650; SARA reportable

**Manuf./Distrib.:** Aldrich; Amyl; Arch Chems.; Ashland; Atofina Bruxelles; BP Chems. Ltd; Baychem; Chemcentral; ChevronPhillips; Coyne; Crowley Chem.; Exxon; Fluka; General Chem.; Harcros; Honeywell Perf. Polymers; Houghton Chem.; Hukill; J.T. Baker; LG Petrochem. Co. Ltd; Lyondell; Mallinckrodt Baker; Marathon Ashland Petrol.; Mobil; Nova Ltd; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Samson; Shell; Sigma; Spectrum Quality Prods.; Sunoco; Van Waters & Rogers

**Trade Names Containing:** Ancamide® 220-X-70; Beetle® 216-8; Beetle® 227-8; Beetle® 1047; Beetle® 1050; Cymel® 245-8; Cymel® 248-8; Multiflow® Resin; Resimene® U-901; Resimene® U-920; Resimene® U-933; TEGO® Airex 960; TEGO® Airex 970

**1,2-Xylene.** See o-Xylene

### o-Xylene

CAS 95-47-6; EINECS/ELINCS 202-422-2; UN No. 1307 (DOT)

**Synonyms:** Benzene, 1,2-dimethyl; o-Dimethylbenzene; 1,2-Dimethylbenzene; o-Methyltoluene; 1,2-Xylene; o-Xylol

**Empirical:** C<sub>8</sub>H<sub>10</sub>

**Formula:** C<sub>8</sub>H<sub>10</sub>(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Colorless liq.; misc. with abs. alcohol, ether, most org. solvs.; insol. in water; m.w. 106.17; dens. 0.8802 (20 C); m.p. -25 C; b.p. 141.5-144.5 C; flash pt. (TOC) 30 C

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LDLo (oral, rat) 8800 mg/kg; LD50 (IP, mouse) 1364 mg/kg; mod. toxic by IP route; mildly toxic by ing., inh.; experimental teratogen; common air contaminant; TSCA listed

**Precaution:** DOT: Flamm. liq.; dangerous fire hazard exposed to heat or flame; explosive as vapor exposed to heat or flame; incompat. with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

**Uses:** Solvent for paints; mfg. of phthalic anhydride, vitamins, pharmaceuticals, dyes, insecticides; motor fuels; prod. of plasticizers

**Manuf./Distrib.:** Equistar; Exxon; Mobil; Shell; Spectrum Quality Prods.

**Trade Names Containing:** Uniplex 280 CG

**Xylene, mixed.** See Xylene

**Xylene red B.** See Acid red 52

**Xylene sulfonic acid-formaldehyde condensate, sodium salt**

**Uses:** Adjuvant to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods

**Regulatory:** FDA 21CFR §176.170, 176.180

**Xylidine ponceau.** See Acid red 26

**Xylidine red.** See Acid red 26

**Xyloidin.** See Nitrocellulose

**Xylol.** See Xylene

**o-Xylol.** See o-Xylene

**1-Xylylazo-2-naphthol-3,6-disulfonic acid, disodium salt.** See Acid red 26

**1-(2,4-Xylylazo)-2-naphthol-3,6-disulfonic acid, disodium salt.** See Acid red 26

**Yarmor.** See Pine (Pinus palustris) oil

**Yarmor pine oil.** See Pine (Pinus palustris) oil

**Yellow beeswax.** See Beeswax

**Yellow dextrin.** See Dextrin

**Yellow ferric oxide.** See Ferric oxide

**Yellow ochre.** See Iron oxide yellow

**Yellow pine rosin.** See Rosin

**Yellow prussiate of soda.** See Sodium ferrocyanide

**Yellow resin.** See Rosin

**Yellow wax.** See Beeswax

**ZDMC.** See Zinc dimethyldithiocarbamate

**Zea mays.** See Corn (Zea mays) oil; Corn (Zea mays) starch

**Zea mays oil.** See Corn (Zea mays) oil

**Zea mays starch.** See Corn (Zea mays) starch

### Zeolite

CAS 1318-02-1; EINECS/ELINCS 215-283-8

**Synonyms:** Aluminosilicates, zeolites

**Definition:** Hydrated alkali aluminum silicate

**Formula:** Na<sub>2</sub>O · Al<sub>2</sub>O<sub>3</sub> · xSiO<sub>2</sub> · yH<sub>2</sub>O

**Properties:** Dens. 0.58-0.75; pH 5-12

**Toxicology:** Irritant; mutagen; TSCA listed

**Storage:** Hygroscopic

**Uses:** Cryst. molecular sieve which selectively adsorbs molecules and exchange ions; pollution and odor adsorbent; detergent builder; in desiccant systems; to separate gases; white pigment in paper, paint, and plastics; carpet cleaners; dentifrices; flame retardants; for making catalysts used in petroleum refining and petrochemicals; dispersants; ion-exchange medium; construction material; filler; food-pkg. materials

**Manuf./Distrib.:** Albemarle; Am. Colloid; Atofina; Bayer; Crosfield; Degussa-Hüls; FMC Foret; Fluka; PQ; Sigma; Spectrum Quality Prods.; UOP; Zeochem

**Trade Names:** Abscents® 1000; Abscents® 2000; Abscents® 3000

See also Sodium silicoaluminate

**Zeolites.** See Sodium silicoaluminate

### Zeolite synthetic

CAS 68989-22-0

**Definition:** Produced by gel process (sodium silicate and alumina) or a clay process (kaolin) which forms a matrix to which the zeolite is added

**Uses:** Water softener; detergent builder; cracking catalyst; adsorbents; desiccants; in solar collectors (as heating and cooling agents); pigment extender in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Albemarle; Bayer; Crosfield BV; PQ; Selecto Scientific; Sybron; Zeolyst Int'l.

**Zinc abietate.** See Zinc rosinate

**Zinc bis (dimethyldithiocarbamate).** See Zinc dimethyldithiocarbamate

**Zinc bis (dimethylthiocarbamoyl) disulfide.** See Zinc dimethyldithiocarbamate

### Zinc carbonate

CAS 3486-35-9; EINECS/ELINCS 222-477-6; UN No. 9157 (NA)

**Synonyms:** Carbonic acid, zinc salt (1:1); CI 77950; Natural smithsonite; Zinc carbonate (1:1); Zinc monocarbonate

**Classification:** Inorganic zinc salt

**Definition:** Occurs in nature as the minerals smithsonite, zincspar

**Synonyms:** C<sub>8</sub> aromatics; Dimethylbenzene; Methyl toluene; Mixed xylenes; Xylene, mixed; Xylol

**Classification:** Aromatic hydrocarbon

**Definition:** Commercial mixture of 3 isomers: o-, m-, and p-xylene (1,3-dimethylbenzene, 1,2-dimethylbenzene, 1,4-dimethylbenzene)

**Empirical:** C<sub>8</sub>H<sub>10</sub>

**Formula:** C<sub>8</sub>H<sub>10</sub>(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Colorless clear liq., char. sweet odor; sol. in abs. alcohol, ethanol, diethyl ether, many org. liqs.; pract. insol. in water; m.w. 106.16; dens. 0.86; vapor pressure 6.72 mm Hg (21 C); b.p. 137-144 C; flash pt. (CC) 29 C; ref. index 1.4970; KB value 98

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 4300 mg/kg, (IP, rat) 2459 mg/kg; mod. toxic by IP and subcut. routes; mildly toxic by ing., inh.; irritant to eyes (severe), skin, respiratory tract; human systemic effects; may be narcotic in high concs. causing CNS depression, dizziness, nausea, unconsciousness; repeated skin contact causes defatting, dermatitis; possible liver damage; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** Highly flamm.; moderate fire risk; incompat. with strong oxidizing agents, nitric acid, dichlorohydroantoin; increased fire and explosion risk

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

**Storage:** Store in cool well-ventilated area out of direct sunlight, away from heat/ignition sources

**Uses:** Solvent for alkyd resins, lacquers, enamels, rubber cements, paints, printing inks, leather, gums, acrylic resins, rubber, adhesives, castor/linseed oils; raw material for prod. of benzoic acid, phthalic anhydride, dyes, paints, other organics; insecticide carrier; aviation gasoline; protective coating; degreaser, cleaning agent; carrier in epoxy resin prod.; chem. synthesis; mfg. of quartz crystal oscillators, perfumes, insect repellents; liq. scintillation; in food-pkg. adhesives; in paper/paperboard in contact with dry food; in acrylic food pkg.

**Regulatory:** FDA 21CFR §175.105, 176.180, 177.1010, 177.1650; SARA reportable

**Manuf./Distrib.:** Aldrich; Amyl; Arch Chems.; Ashland; Atofina Bruxelles; BP Chems. Ltd; Baychem; Chemcentral; ChevronPhillips; Coyne; Crowley Chem.; Exxon; Fluka; General Chem.; Harcros; Honeywell Perf. Polymers; Houghton Chem.; Hukill; J.T. Baker; LG Petrochem. Co. Ltd; Lyondell; Mallinckrodt Baker; Marathon Ashland Petrol.; Mobil; Nova Ltd; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Samson; Shell; Sigma; Spectrum Quality Prods.; Sunoco; Van Waters & Rogers

**Trade Names Containing:** Ancamide® 220-X-70; Beetle® 216-8; Beetle® 227-8; Beetle® 1047; Beetle® 1050; Cymel® 245-8; Cymel® 248-8; Multiflow® Resin; Resimene® U-901; Resimene® U-920; Resimene® U-933; TEGO® Airex 960; TEGO® Airex 970

**1,2-Xylene.** See o-Xylene

**o-Xylene**

CAS 95-47-6; EINECS/ELINCS 202-422-2; UN No. 1307 (DOT)

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**Empirical:** C<sub>8</sub>H<sub>10</sub>

**Formula:** C<sub>8</sub>H<sub>10</sub>(CH<sub>3</sub>)<sub>2</sub>

**Properties:** Colorless liq.; misc. with abs. alcohol, ether, most org. solvs.; insol. in water; m.w. 106.17; dens. 0.8802 (20 C); m.p. -25 C; b.p. 141.5-144.5 C; flash pt. (TOC) 30 C

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LDLo (oral, rat) 8800 mg/kg; LD50 (IP, mouse) 1364 mg/kg; mod. toxic by IP route; mildly toxic by ing., inh.; experimental teratogen; common air contaminant; TSCA listed

**Precaution:** DOT: Flamm. liq.; dangerous fire hazard exposed to heat or flame; explosive as vapor exposed to heat or flame; incompat. with oxidizers

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

**Uses:** Solvent for paints; mfg. of phthalic anhydride, vitamins, pharmaceuticals, dyes, insecticides; motor fuels; prod. of plasticizers

**Manuf./Distrib.:** Equistar; Exxon; Mobil; Shell; Spectrum Quality Prods.

**Trade Names Containing:** Uniplex 280 CG

**Xylene, mixed.** See Xylene

**Xylene red B.** See Acid red 52

**Xylene sulfonic acid-formaldehyde condensate, sodium salt**

**Uses:** Adjuvant to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods

**Regulatory:** FDA 21CFR §176.170, 176.180

**Xylidine ponceau.** See Acid red 26

**Xylidine red.** See Acid red 26

**Xyloidin.** See Nitrocellulose

**Xylol.** See Xylene

**o-Xylol.** See o-Xylene

**1-Xylylazo-2-naphthol-3,6-disulfonic acid, disodium salt.** See Acid red 26

**1-(2,4-Xylylazo)-2-naphthol-3,6-disulfonic acid, disodium salt.** See Acid red 26

**Yarmor.** See Pine (Pinus palustris) oil

**Yarmor pine oil.** See Pine (Pinus palustris) oil

**Yellow beeswax.** See Beeswax

**Yellow dextrin.** See Dextrin

**Yellow ferric oxide.** See Ferric oxide

**Yellow ochre.** See Iron oxide yellow

**Yellow pine rosin.** See Rosin

**Yellow prussiate of soda.** See Sodium ferrocyanide

**Yellow resin.** See Rosin

**Yellow wax.** See Beeswax

**ZDMC.** See Zinc dimethyldithiocarbamate

**Zea mays.** See Corn (Zea mays) oil; Corn (Zea mays) starch

**Zea mays oil.** See Corn (Zea mays) oil

**Zea mays starch.** See Corn (Zea mays) starch

**Zeolite**

CAS 1318-02-1; EINECS/ELINCS 215-283-8

**Synonyms:** Aluminosilicates, zeolites

**Definition:** Hydrated alkali aluminum silicate

**Formula:** Na<sub>2</sub>O · Al<sub>2</sub>O<sub>3</sub> · xSiO<sub>2</sub> · yH<sub>2</sub>O

**Properties:** Dens. 0.58-0.75; pH 5-12

**Toxicology:** Irritant; mutagen; TSCA listed

**Storage:** Hygroscopic

**Uses:** Cryst. molecular sieve which selectively adsorbs molecules and exchange ions; pollution and odor adsorbent; detergent builder; in desiccant systems; to separate gases; white pigment in paper, paint, and plastics; carpet cleaners; dentifrices; flame retardants; for making catalysts used in petroleum refining and petrochemicals; dispersants; ion-exchange medium; construction material; filler; food-pkg. materials

**Manuf./Distrib.:** Albemarle; Am. Colloid; Atofina; Bayer; Crosfield; Degussa-Hüls; FMC Foret; Fluka; PQ; Sigma; Spectrum Quality Prods.; UOP; Zeochem

**Trade Names:** Abscents® 1000; Abscents® 2000; Abscents® 3000

See also Sodium silicoaluminate

**Zeolites.** See Sodium silicoaluminate

**Zeolite synthetic**

CAS 68989-22-0

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**Uses:** Water softener; detergent builder; cracking catalyst; adsorbents; desiccants; in solar collectors (as heating and cooling agents); pigment extender in paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Albemarle; Bayer; Crosfield BV; PQ; Selecto Scientific; Sybron; Zeolyst Int'l.

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**Zinc bis (dimethyldithiocarbamate).** See Zinc dimethyldithiocarbamate

**Zinc bis (dimethylthiocarbamoyl) disulfide.** See Zinc dimethyldithiocarbamate

**Zinc carbonate**

CAS 3486-35-9; EINECS/ELINCS 222-477-6; UN No. 9157 (NA)

**Synonyms:** Carbonic acid, zinc salt (1:1); CI 77950; Natural smithsonite; Zinc carbonate (1:1); Zinc monocarbonate

**Classification:** Inorganic zinc salt

**Definition:** Occurs in nature as the minerals smithsonite, zincspar



**Synonyms:** C<sub>8</sub> aromatics; Dimethylbenzene; Methyl toluene; Mixed xylenes; Xylene, mixed; Xylol

**Classification:** Aromatic hydrocarbon

**Definition:** Commercial mixture of 3 isomers: o-, m-, and p-xylene (1,3-dimethylbenzene, 1,2-dimethylbenzene, 1,4-dimethylbenzene)

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**Properties:** Colorless clear liq., char. sweet odor; sol. in abs. alcohol, ethanol, diethyl ether, many org. liqs.; pract. insol. in water; m.w. 106.16; dens. 0.86; vapor pressure 6.72 mm Hg (21 C); b.p. 137-144 C; flash pt. (CC) 29 C; ref. index 1.4970; KB value 98

**Toxicology:** ACGIH TLV/TWA 100 ppm; STEL 150 ppm; LD50 (oral, rat) 4300 mg/kg, (IP, rat) 2459 mg/kg; mod. toxic by IP and subcut. routes; mildly toxic by ing., inh.; irritant to eyes (severe), skin, respiratory tract; human systemic effects; may be narcotic in high concs. causing CNS depression, dizziness, nausea, unconsciousness; repeated skin contact causes defatting, dermatitis; possible liver damage; experimental teratogen, reproductive effects; mutagenic data; TSCA listed

**Precaution:** Highly flamm.; moderate fire risk; incompat. with strong oxidizing agents, nitric acid, dichlorohydroantoin; increased fire and explosion risk

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**NFPA:** Health 2; Flammability 3; Reactivity 0

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**Manuf./Distrib.:** Aldrich; Amyl; Arch Chems.; Ashland; Atofina Bruxelles; BP Chems. Ltd; Baychem; Chemcentral; ChevronPhillips; Coyne; Crowley Chem.; Exxon; Fluka; General Chem.; Harcros; Honeywell Perf. Polymers; Houghton Chem.; Hukill; J.T. Baker; LG Petrochem. Co. Ltd; Lyondell; Mallinckrodt Baker; Marathon Ashland Petrol.; Mobil; Nova Ltd; R.E. Carroll; Romil Ltd; Ruger; Sal Chem.; Samson; Shell; Sigma; Spectrum Quality Prods.; Sunoco; Van Waters & Rogers

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**NFPA:** Health 2; Flammability 3; Reactivity 0

**Uses:** Solvent for paints; mfg. of phthalic anhydride, vitamins, pharmaceuticals, dyes, insecticides; motor fuels; prod. of plasticizers

**Manuf./Distrib.:** Equistar; Exxon; Mobil; Shell; Spectrum Quality Prods.

**Trade Names Containing:** Uniplex 280 CG

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**Xylene red B.** See Acid red 52

**Xylene sulfonic acid-formaldehyde condensate, sodium salt**

**Uses:** Adjuvant to control pulp absorbency and pitch content in mfg. of paper/paperboard in contact with aq./fatty/dry foods

**Regulatory:** FDA 21CFR §176.170, 176.180

**Xylidine ponceau.** See Acid red 26

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**Xyloidin.** See Nitrocellulose

**Xylol.** See Xylene

**o-Xylol.** See o-Xylene

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**1-(2,4-Xylylazo)-2-naphthol-3,6-disulfonic acid, disodium salt.** See Acid red 26

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**Yarmor pine oil.** See Pine (Pinus palustris) oil

**Yellow beeswax.** See Beeswax

**Yellow dextrin.** See Dextrin

**Yellow ferric oxide.** See Ferric oxide

**Yellow ochre.** See Iron oxide yellow

**Yellow pine rosin.** See Rosin

**Yellow prussiate of soda.** See Sodium ferrocyanide

**Yellow resin.** See Rosin

**Yellow wax.** See Beeswax

**ZDMC.** See Zinc dimethyldithiocarbamate

**Zea mays.** See Corn (Zea mays) oil; Corn (Zea mays) starch

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**Zeolite**

CAS 1318-02-1; EINECS/ELINCS 215-283-8

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**Definition:** Hydrated alkali aluminum silicate

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**Properties:** Dens. 0.58-0.75; pH 5-12

**Toxicology:** Irritant; mutagen; TSCA listed

**Storage:** Hygroscopic

**Uses:** Cryst. molecular sieve which selectively adsorbs molecules and exchange ions; pollution and odor adsorbent; detergent builder; in desiccant systems; to separate gases; white pigment in paper, paint, and plastics; carpet cleaners; dentifrices; flame retardants; for making catalysts used in petroleum refining and petrochemicals; dispersants; ion-exchange medium; construction material; filler; food-pkg. materials

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See also Sodium silicoaluminate

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**Regulatory:** FDA 21CFR §176.170

**Manuf./Distrib.:** Albemarle; Bayer; Crosfield BV; PQ; Selecto Scientific; Sybron; Zeolyst Int'l.

**Zinc abietate.** See Zinc rosinate

**Zinc bis (dimethyldithiocarbamate).** See Zinc dimethyldithiocarbamate

**Zinc bis (dimethylthiocarbamoyl) disulfide.** See Zinc dimethyldithiocarbamate

**Zinc carbonate**

CAS 3486-35-9; EINECS/ELINCS 222-477-6; UN No. 9157 (NA)

**Synonyms:** Carbonic acid, zinc salt (1:1); CI 77950; Natural smithsonite; Zinc carbonate (1:1); Zinc monocarbonate

**Classification:** Inorganic zinc salt

**Definition:** Occurs in nature as the minerals smithsonite, zincspar

## Zinc carbonate (1:1)

*Empirical:* CO<sub>3</sub> • Zn

*Formula:* ZnCO<sub>3</sub>

*Properties:* Wh. cryst. powd.; sol. in dil. acids, alkalis, ammonium salt sol'ns.; insol. in water; m.w. 125.38; dens. 4.42-4.45

*Toxicology:* TDLo (oral, mouse) 2800 mg/kg; experimental teratogen; TSCA listed

*Precaution:* Evolves CO<sub>2</sub> @ 300 C

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic fumes of CO and Zn

*Uses:* Accelerator-activator for transparent nat. and syn. rubber goods, adhesives; as pigment; fireproofing filler for rubber and plastics; ceramics; porcelains; pottery; topical antiseptics; pharmaceuticals (ointments, dusting powds.); cosmetics; lotions; zinc salts; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods; filler in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.300, 176.170, 177.1460, 177.2600, 178.3297, 582.80

*Manuf./Distrib.:* Allchem Ind.; Cater Chems.; Century Multech; Elementis Spec.; Hummel Croton; L. Bruggemann; Lohmann; Min. R&D; Pacific West; Poly Research; Spectrum Quality Prods.

**Zinc carbonate (1:1).** See Zinc carbonate

**Zinc diethyl.** See Diethyl zinc

**Zinc di-2-ethylhexanoate.** See Zinc 2-ethylhexanoate

### Zinc dimethyldithiocarbamate

CAS 137-30-4; EINECS/ELINCS 205-288-3

*Synonyms:* ZDMC; Bis (dimethylcarbamoedithioato,S,S') zinc; Carbamic acid, dimethyldithio-, zinc salt (2:1); Dimethylcarbamoedithioic acid, zinc salt; Dimethyldithiocarbamate zinc salt; Zinc bis (dimethyldithiocarbamate); Zinc bis (dimethylthiocarbamoyl) disulfide; Ziram

*Classification:* Metal dithiocarbamate

*Empirical:* C<sub>8</sub>H<sub>12</sub>N<sub>2</sub>S<sub>2</sub>Zn

*Formula:* Zn(SCSNCH<sub>2</sub>CH<sub>3</sub>)<sub>2</sub>

*Properties:* Wh. cryst. solid; odorless when pure; sol. in chloroform, dil. caustic sol'ns., acetone, carbon disulfide, chloroform, conc. HCl, aq. alkali, oxygenated and chlorinated solvs.; pract. insol. in water; m.w. 305.82; dens. 1.66; m.p. 246 C

*Toxicology:* LD50 (oral, rat) 267 mg/kg, (dermal, rabbit) > 2 g/kg; poison by ing., IP, and IV routes; mod. toxic by inh.; strong irritant to skin and mucous membranes; carcinogen, tumorigen, mutagen; experimental teratogen, reproductive effects; TSCA listed

*Environmental:* Mod. toxic to fish; nontoxic to bees

*Precaution:* Can form a flamm. dust

*Hazardous Decomp. Prods.:* Heated to decomp., emits very toxic fumes of NO<sub>x</sub> and SO<sub>x</sub>

*Uses:* Rubber vulcanization accelerator; agric. fungicide; biocide for water treatment, paper sizing, adhesives; preservative for starch and syn. latex adhesives, food-pkg. adhesives, food-contact animal glues; mold inhibitor for unmodified latex paints; accelerator in food-contact rubber articles for repeated use

*Regulatory:* FDA 21CFR §175.105, 177.2600, 178.3120

*Manuf./Distrib.:* Akzo Nobel; Aldrich; Atofina Agri; FMC Foret; Fluka; Helm AG; Micro S.A. de C.V.; R.T. Vanderbilt; UCB; Uniroyal

*Trade Names:* Vancide® MZ-96; Vancide® MZ-96 Disp.

**Zinc distearate.** See Zinc stearate

**Zinc dithionite.** See Zinc hydrosulfite

**Zinc ethide.** See Diethyl zinc

**Zinc ethyl.** See Diethyl zinc

### Zinc 2-ethylhexanoate

CAS 136-53-8

*Synonyms:* Hexanoic acid, 2-ethyl-, zinc salt; Zinc di-2-ethylhexanoate; Zinc octoate

*Empirical:* C<sub>16</sub>H<sub>30</sub>O<sub>4</sub>Zn

*Formula:* [CH<sub>3</sub>(CH<sub>2</sub>)<sub>3</sub>C<sub>2</sub>H<sub>5</sub>CHCOO]<sub>2</sub>Zn

*Properties:* Lt. straw-colored visc. liq.; sol. in hydrocarbon solvs.; insol. in water; m.w. 351.79; dens. 0.90 kg/l

*Precaution:* Combustible

*Uses:* Activator for natural and syn. rubbers; drier for paints, in food-contact coatings; stabilizer for foam processing; catalyst in food-pkg. adhesives; ink transfer preventive in food-contact paper/paperboard

*Regulatory:* FDA 21CFR §175.105, 175.300, 176.130, 176.170

*Manuf./Distrib.:* AC Ind.; Aceto; Archway Sales; Baychem; Boehle; CasChem; D.N. Lukens; Dussek Campbell; Ferro/Bedford; Lomas Int'l.; OM Group; R.T. Vanderbilt; Shepherd; Troy; Vliengenthart BV

### Zinc formaldehyde sulfoxylate

CAS 24887-06-7; EINECS/ELINCS 246-515-6

*Synonyms:* Bis(hydroxymethanesulfonato-O,O') zinc; Zinc sulfoxylate formaldehyde

*Empirical:* C<sub>2</sub>H<sub>6</sub>O<sub>6</sub>S<sub>2</sub>Zn

*Formula:* Zn(HSO<sub>2</sub> • CH<sub>2</sub>O)<sub>2</sub> (normal) or Zn(OH)(HSO<sub>2</sub> • CH<sub>2</sub>O) (basic)

*Properties:* Rhombic prisms; very sol. in water (normal); insol. in water (basic); insol. in alcohol; dec. in acid; m.w. 255.59

*Toxicology:* Toxic by ingestion

*Uses:* Stripping and discharging agent for textiles; reducing agent for redox-catalyzed polymerization; in food-pkg. adhesives; polymerization catalyst in mfg. of paper/paperboard in contact with aq./fatty foods

*Regulatory:* FDA 21CFR §175.105, 176.170

*Manuf./Distrib.:* AC Ind.; Phibrochem; Whyte Chems. Ltd

**Zinc hexadecanoate.** See Zinc palmitate

### Zinc hydrosulfite

CAS 7779-86-4; UN No. 1931 (DOT)

*Synonyms:* Dithionous acid, zinc salt (1:1); Zinc dithionite

*Empirical:* O<sub>2</sub>S<sub>2</sub>Zn

*Formula:* ZnS<sub>2</sub>O<sub>4</sub>

*Properties:* Wh. amorphous solid; sol. in water; m.w. 193.49

*Toxicology:* Probably a poison; TSCA listed

*Hazardous Decomp. Prods.:* Heated to decomp., emits toxic vapors of zinc and SO<sub>x</sub>

*Uses:* Brightening groundwork, kraft, and other paper pulps; treatment of beet and cane sugar juices; depressant in mining flotation; bleaching textiles, veg. oils, straw, hemp, veg. tannins, animal glue; migrating to foods from paper/paperboard; in food-contact textiles

*Regulatory:* FDA 21CFR §177.2800, 182.90, GRAS

**Zincite.** See Zinc oxide

### Zinc laurate

CAS 2452-01-9; EINECS/ELINCS 219-518-5

*Synonyms:* Dodecanoic acid, zinc salt

*Definition:* Zinc salt of lauric acid

*Empirical:* C<sub>24</sub>H<sub>46</sub>O<sub>4</sub>Zn

*Formula:* Zn(C<sub>12</sub>H<sub>23</sub>O<sub>2</sub>)<sub>2</sub>

*Properties:* Wh. powd.; pract. insol. in water and alcohol; m.w. 463.99; m.p. 128 C

*Toxicology:* TSCA listed

*Precaution:* Combustible

*Uses:* Softener, activator for rubber compounding; heat stabilizer for rubber and PVC, paints, varnishes; lubricant; slip agent; stabilizer; thickener; mold release agent; grease; cosmetics base; food-pkg. adhesives; in paper/paperboard in contact with aq./fatty foods; defoamer in food-contact paper/paperboard; in cellophane for food pkg.; in food-contact rubber articles for repeated use; in surf. lubricants for mfg. of food-contact metallic articles

*Regulatory:* FDA 21CFR §175.105, 176.170, 176.200, 176.210, 177.1200, 177.2600, 178.3910

*Manuf./Distrib.:* NOF Am.

**Zinc monocarbonate.** See Zinc carbonate

**Zinc monosulfide.** See Zinc sulfide

**Zinc monoxide.** See Zinc oxide

**Zinc octadecanoate.** See Zinc stearate

**Zinc octoate.** See Zinc 2-ethylhexanoate

**Zincoid.** See Zinc oxide

### Zinc oxide

CAS 1314-13-2; EINECS/ELINCS 215-222-5

*Synonyms:* Chinese white; CI 77947; Flowers of zinc; Permanent white; Philosopher's wool; Pigment white 4; Zincite; Zinc monoxide; Zincoid; Zinc white

*Classification:* Inorganic oxide

*Empirical:* OZn

*Formula:* ZnO

**Properties:** Wh. to gray amorphous powd. or crystals, odorless, bitter taste; sol. in dil. acetic or min. acids, alkalis, ammonia; insol. in water, alcohol; m.w. 81.38; dens. 5.67; bulking value 0.021 gal/lb; oil absorp. 13; m.p. 1975 C; ref. index 2.0041-2.0203; pH 6.95 (Amer. process), 7.37 (French process)

**Toxicology:** ACGIH TLV/TWA 5 mg/m<sup>3</sup> (fume), STEL 10 mg/m<sup>3</sup> (fume); 10 mg/m<sup>3</sup> (total dust); nuisance particulate; LD50 (oral, mouse) 7950 mg/kg; (IP, rat) 240 mg/kg; mod. toxic by ing. (humans); poison by IP route; skin/eye irritant; harmful dust; inh. of fumes may cause metal fume fever with chills, fever, tightness in chest, cough, leukocytes; experimental teratogen; mutagenic data; TSCA listed

**Precaution:** Powd. reacts violently with chlorinated rubber @ 215 C; violent reaction with Mg, linseed oil

**Hazardous Decomp. Prods.:** Heated to decomp., emits toxic fumes of ZnO

HMS1: Health 1; Flammability 0; Reactivity 0

**Uses:** UV absorber; accelerator activator for rubber; lithopone; pigment in white paints, cosmetics; filler; driers; dental cements; mold inhibitor in paints; in mfg. of opaque glass, enamels, tires, printing inks, porcelains; analytical reagent; photoconductor; as flame retardant; nutrient, dietary supplement (foods); antiseptic, astringent, protectant in skin treatment, hemorrhoidal prods.; colorant for external pharmaceuticals; sunscreen agent; seed treatment; colorant in food-contact polymers, paper/paperboard in contact with aq./fatty foods

**Regulatory:** FDA 21CFR §73.1991, 73.2991, 175.300, 176.170, 177.1460, 178.3297, 182.5991, 182.8991, 582.80, GRAS; FDA approved for parenterals, rectals; BP, Ph.Eur. compliance

**Manuf./Distrib.:** Aceto; Aldrich; Am. Chemet; Asarco; Ashland; Atlantic Equip. Engrs.; BCH Brühl; Bayer; Browning; C.P. Hall; Chemcor; Chemical; D.N. Lukens; Eagle Zinc; Elementis Spec.; Fluka; General Chem.; Gredmann USA; H.M. Royal; Hummel Croton; Landers-Segal Color; Lohmann; Mallinckrodt Baker; Midwest Zinc; Miljac; R.E. Carroll; Reade Advanced Materials; Royale Pigments & Chems.; Ruger; Sachtleben Chemie GmbH; Sigma; Sinochem Liaoning; Tamms Ind.; Toho Zinc; Van Waters & Rogers; Whittaker, Clark & Daniels; ZOCHEM; Zinc Corp. of Am.

**Trade Names Containing:** Protec ZZA

See also C177947

### Zinc palmitate

CAS 4991-47-3; EINECS/ELINCS 225-565-2

**Synonyms:** Hexadecanoic acid, zinc salt; Palmitic acid, zinc salt; Zinc hexadecanoate

**Definition:** Zinc salt of palmitic acid

**Empirical:** C<sub>16</sub>H<sub>32</sub>O<sub>2</sub> • ½Zn

**Formula:** [CH<sub>2</sub>(CH<sub>2</sub>)<sub>14</sub>COO]<sub>2</sub>Zn

**Toxicology:** TSCA listed

**Uses:** Drier in food-contact coatings; antioxidant/stabilizer for food-grade polymers

**Regulatory:** FDA 21CFR §175.300, 178.2010

**Trade Names Containing:** Dymisol® B

### Zinc resinate. See Zinc rosinate

### Zinc rosinate

CAS 9010-69-9; EINECS/ELINCS 232-723-4

**Synonyms:** Resin acid, zinc salt; Zinc abietate; Zinc resinate

**Definition:** Zinc salt of rosin

**Properties:** Powd., clear amber lumps, or yls. liq.; sol. in ether, amyl alcohol; soften. pt. 130-150 C; zinc content 2-9%

**Precaution:** Combustible

**Hazardous Decomp. Prods.:** Heated to decomp., emits acrid smoke and irritating fumes

**Uses:** Binder for printing inks, oil-based wood varnishes; stabilizer in food pkg.; wetting agent; dispersant; hardener; drier in paints, varnishes, and resins; in food-pkg. adhesives; drier in food-contact coatings; in resinous/polymeric food-contact coatings; defoamer in food-contact paper/paperboard; food-contact animal glue; in wood preservatives for food contact

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.210, 178.3120, 178.3800, 178.3870, 181.22, 181.29 (50 ppm max. in finished food)

**Manuf./Distrib.:** Resinas Sintéticas

### Zinc soap. See Zinc stearate

### Zinc stearate

CAS 557-05-1; EINECS/ELINCS 209-151-9

**Synonyms:** Dibasic zinc stearate; Octadecanoic acid, zinc salt; Stearic acid, zinc salt; Zinc distearate; Zinc octadecanoate; Zinc soap

**Classification:** Sat. aliphatic carboxylic acid salt

**Definition:** Zinc salt of stearic acid

**Empirical:** C<sub>36</sub>H<sub>70</sub>O<sub>4</sub>Zn

**Formula:** Zn(C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>)<sub>2</sub>

**Properties:** Wh. powd., faint char. odor; sol. in acids, aromatic solvs.; insol. in water, alcohol, ether, oxygenated solvs.; dec. by dil. acids; m.w. 632.33; dens. 1.095; m.p. 130 C

**Toxicology:** ACGIH TLV/TWA 10 mg/m<sup>3</sup> (total dust when toxic impurities not present); LDLo (intratracheal, rat) 250 mg/kg; poison by intratracheal route; nuisance dust; no known toxicity to skin; inh. of powd. may cause pulmonary fibrosis and produce death in infants from pneumonitis, with lesions resembling those caused by talc but more severe; TSCA listed

**Precaution:** Combustible dust; incompat. with acids and alkalis (may react vigorously)

**Hazardous Decomp. Prods.:** CO, CO<sub>2</sub>, ZnO, stearic acid

NFPA: Health 0; Flammability 1; Reactivity 0

**Storage:** Store in cool, dry area away from ignition sources; mechanical exhaust required

**Uses:** In cosmetics; pharmaceuticals; lacquers; ointments; mold release agent for plastic; filler; antifoamer; flattening agent in lacquers; as a drying lubricant and dusting agent for rubber; peptizing agent/processing aid for rubber; processing lubricant; vulcanization activator; waterproofing agent for concrete, paper, textiles; antifoaming agent; heat/light stabilizer for PVC; foods (dietary supplement, nutrient); pharmaceutical tablet lubricant, filler; protectant in diaper rash/prickly heat preps.; drier in food-contact coatings; in paper/paperboard in contact with dry food; lubricant for melamine-formaldehyde resins for food pkg.; antioxidant/stabilizer for food-grade polymers

**Regulatory:** FDA 21CFR §175.105, 175.300, 176.170, 176.180, 176.200, 176.210, 177.1200, 177.1460, 177.1900, 177.2410, 177.2600, 178.2010, 178.3910, 182.5994, 182.8994, GRAS; FDA approved for orals; USP/NF, BP, Ph.Eur. compliance

**Manuf./Distrib.:** AC Ind.; Aldrich; Alfa Chem; Allan; Allchem Ind.; Am. Int'l.; BCH Brühl; Chemisphere; Crompton/Witco; Fallek; Ferro/Grant; Ferro; Harwick; Hummel Croton; Indofine; Jarchem Ind.; Kraft Chem.; Lohmann; Magnesia GmbH; Mallinckrodt Baker; Miljac; NOF Am.; Norac; Norman, Fox; Ruger; Sea-Land; Spectrum Quality Prods.; Universal Preserv-A-Chem; Whittaker, Clark & Daniels

**Trade Names:** Cecavon® ZN 70; Cecavon® ZN 735; Haro® Chem ZPR-2; Liquazinc AQ-90

**Trade Names Containing:** Dymisol® B

### Zinc sulfide

CAS 1314-98-3; EINECS/ELINCS 215-251-3

**Synonyms:** CI 77975; Pigment white 7; Precipitated zinc sulfide; Zinc monosulfide

**Classification:** Inorganic salt

**Definition:** Occurs in nature as the minerals wurtzite, sphalerite

**Empirical:** SZn

**Formula:** ZnS

**Properties:** Yls. -wh. powd.; sol. in dil. min. acids; insol. in water, alkalis; m.w. 97.45 dens. 3.98; subl. @ 1180 C

**Toxicology:** LD50 (oral, rat) > 2 g/kg; irritant; TSCA listed

**Storage:** Moisture-sensitive

**Uses:** Pigment in white and opaque glass, plastics, rubber, dyeing, paints, linoleum, leather, dental rubber; fluorescent pigment in paints and plastics; ingred. of lithopone; fungicide; anhydrous in x-ray screens, TV screens; flotation depressant for sphalerite ores; flame retardant in plastics, elastomers, textiles, paper; in food-pkg. adhesives; filler in food-contact rubber articles for repeated use; colorant in food-contact polymers; in lubricants for incidental food-contact use

**Regulatory:** FDA 21CFR §175.105, 177.2600, 178.3297, 178.3570

**Manuf./Distrib.:** Aceto; Aldrich; Atofina; Cerac; Chemson Ltd; Crystran Ltd; D.N. Lukens; Eagle-Picher; Fluka; H.M. Royal; Nichem; Noah; Ore & Chem.; Reade Advanced Materials; Sachtleben Chemie GmbH; Sigma; Spectrum Quality Prods.; Ulysses

**Trade Names:** Sachtolith® HD-S; Sachtolith® L

**Zinc sulfoxylate formaldehyde.** See Zinc formaldehyde sulfoxylate

**Zinc white.** See Lithopone; Zinc oxide

**Ziram.** See Zinc dimethyldithiocarbamate

**Zircat.** See Zirconium

**Zirconate (2-), bis[carbonate (2-)-0] dihydroxy-diammonium.** See Ammonium zirconium carbonate

**Zirconate (3-), tris (carbonato (2-)-O) hydroxy-, triammonium, (T-4)-.** See Zirconyl ammonium carbonate

**Zirconia.** See Zirconium oxide

**Zirconic anhydride.** See Zirconium oxide

### Zirconium

CAS 7440-67-7; UN No. 1308 (DOT), 1358 (DOT), 2008 (DOT), 2009 (DOT), 2858 (DOT)

*Synonyms:* Zircat; Zirconium metal; Zirconium metal powder; Zirconium metal, dry; Zirconium powder; Zirconium shavings; Zirconium sheets; Zirconium turnings

*Classification:* Metallic element

*Empirical:* Zr

*Properties:* Grayish hard lustrous cryst. scales or powd.; very sl. radioactive; sol. in hot conc. acids; insol. in water, cold acids; at.wt. 91.22; dens. 6.4; m.p. 1850 C; b.p. 4377 C; corrosion-resist.

*Toxicology:* ACGIH TLV/TWA 5 mg/m<sup>3</sup>; STEL 10 mg/m<sup>3</sup>; suspected carcinogen; TSCA listed

*Precaution:* Flamm. and explosive as dust or powd. exposed to heat, flame, or oxidizers; may ignite spontaneously; dangerous explosion risk as dust with air, alkali hydroxides, dichromates, molybdates, sulfates, etc.

NFPA: Health 1; Flammability 4; Reactivity 1

*Storage:* Powd. should be kept wet in storage; keep away from heat, sparks, open flame

*Uses:* Coating nuclear fuel rods; corrosion-resist. alloys; pyrotechnics; special welding fluxes; getter in vacuum tubes; explosive primers; deoxidizer and scavenger in steel mfg.; lab crucibles; photoflash bulbs; magnesium alloying ingred.; protective cladding (nuclear fuel rods)

*Manuf./Distrib.:* Aldrich; Atlantic Equip. Engrs.; Carbochem; Fluka

*Trade Names Containing:* Kronos® 2310

### Zirconium acetate

CAS 7585-20-8

*Synonyms:* Acetic acid, zirconium salt; Zirconyl acetate

*Empirical:* C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>Zr

*Properties:* Clear or sl. milk liq.; m.w. 154.80; dens. 1.279

*Toxicology:* TLV 5 mg(Zr)/m<sup>3</sup> of air; harmful by ing., inh., skin contact; irritant; causes burns; TSCA listed

*Uses:* Crosslinking agent; catalyst for curing silicone resins; in water repellent treatments for paper, textiles, and leather; retanning leather; refractory binder; mfg. of other zirconium compds.; stabilizer for catalysts

*Manuf./Distrib.:* Aldrich; Hall Chem.; Southern Ionics

*Trade Names:* ZAA

**Zirconium ammonium carbonate.** See Ammonium zirconium carbonate

**Zirconium anhydride.** See Zirconium oxide

### Zirconium butoxide

*Synonyms:* Zirconium butylate; Zirconium tetrabutoxide

*Empirical:* C<sub>16</sub>H<sub>36</sub>O<sub>4</sub>Zr

*Formula:* (CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>O)<sub>4</sub>Zr

*Properties:* M.w. 383.69; hydrolyzed by water

*Uses:* Catalyst for esterification, condensation, and polymerization; insolubilizer for textile/leather/paper finishing agents; glass surf. treatment agent

**Zirconium butylate.** See Zirconium butoxide

**Zirconium dioxide.** See Zirconium oxide

**Zirconium metal.** See Zirconium

**Zirconium metal, dry.** See Zirconium

**Zirconium metal powder.** See Zirconium

### Zirconium oxide

CAS 1314-23-4; EINECS/ELINCS 215-227-2

*Synonyms:* Zirconia; Zirconic anhydride; Zirconium anhydride; Zirconium dioxide

*Classification:* Inorganic oxide

*Empirical:* O<sub>2</sub>Zr

*Formula:* ZrO<sub>2</sub>

*Properties:* Wh. heavy amorphous powd.; sol. in nitric acid, hot conc. hydrochloric, hydrofluoric, and sulfuric acids; insol. in water, most acids or alkalis @ R.T.; m.w. 123.22; dens. 5.73; m.p. 2700 C (pure); ref. index 2.2; hardness (Mohs) 6.5

*Toxicology:* TLV 5 mg(Zr)/m<sup>3</sup> of air; dust inh. is irritating to respiratory tract; overexposure may cause lung granulomas; ointments contg. ZrO<sub>2</sub> may cause skin lesions in some individuals; TSCA listed

*Uses:* In waterproof coatings for food-contact paper/paperboard; Unstabilized: Prod. of piezoelectric crystals; high-frequency induction coils; colorant for ceramic tiles, sanitaryware; ceramic glazes; photochromic glass raw material; grinding wheel abrasive; heat-resist. fibers; High purity: Capacitors; thermoelec. devices; catalyst raw material; Hydrous: Odor absorbent; poison ivy treatment; Stabilized with CaO or MgO: Refractory furnace linings; crucibles; elec. heating elements; solid electrolyte for high-temp. batteries

*Regulatory:* FDA 21CFR §176.170

*Manuf./Distrib.:* Aithaca; Aldrich; Alfa Aesar; Am. Vermiculite; Atlantic Equip. Engrs.; Atomergic Chemetals; F.T.L. Int'l.; Ferro/Transelco; Fluka; Noah; Oremet-Wah Chang; Pacific West; Rochem Int'l.; Selecto Scientific; Sigma; Zircar Prods.

*Trade Names Containing:* Protec ZA7

**Zirconium powder.** See Zirconium

**Zirconium shavings.** See Zirconium

**Zirconium sheets.** See Zirconium

**Zirconium tetrabutoxide.** See Zirconium butoxide

**Zirconium turnings.** See Zirconium

**Zirconyl acetate.** See Zirconium acetate

### Zirconyl ammonium carbonate

CAS 32535-84-5

*Synonyms:* Zirconate (3-), tris (carbonato (2-)-O) hydroxy-, triammonium, (T-4)-

*Empirical:* C<sub>7</sub>H<sub>10</sub>N<sub>3</sub>O<sub>8</sub>Zr

*Properties:* M.w. 281.33

*Toxicology:* TSCA listed

*Uses:* In food-contact paper/paperboard

*Regulatory:* FDA 21CFR §176.170

# Part III

## Functional/Application Index

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# Functional/Application Index

- abrasion resistance agent, aq. systems**  
Shamrock Neptune 968
- abrasion resistance agent, coatings**  
Snowtex 20L; Snowtex 40; Snowtex 50;  
Snowtex C; Snowtex N; Snowtex O; Snowtex  
OL; Snowtex ST-UP; Snowtex ST-ZL
- abrasion resistance agent, industrial coatings**  
Shamrock S-483
- abrasion resistance agent, neutral paper  
coatings**  
GMF-B
- abrasion resistance agent, overprint varnishes**  
Esi-Cryl™ 316N
- abrasion resistance agent, paper coatings**  
MP-12; MP-26; MP-26VF; MP-28C
- abrasion resistance agent, sl. alkaline paper  
coatings**  
GMF-B
- abrasive**  
Aluminum hydroxide; Silica, amorphous hydrated
- absorbent**  
Dextrin; Kaolin; Magnesium aluminum silicate;  
Magnesium carbonate; Magnesium hydroxide;  
Magnesium oxide; Montmorillonite
- absorbent, formaldehyde: paper coatings**  
Synthro®-Stab TF
- absorbent, formaldehyde: paper sticking  
applics.**  
Synthro®-Stab TF
- absorbent, paper**  
Micro-Cel® T-26; Micro-Cel® T-49
- absorbent, paper coatings**  
Calcium metasilicate
- absorbent, paperboard**  
Micro-Cel® T-26
- absorbent, tissue grades**  
Wickit™
- absorbent, tissue paper**  
Hartosoft™ ABS-6000
- absorbent, towel grades**  
Wickit™
- absorption promoter**  
Glyceryl caprate
- accelerator**  
Hexamethylenetetramine
- accelerator, curing**  
Citric acid; Urea
- accelerator, dehydration: fibrous material  
recovery**  
Floclair® DMR; Floclair® PAR
- accelerator, sizing development**  
Catiofast® NB-PD
- acetate fiber**  
Cellulose acetate
- acetone prod.**  
Cumene hydroperoxide
- acid acceptor, flame retardants**  
Calcium stearoyl lactylate
- acid acceptor, pigments**  
Calcium stearoyl lactylate
- acid acceptor, polyolefins**  
Calcium stearoyl lactylate
- acid boilout cleaning chemical, papermaking**  
Emulsan™ LV; Sansstrip™ CA
- acid dye, paper**  
Acid blue 20
- acid neutralization**  
Magnesium oxide
- acid neutralization, wastewater**  
Magnesium hydroxide
- acidifier**  
Acetic acid
- acidulant, paper auxiliaries**  
Liquinat®
- acrylic resin comonomer, paper coatings**  
Ethyl acrylate; Vinyl isobutyl ether
- activator, curing**  
Urea
- activator, fluorescent brighteners: coatings**  
Acrosol™ C 50 L
- activator, silica: water treatment**  
Sodium bicarbonate
- adhesion control auxiliary, cylinder: creped  
paper**  
Cartaflex® K Liq.
- adhesion control auxiliary, cylinder: creped  
tissue**  
Cartaflex® K Liq.
- adhesion control auxiliary, cylinder: flower  
wrapping tissue**  
Cartaflex® K Liq.
- adhesion control auxiliary, cylinder: light-  
weight paper**  
Cartaflex® K Liq.
- adhesion control auxiliary, cylinder: one-way  
carbon paper**  
Cartaflex® K Liq.
- adhesion modifier, coatings**  
Polypropylene, chlorinated
- adhesion promoter**  
Burco® Imidazoline O; Burco® Imidazoline T;  
Calcium-zinc complex; DiaFil® 520; DiaFil®  
525; DiaFil® 530; DiaFil® 570; DiaFil® 590;  
Dimethylaminoethyl methacrylate methyl  
chloride quat.; Epolene® C-18; Escor® AT-325;  
2-Hydroxyethyl acrylate; Hydroxypropyl  
acrylate; Imidazoline 18OH; Maleic resin;  
Methacrylic acid; Mhoromer® AM 199; PEG-3  
dimethacrylate; Polyethylenimine; Polypropy-  
lene, chlorinated; Polyurethane, polyester;  
Rosin, polymerized; Sarbox® SB 510 E35;  
Stearamine; Styrene/MA copolymer; Sylvaros®  
R; Sylvatac® 295; Sylvatac® R85; Sylvatac®  
RX; TEGO® RC 711; Tris [1-(2-methyl-  
aziridinyl) phosphine oxide]; Unicid™ 350;  
Unicid™ 425; Unicid™ 550; Unicid™ 700 Acid
- adhesion promoter, aq. emulsions**  
Aerosil® K315; Aerosil® K328; Aerosil® K330;  
Aerosil® K342
- adhesion promoter, cardboard**  
Aerosil® K315; Aerosil® K328; Aerosil® K330;  
Aerosil® K342
- adhesion promoter, coatings**  
Snowtex 20L; Snowtex 40; Snowtex 50;  
Snowtex C; Snowtex N; Snowtex O; Snowtex  
OL; Snowtex ST-UP; Snowtex ST-ZL;  
Styrene/allyl alcohol copolymer; Terpene resin;  
Urea/formaldehyde resin
- adhesion promoter, coatings applics.**  
Uniplex 600
- adhesion promoter, drier: thin paper**  
Niccadine 400
- adhesion promoter, drier: tissues**  
Niccadine 400
- adhesion promoter, drier: toilet rolls**  
Niccadine 400
- adhesion promoter, filled/reinforced  
polyolefins**  
Polybond® 3002; Polybond® 3150
- adhesion promoter, intercoat: paper coatings**  
CAB-381-0.1; CAB-381-0.5
- adhesion promoter, lacquers: cellulose nitrate**  
Dammar
- adhesion promoter, paper**  
Aerosil® K315; Aerosil® K328; Aerosil® K330;  
Aerosil® K342; Ageflex FA-1; Airvol® 103;  
Airvol® 107; Airvol® 125; Airvol® 165; Airvol®  
205S; Airvol® 305; Airvol® 321; Airvol® 325;  
Airvol® 350; SarCat® K126
- adhesion promoter, paper coatings**  
CN 111; Pentalyn® 856
- adhesion promoter, paper converting  
operations**  
Aqualon® CMC-T
- adhesion promoter, paper varnishes**  
CA
- adhesion promoter, pigments**  
Sodium 2-hydroxy-3-(2-propenyloxy) 1-  
propanesulfonate; SPAE
- adhesion promoter, pigments-to-cellulose  
fiber**  
Ionac Corcat® P-12; Ionac Corcat® P-600;  
Polyethylene imine
- adhesion promoter, polymers**  
Mhoromer® AM 414; Mhoromer® AM 438;  
Mhoromer® BM 903; Mhoromer® BM 905;  
Mhoromer® BM 923; Mhoromer® BM 951;  
Mhoromer® BM 955; Terpene resin
- adhesion promoter, resins**  
Uniplex 600
- adhesion promoter, special coated paper  
grades**  
Resyn® 25-1151
- adhesion promoter, tissue**  
Crepetrol®
- adhesion promoter, tissue paper: Yankee  
dryer**  
Berocell® 1431
- adhesion promoter, towel**  
Crepetrol®

**adhesion promoter, UV/EB-cured paper coatings***Dimethylaminoethyl acrylate***adhesion promoter, wax emulsions**

Pentalyn® 856

**adhesion promoter, Yankee dryers**

Unicrepe® 315D54; Unicrepe® 457T20;

Unicrepe® C77

**adjuvant, coatings**

Acumer® 9000; Acumer® 9141

**adjuvant, coatings: food-contact***Acetone; Butyl alcohol; Candellilla (Euphorbia cerifera) wax; Carnauba (Copernica cerifera) wax; Ethyl acetate; Hexane; Methyl ethyl ketone; Tetrahydrofuran; Toluene***adjuvant, paper/paperboard: aq./fatty food-contact***Poly (1,2-dimethyl-5-vinylpyridinium methyl sulfate); Polyethylenimine***adjuvant, paper/paperboard: aq./fatty/dry food-contact***PEG-4 dilaurate***adjuvant, paper: food-contact***Alkyl ketene dimer***adjuvant, paperboard: food-contact***Alkyl ketene dimer***adjuvant, pitch content: paper, aq./fatty/dry food-contact***Xylene sulfonic acid-formaldehyde condensate, sodium salt***adjuvant, pitch content: paper/paperboard, aq./fatty/dry food-contact***Diethanolamine; Sodium methyl naphthalene sulfonic acid-formaldehyde condensate; Sodium methyl oleoyl taurate; Tallow diisopropanolamide***adjuvant, pulp absorbency: paper, aq./fatty/dry food-contact***Xylene sulfonic acid-formaldehyde condensate, sodium salt***adjuvant, pulp absorbency: paper/paperboard, aq./fatty/dry food-contact***Diethanolamine; Sodium methyl naphthalene sulfonic acid-formaldehyde condensate; Sodium methyl oleoyl taurate; Tallow diisopropanolamide***adjuvant, silmicides: paper, food-contact***Ethylenediamine; Nonoxynol-9; Tetrahydrofuran***adjuvant, silmicides: paper/paperboard, food-contact***Acetone; Dibutyl phthalate; Didecyl phthalate; Dimethyl formamide; Dodecyl phthalate; Ethanolamine; Glycol; Methoxyisopropanol; N-Methyl-2-pyrrolidone; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; PPG-2 methyl ether; PPG-3 methyl ether***adjuvant, viscosity control: paper/paperboard coatings, aq./fatty food-contact***Sodium polymethacrylate***adsorbent***Alumina; Aluminum hydroxide; Carbon, activated; Zeolite synthetic***adsorbent, dye removal from industrial wastewater***Montmorillonite***adsorbent, dye removal from wastewater***Silica***adsorbent, liquid clarification***Kaolin***adsorbent, paper**

Micro-Cel® T-26

**adsorbent, paperboard**

Micro-Cel® T-26

**adsorbent, volatile compounds: paper**

Actitex®

**adsorbent, water treatment***Polystyrene***aerating agent***Glyceryl stearate lactate***aggregation agent, polymer***Dimethylethanolamine***air entraining agent**

Avirol® SL 2010; Avirol® SL 2020 G; Stafoam F;

Stafoam FK; Texapon® ZHC Needles

**air release aid**

Multiflow® Resin

**algicide***Acrolein; Acticide® DW; Amine D®; Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Barquat® MB-50; Calcium hypochlorite; Dialkyl dimethyl ammonium chloride; Methylenebis (thiocyanate); Nabam; Paxgard BK 20; Paxgard BKC; Sodium chlorite***algicide, cooling towers***Adox 8125; Barquat® OJ-50; Dantobrom® RW Briquette; Hyamine® 3500 50%; Myristalkonium chloride; Sodium Chlorite Sol'n. 50, Tech.; Sodium Chlorite, Tech.***algicide, cooling water systems**

Sanibrom™ 40; Sanibrom™ 45

**algicide, evaporative condensers***Aquatreat® KM; Aquatreat® SDM; Dantobrom® RW Briquette***algicide, industrial recirculating water cooling towers***Aquatreat® KM; Aquatreat® SDM***algicide, industrial water***Benzalkonium chloride; Hyamine® 3500 50%; Paxgard MBT***algicide, industrial wet scrubber systems**

Dantobrom® RW Briquette

**algicide, influent systems**

Dantobrom® RW Briquette

**algicide, once-thru cooling water systems**

Stabrom® 909

**algicide, paper***Aquatreat® DNM-9; Potassium dimethyldithiocarbamate***algicide, paper coatings**

Nuosept® 166

**algicide, paper mills***Aquatreat® KM; Aquatreat® SDM; Inducor®; Paxgard TC; Pittclor®; Tolcide® MW10***algicide, paper/paperboard: food-contact***Sodium pentachlorophenate***algicide, pulp/paper***Dantobrom® RW Briquette; Paxgard DB 10; Paxgard DB 20; Paxgard DB 99; Paxgard PDC; Paxgard SDC***algicide, pulp/paper mills**

Sanibrom™ 40; Sanibrom™ 45; Stabrom® 909

**algicide, recirculating cooling towers***Aquatreat® DNM-30; Barquat® 1552; Tolcide® MW10***algicide, recirculating cooling water systems***Drewchlor®; Stabrom® 909***algicide, recirculating water systems**

Dantobrom® RW Briquette

**algicide, wastewater systems**

Sanibrom™ 40; Sanibrom™ 45; Stabrom® 909

**algicide, wastewater treatment***Benzalkonium chloride***algicide, water treatment***Aquatreat® DNM-9; Aquatreat® KM; Aquatreat® SDM; Barquat® OJ-80; 1-Bromo-3-chloro-5,5-dimethyl hydantoin; Paxgard TC; Potassium dimethyldithiocarbamate; Sodium dimethyldithiocarbamate; Sodium pentachlorophenate***algicide, wet-state preservation: aq. systems**

Paxgard BD 20; Paxgard BD 88

**alkaline agent, paper stock deinking***D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; N® Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR***alkaline boilout cleaning chemical, papermaking**

Alkopen™ 50; Alkasolv™ BP; Sanstrip™ FP

**alkyd resin modifier**

K-Flex® UD-320

**alkyd resin prod.***Linseed acid***alkyd resins raw material***Glycol***alkylated aromatics prod.***Decene-1***alum substitute, alkaline papermaking***Polyaluminum chloride***alum substitute, neutral sizing: cardboard***Paper-PAC-N®; Polyaluminum hydroxide chloride sulfate***alum substitute, neutral sizing: paper**

Paper-PAC-N®

**alum substitute, neutral sizing: papermaking***Polyaluminum hydroxide chloride sulfate***alum substitute, rosin size fixation**

Praestafix®

**amino resin modifier, starch/protein paper coatings, food-contact***Dicyandiamide***amino resin modifier, starch/protein paperboard coatings, food-contact***Dicyandiamide***animal glues, food-contact***Nonoxynol-55; Nonoxynol-70***antibacterial***Hexamethylenetetramine***antibleeding agent, printing paper**

Sylophobic

**antiblocking agent***Acrawax® C; Crill 1; Crill 2; DiaFil® 110; DiaFil® 190; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Dimethicone copolyol; Epolene® N-11; Epolene® N-14; EXP-61 Amine Functional Silicone Wax; Glycol/butylene glycol montanate; Lumulse™ GMO; Paracol® 404C; Petrolite® E-2020; Polyethylene wax; Polysel® 2015; Stearyl/aminopropyl methicone copolymer; Sylophobic; Sylysia 310; Sylysia 320; Sylysia 430; Sylysia 436; Sylysia 440; Sylysia 450; Sylysia 456; Sylysia 470; Sylysia 530; Sylysia 540; Sylysia 550; Sylysia 730; Sylysia 740; Sylysia 770***antiblocking agent, ABS**

Lipowax C

**antiblocking agent, aq. coatings**

Shamrock Hydrocer EEP 33

**antiblocking agent, aq. systems**

Shamrock Neptune 968

**antiblocking agent, board coatings**

TEGO® Glide 403

**antiblocking agent, calendaring**

Alkamide® STEDA

**antiblocking agent, cardboard**

Luwax® E

**antiblocking agent, coatings**

Silwet® L-7001; Silwet® L-7220

**antiblocking agent, extrusion**

Alkamide® STEDA

**antiblocking agent, fiber**

Silwet® L-7220

**antiblocking agent, foodstuff pkgs.**

Luwax® E

**antiblocking agent, HDPE***Stearamide***antiblocking agent, hot-melt coatings**

Acrawax® C

**antiblocking agent, LDPE***Stearamide***antiblocking agent, OPP**

Sylysia 435; Sylysia 445

**antiblocking agent, paper***EXP-24-LS Silicone Wax Emulsion; EXP-58 Silicone Wax; EXP-61 Amine Functional Silicone Wax; EXP-77 Mercapto Functional Silicone Wax; Luwax® E; Silwet® L-7001; Silwet® L-7087; Silwet® L-7220***antiblocking agent, paper coatings**



- Paracol® 802A; Pentalyne® 856; TEGO® Glide 403
- antiblocking agent, PE**  
Erucamide; Lipowax C
- antiblocking agent, pigments**  
Silwet® L-7220
- antiblocking agent, plastic films**  
Talc
- antiblocking agent, polyolefins**  
Hydrogenated palm glyceride
- antiblocking agent, PP**  
Stearamide
- antiblocking agent, PS**  
Hydrogenated palm glyceride; Lipowax C
- antiblocking agent, PVC**  
Hydrogenated palm glyceride
- antiblocking agent, PVC inj. molding**  
Alkamide® STEDA
- antiblocking agent, surface sizing**  
Nopcote® DC-1153
- antiblocking agent, vinyl**  
Lipowax C
- antiblocking agent, wax emulsions**  
Pentalyne® 856
- antiblocking agent, waxes**  
Ethylene dioleamide
- anticaking agent**  
Cecavon® CA 31; EZA®; Good-Rite® K-7600N Polymer; Newrex Paste H; Newrex Powd. F; Newrex R; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Silwet® L-720 AP; Sipernat® 22; Sipernat® 22S; Sipernat® 50; Sipernat® 50S; Struktol® Calcium Stearate; Sylysia 250; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Sylysia 430; Sylysia 440; Sylysia 450; Sylysia 470; Sylysia 530; Sylysia 540; Sylysia 550; Sylysia 730; Sylysia 740; Sylysia 770; Vybar® 103
- anticaking agent, coatings**  
Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150
- anticaking agent, paper**  
Aerosil® 200; Micro-Cel® T-26; Micro-Cel® T-49; Ufaryl DL 80 CW; Ufaryl DL 85; Ufaryl DL 90 C
- anticaking agent, paperboard**  
Micro-Cel® T-26
- anticoagulant, colloidal pitch: paper machines**  
ProSORB®
- anticoagulant, pitch**  
Crisotan NN; Crisotan NR
- anticroatering agent, board coatings**  
TEGO® Flow 354; TEGO® Glide 403; TEGO® Glide 404
- anticroatering agent, paper coatings**  
CAB-381-0.1; CAB-381-0.5; TEGO® Flow 354; TEGO® Glide 403; TEGO® Glide 404
- anticroatering agent, preprint applics.**  
TEGO® Glide 403
- antideposition agent, pitch**  
DM-1735-D; Hi-Mar DFP-413
- antidusting agent, printing**  
Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free
- antidusting agent, slitting**  
Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free
- antidusting agent, supercalenders**  
Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free
- antiemulsifier**  
Crisanol FH-1400
- antifoam**  
AF 585M; Bubreak® 448; Colloid™ 679; Crill 1; Crill 2; Crill 4; Crisanol FB-625; Crisanol FB-1715; CS-10; Decyl alcohol; Dimethicone; Dimethiconol; 2,6-Dimethyl heptanol-4; Dimethyl siloxane; 2-Ethylhexanol; Foam Blast 441; Foamkill® 639; Glyceryl laurate; Glyceryl ricinoleate; Myristyl alcohol; Petroleum distillates; Polydimethylsiloxane; Polypropylene glycol; Pulpsil® 160 C; Silicone Antifoam Emulsion SE 26; Silicone Antifoam Emulsion SRE; Silwet® L-7210; Stearyl alcohol; TEGO® Antifoam 2-18; TEGO® Antifoam 2-67; TEGO® Antifoam 81; TEGOPREN® 5852; Teric™ 127; Trioctyl phosphate; Trisodium NTA; Zinc stearate
- antifoam, abrasive slurries**  
AF 10 IND
- antifoam, alkaline papermaking**  
Advantage® 357 Defoamer
- antifoam, aq. coatings**  
Bubreak® 454C; Bubreak® 4400; Bubreak® 4419
- antifoam, aq. paper coating colors**  
Geo FM® VF
- antifoam, aq. process systems: paper**  
Antifoam 7800 New
- antifoam, aq. process systems: paper coatings**  
Antifoam FD-62; Antifoam FD-82
- antifoam, aq. process systems: paper/paperboard**  
Trans-1741
- antifoam, aq. process systems: pulp/paper**  
Amergel® 100; Amergel® 200; Amergel® 500; Antifoam FD-62; Antifoam FD-82
- antifoam, aq. systems**  
AF 10 IND; Colloid™ 60
- antifoam, aq. systems: paper coatings**  
Antifoam F-1
- antifoam, aq. systems: pulp/paper**  
Antifoam F-1
- antifoam, bleaching**  
Antifoam 20WB
- antifoam, blow down**  
TEGO® Antifoam KE 600
- antifoam, calender boxes**  
Geo FM® VFS
- antifoam, casein sol'ns.**  
Kronitex® TBP; TBP
- antifoam, coatings**  
Antifoam 20WB; Silicone Antifoam Emulsion SE 23; Silwet® L-7500
- antifoam, coatings: food-contact**  
Foam Blast 106
- antifoam, cooling tower reformulations**  
CS-10A; CS-20; CS-30; CS-100
- antifoam, corrugated paperboard**  
Trans-220
- antifoam, deaeration: paper/paperboard: food-contact**  
Contraspum T 50
- antifoam, deaeration: size presses**  
Contraspum T 50
- antifoam, deinking**  
MousseX® 904 SE
- antifoam, demonomerization**  
TEGO® Antifoam KE 600
- antifoam, effluent**  
AF 10 IND; AF GN-11-P; AF GN-23
- antifoam, effluent treatment**  
Amergel® 100; Amergel® 200; Amergel® 500; Chemax DF-10; Chemax DF-10A; Chemax DF-30; Chemax DF-100; CS-10A; CS-20; CS-30; CS-100
- antifoam, emulsion polymerization**  
Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208
- antifoam, emulsion-based systems**  
Bubreak® 4400; Bubreak® 4419
- antifoam, fiber**  
Silwet® L-7220
- antifoam, food pkg. paper/paperboard**  
Silicone Antifoam Compound S 204
- antifoam, high-gloss coatings**  
Dapro® DF 1161
- antifoam, hot aq. systems**  
Silicone Antifoam Emulsion SE 23
- antifoam, latex**  
Antifoam 20WB
- antifoam, mech. pulp**  
MousseX® 904 SE
- antifoam, nonaq. systems**  
Silicone Antifoam Compound S 204
- antifoam, nonaq. systems: pulp/paper**  
Antifoam F-1
- antifoam, nonpigmented surface applics.**  
Geo FM® VFS
- antifoam, paper**  
Adekanol G-135, G-145; AF 60; AF HL-40; Alkaterge®-E; CNC Antifoam 10-FG; CNC Antifoam 30-FG; CS-10A; CS-20; CS-30; CS-100; CS-420; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; Propetal 99; Propetal 241; Silicone Antifoam Agent S 670; Silicone Antifoam Emulsion SE 21; Silicone Antifoam Emulsion SE 23; Silwet® L-7220; Silwet® L-7500; TEGO® Antifoam 200; Zonyl® FSP
- antifoam, paper coating colors**  
Ablupol AF
- antifoam, paper coatings**  
AF HL-40; AF HL-52; Foam Blast 106; Kronitex® TBP; Phosflex® 4; Phosflex® TBEP; Serdas® GBO; TBP
- antifoam, paper deinking**  
Tergitol® Min-Foam 2X
- antifoam, paper finishing**  
Etingal® A
- antifoam, paper industry pigment coatings**  
Zonyl® A
- antifoam, paper machine**  
TEGO® Antifoam 105; TEGO® Antifoam 201; TEGO® Antifoam 202; TEGO® Antifoam KE 600; TEGO® Antifoam KS 1100
- antifoam, paper machines**  
Antifoam 20WB
- antifoam, paper mill stock chest cleaners**  
Rhodaterge® BCC
- antifoam, paper stock preparation**  
TEGO® Antifoam 105; TEGO® Antifoam 201; TEGO® Antifoam 202; TEGO® Antifoam KE 600; TEGO® Antifoam KS 1100
- antifoam, paper: food-contact**  
Foam Blast 106; Sag 100; Trans-278; Trans-290
- antifoam, paperboard**  
Trans-290
- antifoam, paperboard: food-contact**  
Sag 100; Trans-278
- antifoam, papermaking**  
Adekanol KS-220; Etingal® A; GP-310-I Antifoam Emulsion; Paracum® 56; Paracum® 66
- antifoam, pigmented paper coatings**  
Geo FM® 1220; Geo FM® 1224; Geo FM® DF-122; Geo FM® DF-122-NS; Geo FM® VFS
- antifoam, pigments**  
Silwet® L-7220
- antifoam, polymer dispersions**  
TEGO® Antifoam 2-57; TEGO® Antifoam 2-80; TEGO® Antifoam 2-82; TEGO® Antifoam 2-89; TEGO® Antifoam 2-92; TEGO® Antifoam 1488; TEGO® Antifoam KE 400; TEGO® Antifoam KS 53; TEGO® Antifoam KS 95; TEGO® Antifoam MR 1015; TEGO® Antifoam MR 1016
- antifoam, polymerization**  
Sorbitan sesquileate; TEGO® Antifoam KS 6; TEGO® Antifoam KS 10; Zonyl® FSP
- antifoam, pulp**  
Pulpsil® 760 E
- antifoam, pulp deinking**  
MousseX® 3029 HL
- antifoam, pulp slurries**  
AF 10 IND
- antifoam, pulp washing**  
Pulpsil® 760 E
- antifoam, pulp/paper**  
Adekanate B-590; Adekanate B-1019; Adekanol LG-109; Adekanol LG-121; Adekanol LG-126;

- Adekanol LG-131N; Adekanol LG-135; Adekanol LG-139; Adekanol LG-141; Adekanol LG-142; Adekanol LG-145; Adekanol LG-150; Adekanol LG-163; Adekanol LG-200B; Adekanol LG-294; Adekanol LG-295S; Adekanol LG-297; Adekanol LG-674; Adekanol LG-805; AF GN-23; Chemax DF-10; Chemax DF-10A; Chemax DF-30; Chemax DF-100; CNC Defoamer 403A; Foamgard® 1332; Nonionic 1025-R; Nonionic 1035-L; Nonionic 2017-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; *Oleyl alcohol*; Synperonic PE/L61; Synperonic PE/L62LF; Synperonic PE/L81; Synperonic PE/L101; Synperonic PE/L121; Synperonic T/701; Synperonic T/1301; Ukanil 2111; Ukanil 2265; Ukanil 3500; Ukanil 3501; Webnix CAL-183; Webnix FreeSil 581; Webnix FreeSil 622; Webnix FreeSil 642; Webnix FreeSil A; Webnix FreeSil B; Webnix FreeSil C; Webnix FreeSil G; Webnix FreeSil H
- antifoam, pulp/paper mills**  
Spectrum X 6L
- antifoam, PVC**  
TEGO® Antifoam KE 400; TEGO® Antifoam KE 600; TEGO® Antifoam KS 6; TEGO® Antifoam KS 10; TEGO® Antifoam KS 53; TEGO® Antifoam KS 95
- antifoam, resins**  
Bubreak® 454C; Bubreak® 4400; Bubreak® 4419
- antifoam, screen rooms**  
Antifoam 20WB
- antifoam, screening**  
Pulpsil® 760 E
- antifoam, sheet coatings**  
TEGO® Antifoam KE 600; TEGO® Antifoam 105; TEGO® Antifoam 201; TEGO® Antifoam 202; TEGO® Antifoam KS 1100
- antifoam, size press sol'ns.**  
Geo FM® 1220; Geo FM® 1224; Geo FM® DF-122; Geo FM® DF-122-NS; Geo FM® VF; Geo FM® VFS
- antifoam, slurry compaction**  
TEGO® Antifoam 1-62; TEGO® Antifoam MR 1016; TEGO® Antifoam WM 20
- antifoam, solvents**  
AF 112
- antifoam, starch coatings**  
Foam Blast 106
- antifoam, starch processing**  
AF 10 IND
- antifoam, surfactant concs.**  
TEGO® Antifoam KE 600
- antifoam, vinyl-acrylic polymerization**  
Colloid™ 681F
- antifoam, waste treatment**  
Foam Blast 106
- antifoam, wastewater**  
Adekanate B-590; Adekanate B-1019; TEGO® Antifoam 105; TEGO® Antifoam 201; TEGO® Antifoam 202; TEGO® Antifoam KE 600; TEGO® Antifoam KS 1100; Trans-278
- antifoam, wastewater treatment**  
Adekanol KS-220; Adekanol LG-109; Adekanol LG-121; Adekanol LG-126; Adekanol LG-131N; Adekanol LG-135; Adekanol LG-139; Adekanol LG-141; Adekanol LG-142; Adekanol LG-145; Adekanol LG-150; Adekanol LG-163; Adekanol LG-200B; Adekanol LG-294; Adekanol LG-295S; Adekanol LG-297; Adekanol LG-674; Adekanol LG-805; AF GN-23; Antifoam 20WB; Paracum® 56; Silicone Antifoam Emulsion SE 21; Silicone Antifoam Emulsion SE 25; TEGO® Antifoam 1-60; TEGO® Antifoam 1-62; TEGO® Antifoam KS 6; TEGO® Antifoam KS 53; TEGO® Antifoam KS 100; TEGO® Antifoam KS 911; TEGO® Antifoam MR 1016; Webnix CAL-183; Webnix FreeSil 581; Webnix FreeSil 622; Webnix FreeSil 642; Webnix FreeSil A; Webnix FreeSil B; Webnix FreeSil C; Webnix FreeSil G; Webnix FreeSil H
- antifoam, wastewater: pulp/paper**  
FoamTrol™
- antifoam, water treatment**  
Nonionic 1025-R; Nonionic 2017-R; Nonionic 4025-R; Nonionic 5025-R; Synperonic PE/L61; Synperonic PE/L62LF; Synperonic PE/L81; Synperonic PE/L101; Synperonic PE/L121; Synperonic T/701; Synperonic T/1301; Tergitol® Min-Foam 2X
- antifoam, waterborne coatings**  
TEGO® Foamex 8020
- antifoam, wet-end acid papermaking**  
Advantage® 357 Defoamer
- antifoam, wet-end paper**  
MousseX® 9101 GE
- antifog**  
*Dimethicone copolyol*; *Glyceryl myristate*; *Glyceryl ricinoleate*
- antifog, coatings**  
Silwet® L-77; Silwet® L-7001
- antifog, food pkg.**  
*Sodium tridecylbenzene sulfonate*; *Tallowamide DEA*
- antifog, paper**  
Silwet® L-77; Silwet® L-7001
- antifog, plastic films**  
*Sorbitan oleate*; *Sorbitan trioleate*
- antifog, polyolefins**  
*Hydrogenated palm glyceride*; Petrac® GMS
- antifog, PS**  
*Hydrogenated palm glyceride*
- antifog, PVC**  
*Hydrogenated palm glyceride*; *Sorbitan laurate*
- antifog, PVC films**  
*Glyceryl dioleate*; *Glyceryl oleate*
- antifoulant**  
Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W
- antifoulant, pulp/paper**  
Paxgard MBT
- antigellant**  
Sabopon SAM
- antigellant, drying oils**  
Permanax™ PTBC; Santowhite® BBMC
- antigellant, paper mill felts**  
Cosmopon BN; Rewopol® B 2003; *Sodium oleyl sulfosuccinamate*
- antigellant, starch sol'ns.: paper**  
Pegosperse® 400 MS
- antilinging agent, newsprint**  
Imprint®
- antilinging agent, paperboard**  
Imprint®
- antilinging agent, thick stock systems: newsprint**  
PolyWeb® 5000
- antimicrobial**  
*Basic violet 3*; *β-Bromo-β-nitrostyrene*; *Caprylic acid*; *Chloroacetamide*; *Dimethyl hydantoin-formaldehyde polymer*; Dowicil® 75; *Glyceryl caprate*; *Myristalkonium chloride*; Proxel® GXL; *Sodium chlorite*; *Sodium o-phenylphenate*; Tektamer® 38; Tektamer® 38 A.D.; Tektamer® 38 L.V.
- antimicrobial preservative, aq. slurries**  
Proxel® DL
- antimicrobial preservative, fillers**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial preservative, latex coatings: paper/paperboard food-contact**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial preservative, paper coatings**  
Proxel® DL
- antimicrobial preservative, pigment slurries**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial preservative, starch sizing sol'ns.**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, aq. prods.**  
*Dichlorophene*; *Methylenebis (thiocyanate)*
- antimicrobial, aq. systems**  
*Methylidibromo glutaronitrile*
- antimicrobial, bleaching: pulp/paper**  
Adox 8125
- antimicrobial, broad spectrum: antifoam emulsions**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, broad spectrum: coatings**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, broad spectrum: cooling towers**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, broad spectrum: extender slurries**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, broad spectrum: latexes**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, broad spectrum: pigment slurries**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, broad spectrum: starch**  
*2-Bromo-2-nitropropane-1,3-diol*
- antimicrobial, cherry bleaching**  
Adox 3125
- antimicrobial, coatings**  
*Dimethyl oxazolidine*
- antimicrobial, cooling tower water**  
Kathon® WT
- antimicrobial, cooling tower water treatment**  
*Methylchloroisothiazolinone*
- antimicrobial, cooling towers**  
Myacide® AS Plus
- antimicrobial, cooling water systems**  
*Dichlorophene*
- antimicrobial, evaporate condensers**  
*Dichlorophene*
- antimicrobial, filler slurries: paper, aq./fatty food-contact**  
*Glutaral*
- antimicrobial, filler slurries: paperboard, aq./fatty food-contact**  
*Glutaral*
- antimicrobial, food pkg. paper**  
Troysan® 142
- antimicrobial, industrial cooling water**  
bioMeT TBTO
- antimicrobial, industrial water systems**  
Amerstat® 233; Amerstat® 282
- antimicrobial, mineral slurries**  
Amerstat® 300
- antimicrobial, paper**  
Amerstat® 251
- antimicrobial, paper coatings**  
Dowicide® A; Dowicil® 150
- antimicrobial, paper mill slime control**  
bioMeT TBTO
- antimicrobial, paper preservation**  
bioMeT TBTO
- antimicrobial, paper/paperboard binders: aq./fatty food-contact**  
*Hexahydro-1,3,5-triethyl-s-triazine*
- antimicrobial, paper/paperboard coatings: aq./fatty food-contact**  
*Hexahydro-1,3,5-triethyl-s-triazine*
- antimicrobial, paper/paperboard fillers: aq./fatty food-contact**  
*Hexahydro-1,3,5-triethyl-s-triazine*
- antimicrobial, paper/paperboard pigments: aq./fatty food-contact**  
*Hexahydro-1,3,5-triethyl-s-triazine*
- antimicrobial, paper/paperboard sizings: aq./fatty food-contact**  
*Hexahydro-1,3,5-triethyl-s-triazine*
- antimicrobial, paper/paperboard: nonalcoholic/dry food-contact**  
*Dodecylguanidine hydrochloride*; *Dodine*
- antimicrobial, paperboard**  
Cunilate® 2419-75
- antimicrobial, papermaking**  
Myacide® AS Plus
- antimicrobial, pigment slurries: paper, aq./**

- fatty food-contact**  
*Glutaral*
- antimicrobial, pigment slurries: paperboard, aq./fatty food-contact**  
*Glutaral*
- antimicrobial, polymer emulsions**  
*Methylchloroisothiazolinone*
- antimicrobial, process waters**  
Myacide® AS Plus
- antimicrobial, pulp slurries**  
Cunilate® 2419-75
- antimicrobial, pulp/paper**  
Myacide®
- antimicrobial, recirculating water systems**  
*Dimethyl oxazolidine*
- antimicrobial, slurries**  
*Dichlorophene; Methylenebis (thiocyanate)*
- antimicrobial, starch**  
Vancide® MZ-96
- antimicrobial, starch bleaching**  
Adox 3125
- antimicrobial, thickeners**  
*Dichlorophene; Methylenebis (thiocyanate)*
- antimicrobial, waste treatment**  
Adox 3125
- antimicrobial, water treatment**  
Adox 3125; 1-Bromo-3-chloro-5,5-dimethyl hydantoin; 2,2-Dibromo-3-nitropropionamide; Nabam; Nissan Cation S2-100; 2-n-Octyl-4-isothiazolin-3-one; Ozone
- antimicrobial, whitewater**  
Slimex®
- antioxidant**  
*C20-40 alcohols; Hydrogenated ditallowamine; Irganox® 1035; Naugard® 10; Santonox® TBMC; Santowhite® BBMC; Sulfur dioxide; Unilin® 425 Alcohol*
- antioxidant, ABS**  
Alkanox® P-24; Naugard® 10; Permanax™ PTBC; Weston® 618
- antioxidant, acetal**  
Naugard® 10
- antioxidant, AS resin**  
BNX® 1010
- antioxidant, base stabilization: elastomers**  
Irganox® 1520 D/L
- antioxidant, blocked copolymers**  
Anox® PP18
- antioxidant, butadiene resin**  
BNX® 1010
- antioxidant, cellulotics**  
*4,4'-Butylidenebis (6-t-butyl-m-cresol); Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate); Naugard® 10; Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Pentaerythritol tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]; Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate*
- antioxidant, coatings**  
*Distearyl pentaerythrityl diphosphite*
- antioxidant, coatings: food-contact**  
*BHT*
- antioxidant, dry rosin size: paper, aq./fatty food-contact**  
*Phenothiazine; Phenyl-β-naphthylamine*
- antioxidant, dry rosin size: paperboard, aq./fatty food-contact**  
*Phenothiazine; Phenyl-β-naphthylamine*
- antioxidant, elastomers**  
*Distearyl pentaerythrityl diphosphite; Irganox® 259; Naugard® 10*
- antioxidant, EPD**  
BNX® 1010
- antioxidant, EPDM**  
Naugard® 10; Weston® 618
- antioxidant, EPM**  
BNX® 1010
- antioxidant, EVA**  
*4,4'-Butylidenebis (6-t-butyl-m-cresol); Naugard® 10*
- antioxidant, fatty-based coating adjuvants: paper, aq./fatty/dry food-contact**  
*Diphenylamine*
- antioxidant, fatty-based coating adjuvants: paper, food-contact**  
*Di-t-butylhydroquinone*
- antioxidant, fatty-based coating adjuvants: paperboard, aq./fatty/dry food-contact**  
*Diphenylamine*
- antioxidant, fatty-based coating adjuvants: paperboard, food-contact**  
*Di-t-butylhydroquinone*
- antioxidant, fiber finish oils**  
Permanax™ PTBC
- antioxidant, flex-resistant: polyolefins**  
*N,N'-Diphenyl-p-phenylenediamine*
- antioxidant, HDPE**  
Naugard® 10
- antioxidant, HIPS**  
Naugard® 10
- antioxidant, LDPE**  
Naugard® 10
- antioxidant, LLDPE**  
Naugard® 10
- antioxidant, lubricants**  
*Diphenylamine; N,N'-Diphenyl-p-phenylenediamine; Naugard® 10; Phenyl-β-naphthylamine*
- antioxidant, methacrylic resin**  
BNX® 1010
- antioxidant, mineral oil lubricants: incidental food-contact**  
*Phenyl-β-naphthylamine*
- antioxidant, nondiscoloring/nonstaining: coatings, food-contact**  
Irganox® 1010
- antioxidant, nondiscoloring/nonstaining: paper, food-contact**  
Irganox® 1010
- antioxidant, NR**  
*4,4'-Butylidenebis (6-t-butyl-m-cresol)*
- antioxidant, org. substrates**  
Irganox® 259
- antioxidant, paper**  
Alkaterge®-E
- antioxidant, paper coatings**  
Santowhite® BBMC
- antioxidant, paper film coatings**  
Santonox® TBMC
- antioxidant, PC**  
Alkanox® P-24; BNX® 1010
- antioxidant, PE**  
BNX® 1010; Permanax™ PTBC; Weston® 618
- antioxidant, polyacetals**  
BNX® 1010; *Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate); Irganox® 259*
- antioxidant, polybutadiene**  
Weston® 618
- antioxidant, polybutene-1**  
BNX® 1010
- antioxidant, polyesters**  
BNX® 1010; *Distearyl pentaerythrityl diphosphite; Naugard® 10; Weston® 618*
- antioxidant, polymer processing**  
*Distearyl pentaerythrityl diphosphite*
- antioxidant, polymers: food-contact**  
*Pentaerythrityl distearate*
- antioxidant, polymers: food-grade**  
*Boric acid; 4,4'-Butylidenebis (6-t-butyl-m-cresol); Dicyandiamide; Distearyl pentaerythrityl diphosphite; Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Pentaerythritol tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]; Struktol® TR 044; 4,4'-Thiobis-6-(t-butyl-m-cresol); Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate; Zinc palmitate; Zinc stearate*
- antioxidant, polyolefins**  
Alkanox® P-24; Anox® PP18; *Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite; 4,4'-Butylidenebis (6-t-butyl-m-cresol); Distearyl*
- pentaerythritol diphosphite; Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate); Irganox® 259; Naugard® 10; Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Pentaerythritol tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]; 4,4'-Thiobis-6-(t-butyl-m-cresol); Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate*
- antioxidant, polyolefins: food pkg.**  
*Triisopropanolamine*
- antioxidant, PP**  
BNX® 1010; Naugard® 10; Permanax™ PTBC; Weston® 618
- antioxidant, PS**  
*Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite; BNX® 1010; 4,4'-Butylidenebis (6-t-butyl-m-cresol); Naugard® 10; Pentaerythritol tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]; 4,4'-Thiobis-6-(t-butyl-m-cresol); Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate; Weston® 618*
- antioxidant, PU**  
Naugard® 10
- antioxidant, pulp/paper stabilization**  
Santonox® TBMC
- antioxidant, PVC**  
Alkanox® P-24; Anox® PP18; *Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite; BNX® 1010; 4,4'-Butylidenebis (6-t-butyl-m-cresol); Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate); Naugard® 10; Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Permanax™ PTBC; 4,4'-Thiobis-6-(t-butyl-m-cresol); Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate; Weston® 618*
- antioxidant, stabilized polymers**  
*Perchloropentacyclodecane*
- antioxidant, styrenics**  
*Distearyl pentaerythrityl diphosphite; Hexamethylenebis (3,5-di-t-butyl-4-hydroxycinnamate); Irganox® 259; Naugard® 10; Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate*
- antioxidant, thermal fax paper**  
Santowhite® BBMC
- antioxidant, varnishes**  
BNX® 1010
- antioxidant, waxes**  
BNX® 1010; *Phenothiazine*
- antiozonant**  
Octotint 120; Octotint 138; Octotint 150; Octotint 155; Octotint 572; Octotint 601; Octotint 825; Octowax 321; Octowax 518
- antiozonant, flex-resistant: polyolefins**  
*N,N'-Diphenyl-p-phenylenediamine*
- antiozonant, lubricants**  
*N,N'-Diphenyl-p-phenylenediamine*
- antipicking agent, surface sizing**  
Nopco® DC-1153
- antiplate out agent, PVC calendered films**  
Sipernat® 500LS
- antiprecipitant**  
Tamol® 808; Tamol® 850; Tamol® 960
- antiprecipitant, coatings**  
*Polyacrylamide*
- antiprecipitant, water treatment**  
*Polyacrylamide*
- antiredeposition agent**  
*Sodium polyacrylate*
- antiredeposition agent, coatings**  
Alcosperse® 149
- antiredeposition agent, high solids slurries**  
Alcosperse® 602-N
- antiredeposition agent, paper**  
Alcofix®
- antiredeposition agent, paper coatings**  
Alcosperse® 602-N
- antiredeposition agent, paperboard**  
Alcofix®
- antiredeposition agent, pigments**  
Alcosperse® 149; Alcosperse® 602-N

**antiredeposition agent, pulp**

Alcofix®  
**antisetting agent**  
 Luwax® OA; Luwax® OA 3; Luwax® OA 5;  
 Veegum® T; Vestowax® AO 1535; Vestowax®  
 AO 2733  
**antisetting agent, coatings**  
 Ethylene/VA copolymer  
**antisetting agent, diazo paper**  
 Wacker HDK® N20  
**antisetting agent, paper**  
 Smectite  
**antisetting agent, waste treatment**  
 Smectite  
**antisetting agent, water-reducible alkyl  
 systems**  
 Rheolate® 2001  
**antisetting agent, water-reducible coating  
 systems**  
 Rheolate® 2001  
**antisetting agent, water-reducible epoxy  
 systems**  
 Rheolate® 2001  
**antisetting agent, water-reducible systems**  
 Rheolate® 2001  
**antishock agent, paper coatings**  
 Surfynol® PC; Tetramethyl decylenediol  
**antiskid agent, paper: frictionize corrugated  
 board**  
 Noslip®  
**antiskid agent, paper: frictionize linerboard,  
 from recycled fiber**  
 Nyacol® 215; Nyacol® 830; Nyacol® 1430;  
 Nyacol® 1440; Nyacol® 2034DI; Nyacol®  
 2040; Nyacol® 2040NH<sub>4</sub>; Nyacol® 2050;  
 Nyacol® 9950  
**antiskid agent, paper: frictionize newsprint**  
 Noslip® NP  
**antiskid agent, paper: frictionize recycled  
 linerboard**  
 Noslip®  
**antislip agent, aq. coatings**  
 Shamrock Hydrocer EEP 33  
**antislip agent, aq. emulsions**  
 Aerosil® K315; Aerosil® K328; Aerosil® K330;  
 Aerosil® K342  
**antislip agent, cardboard**  
 Aerosil® K315; Aerosil® K328; Aerosil® K330;  
 Aerosil® K342  
**antislip agent, coatings**  
 Silwet® L-722; Silwet® L-7002  
**antislip agent, copy paper**  
 Sylsya 250; Sylsya 250N; Sylsya 310;  
 Sylsya 320; Sylsya 350; Sylsya 430;  
 Sylsya 435; Sylsya 440; Sylsya 445;  
 Sylsya 450; Sylsya 470; Sylsya 530;  
 Sylsya 540; Sylsya 550; Sylsya 730;  
 Sylsya 740; Sylsya 770  
**antislip agent, fiber**  
 Silwet® L-722  
**antislip agent, paper**  
 Adelite; Aerosil® K315; Aerosil® K328; Aerosil®  
 K330; Aerosil® K342; *Silica, colloidal*; Silwet®  
 L-722; Silwet® L-7002  
**antislip agent, thermal paper**  
 Sylsya 250; Sylsya 250N; Sylsya 310;  
 Sylsya 320; Sylsya 350; Sylsya 430;  
 Sylsya 435; Sylsya 440; Sylsya 445;  
 Sylsya 450; Sylsya 470; Sylsya 530;  
 Sylsya 540; Sylsya 550; Sylsya 730;  
 Sylsya 740; Sylsya 770  
**antisludging agent**  
 Polywet® ND-2  
**antisoiling aid, coatings**  
 Zonyl® FSN  
**antistaining agent, tannin**  
*Barium metaborate*  
**antistat**  
 Aerosol® C-61; Ajidew N-50; Ajidew SP-100;  
*Ammonium nonoxynol-4 sulfate*; Blemmer QA;

Burco® Imidazoline O; Burco® Imidazoline T;  
*Butyl acid phosphate*; *Butyl phosphate*; *Carbon  
 black*; *Ceresin*; Conductive Polymer 261® RV;  
 Crill 1; Crill 2; Crill 3; Crillet 3; Crillet 4; *Deceth-  
 4 phosphate*; DeMULS PSMO-80; DeMULS  
 PSMS-60; DeMULS PSTS-65; DeMULS SML;  
*Dimethicone copolyol*; *Dimethylaminoethyl  
 methacrylate*; *Dimethyl glutarate*; *Sodium  
 oleamido MIPA-sulfosuccinate*; Emulsifier K 30  
 40%; Emulsifier K 30 68%; Emulsifier K 30  
 76%; Emulsifier K 30 95%; *Ethyl hydroxymethyl  
 oleyl oxazoline*; *Glycerol distearate*; *Glycerol  
 oleate*; *Isooctyl acid phosphate*; *Isostearyl  
 hydroxyethyl imidazoline*; Lanolin; Lauryl  
 hydroxyethyl imidazoline; Lecithin; *Linoleamide  
 DEA*; *Linoleic acid*; Masil® EM 501; *Methicone*;  
*Montan acid wax*; *Montan wax*; *Myristalkonium  
 chloride*; *Myristamide DEA*; *Myristamine  
 acetate*; *Nonoxynol-9 phosphate*; *Palmitamide  
 DEA*; PCA; PEG-60 castor oil; PEG-80 castor  
 oil; PEG-20 glyceryl laurate; PEG-20 glyceryl  
 oleate; PEG-15 glyceryl ricinoleate; PEG-16  
 oleate; PEG-80 sorbitan laurate; Pluronic®  
 17R2; Poloxamer 101; Poloxamer 105;  
 Poloxamer 108; Poloxamer 122; Poloxamer  
 123; Poloxamer 124; Poloxamer 181;  
 Poloxamer 182; Poloxamer 183; Poloxamer  
 184; Poloxamer 185; Poloxamer 188;  
 Poloxamer 212; Poloxamer 215; Poloxamer  
 231; Poloxamer 234; Poloxamer 235;  
 Poloxamer 237; Poloxamer 238; Poloxamer  
 282; Poloxamer 284; Poloxamer 288;  
 Poloxamer 331; Poloxamer 333; Poloxamer  
 334; Poloxamer 335; Poloxamer 338;  
 Poloxamer 401; Poloxamer 402; Poloxamer  
 403; Poloxamer 407; Poloxamine 701;  
 Polysorbate 61; Polysorbate 81; Polysorbate  
 85; Polyvinyl acetate; Servoxyl® VPBZ 5/100;  
 Servoxyl® VPDZ 6/100; Servoxyl® VPZF 7/1  
 100; Servoxyl® VPGZ 6/100; Servoxyl® VPIZ  
 100; Servoxyl® VPNZ 7/100; Servoxyl®  
 VPPZ 100; Servoxyl® VPRZ 006/100;  
 Servoxyl® VPRZ 0011/100; Servoxyl® VPTZ  
 003/100; Servoxyl® VPTZ 100; Servoxyl®  
 VPVZ 12/100; Snowtex S; Snowtex ST-20L;  
 Snowtex ST-40; Snowtex ST-50; Snowtex ST-  
 C; Snowtex ST-N; Snowtex ST-O; Snowtex  
 ST-O-30; Snowtex ST-O-40; Snowtex ST-OL;  
 Snowtex ST-OL-40; Snowtex ST-OS; Snowtex  
 ST-S; Snowtex ST-XS; Snowtex XS; *Sodium  
 2-hydroxy-3-(2-propenyloxy) 1-propanesulfo-  
 nate*; *Sodium oleic sulfate*; *Sodium PCA*;  
*Sodium p-styrenesulfonate*; *Sorbitan  
 tristearate*; SPAE; *Talloweth-11 phosphate*;  
 TEBAC; Teric™ N4; Teric™ N5; *Tricetylmo-  
 nium chloride*; *Trideceth-6 phosphate*  
**antistat finishing**  
*Methacrylamidopropyltrimethylammonium  
 chloride*; Mhoromer® BM 613  
**antistat, ABS**  
 Lipowax C  
**antistat, acidic systems**  
 Varonic® K-210  
**antistat, coatings**  
 Silwet® L-77; Silwet® L-722  
**antistat, dust control**  
 Volpo C2; Volpo C20; Volpo CS50; Volpo L3  
**antistat, electroconductive paper coatings**  
*2-Hydroxy 3-methacryl oxypropyl trimoniumchlor-  
 ide*  
**antistat, emulsion polymerization**  
*PEG-2 laurate*; *PVM/MA copolymer*; Wayfos® D-  
 10N  
**antistat, emulsions**  
 Aerosol® OT-75%  
**antistat, facsimile paper**  
 Chemistat 6300 H  
**antistat, fiber**  
 Carsoquat® SDQ-25; Celnax® CX-Z210 IP;  
 Celnax® CX-Z300H; Celnax® CX-Z401M;

Incroquat SDQ-25; PEG-15 cocamine; Silwet®  
 L-722; *Sodium butyl phosphate*; Spinomar  
 NaSS  
**antistat, films**  
 Celnax® CX-Z210 IP; Celnax® CX-Z300H;  
 Celnax® CX-Z401M  
**antistat, food pkg.**  
*Lauramide DEA*; *Laureth-9*; PEG-2 stearamine;  
 PEG-2 tallowamine; *Sodium tridecylbenzene  
 sulfonate*; *Tallowamide DEA*  
**antistat, internal: paper, food pkg.**  
 Larostat® FPE-S  
**antistat, internal: PE**  
*Glycerol oleate*  
**antistat, internal: polyolefins**  
 Larostat® 902 AS  
**antistat, internal: PP**  
*Glycerol oleate*; Pegospense® 100 L  
**antistat, internal: PS**  
 Alkamuls® S-8; Pegospense® 400 MS  
**antistat, internal: PVC**  
*Glycerol oleate*  
**antistat, paper**  
 Alkamuls® EL-620; Aromox® C/12; Aromox® C/  
 12-W; Arquad® 2C-75; Arquad® 12-50;  
 Arquad® 16-50; Arquad® 18-50; Arquad® C-50;  
 Arquad® T-27W; Celnax® CX-Z210 IP;  
 Celnax® CX-Z300H; Celnax® CX-Z401M;  
 Chimin P45; Igepal® DM-710; *Isodecyl oleate*;  
*Laurtrimonium chloride*; Mackester™ EGDS;  
 Mackester™ EGMS; Mackester™ IP;  
 Mackester™ SP; Merpul® HCS; Nonionic 1044-  
 L; Nonionic 1061-L; Nonionic 1062-L; Nonionic  
 1064-L; Nonionic 1068-F; Nonionic 1088-F;  
*Nonyl nonoxynol-15*; PEG-36 castor oil; PEG-3  
*dioctoate*; Pluracol® E400 NF; Pluracol® E600  
 NF; Pluracol® E1450; Pluracol® E2000;  
 Pluracol® E4500; Pluracol® E8000; *PVM/MA  
 copolymer*; Qemisof 8075; Schercozoline I;  
 Schercozoline L; Schercozoline O; Schercozo-  
 line S; Silwet® L-77; Silwet® L-722; Spinomar  
 NaSS; *Stearamidopropyl dimethyl-2-  
 hydroxyethyl ammonium nitrate*; Tetronic®  
 90R4; *Trilauryl phosphate*  
**antistat, paper chemicals**  
 Querton 442; Querton 442-11; Querton 442-82;  
 Querton 442E; Querton 442H; Querton 442P;  
 Querton 442P-11  
**antistat, paper depitching**  
 Adekamine 4DAC-80; Adekamine 4DAC-85;  
 Adekamine 4MAC-30; Adekamine ADG-30;  
 Adekamine E Series; Adekamine LDM;  
 Adekamine MD-30; Adekamine MT-50;  
 Adekamine PMS-100  
**antistat, paper finishing**  
 Teric™ OF8  
**antistat, paper softening**  
 Arquad® 2HT-75; Arquad® 2HT-75PG  
**antistat, paper surface treatment: high speed  
 copier paper**  
 Elfugin® AKT Liq.  
**antistat, paper surface treatment: noncontact  
 printing paper**  
 Elfugin® AKT Liq.  
**antistat, paper surface treatment: punch tape  
 paper**  
 Elfugin® AKT Liq.  
**antistat, paper tissues**  
 PEG stearate  
**antistat, paper treatment**  
 Snowtex 20L; Snowtex 40; Snowtex 50;  
 Snowtex C; Snowtex N; Snowtex O; Snowtex  
 OL; Snowtex ST-UP; Snowtex ST-ZL  
**antistat, papermaking**  
 Cithrol A; Cithrol DGML N/E; Cithrol DGMS N/E;  
 Cithrol EGDS N/E; Cithrol EGMS N/E; Cithrol  
 EGMS S/E; *Glycerol dilaurate*; *Glycerol  
 dilaurate SE*; *Glycol dilaurate*; *Glycol dilaurate  
 SE*; *Glycol dioleate*; *Glycol dioleate SE*; *Glycol  
 distearate SE*; *Glycol laurate*; *Glycol laurate*

- SE; Glycol oleate; Glycol oleate SE; Glycol ricinoleate; Glycol ricinoleate SE; PEG cocamine; PEG-2 dilaurate; PEG-2 dilaurate SE; PEG-2 dioleate; PEG-2 dioleate SE; PEG-2 distearate; PEG-2 distearate SE; PEG-2 laurate; PEG-2 oleamine; PEG-2 oleate; PEG-2 oleate SE; PEG stearamine; PEG-2 stearate; PEG-2 stearate SE; PPG-2 laurate; PPG-2 laurate SE; PPG-2 oleate; PPG-2 oleate SE; PPG-2 stearate; PPG-2 stearate SE; Volpo C2; Volpo C20; Volpo CS50; Volpo L3; Wayfos® D-10N*
- antistat, PE**  
Laureth-4; Lipowax C
- antistat, pigment grinding**  
Propylene glycol myristate
- antistat, plastic films**  
Cetyl betaine; Sorbitan oleate
- antistat, polymers**  
Cyastat® SN; Stearamidopropyl dimethyl-2-hydroxyethyl ammonium nitrate
- antistat, polymers: food-grade**  
PEG-2 oleamine
- antistat, polyolefins**  
Hydrogenated palm glyceride; Petrac® GMS
- antistat, polyurethane foams**  
PEG-36 castor oil
- antistat, PS**  
Hydrogenated palm glyceride; Laureth-4; Lipowax C
- antistat, pulp/paper**  
Monafax 1293; Nissan Cation AB; Nissan Cation BB; Nissan Cation F2-20R; Nissan Cation F2-40E; Nissan Cation F2-50; Nissan Cation F2-50E; Nissan Cation F2-CONC.; Nissan Cation FB; Nissan Cation M2-100; Nissan Cation PB-40; Nissan Cation PB-300; Nissan Cation S2-100; Nonionic 1035-L; Paxogen COB; Paxogen LAO; Paxsorbat 20; Paxsorbat 60; Paxsorbat 80; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Polypax EGDS; Polypax EGMS; Polyquat 2 C; Polyquat 188; Polyquat PR; Polystar OM; Polystar OMP; Propylene glycol laurate; Stearalkonium chloride; Steartrimonium chloride; Surfonic® CO-15; Surfonic® CO-20; Surfonic® CO-25; Surfonic® CO-30; Surfonic® CO-42
- antistat, PVC**  
DeMULS SML; Hydrogenated palm glyceride; Sorbitan laurate
- antistat, resins**  
Alkamide® STEDA
- antistat, sanitized paper**  
Hyamine® 3500 50%
- antistat, suspension polymerization**  
Aerosol® OT-75%
- antistat, syn. fiber**  
Cocotrimonium chloride; Rhodapex® CO-436; Servoxyl® VPI 55
- antistat, syn. fibers with PS**  
PEG-10 cocamine
- antistat, syn. materials**  
Glyceryl caprylate; Glyceryl caprylate/caprinate
- antistat, water treatment**  
Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poloxamer 217
- antistat, waxes**  
Advawax® 240; Advawax® 280; Ethylene dioleamide; Propylene glycol myristate
- antistatic coatings, ABS**  
Distearyldimonium chloride
- antistatic coatings, cellulose acetate**  
Quaternium-18
- antistatic coatings, cellulose**  
Distearyldimonium chloride
- antistatic coatings, PE**  
Quaternium-18
- antistatic coatings, polyacetal**  
Quaternium-18
- antistatic coatings, PP**  
Distearyldimonium chloride; Quaternium-18
- antistatic coatings, PS**  
Distearyldimonium chloride
- antistatic coatings, PVC**  
Distearyldimonium chloride
- antistatic finish, polyester fiber**  
Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC; Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC; Ageflex FM-1Q80DMS
- antisticking agent**  
Pogol® 600
- antisticking agent, paper coatings**  
Synthro®-Pel SCR
- antisticking agent, paper sticking**  
Synthro®-Pel SCR
- antisticking agent, PVC melts-to-hot machine parts**  
Hoechst Wax PED 521
- antisticking agent, surface sizing**  
Nopcote® DC-1153
- antitackifier**  
Lumulse™ DGS; Lumulse™ DGS-C; Lumulse™ DGS-N
- antitackifier, ABS**  
Lipowax C
- antitackifier, PE**  
Lipowax C
- antitackifier, PS**  
Lipowax C
- antitackifier, solvent coatings**  
Aldo® MS LG FG
- antitackifier, solventless coatings**  
Aldo® MS LG FG
- antitackifier, surface: aq. emulsions**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- antitackifier, surface: cardboard**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- antitackifier, surface: paper**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- antiwear agent**  
*t*-Butylphenyl phosphate; Triaryl phosphate; Tributoxyethyl phosphate; Tributyl phosphate
- antiwear agent, paper machine oils**  
Durad® 110B; Durad® 150B; Durad® 220B; Durad® 620B
- antiwear circulating oil, paper machine lubrication systems**  
PMO Ashless 150; PMO Ashless 220; PMO Ashless 320; PMO Ashless 460
- antiwebbing agent, coating compds.**  
Octoparse 662
- aq. process additive, paper**  
Dequest® 2000; Dequest® 2010; Dequest® 2054
- bacterial inoculant system, environmental: pulp/paper mills**  
Munox® XL Series 1; Munox® XL Series 2; Munox® XL Series 5
- bacterial inoculant system, environmental: wastewater**  
Munox® XL Series 1; Munox® XL Series 2; Munox® XL Series 5
- bactericide**  
Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Busan® 90; Busan® 1130; Calcium hypochlorite; Coco-betaine; Methylenebis (thiocyanate); Morpholine; Myristalkonium chloride; Nipacide® BKX; Nipacide® FC; Nipacide® XRP; Ozone; Paraformaldehyde; Proxel® DL; Proxel® XL2; Sodium MBT; Sodium chlorite; Sodium pentachlorophenate; Tolcide® PS 75LT; Tolcide® PS 200
- bactericide, air sterilization**  
Propylene glycol
- bactericide, broad-spectrum**  
Busan® 1059; Busan® 1059-W5
- bactericide, casein dispersions**  
Nipacide® BIT 20
- bactericide, cooling tower systems**  
Dantobrom® RW Briquette
- bactericide, cooling water**  
Tributyltin oxide
- bactericide, cooling water systems**  
Sanibrom™ 40; Sanibrom™ 45
- bactericide, evaporative condensers**  
Dantobrom® RW Briquette
- bactericide, food pkg. paper**  
Troysan® 142
- bactericide, glue casein**  
3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione
- bactericide, industrial**  
Sodium-2,4,4,5-trichlorophenate
- bactericide, industrial recirculating water cooling towers**  
Qemicide DTC-1050
- bactericide, industrial wet scrubber systems**  
Dantobrom® RW Briquette
- bactericide, industrial: aq. prods.**  
Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® CI; Nipacide® CI 15
- bactericide, influent systems**  
Dantobrom® RW Briquette
- bactericide, mineral slurries**  
Nipacide® BIT 20
- bactericide, o/w emulsions**  
Nipacide® BIT 20
- bactericide, paper**  
3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Tributyltin oxide
- bactericide, paper machine wet-end**  
Busan® 1223
- bactericide, paper mills**  
Acticide® WT; Metasol® RB-20; Paxgard WT; Qemicide DTC-35; Qemicide DTC-1050; Taurine-DBNPA; Tolcide® MW10
- bactericide, papermaking**  
Busan® 1210
- bactericide, pigment dispersions**  
Nipacide® BIT 20
- bactericide, polymer emulsions**  
Nipacide® BIT 20
- bactericide, pulp mills**  
Qemicide DTC-35; Qemicide DTC-1050
- bactericide, pulp/paper**  
Acticide® DW; Acticide® HF; Acticide® SPX; Acticide® WTC; Dantobrom® RW Briquette; Paxgard BD 20; Paxgard BD 88; Paxgard BK 20; Paxgard BKC; Paxgard BSL; Paxgard BU 30; Paxgard BU 30 L; Paxgard BU 60; Paxgard DB 10; Paxgard DB 20; Paxgard DB 99; Paxgard EM; Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Paxgard MB 10; Paxgard MBT; Paxgard PDC; Paxgard SDC; Paxgard ST; Paxgard TC; Polyquat 2 C; Polyquat 188
- bactericide, pulp/paper mills**  
Aquatreat® DNM-30; Sanibrom™ 40; Sanibrom™ 45
- bactericide, recirculating cooling towers**  
Tolcide® MW10
- bactericide, recirculating water systems**  
Dantobrom® RW Briquette
- bactericide, rosin dispersions**

*SE; Glycol oleate; Glycol oleate SE; Glycol ricinoleate; Glycol ricinoleate SE; PEG cocamine; PEG-2 dilaurate; PEG-2 dilaurate SE; PEG-2 dioleate; PEG-2 dioleate SE; PEG-2 distearate; PEG-2 distearate SE; PEG-2 laurate; PEG-2 oleamine; PEG-2 oleate; PEG-2 oleate SE; PEG stearamine; PEG-2 stearate; PEG-2 stearate SE; PPG-2 laurate; PPG-2 laurate SE; PPG-2 oleate; PPG-2 oleate SE; PPG-2 stearate; PPG-2 stearate SE; Volpo C2; Volpo C20; Volpo CS50; Volpo L3; Wayfos® D-10N*

**antistat, PE**  
*Laureth-4; Lipowax C*

**antistat, pigment grinding**  
*Propylene glycol myristate*

**antistat, plastic films**  
*Cetyl betaine; Sorbitan oleate*

**antistat, polymers**  
*Cyastat® SN; Stearamidopropyl dimethyl-2-hydroxyethyl ammonium nitrate*

**antistat, polymers: food-grade**  
*PEG-2 oleamine*

**antistat, polyolefins**  
*Hydrogenated palm glyceride; Petrac® GMS*

**antistat, polyurethane foams**  
*PEG-36 castor oil*

**antistat, PS**  
*Hydrogenated palm glyceride; Laureth-4; Lipowax C*

**antistat, pulp/paper**  
*Monafax 1293; Nissan Cation AB; Nissan Cation BB; Nissan Cation F2-20R; Nissan Cation F2-40E; Nissan Cation F2-50; Nissan Cation F2-50E; Nissan Cation F2-CONC.; Nissan Cation FB; Nissan Cation M2-100; Nissan Cation PB-40; Nissan Cation PB-300; Nissan Cation S2-100; Nonionic 1035-L; Paxogen COB; Paxogen LAO; Paxorbate 20; Paxorbate 60; Paxorbate 80; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Polypax EGDS; Polypax EGMS; Polyquat 2 C; Polyquat 188; Polyquat PR; Polystar OM; Polystar OMP; Propylene glycol laurate; Stearalkonium chloride; Steartrimonium chloride; Surfonic® CO-15; Surfonic® CO-20; Surfonic® CO-25; Surfonic® CO-30; Surfonic® CO-42*

**antistat, PVC**  
*DeMULS SML; Hydrogenated palm glyceride; Sorbitan laurate*

**antistat, resins**  
*Alkamide® STEDA*

**antistat, sanitized paper**  
*Hyamine® 3500 50%*

**antistat, suspension polymerization**  
*Aerosol® OT-75%*

**antistat, syn. fiber**  
*Cocotrimonium chloride; Rhodapex® CO-436; Servoxyl® VPI 55*

**antistat, syn. fibers with PS**  
*PEG-10 cocamine*

**antistat, syn. materials**  
*Glyceryl caprylate; Glyceryl caprylate/caprinate*

**antistat, water treatment**  
*Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poloxamer 217*

**antistat, waxes**  
*Advawax® 240; Advawax® 280; Ethylene*

*dioleamide; Propylene glycol myristate*

**antistatic coatings, ABS**  
*Distearyltrimonium chloride*

**antistatic coatings, cellulose acetate**  
*Quaternium-18*

**antistatic coatings, cellulose**  
*Distearyltrimonium chloride*

**antistatic coatings, PE**  
*Quaternium-18*

**antistatic coatings, polyacetal**  
*Quaternium-18*

**antistatic coatings, PP**  
*Distearyltrimonium chloride; Quaternium-18*

**antistatic coatings, PS**  
*Distearyltrimonium chloride*

**antistatic coatings, PVC**  
*Distearyltrimonium chloride*

**antistatic finish, polyester fiber**  
*Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC; Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC; Ageflex FM-1Q80DMS*

**antisticking agent**  
*Pogol® 600*

**antisticking agent, paper coatings**  
*Synthro®-Pel SCR*

**antisticking agent, paper sticking**  
*Synthro®-Pel SCR*

**antisticking agent, PVC melts-to-hot machine parts**  
*Hoechst Wax PED 521*

**antisticking agent, surface sizing**  
*Nopcote® DC-1153*

**antitackifier**  
*Lumulse™ DGS; Lumulse™ DGS-C; Lumulse™ DGS-N*

**antitackifier, ABS**  
*Lipowax C*

**antitackifier, PE**  
*Lipowax C*

**antitackifier, PS**  
*Lipowax C*

**antitackifier, solvent coatings**  
*Aldo® MS LG FG*

**antitackifier, solventless coatings**  
*Aldo® MS LG FG*

**antitackifier, surface: aq. emulsions**  
*Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342*

**antitackifier, surface: cardboard**  
*Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342*

**antitackifier, surface: paper**  
*Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342*

**antiwear agent**  
*t-Butylphenyl phosphate; Triaryl phosphate; Tributoxyethyl phosphate; Tributyl phosphate*

**antiwear agent, paper machine oils**  
*Durad® 110B; Durad® 150B; Durad® 220B; Durad® 620B*

**antiwear circulating oil, paper machine lubrication systems**  
*PMO Ashless 150; PMO Ashless 220; PMO Ashless 320; PMO Ashless 460*

**antiwebbing agent, coating compds.**  
*Octoparse 662*

**aq. process additive, paper**  
*Dequest® 2000; Dequest® 2010; Dequest® 2054*

**bacterial inoculant system, environmental: pulp/paper mills**  
*Munox® XL Series 1; Munox® XL Series 2; Munox® XL Series 5*

**bacterial inoculant system, environmental: wastewater**  
*Munox® XL Series 1; Munox® XL Series 2; Munox® XL Series 5*

**bactericide**  
*Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Busan® 90; Busan® 1130; Calcium*

*hypochlorite; Coco-betaine; Methylenebis (thiocyanate); Morpholine; Myristalkonium chloride; Nipacide® BKX; Nipacide® FC; Nipacide® XRP; Ozone; Paraformaldehyde; Proxel® DL; Proxel® XL2; Sodium MBT; Sodium chlorite; Sodium pentachlorophenate; Tolcide® PS 75LT; Tolcide® PS 200*

**bactericide, air sterilization**  
*Propylene glycol*

**bactericide, broad-spectrum**  
*Busan® 1059; Busan® 1059-W5*

**bactericide, casein dispersions**  
*Nipacide® BIT 20*

**bactericide, cooling tower systems**  
*Dantobrom® RW Briquette*

**bactericide, cooling water**  
*Tributyltin oxide*

**bactericide, cooling water systems**  
*Sanibrom™ 40; Sanibrom™ 45*

**bactericide, evaporative condensers**  
*Dantobrom® RW Briquette*

**bactericide, food pkg. paper**  
*Troysan® 142*

**bactericide, glue casein**  
*3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione*

**bactericide, industrial**  
*Sodium-2,4,4,5-trichlorophenate*

**bactericide, industrial recirculating water cooling towers**  
*Qemicide DTC-1050*

**bactericide, industrial wet scrubber systems**  
*Dantobrom® RW Briquette*

**bactericide, industrial: aq. prods.**  
*Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® CI; Nipacide® CI 15*

**bactericide, influent systems**  
*Dantobrom® RW Briquette*

**bactericide, mineral slurries**  
*Nipacide® BIT 20*

**bactericide, o/w emulsions**  
*Nipacide® BIT 20*

**bactericide, paper**  
*3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Tributyltin oxide*

**bactericide, paper machine wet-end**  
*Busan® 1223*

**bactericide, paper mills**  
*Acticide® WT; Metasol® RB-20; Paxgard WT; Qemicide DTC-35; Qemicide DTC-1050; Taurine-DBNPA; Tolcide® MW10*

**bactericide, papermaking**  
*Busan® 1210*

**bactericide, pigment dispersions**  
*Nipacide® BIT 20*

**bactericide, polymer emulsions**  
*Nipacide® BIT 20*

**bactericide, pulp mills**  
*Qemicide DTC-35; Qemicide DTC-1050*

**bactericide, pulp/paper**  
*Acticide® DW; Acticide® HF; Acticide® SPX; Acticide® WTC; Dantobrom® RW Briquette; Paxgard BD 20; Paxgard BD 88; Paxgard BK 20; Paxgard BKC; Paxgard BSL; Paxgard BU 30; Paxgard BU 30 L; Paxgard BU 60; Paxgard DB 10; Paxgard DB 20; Paxgard DB 99; Paxgard EM; Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Paxgard MB 10; Paxgard MBT; Paxgard PDC; Paxgard SDC; Paxgard ST; Paxgard TC; Polyquat 2 C; Polyquat 188*

**bactericide, pulp/paper mills**  
*Aquatreat® DNM-30; Sanibrom™ 40; Sanibrom™ 45*

**bactericide, recirculating cooling towers**  
*Tolcide® MW10*

**bactericide, recirculating water systems**  
*Dantobrom® RW Briquette*

**bactericide, rosin dispersions**

**bactericide, starch**

Nipacide® BIT 20  
**bactericide, starch**  
3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione  
**bactericide, starch/casein coatings**  
Sodium 2-mercaptobenzothiazole  
**bactericide, sulfate-reducing bacteria**  
Metasol® 350  
**bactericide, wastewater systems**  
Sanibrom™ 40; Sanibrom™ 45  
**bactericide, water purification**  
Chlorine dioxide  
**bactericide, water treatment**  
Acticide® WT; 1-Bromo-3-chloro-5,5-dimethyl hydantoin; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Nipacide® BIT 20; Paxgard WT  
**bactericide, waxes**  
2-Bromo-4'-hydroxyacetophenone  
**bacteriostat, paper softening**  
Arquad® 2HT-75; Arquad® 2HT-75PG  
**bacteriostat, plants**  
Captan  
**bacteriostat, sanitized paper**  
Hyamine® 3500 50%  
**bacteriostat, solvent-based coatings**  
Captan  
**barium sulfate inhibitor, paper machines**  
Belsperse® 164  
**barrier coating, basecoat: paper coatings**  
Tykote Base; Tykote Base II  
**barrier coating, basecoat: paper coatings, food pkg.**  
Tykote Base; Tykote Base II  
**barrier coatings, paper**  
Vinylidene chloride copolymer  
**base additive, sandpaper**  
Darex® 110L  
**base coating, boxboard: 'double-bump' coating operations**  
NovaCote® PC 1906  
**base coating, high gloss: boxboard**  
NovaCote® PC 1911  
**base coating, mod.-low gloss: boxboard**  
NovaCote® PC 3050  
**base emulsion, paper coatings**  
Vinylidene chloride copolymer  
**base material, paper**  
Propetal 99  
**base polymer, color concs.**  
Epolene® C-13; Epolene® C-14; Epolene® C-17  
**base resin, food pkg. paper coatings**  
Tykote 1004  
**base resin, paper coatings**  
Tykote 1004  
**base resin, radiation-curing overprint varnishes: paper/board**  
Photomer® 3016  
**base, adhesive: bag seam**  
Vinac® 285  
**base, adhesive: bookbinding**  
Airflex® 465  
**base, adhesive: bottle labels**  
Daratak® RP2000  
**base, adhesive: coated paper**  
Airflex® 300; Airflex® 7200; Elvace® 733; Elvace® 40713-00; Plyamul® 40305-00  
**base, adhesive: coated paperboard**  
Daratak® RP2000  
**base, adhesive: corrugated board**  
Elvace® 731; Elvace® 733; Elvace® 734; Elvace® 735; Elvace® 736; Elvace® 739; Elvace® 40713-00; Elvace® 40724-00; Elvace® 97955-00; Pace® 381; Pace® 382; Pace® 383; Plyamul® 40305-00; Plyamul® 40315-00; Plyamul® 40351-00; Plyamul® 40354-00; Plyamul® 40359-00  
**base, adhesive: decorative paper-to-particle board lamination**  
Elvace® 734

**base, adhesive: film overlay lamination**  
Airflex® 465  
**base, adhesive: fire retardant: coated paper substrates**  
Airflex® 430  
**base, adhesive: fire retardant: kraft paper substrates**  
Airflex® 430  
**base, adhesive: high-speed pkg.**  
Airflex® 465  
**base, adhesive: kraft paper**  
Airflex® 7200; Vinac® 1000  
**base, adhesive: kraft/coated paper**  
Airflex® 440; Airflex® 440H  
**base, adhesive: paper**  
Airflex® 465; Plyamul® 40656-00; Vinac® 285  
**base, adhesive: paper-to-foil laminations**  
Daratak® RP2000  
**base, adhesive: paper-to-paper laminations**  
Daratak® RP2000  
**base, adhesive: pkg.**  
Plyamul® 40656-00  
**base, adhesive: uncoated paper**  
Elvace® 731; Elvace® 733; Elvace® 734; Elvace® 735; Elvace® 736; Elvace® 739; Elvace® 40713-00; Elvace® 40724-00; Elvace® 97955-00; Pace® 381; Pace® 382; Pace® 383; Plyamul® 40305-00; Plyamul® 40315-00; Plyamul® 40351-00; Plyamul® 40354-00; Plyamul® 40359-00; Synthemul® 40430-20; Synthemul® 97982-00  
**base, cleaners**  
Nonoxynol-7 phosphate  
**base, coated paper surfaces**  
Airflex® 320  
**base, coatings**  
Mhoromer® AM 103H; Mhoromer® AM 105H  
**base, color laking**  
Kaolin  
**base, detergent: paper**  
Norfox® DCS  
**base, emulsifiers**  
Trideceth-2  
**base, flame retardants**  
Nonoxynol-7 phosphate  
**base, flotation aids**  
Nonoxynol-7 phosphate  
**base, lubricant: paper**  
Pluronic® P-2000  
**base, methacrylates**  
Mhoromer® AM 199  
**base, methacrylic esters**  
Mhoromer® MMA  
**base, paper**  
Carbowax® PEG 300; Mhoromer® AM 101; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000  
**base, pigment: paper**  
T-2005A; T-9087A  
**base, rust inhibitors**  
Ditridecyl sodium sulfosuccinate  
**base, uncoated paper**  
Plyamul® 97825-00  
**base, wetting agents**  
Capric acid  
**basic material, paper**  
Oxetal 800/85  
**batch washing, off-machine**  
FeltECCel™ 905  
**batts, bonded**  
Neoprene Latex 654; Neoprene Latex 735A  
**beater addition, paper**  
Rohamere® 977  
**beeswax substitute**  
Glyceryl hydroxystearate  
**BHT substitute, polyolefins**  
Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate  
**binder**

Acrylic acid/acrylamide copolymer; Acrylic/styrene; Albumen; Butadiene/acrylonitrile copolymer; Calcium lignosulfonate; Calcium stearate; Carboset® 514A; Carboset® 514H; Carboset® 515; Carboset® 525; Carboset® 531; Cetareath-11; C16-18 parath-25; C16-18 parath-50; Ethylene/MA copolymer; Hydroxypropylcellulose; Hydroxypropyl guar; Hydroxypropyl methacrylate; Isopropyl myristate; Isopropyl palmitate; Isopropyl stearate; Isostearic acid; Mineral oil; Montan acid wax; Montan wax; PEG-90M; PEG-115M; Pluronic® P-2000; Polyethylene glycol; Polyox® WSR 301; Polyox® WSR 3333; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; Rosin, polymerized; Sodium hexametaphosphate; Sodium oleate; Tylose® C-G1; Witcobond® W-213  
**binder, anionic: fines-to-paper fibers, before sheet formation**  
Hydraid® 7607  
**binder, aq. systems**  
PEG hydrogenated castor oil  
**binder, barrier applics.**  
Gum ghatti  
**binder, base coat: bleached board**  
Synthemul® 447; Synthemul® 883  
**binder, base coat: free-sheet paper coatings**  
Synthemul® 447; Synthemul® 883  
**binder, base coat: unbleached board**  
Synthemul® 447; Synthemul® 883  
**binder, bleached board coatings**  
Resyn® 25-1103; Resyn® 25-1120  
**binder, board coatings**  
Acronal®; Prox® ASN 165 R; Resyn® 25-1190; Styronal™ NX 4489 X; Styronal™ NX 4515 X; Styronal™ NX 4626; Styronal™ NX 4680; Sunbond® 925  
**binder, bookbinding fabrics**  
Rohatol® D 471  
**binder, boxboard coatings**  
Resyn® 25-1114  
**binder, cardboard**  
Rhodoviol® 4/125  
**binder, cast paper coatings**  
Tylac® 692  
**binder, catalyst**  
Snowtex S; Snowtex ST-O; Snowtex ST-O-30; Snowtex ST-O-40; Snowtex ST-OL-40; Snowtex ST-OS; Snowtex XS  
**binder, cellulosics**  
Fyrol® 51  
**binder, clear formulations: conventional size presses**  
Pensize® Binder  
**binder, clear formulations: metering size presses**  
Pensize® Binder  
**binder, coated natural grades**  
Tylac® 037  
**binder, coated paper**  
Hitex-S107; Hitex-S108; Hitex-S301  
**binder, coated paperboard**  
GenFlo® 557; GenFlo® 559; GenFlo® 576  
**binder, coated recycled grades**  
Tylac® 037  
**binder, coated rotogravure paper**  
Styronal™ BN 4204; Tylac® 979-RG  
**binder, coating: bleached kraft applics.**  
Resyn® 25-1114  
**binder, coating: board coatings**  
Resyn® 25-1152  
**binder, coating: coated linerboard**  
Vinac® 828M  
**binder, coating: double blade coated SBS paperboard**  
Vinac® 828M  
**binder, coating: high-solids blade coatings**  
Vinac® 828M  
**binder, coating: offset coatings**



- Resyn® 25-1151
- binder, coating: paper**  
Airflex® 100 HS; Airflex® 456; Airflex® 4514; Airflex® 4530; Vinac® 828M; Vinac® 884
- binder, coating: paperboard**  
Airflex® 100 HS; Airflex® 456; Airflex® 4514; Airflex® 4530; Vinac® 828M; Vinac® 884
- binder, coating: pigmented size press sol'ns.**  
Resyn® 25-1140
- binder, coating: rotogravure coatings**  
Resyn® 25-1140; Resyn® 25-1151
- binder, coating: saturant, paper**  
Airflex® 4500
- binder, coating: size press, paper**  
Airflex® 4500
- binder, coating: size presses**  
Airflex® 100 HS; Resyn® 25-1114; Vinac® 828M; Vinac® 884
- binder, coating: unpigmented size press sol'ns.**  
Resyn® 25-1140
- binder, coatings**  
*Dimethylaminoethyl methacrylate; Gum ghatti; Polyacrylamide; Styrene/butadiene polymer; Tylose® CBR Grades; Tylose® CR; Urea/formaldehyde resin*
- binder, crosslinkable/flexible: paper**  
*Ethylene/vinyl chloride copolymer*
- binder, crosslinkable/flexible: paperboard**  
*Ethylene/vinyl chloride copolymer*
- binder, dissolved org. substances-to-paper fiber**  
Polymin® SKA
- binder, emulsion polymerization**  
Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; *PEG-8 cocoate; PEG-12 ditallowate; PEG hydrogenated castor oil; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate*
- binder, emulsions**  
*PEG-8 cocoate; PEG-12 ditallowate; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate*
- binder, fiber**  
Baypren Latex 4 R; Baypren Latex B; Baypren Latex GK; Baypren Latex MKB; Baypren Latex SK; Baypren Latex T; Microthene® FA 700-00; Microthene® FA 709-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Microthene® MN 701-00; Microthene® MN 710-20
- binder, fiber webs**  
*Melamine-formaldehyde resin*
- binder, fillers: paper stock**  
Polymin® PR 971 L
- binder, fillers-to-paper fiber**  
Polymin® SKA
- binder, film-forming: coatings**  
Elvanol® 71-30
- binder, film-forming: paper**  
Elvanol® 71-30
- binder, film-forming: paperboard**  
Elvanol® 71-30
- binder, film-forming: sizing**  
Elvanol® 71-30
- binder, filters**  
Airflex® 4530
- binder, fines: on fiber**  
Polymin® SNA
- binder, fines: paper stock**  
Polymin® PR 971 L
- binder, fines-to-paper fiber**  
Polymin® SKA
- binder, flexible: paper**  
Ecco Rez U-21
- binder, food pkg. paper coatings**  
Acronal® S 504
- binder, food pkg. paperboard coatings**  
Acronal® S 504
- binder, food wrap**  
Rohatol® M 630
- binder, free-sheet applics.**  
Tylac® 757
- binder, free-sheet processes**  
Tylac® 979-RG
- binder, fugitive: coatings**  
Amoco® H-15; Amoco® L-14; Amoco® L-50; *Hydrogenated polybutene; Polybutene*
- binder, gloss: paper/board coatings**  
Styrofan®
- binder, glossy coatings**  
Tylac® 757
- binder, hot-water-soluble films**  
Elvanol® 90-50
- binder, impregnations**  
Rohamere® 21
- binder, industrial/barrier coatings**  
*Vinyl chloride/ethylene copolymer*
- binder, ink jet printing paper**  
PenExcel™ Sizing Agent
- binder, inorg. films**  
Snowtex S; Snowtex ST-O; Snowtex ST-O-30; Snowtex ST-O-40; Snowtex ST-OL-40; Snowtex ST-OS; Snowtex XS
- binder, label paper coatings**  
Acronal® NX 4786
- binder, lacquers**  
*Sandarac (Callitris quadrivalvis) gum*
- binder, lightfast paper varnishes**  
Phthalopal®
- binder, lightweight sheet-offset printing coated paper**  
Hitex-S103
- binder, LWC applics.**  
Tylac® 757
- binder, LWC paper formulations**  
SNAP 2054
- binder, LWC processes**  
Tylac® 979-RG
- binder, matte coatings**  
Tylac® 757
- binder, mica paper**  
Ricon 100; Ricon 150
- binder, mottle-resist. paper coatings**  
Rhoplex® P-308; Rhoplex® P-322
- binder, multipurpose paper coatings**  
Tylac® 757
- binder, needle felt reinforcement**  
Bayer SBR Latex 310 C
- binder, nonwoven**  
*Ethyl acrylate; Ethylene/vinyl chloride copolymer; Foam Blast 102; Hycar® 1577; Hycar® 1578X1; Hycar® 26138; Hycar® 26322; Resimene® AQ-1616; Rovene® 4305*
- binder, nonwoven bonding**  
Rohatol® D 471; Rohatol® DV 544; Rohatol® M 630; Rohatol® M 712
- binder, nonwoven: cover stock**  
Airflex® 323
- binder, nonwoven: fiberfill**  
Airflex® 4500
- binder, nonwoven: high loft stock**  
Airflex® 4500
- binder, nonwoven: lightweight cover stock**  
Airflex® 105
- binder, nonwoven: towels**  
Airflex® 105; Airflex® 323
- binder, nonwoven: wipes**  
Airflex® 105; Airflex® 323
- binder, o/w emulsions**  
Granular Gum Ghatti #1; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Staform P
- binder, offset**  
Styronal™ ND 656
- binder, offset formulations**  
Tylac® 757
- binder, offset printing paper**  
GenCryl® 9705; GenCryl® 9715
- binder, org. substances: paper stock**  
Polymin® PR 971 L
- binder, paper**  
Airvol® 205; Airvol® 523; Airvol® 540; Aqualon® CMC-T; Bayer SBR Latex 310 C; Baypren Latex L 300; Bayprint™ Binder E-1030; Carbowax® PEG 300; Chemal BP 261; Chemal BP-262; Chemal BP-2101; Elvanol® 70-06; Elvanol® 90-50; Granular Gum Ghatti #1; 2-Hydroxyethyl acrylate; Hydroxypropyl acrylate; Karaya Gum #1 FCC; Methacrylic acid; Mhoromer® AM 199; Mhoromer® AM 414; Mhoromer® AM 438; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; *PEG-8 cocoate; PEG-12 ditallowate; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; PEG-12 ricinoleate; Petrolatum RPB; Pluronic® L10; Plectron® 430; Polyvinyl alcohol; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Powdered Gum Karaya Superfine #1 FCC; Powdered Gum Karaya Superfine XXXX FCC; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120; Rhodoviol® 4/125; Rhoplex® B-15J; Rhoplex® GL-618; Rhoplex® GL-623; Rhoplex® NW-1845K; Rhoplex® TR-520; Rice (Oryza sativa) starch; Ropaque® BC-643; Staform P; Styrene/butadiene polymer; Styrene/PVP copolymer; Tech Pet F™; TIC Prestested® Guar Gum TICOLV; Vinyl acrylic copolymer*
- binder, paper clear coatings**  
Acronal® NX 4786
- binder, paper coating colors**  
Acrosol™ B 37 D
- binder, paper coatings**  
Acronal®; Acronal® S 504; Acronal® S 728; *Ammonium caseinate; Butofan®; Butyl acrylate/acrylonitrile/styrene copolymer; Carboxylated styrene butadiene; Carboxymethylcellulose sodium; Casein; Elvanol® 70-06; Elvanol® 85-30; Elvanol® 85-82; Elvanol® 90-50; ICB® 3000, 3100, 3200; ICB® 3000D; Koldex® 50, 60; PenCP® Binder; Polycyco® 3250; Polyco® 6108NP; Prox® ASN 165 R; Resyn® 25-1190; Rhoplex® B-60A; Rhoplex® B-85; Rhoplex® B-88; Rhoplex® B-959; Rhoplex® E-1691; Rhoplex® P-376; Rohatol® D 471; Rohatol® D 541; Rohatol® DV 440; Rohatol® DV 544; Rohatol® M 600; Rohatol® M 630; Rubber, chlorinated; Sodium caseinate; Soybean (Glycine soja) meal; Sta-Jel® 141; Sta-Jel® 142; Staramic® 105; Staramic® 747; Star\*pol® 136; Star\*pol® 410; Star\*pol® 468, 469, 600; Star\*pol® 700, 800; Styrene/butadiene/acrylic copolymer; Styronal™ BN 4606X; Styronal™ ND 430; Styronal™ ND 656; Styronal™ NX 4489 X; Styronal™ NX 4515 X; Styronal™ NX 4626; Styronal™ NX 4680; Sunbond® 925; Synthemul® 40503-00; Synthemul® 40550-00; Synthemul® 40551-03; Synthemul® 40552-00; Synthemul® 97883-01; Tylac® 97936-00; Vinyl acetate; Vinyl acetate/ethylene/vinyl chloride terpolymer*
- binder, paper coatings/sizing**  
*Alginate acid*
- binder, paper finishing**  
Degalan® LP 70/01; Rohatol® BV 411; Rohatol®

## binder, paper industry

BV 596; Rohatol® D 362; Rohatol® DV 242; Rohatol® DV 477; Rohatol® DV 571

**binder, paper industry**  
*PEG hydrogenated castor oil*

**binder, paper laminates**  
*Bisphenol A diglycidyl ether*

**binder, paper saturation**  
Rovene® 4305

**binder, paper sizing**  
Elvanol® 70-06; Elvanol® 90-50; Natrosol® 250; *Polybutadiene*; Ticaxan® Regular; *Vinyl acetate/butyl acrylate copolymer*; *Vinyl chloride/ethylene copolymer*

**binder, paper stock fillers**  
Catiofast® GM; Catiofast® PL; Polymin® PL

**binder, paper stock fines**  
Catiofast® GM; Catiofast® PL; Polymin® PL

**binder, paper stock slimy colloids**  
Catiofast® GM; Catiofast® PL; Polymin® PL

**binder, paper surface treatments**  
Aluminasol 100; Aluminasol 200

**binder, paper treatment**  
Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex N; Snowtex O; Snowtex OL; Snowtex ST-UP; Snowtex ST-ZL

**binder, paper varnishes**  
Dammar

**binder, paperboard**  
Elvanol® 70-06; Elvanol® 90-50; Sequabond® 7880; Sequabond® TR 7830; Slixso® RR; *Styrene/butadiene polymer*; Synthemul® 550; Synthemul® 551; Synthemul® 552

**binder, paperboard coatings**  
Acronal® S 504; Acronal® S 728; *Butyl acrylate/acrylonitrile/styrene copolymer*; Elvanol® 90-50; Polyco® 3250; Polyco® 6108NP; Rhoplex® B-60A; Rhoplex® B-85; Rhoplex® B-88; Rhoplex® B-959; Rhoplex® E-1691; Rhoplex® P-308; Rhoplex® P-322; Rhoplex® P-376; *Styrene/butadiene/acrylic copolymer*; Styronal™ ND 656; Sunbond® 936; Synthemul® 97883-01; Tylac® 037

**binder, paperboard sizing**  
Elvanol® 90-50

**binder, paper-foil lacquers**  
*Epoxy acrylate*; *Polyester acrylate resin*; *Urethane-acrylate resin*

**binder, papermaking**  
Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; *Karaya (Sterculia urens) gum*; *Meroxapol 105*; *Meroxapol 108*; *Meroxapol 171*; *Meroxapol 172*; *Meroxapol 174*; *Meroxapol 178*; *Meroxapol 251*; *Meroxapol 252*; *Meroxapol 254*; *Meroxapol 255*; *Meroxapol 258*; *Meroxapol 311*; *Meroxapol 312*; *Meroxapol 314*; *PEG-5M*; *PEG-2 stearate*; Polyox® WSR 205; Polyox® WSR 303; Polyox® WSR N-750; Rohamere® 21; Rohamere® 61; Rohamere® 132; Rohamere® 568; Rohamere® 587; Rohamere® 626; Rohamere® 977; Rohamere® 1410; Rohamere® 1900-D; Rohamere® 1960-D; Rohamere® 3045; Rohamere® 8437; Rohamere® 8464; Rohamere® 8478; Rohamere® 8596; Rohamere® 8662; Rohamere® 9158; Rohamere® 84116; Rohamere® 84124; Rohamere® 87219; Rohamere® FF-6; Rohamere® FF-20; Rohamere® FF-40; Rohatol® BV 411; Rohatol® BV 596; Rohatol® D 471; Rohatol® D 541; Rohatol® DV 242; Rohatol® DV 440; Rohatol® DV 477; Rohatol® DV 544; Rohatol® DV 571; Rohatol® M 600; Rohatol® M 630; Rohatol® M 712

**binder, pigment printing**  
Ecco Rez U-8

**binder, pigmented formulations: conventional size presses**  
Pensize® Binder

**binder, pigmented formulations: metering size presses**  
Pensize® Binder

**binder, pigmented paper coatings**  
Berbond® 8980; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22

**binder, pigments**  
Elvanol® 70-06; Elvanol® 71-30; Elvanol® 90-50; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; *Vinylidene chloride copolymer*

**binder, pigments: on fiber**  
Polymin® SNA

**binder, pkg.**  
Petrolatum RPB; Tech Pet F™

**binder, polymerization**  
*Polyvinyl alcohol (partially hydrolyzed)*

**binder, printing paper**  
*Carboxylated styrene-butadiene-acrylonitrile*

**binder, publication paper**  
GenFlo® 557; GenFlo® 576

**binder, pulp/paper**  
Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Pluronic® 10R5; Repolem®

**binder, roto applics.**  
SNAP 2042; SNAP 2054; Tylac® 757

**binder, rotogravure printing paper**  
GenCryl® 9705; GenCryl® 9715

**binder, sheet paper**  
GenFlo® 576

**binder, sheeted offset paper**  
SNAP 2042; SNAP 2048

**binder, size press board**  
PenFilm™ Binder

**binder, size press paper**  
PenFilm™ Binder

**binder, size press stability: offset applics.**  
Styronal™ NX 4680

**binder, size presses**  
Pen-cote® Starch; Styronal™ ND 430

**binder, slimy colloids: fiber**  
Polymin® SNA

**binder, slimy colloids: paper fiber**  
Polymin® SKA

**binder, slimy colloids: paper stock**  
Polymin® PR 971 L

**binder, solid bleached sulfate**  
Tylac® 037

**binder, solvent emulsions**  
*PEG hydrogenated castor oil*

**binder, specialty paper**  
Mewlon; Rhoplex® NW-1715K

**binder, specialty paper coatings**  
Pen-cote® Starch

**binder, surface coatings**  
*Epoxy, bisphenol A*; *Poly (vinyl propionate)*

**binder, synthetically bound paper coatings**  
SNAP 2042; SNAP 2048

**binder, temporary**  
Elvacite® 2008, 2009, 2010, 2021, 2041, 6010; Elvacite® 2013, 2014, 2016, 2028, 2614, 2550, 2552, 6016; Elvacite® 2042, 2043; Elvacite® 2044, 2045, 2046

**binder, thermoset paper**  
Fyrol® 51

**binder, wall-tile mastics**  
*PEG hydrogenated castor oil*

**binder, waste treatment**  
N® Sodium Silicate

**binder, wastewater treatment**  
*PEG-5M*; *PEG-9M*; *PEG-23M*; *PEG-45M*

**binder, water treatment**  
Pluronic® 10R5; *Polyacrylamide*

**binder, web grades: glossy finishes**  
Tylac® 820; Tylac® 936

**binder, web grades: matte finishes**

Tylac® 820; Tylac® 936

**binder, web grades: offset formulations**  
Tylac® 820; Tylac® 936

**binder, web grades: offset printing**  
Tylac® 820; Tylac® 936

**binder, web grades: roto formulations**  
Tylac® 820; Tylac® 936

**binder, web offset applics.**  
SNAP 2054

**binder, web offset coatings**  
Resyn® 25-1114

**binder, web offset paper**  
GenFlo® 576; SNAP 2042; SNAP 2048

**binder, web offset printing coated paper**  
Hitex-S103

**binder, wet pick stability: offset applics.**  
Styronal™ NX 4680

**binder, zinc-rich coatings**  
*Styrene/butadiene polymer*

**binding pigments**  
Hycar® 1552; Hycar® 1562; Hycar® 1572; Hycar® 1572X64

**biocide**  
Acticide® DW; Acticide® SPX; *1,2-Benzisothiazolin-3-one*; *Chlorine dioxide*; *p-Chloro-m-cresol*; *Coco-betaine*; *Dialkyl methyl benzyl ammonium chloride*; *1,2-Ethanedithiolbis (oxy) bismethanol*; *Glyoxal*; *Hexahydro-1,3,5-triethyl-s-triazine*; *Myristalkonium chloride*; Nipacide® BKX; Nipacide® FC; Nipacide® XRP; Paxgard BK 20; Paxgard BKC; Protectol® TOE Granules; Sodium MBT; TEBAC; *Tetrakis (hydroxymethyl) phosphonium sulfate*

**biocide precursor, cooling water treatment**  
*Sodium bromide*

**biocide, air washers**  
Formula 37

**biocide, alkaline pulps**  
Taurine-913

**biocide, aq. prods.**  
Tolcide® MW10

**biocide, aq. systems**  
Protectol® GDA; Protectol® TOE; Troysan® 586

**biocide, cartons**  
Protectol® BCM; Protectol® BCM-FL

**biocide, coatings**  
*Dimethyl oxazolidine*

**biocide, cooling tower systems**  
Dantobrom® RW Briquette

**biocide, cooling towers**  
Biobrom C-103L; Biobrom C-103 Tech.; Formula 37; Formula 315; *Methylchloroisothiazolinone*; *Myristalkonium chloride*

**biocide, cooling water systems**  
*Methylenebis (thiocyanate)*; Qemicide MBT-10; Sanibrom™ 40; Sanibrom™ 45; Spectrus™; Tolcide® PS 200; *Tributyltin oxide*

**biocide, evaporate condensers**  
*Methylenebis (thiocyanate)*

**biocide, evaporative condensers**  
Aquatreat® KM; Aquatreat® SDM; Dantobrom® RW Briquette; Formula 37; Formula 315

**biocide, fillers**  
Taurine-KWT

**biocide, food processing flumes**  
Drewchlor®

**biocide, gums**  
*Sodium o-phenylphenate*

**biocide, industrial formulations**  
Polyquat 2 C

**biocide, industrial recirculating water cooling towers**  
Aquatreat® KM; Aquatreat® SDM

**biocide, industrial water systems**  
*Ammonium bromide*; *2-Bromo-2-nitropropane-1,3-diol*; Formula 37; Formula 315; Paxgard MB 10; Paxgard MBT

**biocide, industrial water treatment**  
Tolcide® PS

**biocide, industrial wet scrubber systems**

Dantobrom® RW Briquette  
**biocide, industrial: aq. prods.**  
 Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® CI; Nipacide® CI 15  
**biocide, influent systems**  
 Dantobrom® RW Briquette  
**biocide, latexes**  
*Sodium o-phenylphenate*  
**biocide, mill water treatment**  
 Taurine-913  
**biocide, mineral slurries**  
 AMA®  
**biocide, once-thru cooling water systems**  
 Stabrom® 909  
**biocide, paper**  
 Alkaquat® DMB-451-50, DMB-451-80; Aquatreat® DNM-9; *o-Phenylphenol*; *Potassium dimethyldithiocarbamate*; *Potassium N-methyldithiocarbamate*; Protectol® BCM; Protectol® BCM-FL; Qemicide MBT-10; *Sodium o-phenylphenate*; Tolcide® MBT; Tolcide® PS; Tolcide® PS25; Tolcide® PS 75; Tolcide® PS75M; Tolcide® PS 200; Tolcide® PS 352C; Tolcide® PS352CM; Tolcide® PS 355A; *Tributyltin oxide*  
**biocide, paper coatings**  
*Hydroxyethyl-s-triazine*; Troysan® Polyphase® P-100  
**biocide, paper mill wastewater treatment**  
*1,4-Bis (bromoacetoxy)-2-butene*  
**biocide, paper mills**  
 Acticide® WT; *Ammonium bromide*; Aquatreat® KM; Aquatreat® SDM; Formula 37; Formula 315; Metasol® 300; Paxgard WT; Qemibrom L-27; Qemibrom L-56  
**biocide, paper sizing**  
*Sodium dimethyldithiocarbamate*; *Zinc dimethyldithiocarbamate*  
**biocide, paper stocks**  
 Taurine-KWT; Taurine-MBT  
**biocide, paperboard mills**  
 Qemibrom L-27; Qemibrom L-56  
**biocide, papermaking**  
 DS-S1; *Nabam*; *Peracetic acid*  
**biocide, papermaking water system treatment**  
 Dilurit 189 E  
**biocide, polymer emulsions**  
*Methylchloroisothiazolinone*  
**biocide, preservatives**  
*Carbendazim*  
**biocide, pulp mills**  
 Qemibrom L-27; Qemibrom L-56  
**biocide, pulp/paper**  
 Acticide® DW; Acticide® HF; Acticide® SPX; Acticide® WTC; AMA®; *2-Bromo-2-nitropropane-1,3-diol*; Dantobrom® RW Briquette; *Diazolidinyl urea*; *Dodecylguanidine hydrochloride*; *Methylenebis (thiocyanate)*; Microtrol 210; Microtrol 215; Microtrol 230; Paxgard BSL; Paxgard BU 30; Paxgard BU 30 L; Paxgard BU 60; Paxgard DB 10; Paxgard DB 20; Paxgard DB 99; Paxgard EM; Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Paxgard MB 10; Paxgard MBT; Paxgard PDC; Paxgard SD; Paxgard ST; Paxgard TC; Pericide® EF; Polyquat 188; *Sodium bromide*; *Sodium pentachlorophenate*  
**biocide, pulp/paper mill effluents**  
 Biobrom C-103L; Biobrom C-103 Tech.  
**biocide, pulp/paper mills**  
 Sanibrom™ 40; Sanibrom™ 45; Stabrom® 909  
**biocide, pulp/paper processing equip.**  
 Metasol® T-10WB  
**biocide, recirculating cooling water systems**  
 Stabrom® 909  
**biocide, recirculating water systems**  
 Dantobrom® RW Briquette; *Dimethyl oxazolidine*  
**biocide, recycled waters**  
 Drewchlor®

**biocide, recycled white water treatment: papermaking**  
 Taurine-QFD  
**biocide, slime growth control: aq. industrial papermaking systems**  
 Metasol® 350  
**biocide, slime growth control: mineral slurries**  
 Metasol® 350  
**biocide, soap wrappers**  
 Protectol® BCM; Protectol® BCM-FL  
**biocide, spray ponds**  
 Formula 37; Formula 315  
**biocide, starch slurries**  
 AMA®  
**biocide, wastewater**  
 Stabrom® 909  
**biocide, wastewater systems**  
 Sanibrom™ 40; Sanibrom™ 45  
**biocide, water cooling towers**  
*Glutaral*  
**biocide, water systems**  
 Biobrom C-103L; Biobrom C-103 Tech.  
**biocide, water treatment**  
 Acticide® WT; Aquatreat® DNM-9; Aquatreat® KM; Aquatreat® SDM; *1-Bromo-3-chloro-5,5-dimethyl hydantoin*; *Dodecylguanidine hydrochloride*; *Hydroxyethyl-s-triazine*; *Methylenebis (thiocyanate)*; *2-n-Octyl-4-isothiazolin-3-one*; Paxgard WT; *Potassium dimethyldithiocarbamate*; *Sodium dimethyldithiocarbamate*; Tolcide® MBT; Tolcide® PS 352C; Tolcide® PS 355A; *Zinc dimethyldithiocarbamate*  
**biocide, waxes**  
*Diazolidinyl urea*; *Sodium 2-mercaptobenzothiazole*  
**biocide, wet-end paper**  
 Aquaprox® TM  
**biocide, wet-state preservation: aq. prods.**  
 Acticide® HF  
**biocide, wet-state preservation: aq. systems**  
 Paxgard BD 20; Paxgard BD 88  
**biocide, wet-state protection: aq. formulations**  
 Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Paxgard ST  
**biodispersant, cooling towers**  
 Triton® X-114  
**biodispersant, papermaking**  
*Octoxynol-8*  
**biological degrader, cellulose**  
 Micro Pro™ DP  
**biological degrader, cooking liquor constituents**  
 Micro Pro™ DP  
**biological degrader, heavy starch: pulp/paper**  
 Micro Pro™ DP  
**biological degrader, paper fiber**  
 Micro Pro™ DP  
**biological degrader, tall oils**  
 Micro Pro™ DP  
**biostabilizer, paper**  
*Copper 8-quinolinolate*  
**blade coating formation**  
 Rovene® 4100  
**bleaches**  
*Sodium borate*; *Sodium borate decahydrate*  
**bleaching agent**  
*Ammonium persulfate*; *Benzoyl peroxide*; *Calcium hypochlorite*; *Chlorine dioxide*; *4,4'-Diaminostilbene-2,2'-disulfonic acid*; *1,3-Dichloro-5,5-dimethyl hydantoin*; *Hydroquinone*; *Magnesium sulfate heptahydrate*; *Potassium ferricyanide*; *Potassium persulfate*; *Sodium metasilicate*; *Sodium persulfate*; *Sulfur dioxide*  
**bleaching agent, cellulose fiber**  
*Sodium sulfite*  
**bleaching agent, chrome dyeing**  
*Sodium thiosulfate anhydrous*  
**bleaching agent, clay**

Hydrolin  
**bleaching agent, fiber**  
 Adeka Hypote; *Bromine*  
**bleaching agent, groundwood**  
 Hydrolin  
**bleaching agent, industrial wastewater**  
*Hydrogen peroxide*  
**bleaching agent, oils**  
*Ozone*; *Peracetic acid*; *Sulfur dioxide*  
**bleaching agent, optical: paper coatings**  
*7-Diethylamino-4-methylcoumarin*  
**bleaching agent, paper**  
*Calcium hypochlorite*; *Peracetic acid*; *Sodium hydrosulfite*; *Sodium peroxide*  
**bleaching agent, pulp/paper**  
 Adeka Hypote; Albone® 35; Albone® 50; Albone® 70; Albone® 70 DG; Blankit®; *Sodium chlorite*; *Sodium hypochlorite*; *Sodium metabisulfite*; *Sulfamic acid*; *Sulfur dioxide*  
**bleaching agent, recycled pulp/paper**  
 Dequest® 2066  
**bleaching agent, starch**  
*Peracetic acid*; *Sulfur dioxide*  
**bleaching agent, thermomech. pulp**  
 Hydrolin  
**bleaching agent, waxes**  
*Ozone*; *Peracetic acid*  
**bleaching agent, wet paper**  
*Ozone*  
**bleaching agent, wood pulp**  
*Chlorine dioxide*; *Hydrogen peroxide*; *Sodium borohydride*; *Sulfur*  
**bleaching assistant**  
 Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K  
**bleaching assistant, dyeing**  
 Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K  
**bleaching enhancer, paper stock deinking**  
 D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; N® Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR  
**bleaching paper**  
*Sodium hydroxide*  
**bleaching peroxide**  
 Crystal™ 78; Crystal™ 82; Eldorado Peroxide Stabilizer; N® Clear Sodium Silicate; Star® Sodium Silicate  
**bleaching pulp**  
*Sodium hydroxide*  
**bleaching pulp/paper**  
*Sodium silicate*  
**bleaching reagent**  
*Sodium bisulfide*  
**bleaching systems, alkaline peroxide**  
*Cetyl betaine*  
**bleedfastness improver**  
 Hercules® 2043  
**bleedfastness improver, substantive dyes**  
 Catiofast® NB-DF  
**blending agent, waxes**  
 Elvax® 310; Elvax® 350; Elvax® 360  
**blocking agent**  
*Diphenyldimethoxysilane*; *Phenyltrimethoxysilane*  
**blocking agent, isocyanate**  
 Phenol  
**blood resistance aid, butcher paper**  
 Paracol® 404G  
**blood resistance aid, meat trays**  
 Paracol® 404G  
**blood resistance aid, picnic plates**  
 Paracol® 404G  
**blow molding, blister packs**  
*Styrene/butadiene polymer*  
**blown film, coextrusions**  
 Alathon® L 5845; Alathon® L 5845-1  
**blown film, food pkg.**  
 Alathon® L 5845; Alathon® L 5845-1  
**blown film, laminations**

- Alathon® L 5845; Alathon® L 5845-1
- blown film, paper replacement**  
Alathon® L 5845; Alathon® L 5845-1
- blue pigments**  
*Sodium ferrocyanide*
- blueprint paper**  
*Ferric citrate; Potassium ferricyanide; Sodium ferrocyanide; Sodium stannate*
- bodying agent, paper**  
*Sorbitol*
- boilout additive, paper machines**  
Vinspel®
- boilout additive, pulp mills**  
Vinspel®
- boilout cleaner, coating kitchen: papermaking**  
Alkasolv™ BQ
- boilout cleaner, dandy rolls**  
Eldorado FCD-5050
- boilout cleaner, dryer felts**  
Eldorado FCD-5050
- boilout cleaner, paper machine systems**  
Eldorado FCD-5050
- boilout cleaner, paper: food-contact**  
Eldorado FCD-5050
- boilout cleaner, suction rolls**  
Eldorado FCD-5050
- boilout cleaner, wet felts**  
Eldorado FCD-5050
- bonding agent**  
*Polyurethane, thermoplastic; Polyvinyl chloride*
- bonding agent, dirty systems**  
Topcat™ Cationic Additive
- bonding agent, fiber-to-fiber**  
Jaguar® 8707
- bonding agent, film-tearing**  
Elvax® 310; Elvax® 350; Elvax® 360
- bonding agent, groundwood-containing systems**  
Topcat™ Cationic Additive
- bonding agent, paper**  
Desmocoll® 526
- bonding agent, paper substrates**  
Elvax® 310; Elvax® 350; Elvax® 360
- bonding agent, polymers/blends for paper coatings**  
*Ethylene/MA copolymer*
- bonding agent, substrates for paper coatings**  
*Ethylene/MA copolymer*
- bonding agent, unbleached systems**  
Topcat™ Cationic Additive
- bonding agent, wet-end: board**  
Liquistrength™ Bonding Agent
- bonding agent, wet-end: food pkg.**  
Liquistrength™ Bonding Agent
- bonding agent, wet-end: paper**  
Liquistrength™ Bonding Agent
- bookbinding**  
Airflex® 426; Airvol® 203; Airvol® 205; Airvol® 425; Airvol® 523; Airvol® 540; Sol-U-Tein EA; Uniplex 108
- boxboard coating modifier**  
Rovene® 4100
- brightener**  
*Aluminum hydroxide*
- brightener, base stock coatings**  
Albacar® PCC
- brightener, fluorescent: paper**  
7-Diethylamino-4-methylcoumarin
- brightener, fluorescent: pulp/paper**  
Samshin White AS; Samshin White HL; Samshin White PL; Samshin White PR
- brightener, groundwork**  
*Zinc hydrosulfite*
- brightener, kraft**  
*Zinc hydrosulfite*
- brightener, paper**  
Ropaque® BC-643; Ultrapaque® PCC
- brightener, paper coatings**  
Albaglos® PCC; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 11;
- Opacarb® PCC
- brightener, paper pulps**  
*Zinc hydrosulfite*
- brightener, paper/paperboard coatings**  
Ropaque® HP-1055; Ropaque® HP-543P
- brightener, paperboard**  
Ropaque® BC-643
- brightener, pulp**  
Busperse® 379; Hartaspense™ DI-4900 Series
- brightener, pulp bleaching**  
Eco-Brite™
- brightener, recycled grade: uncoated freesheet paper**  
Luminex™
- brightener, specialty printing grade: uncoated freesheet paper**  
Luminex™
- brightener, uncoated fine paper**  
Albacar® PCC
- brightener, wet-end: coated paper base sheets**  
Vantalc® 6H
- brightener, wet-end: papermaking**  
Vantalc® 6H
- brightener, wet-end: uncoated bond paper**  
Vantalc® 6H
- brightener, writing grade: uncoated freesheet paper**  
Luminex™
- buffer**  
*Adipic acid; Ethanolamine; Isopropanolamine; Magnesium carbonate hydroxide; Magnesium hydroxide; Magnesium oxide; Pentasodium triphosphate; Sodium metasilicate pentahydrate; Sodium phosphate dibasic anhydrous*
- buffer, paper machine felt cleaning**  
Eldorado ALK-6100; Eldorado ALK-6156
- buffer, paper machine steam cleaning**  
Eldorado ALK-6100; Eldorado ALK-6156
- buffer, paper reclamation**  
Drymet® 59; Drymet® Fines
- buffer, pH**  
*Sodium tetraborate pentahydrate*
- buffer, pulp bleaching**  
Drymet® 59; Drymet® Fines
- bulking agent, paper**  
Micro-Cel® T-26
- bulking agent, paperboard**  
Micro-Cel® T-26
- bulking agent, papermaking**  
Secoren™-VE
- bulking agent, slow draining stock**  
Cellite® 263; Cellite® 321; Cellite® 388
- butylated thermosetting resin, food pkg. coatings**  
GPRI™ 7597
- butylated thermosetting resin, food pkg. paper**  
GPRI™ 7597
- calendar operation improver, paper surfaces**  
Microcube™ N
- calendered films**  
*Polyvinyl chloride*
- calomel paper**  
*Dimercury dichloride*
- carnauba substitute**  
*Microcrystalline wax, oxidized*
- carrier**  
*Glyceryl cocoate; Hexyldecanol; Hydrogenated palm oil; Mineral oil; Polyethylene wax*
- carrier, catalyst**  
Adelite®; Aluminasol 100; Aluminasol 200; DiaFil® 110; DiaFil® 190; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Diatomaceous earth; Drakeol® 19; Drakeol® 35; Magnesium sulfate anhydrous; Methyl ethyl ketone; Montmorillonite; Silica, colloidal; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Sylysia 430; Sylysia 440; Sylysia 450; Sylysia 470; Triaryl phosphate
- carrier, dye**  
*Cyclohexanol; o-Phenylphenol; Stearamide DEA*
- carrier, fluorescent dyes**  
CAP-482-0.5
- carrier, fluorescent pigments**  
CAP-482-0.5
- carrier, fluorochems.**  
Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06
- carrier, inert: pulp**  
Micro-Cel® T-49
- carrier, metallic dyes**  
CAP-482-0.5
- carrier, metallic pigments**  
CAP-482-0.5
- carrier, optical brighteners**  
Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06; Elvanol® 71-30; Elvanol® 90-50
- carrier, optical brighteners: paper**  
Airvol® 203S
- carrier, paper**  
Airvol® 205; Airvol® 523; Airvol® 540; Petrolatum RPB; Tech Pet F™
- carrier, paper coatings**  
Jarcol™ I-20
- carrier, papermaking**  
Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP
- carrier, pigment concentrates**  
Hoechst Wax PE 890
- carrier, pigments: carbon paper**  
Penreco Amber
- carrier, pkg.**  
Petrolatum RPB; Tech Pet F™
- carrier, polymerization**  
*Polyvinyl alcohol (partially hydrolyzed)*
- carrier/delivery system, pigments**  
Microthene® FA 700-00; Microthene® FA 709-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Microthene® MN 701-00; Microthene® MN 710-20
- carton sealing applics.**  
Airvol® 203; Airvol® 205; Airvol® 425; Airvol® 523; Airvol® 540
- cartons, hot-filled**  
Nucrel® 0910HS
- cartons, liq.: aseptic**  
Nucrel® 0609HS
- cartons, liq.: hot-filled**  
Nucrel® 0609HS
- casein-based systems**  
*p-Chloro-m-cresol*
- catalyst**  
*Ammonium polyphosphate; Ammonium zirconyl carbonate; Antimony trioxide; Benzyltriethyl ammonium chloride; Cobalt acetate (ous); Copper hydroxide (ic); Cyclohexyl methacrylate; 1,3-Dichloro-5,5-dimethyl hydantoin; 2-Ethylhexyl phosphate; Ferric oxide; Iron oxide black; Polyamidoamine; Potassium silicate; Sodium borohydride; Sulfur dioxide; Zinc 2-ethylhexanoate*
- catalyst base**  
*Silica, amorphous hydrated*
- catalyst deactivator, polyolefin: food pkg.**  
Triisopropanolamine
- catalyst raw material**  
*Polyaluminum chloride; Sodium aluminate; Zirconium oxide*
- catalyst, acetylation**  
*p-Toluene sulfonic acid*
- catalyst, acid: resin curing**  
Albrite® PA-75
- catalyst, acid-catalyzed reactions**  
*Dodecylbenzenesulfonic acid; POLYSTEP® A-13; SULFONIC 100*
- catalyst, alkaline pulp: kraft pulp delignification**

blown film, paper replacement

Alathon® L 5845; Alathon® L 5845-1  
**blown film, paper replacement**  
 Alathon® L 5845; Alathon® L 5845-1  
**blue pigments**  
*Sodium ferrocyanide*  
**blueprint paper**  
*Ferric citrate; Potassium ferricyanide; Sodium ferrocyanide; Sodium stannate*  
**bodying agent, paper**  
*Sorbitol*  
**boilout additive, paper machines**  
 Vinspel®  
**boilout additive, pulp mills**  
 Vinspel®  
**boilout cleaner, coating kitchen: papermaking**  
 Alkasolv™ BQ  
**boilout cleaner, dandy rolls**  
 Eldorado FCD-5050  
**boilout cleaner, dryer felts**  
 Eldorado FCD-5050  
**boilout cleaner, paper machine systems**  
 Eldorado FCD-5050  
**boilout cleaner, paper: food-contact**  
 Eldorado FCD-5050  
**boilout cleaner, suction rolls**  
 Eldorado FCD-5050  
**boilout cleaner, wet felts**  
 Eldorado FCD-5050  
**bonding agent**  
*Polyurethane, thermoplastic; Polyvinyl chloride*  
**bonding agent, dirty systems**  
 Topcat™ Cationic Additive  
**bonding agent, fiber-to-fiber**  
 Jaguar® 8707  
**bonding agent, film-tearing**  
 Elvax® 310; Elvax® 350; Elvax® 360  
**bonding agent, groundwood-containing systems**  
 Topcat™ Cationic Additive  
**bonding agent, paper**  
 Desmocoll® 526  
**bonding agent, paper substrates**  
 Elvax® 310; Elvax® 350; Elvax® 360  
**bonding agent, polymers/blends for paper coatings**  
*Ethylene/MA copolymer*  
**bonding agent, substrates for paper coatings**  
*Ethylene/MA copolymer*  
**bonding agent, unbleached systems**  
 Topcat™ Cationic Additive  
**bonding agent, wet-end: board**  
 Liquistrength™ Bonding Agent  
**bonding agent, wet-end: food pkg.**  
 Liquistrength™ Bonding Agent  
**bonding agent, wet-end: paper**  
 Liquistrength™ Bonding Agent  
**bookbinding**  
 Airflex® 426; Airvol® 203; Airvol® 205; Airvol® 425; Airvol® 523; Airvol® 540; Sol-U-Tein EA; Uniplex 108  
**boxboard coating modifier**  
 Rovene® 4100  
**brightener**  
*Aluminum hydroxide*  
**brightener, base stock coatings**  
 Albacar® PCC  
**brightener, fluorescent: paper**  
 7-Diethylamino-4-methylcoumarin  
**brightener, fluorescent: pulp/paper**  
 Samshin White AS; Samshin White HL; Samshin White PL; Samshin White PR  
**brightener, groundwork**  
*Zinc hydrosulfite*  
**brightener, kraft**  
*Zinc hydrosulfite*  
**brightener, paper**  
 Ropaque® BC-643; Ultrapaque® PCC  
**brightener, paper coatings**  
 Albaglos® PCC; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 11;

Opacarb® PCC  
**brightener, paper pulps**  
*Zinc hydrosulfite*  
**brightener, paper/paperboard coatings**  
 Ropaque® HP-1055; Ropaque® HP-543P  
**brightener, paperboard**  
 Ropaque® BC-643  
**brightener, pulp**  
 Busperse® 379; Hartasperse™ DI-4900 Series  
**brightener, pulp bleaching**  
 Eco-Brite™  
**brightener, recycled grade: uncoated freesheet paper**  
 Luminex™  
**brightener, specialty printing grade: uncoated freesheet paper**  
 Luminex™  
**brightener, uncoated fine paper**  
 Albacar® PCC  
**brightener, wet-end: coated paper base sheets**  
 Vantalc® 6H  
**brightener, wet-end: papermaking**  
 Vantalc® 6H  
**brightener, wet-end: uncoated bond paper**  
 Vantalc® 6H  
**brightener, writing grade: uncoated freesheet paper**  
 Luminex™  
**buffer**  
*Adipic acid; Ethanolamine; Isopropanolamine; Magnesium carbonate hydroxide; Magnesium hydroxide; Magnesium oxide; Pentasodium triphosphate; Sodium metasilicate pentahydrate; Sodium phosphate dibasic anhydrous*  
**buffer, paper machine felt cleaning**  
 Eldorado ALK-6100; Eldorado ALK-6156  
**buffer, paper machine steam cleaning**  
 Eldorado ALK-6100; Eldorado ALK-6156  
**buffer, paper reclamation**  
 Drymet® 59; Drymet® Fines  
**buffer, pH**  
*Sodium tetraborate pentahydrate*  
**buffer, pulp bleaching**  
 Drymet® 59; Drymet® Fines  
**bulking agent, paper**  
 Micro-Cel® T-26  
**bulking agent, paperboard**  
 Micro-Cel® T-26  
**bulking agent, papermaking**  
 Secoren™-VE  
**bulking agent, slow draining stock**  
 Celite® 263; Celite® 321; Celite® 388  
**butylated thermosetting resin, food pkg. coatings**  
 GPRI™ 7597  
**butylated thermosetting resin, food pkg. paper**  
 GPRI™ 7597  
**calender operation improver, paper surfaces**  
 Microlube™ N  
**calendered films**  
*Polyvinyl chloride*  
**calomel paper**  
*Dimercury dichloride*  
**carnauba substitute**  
*Microcrystalline wax, oxidized*  
**carrier**  
*Glyceryl cocoate; Hexyldecanol; Hydrogenated palm oil; Mineral oil; Polyethylene wax*  
**carrier, catalyst**  
 Adelite; Aluminasol 100; Aluminasol 200; DiaFil® 110; DiaFil® 190; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Diatomaceous earth; Drakeol® 19; Drakeol® 35; Magnesium sulfate anhydrous; Methyl ethyl ketone; Montmorillonite; Silica, colloidal; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Sylysia 430; Sylysia 440; Sylysia 450; Sylysia 470; Triaryl phosphate  
**carrier, dye**  
*Cyclohexanol; o-Phenylphenol; Stearamide DEA*

**carrier, fluorescent dyes**  
 CAP-482-0.5  
**carrier, fluorescent pigments**  
 CAP-482-0.5  
**carrier, fluorochems.**  
 Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06  
**carrier, inert: pulp**  
 Micro-Cel® T-49  
**carrier, metallic dyes**  
 CAP-482-0.5  
**carrier, metallic pigments**  
 CAP-482-0.5  
**carrier, optical brighteners**  
 Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06; Elvanol® 71-30; Elvanol® 90-50  
**carrier, optical brighteners: paper**  
 Airvol® 203S  
**carrier, paper**  
 Airvol® 205; Airvol® 523; Airvol® 540; Petrolatum RPB; Tech Pet F™  
**carrier, paper coatings**  
 Jarcol™ I-20  
**carrier, papermaking**  
 Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP  
**carrier, pigment concentrates**  
 Hoechst Wax PE 890  
**carrier, pigments: carbon paper**  
 Penreco Amber  
**carrier, pkg.**  
 Petrolatum RPB; Tech Pet F™  
**carrier, polymerization**  
*Polyvinyl alcohol (partially hydrolyzed)*  
**carrier/delivery system, pigments**  
 Microthene® FA 700-00; Microthene® FA 709-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Microthene® MN 701-00; Microthene® MN 710-20  
**carton sealing applics.**  
 Airvol® 203; Airvol® 205; Airvol® 425; Airvol® 523; Airvol® 540  
**cartons, hot-filled**  
 Nucrel® 0910HS  
**cartons, liq.: aseptic**  
 Nucrel® 0609HS  
**cartons, liq.: hot-filled**  
 Nucrel® 0609HS  
**casein-based systems**  
*p-Chloro-m-cresol*  
**catalyst**  
*Ammonium polyphosphate; Ammonium zirconyl carbonate; Antimony trioxide; Benzyltriethyl ammonium chloride; Cobalt acetate (ous); Copper hydroxide (ic); Cyclohexyl methacrylate; 1,3-Dichloro-5,5-dimethyl hydantoin; 2-Ethylhexyl phosphate; Ferric oxide; Iron oxide black; Polyamidoamine; Potassium silicate; Sodium borohydride; Sulfur dioxide; Zinc 2-ethylhexanoate*  
**catalyst base**  
*Silica, amorphous hydrated*  
**catalyst deactivator, polyolefin: food pkg.**  
 Triisopropanolamine  
**catalyst raw material**  
*Polyaluminum chloride; Sodium aluminate; Zirconium oxide*  
**catalyst, acetylation**  
*p-Toluene sulfonic acid*  
**catalyst, acid: resin curing**  
 Albrite® PA-75  
**catalyst, acid-catalyzed reactions**  
*Dodecylbenzenesulfonic acid; POLYSTEP® A-13; SULFONIC 100*  
**catalyst, alkaline pulp: kraft pulp delignification**

- QEMI Q-AQ-60  
**catalyst, aq. intumescent coatings**  
 FRCROS 484  
**catalyst, blocked acid: paper coatings**  
 Nacure® 2522; Nacure® XC-2211; Nacure® XP-386  
**catalyst, blocked: laminates**  
 Nacure® XC-8224  
**catalyst, blocked: paper**  
 Nacure® 2530  
**catalyst, blocked: paper coatings**  
 Nacure® XC-8224  
**catalyst, coatings**  
*Phenyl acid phosphate*  
**catalyst, condensation**  
*Ammonia; p-Toluene sulfonic acid; Zirconium butoxide*  
**catalyst, cracking**  
*Zeolite synthetic*  
**catalyst, cure acceleration: paper coatings**  
 Cycat® 4040  
**catalyst, curing silicone resins**  
*Zirconium acetate*  
**catalyst, curing unsaturated polyester resins**  
*2,2'-Azobisisobutyronitrile*  
**catalyst, emulsion polymerization**  
 T-Hydro® Sol'n.  
**catalyst, enzymes**  
 Ionac Corcat® P-12; Ionac Corcat® P-600;  
*Polyethylene imine*  
**catalyst, epoxidation**  
*Diethyl zinc*  
**catalyst, epoxy resins**  
*Diethylaminoethyl acrylate*  
**catalyst, esterification**  
*Stannous oleate; p-Toluene sulfonic acid; Zirconium butoxide*  
**catalyst, ethylene oxide**  
*Silver nitrate*  
**catalyst, high reactivity: coatings**  
*Butyl acid phosphate*  
**catalyst, latex**  
*t-Butyl hydroperoxide*  
**catalyst, lignocellulosic pulping: paper/paperboard, aq./fatty food-contact**  
*Disodium 1,4-dihydro-9,10-dihydroxyanthracene; 1,4,4a,9a-Tetrahydro-9,10-anthracenedione*  
**catalyst, paper**  
 Albrite® N-Butyl Acid Phosphate  
**catalyst, paper coatings**  
 K-Cure® 129B; Nacure® 4054  
**catalyst, phase transfer**  
 TEBAC  
**catalyst, polymerization**  
*t-Butyl hydroperoxide; Cumene hydroperoxide; Ferrous ammonium sulfate; Peracetic acid; Sodium ferrocyanide; Stannic chloride; Zirconium butoxide*  
**catalyst, polymerization: alkyd coatings, food-contact**  
*Phenyl acid phosphate*  
**catalyst, polymerization: low-temp.**  
*Diisopropyl perdicarbonate*  
**catalyst, polymerization: olefins**  
*Di-t-butyl peroxide*  
**catalyst, polymerization: paper**  
 FireShield® HPM  
**catalyst, polymerization: paper, aq./fatty food**  
*Acetyl peroxide; 2,2'-Azobisisobutyronitrile*  
**catalyst, polymerization: paper, aq./fatty food-contact**  
*t-Butyl hydroperoxide; Cobalt acetate (ous); Cumene hydroperoxide; Di-t-butyl peroxide; Diisopropyl perdicarbonate; Lauryl peroxide; Sodium formaldehyde sulfoxylate; Zinc formaldehyde sulfoxylate*  
**catalyst, polymerization: paperboard, aq./fatty food**  
*Acetyl peroxide; 2,2'-Azobisisobutyronitrile*  
**catalyst, polymerization: paperboard, aq./fatty food-contact**  
*t-Butyl hydroperoxide; Cobalt acetate (ous); Cumene hydroperoxide; Di-t-butyl peroxide; Diisopropyl perdicarbonate; Lauryl peroxide; Sodium formaldehyde sulfoxylate; Zinc formaldehyde sulfoxylate*  
**catalyst, polymerization: PET fiber**  
 FireShield® H; FireShield® L  
**catalyst, polymerization: PET resins**  
 FireShield® H; FireShield® L  
**catalyst, polymerization: resins**  
*Di-t-butyl peroxide*  
**catalyst, polymerization: silicones**  
*Di-t-butyl peroxide*  
**catalyst, polymerization: styrenated alkyds**  
*Di-t-butyl peroxide*  
**catalyst, polymerization: styrene**  
*Di-t-butyl peroxide*  
**catalyst, pulp/paper**  
 Microcat® HT  
**catalyst, pulping**  
 Raisaccel 2510-L3  
**catalyst, pulping: papermaking**  
 Fleetquest QH-37  
**catalyst, resins**  
*Acetyl peroxide*  
**catalyst, SBR prod.**  
*Tetrasodium EDTA; Trisodium EDTA*  
**catalyst, solvent-based intumescent coatings**  
 FRCROS 481  
**catalyst, unsaturated polyester resins**  
 T-Hydro® Sol'n.  
**catalyst, vinyl polymerization**  
*2,2'-Azobisisobutyronitrile*  
**cationic demand management resin, acid paper**  
 SizeXcel® 1790  
**cationic demand management resin, alkaline paper**  
 SizeXcel® 1790  
**cationic demand management resin, thick paper stock systems**  
 SizeXcel® 1790; SizeXcel® 1799  
**cationic demand management resin, thin paper stock systems**  
 SizeXcel® 1790; SizeXcel® 1799  
**cationic donor, internal sizes**  
 Eldorado PA-755  
**cationizing agent, paper starch**  
 Pentonium S70  
**cellulose**  
 Disponil® SUS IC 875; Jaguar® CP-4; Jaguar® CP-13; Levacell® Scarlet KS BP Liq.; Neoprene Latex 735A; Pluriol® E 6000  
**charge control agent, pulp/paper**  
 Retek®  
**charge control agent, toner applics.**  
 Unid™ 350; Unid™ 425; Unid™ 550; Unid™ 700 Acid  
**charge control agent, wet end of stock feeding paper machine**  
 Harfloc® 401  
**charge modifier, contaminated systems**  
 Polymin® PR 971 L  
**charge modifier, contaminated/high hardness systems**  
 Polymin® PL  
**charge promoter resin**  
 Ambond® 1590  
**chelating agent**  
*N-(3-Aminopropyl) diethanolamine; Basic yellow 2; BHMT Amine; BHMT-HP; Bis-hexamethylenetriamine; Diammonium EDTA; Diethylenetriamine; Disodium EDTA; Edetic acid; Ethylenediamine; Etidronic acid; Good-Rite® K-7058 Polymer; Hexamethylene diamine tetra (methylene phosphonate); Lastabil 928 OE; Maracarb N-1; Monostearyl Citrate (MSC); Stearyl citrate; Tetrasodium etidronate; Versene 100 SRG*  
**chelating agent, cooling towers**  
*Diethylene triamine pentamethylene phosphonic acid; Ethylenediaminetetra (methylene phosphonic acid)*  
**chelating agent, cooling water treatment**  
*Aminotrimethylene phosphonic acid*  
**chelating agent, paper**  
*Citric acid; Tetrasodium EDTA; Trilon® BVT*  
**chelating agent, paper deinking**  
 Hanwet CA-1; *Pentasodium pentetate*  
**chelating agent, paper: food-contact**  
*Ammonium fructoheptonate; Ammonium glucoheptonate; Disodium EDTA; Pentasodium pentetate; Sodium fructoheptonate; Sodium glucoheptonate; Tetrasodium EDTA; Trisodium HEDTA*  
**chelating agent, paperboard: food-contact**  
*Ammonium fructoheptonate; Ammonium glucoheptonate; Disodium EDTA; Pentasodium pentetate; Sodium fructoheptonate; Sodium glucoheptonate; Tetrasodium EDTA; Trisodium HEDTA*  
**chelating agent, peroxide bleach systems**  
 Trilon® C Liq.  
**chelating agent, polymer prod.**  
*Calcium disodium EDTA; Trisodium HEDTA*  
**chelating agent, polymerization**  
*Pentasodium pentetate*  
**chelating agent, pulp bleaching: paper**  
 Trilon® PC  
**chelating agent, pulp/paper**  
*β-Alanine diacetic acid; Calcium disodium EDTA; Hampshire® NTA 150; Pentasodium pentetate; Sequestrene® 30A; Tetrasodium iminodisuccinate; TP OC 370; Trilon® A-92; Trilon® A Liq.; Trilon® BS; Trilon® C Liq.; Trisodium β-alanine diacetate; Trisodium HEDTA; Versene 100; Versene 100 EP; Versene 100 LS; Versene 100 XL; Versene 220; Versene Acid; Versene CA; Versene Diammonium EDTA; Versene NA; Versene Tetraammonium EDTA; Versenex 80; Versenol 120*  
**chelating agent, pulp/paper bleaching**  
 Trilon® B  
**chelating agent, pulp/paper mill bleaching**  
 Busperse® 379  
**chelating agent, pulp/paper processing**  
*Nitrioltriacetic acid; Trisodium NTA*  
**chelating agent, water softening**  
*Tetrasodium EDTA*  
**chelating agent, water treatment**  
*Calcium disodium EDTA; Hampshire® NTA 150; Nitrioltriacetic acid; Pentasodium pentetate; Sequestrene® 30A; Sodium lignosulfonate; Tetraammonium EDTA; Trilon® A-92; Trilon® A Liq.; Trilon® B; Trilon® BS; Trilon® C Liq.; Trisodium HEDTA; Trisodium NTA; Versene 100; Versene 100 EP; Versene 100 LS; Versene 100 XL; Versene 220; Versene Acid; Versene CA; Versene Diammonium EDTA; Versene NA; Versene Tetraammonium EDTA; Versenex 80; Versenol 120*  
**chemical resistance booster, coatings**  
*Styrene/allyl alcohol copolymer*  
**chemical, photosensitive: paper coatings**  
*N-Ethyl-N-hydroxyethyl-m-toluidine; 2-(N-Methylanilino) ethanol; Phenylethylethanolamine*  
**chlorinating agent, mild**  
*1,3-Dichloro-5,5-dimethyl hydantoin*  
**chlorine dioxide generation, biological control: cooling towers**  
 Adox 3125  
**chlorine dioxide generation, biological control: paper mills**  
 Adox 3125  
**chlorine dioxide generation, biological control: water treatment**  
 Adox 3125

**chlorine dioxide precursor, recirculating cooling water systems**

Drewchlor®

**chlorine dioxide prod.***Sodium chlorite***chlorine removal, bleaching***Sodium thiosulfate anhydrous***chlorine removal, papermaking***Sodium thiosulfate anhydrous***chroma value enhancer, paper coloration**

Miglo™

**chrome pigment prod.***Sodium metabisulfite***chromium electroplating***Carbon, activated***cigarette filters***Cellulose acetate***circulating oil, calender stacks**

Chevron Clarity® Paper Machine Oils ISO 100;

Chevron Clarity® Paper Machine Oils ISO 150;

Chevron Clarity® Paper Machine Oils ISO 220;

Chevron Clarity® Paper Machine Oils ISO 320;

Chevron Clarity® Paper Machine Oils ISO 460

**circulating oil, dryer bearings**

Chevron Clarity® Paper Machine Oils ISO 100;

Chevron Clarity® Paper Machine Oils ISO 150;

Chevron Clarity® Paper Machine Oils ISO 220;

Chevron Clarity® Paper Machine Oils ISO 320;

Chevron Clarity® Paper Machine Oils ISO 460

**circulating oil, pulp/paper machines**

Chevron Clarity® Paper Machine Oils ISO 100;

Chevron Clarity® Paper Machine Oils ISO 150;

Chevron Clarity® Paper Machine Oils ISO 220;

Chevron Clarity® Paper Machine Oils ISO 320;

Chevron Clarity® Paper Machine Oils ISO 460

**circulating oil, wet-end systems**

Chevron Clarity® Paper Machine Oils ISO 100;

Chevron Clarity® Paper Machine Oils ISO 150;

Chevron Clarity® Paper Machine Oils ISO 220;

Chevron Clarity® Paper Machine Oils ISO 320;

Chevron Clarity® Paper Machine Oils ISO 460

**clarification, raw water**

Agefloc PC20HV

**clarification, wastewater**

Agefloc PC20HV

**clarifier***Ammonium alum; Gelatin; Kaolin; Potassium alum anhydrous; PVP; Silica, hydrated; Sodium caseinate; Sodium sulfate; Stearic acid; Tetrapotassium pyrophosphate***clarifier, air treatment***Carbon, activated***clarifier, effluent**

Qemifloc CEPG 164

**clarifier, hot-melt coatings**

Ulathene® UE 631-04; Ulathene® UE 634-04;

Ulathene® UE 639-67; Ulathene® UE 649-

04; Ulathene® UE 653-67; Ulathene® UE

654-67

**clarifier, industrial processing***Polyamide/epichlorohydrin polymer***clarifier, industrial water treatment processes**

Qemifloc 8086

**clarifier, low turbidity water: water treatment, paper**

Agefloc A4506; Agefloc A4510

**clarifier, paper**

Delfloc® 763

**clarifier, paper mill effluent treatment**

Qemifloc 8086

**clarifier, paperboard**

PerForm™

**clarifier, pulp/paper**

PerForm™

**clarifier, wastewater***Cat-Floc® 8151; Cat-Floc® 8959; Polyamide/epichlorohydrin polymer***clarifier, wastewater treatment***Carbon, activated***clarifier, water treatment***Carbon, activated; Diatomaceous earth***clarifier, water: air flotation**

Harifloc® A-414

**clarifier, water: papermaking water treatment**

Agefloc B4508P

**clay, coated board**

Hydrasperse®; Hydrasperse® 90

**clay, coated paper**

Hydrasperse®; Hydrasperse® 90

**clay, coating: board**

Hydragloss

**clay, coating: paper**

Hydragloss

**clay, gelcoats**

Claytone® 2000

**clay, high glossing: paper**

Covergloss™; Hydratine® 90; Hydragloss®;

Hydragloss® 90; Hydragloss® 92

**clay, high glossing: paperboard**

Covergloss™; Hydratine® 90; Hydragloss®;

Hydragloss® 90; Hydragloss® 92

**clay, high glossing: premium sheet**

Hydragloss® 90

**clay, laminates**

Claytone® 2000

**clay, LWC grade paper**

Hydraprint®

**clay, matte paper grades**

Hydramatte®

**clay, merchant grade paper**

Hydraprint®

**clay, paper**

Chemax CO-16; Chemax CO-30; Chemax CO-

40; Claytone® 2000; Claytone® LMW;

Hydraprint®; Hydrasperse®; Hydrasperse® 90;

Lithoprint®

**clay, paper coatings**

Astraplate; DB-GLAZE™

**clay, paper coatings: boxboard**

Premier

**clay, paper coatings: enamel paper**

Premier

**clay, paperboard**

Hydraprint®; Hydrasperse®; Hydrasperse® 90;

Lithoprint®

**clay, pitch deposit control: paper**

Huber PK 102®

**clay, pitch deposit control: paperboard**

Huber PK 102®

**clay, structured: filler**

Hycal®

**clay, structured: paper**

Hycal®

**clay, structured: paper coatings**

Hycal®

**clay, structured: paperboard**

Hycal®

**clay, waste treatment**

Claytone® 2000; Claytone® LMW

**cleaner***Xylene***cleaner, acid: papermaking colorants**

Emulsan™ MP-24

**cleaner, alkaline: boiling out dye systems**

Alkasan™ Dyestrip X

**cleaner, alkaline: paper machine boilout, colored grades of paper**

Alkasan™ Dyestrip X

**cleaner, alkaline: size presses**

Alkasan™ Dyestrip X

**cleaner, coatings***C16-18 pareth-20; Imbentin-AG/124S/230 G;**Imbentin-AG/168S/200 G; Imbentin-AG/168S/**250 G; Imbentin-AG/168S/300 G; Imbentin-AG/**168S/330 G; Imbentin-AG/168S/360 G;**Imbentin-AG/168S/500 G; Imbentin-AG/168S/**600 G; Imbentin-AG/168S/800 G; Imbentin-DE/**300; Imbentin-DT/250; Imbentin-EAM/300;**Imbentin-OAM/200; Imbentin-SAM/250;**Imbentin-SAM/400; Imbentin-TAM/200 N;**Imbentin-TAM/350; PEG-35 tallowamine; PEG-**25 tallow aminopropylamine***cleaner, dandy rolls**

Eldorado ALK-6000; Eldorado ALK-6031

**cleaner, deposits: papermaking**

Neonal™-HSC

**cleaner, dryer felts**

Eldorado ALK-6000; Eldorado ALK-6031

**cleaner, emulsion polymerization***C12-14 pareth-23; C16-18 pareth-20; PEG-35 tallowamine; PEG-25 tallow aminopropylamine***cleaner, extractor surfaces: bleaching****processes**

Sansperse™ WTC

**cleaner, extractor surfaces: pulping processes**

Sansperse™ WTC

**cleaner, fabric/felt: paperboard**

Presstige™

**cleaner, fabric/felt: press section roll treatment**

Presstige™

**cleaner, fabric/felt: pulp/paper**

Presstige™

**cleaner, felt**

Agefloc A4506; Agefloc A4510; Agefloc B4508P;

Agefloc PC20VHV; Agefloc PC40; Agefloc

PC40HV; Agefloc PC2206; Alkasan™ Dyestrip

X; FeltECCell™ 905

**cleaner, felt papermaking**

Eldorado FCD-142

**cleaner, felt/fabric: pulp/paper, batch****treatments**

Vinfelt®

**cleaner, felt/fabric: pulp/paper, continuous****treatments**

Vinfelt®

**cleaner, felt: continuous press papermaking**

Emulsan™ MR; Fabrisan™ LW; Feltsan™ Batch

HF

**cleaner, felt: papermaking**

Fabrisan™ 1596; Feltsan™ JW

**cleaner, industrial**

Aerosol® OT-100%; DeSULF SLS-30LC; Igepal®

CO-660; Igepal® CO-720; Igepal® CO-850;

Igepal® CO-880; Igepal® CO-887; Igepal® NP-

9; Lignosite® 458; Maracarb N-1; Newrex

Paste H; Newrex Powd. F; Newrex R;

Petrac® Calcium Stearate CP-11; Petrac®

Calcium Stearate CP-11 LS; Rhodacal® N;

Rhodafac® RS-710; Sulfotex OA; T-Det® A467;

Tergitol® 15-S-15; Teric™ N11; Triton® X-100;

Triton® X-305-70%; Triton® X-405-70%; Zusolat

1004

**cleaner, paper***C12-14 pareth-23; C16-18 pareth-20; Hydrochloric**acid; PEG-35 tallowamine; PEG-25 tallow**aminopropylamine***cleaner, paper machine felt cleaning**

Eldorado ALK-6100; Eldorado ALK-6156

**cleaner, paper machine steam cleaning**

Eldorado ALK-6100; Eldorado ALK-6156

**cleaner, paper machine systems**

Eldorado ALK-6000; Eldorado ALK-6031

**cleaner, paper machines**

DF-40; Taurine-DCS

**cleaner, paper mill felts**

Aerosol® 22; Cosmopon BN; Rewopol® B 2003;

Sabopon SAM; *Sodium oleyl sulfosuccinamate***cleaner, paper mill stock systems**

Eldorado Boilout No. 1

**cleaner, paper stock system: two-step boilout**

Eldorado FCA-810

**cleaner, papermaking**

Imbentin-AG/124S/230 G; Imbentin-AG/168S/200

G; Imbentin-AG/168S/250 G; Imbentin-AG/168S/

300 G; Imbentin-AG/168S/330 G; Imbentin-AG/

168S/360 G; Imbentin-AG/168S/500 G;

Imbentin-AG/168S/600 G; Imbentin-AG/168S/

800 G; Imbentin-C/91/080 OFA; Imbentin-DE/

300; Imbentin-DT/250; Imbentin-EAM/300;

Imbentin-N/200 80%; Imbentin-N/300 G;



- Imbentin-N/400 G; Imbentin-N/600 G 50%;  
Imbentin-OAM/200; Imbentin-SAM/250;  
Imbentin-SAM/400; Imbentin-TAM/200 N;  
Imbentin-TAM/350
- cleaner, pulp/paper**  
Nonipax AAO; Nonipax OP 10; Nonipax X 100;  
Nonipax X 150
- cleaner, pulp/paper processing**  
Alfonic® 1412-9
- cleaner, rolls**  
Eldorado ALK-6000; Eldorado ALK-6031
- cleaner, scrubber systems**  
Sansperse™ WTC
- cleaner, solvent**  
Nonoxynol-4; Nonoxynol-5; Nonoxynol-6;  
Nonoxynol-11; Nonoxynol-13; PEG-5 tallate; T-  
Det® N-6
- cleaner, stock: pulping**  
Eldorado DIC-100
- cleaner, suction**  
Eldorado ALK-6000; Eldorado ALK-6031
- cleaner, washer surfaces: bleaching processes**  
Sansperse™ WTC
- cleaner, washer surfaces: pulping processes**  
Sansperse™ WTC
- cleaner, wax emulsions**  
Imbentin-AG/124S/230 G; Imbentin-AG/168S/200  
G; Imbentin-AG/168S/250 G; Imbentin-AG/168S/  
300 G; Imbentin-AG/168S/330 G; Imbentin-AG/  
168S/360 G; Imbentin-AG/168S/500 G;  
Imbentin-AG/168S/600 G; Imbentin-AG/168S/  
800 G
- cleaner, wet felts**  
Eldorado ALK-6000; Eldorado ALK-6031
- cleaner, wire**  
Agefloc A4506; Agefloc A4510; Agefloc B4508P;  
Agefloc PC20VHV; Agefloc PC40; Agefloc  
PC40HV; Agefloc PC2206
- cleaning chemical, general purpose:**
- papermaking**  
Alkafoam™ 20; Alkasan™ GNF
- cleaning starch processing equip.**  
Cellulase
- cleaning, froth-flotation**  
Light petroleum hydrocarbons, odorless
- cleanser, paper auxiliaries**  
Zusolat 1008/85; Zusolat 1010/85
- clear coatings, paper**  
Bisphenol A epoxy diacrylate
- cling agent, films**  
Hydrogenated polybutene
- cling agent, plastic films**  
Sorbitan oleate; Sorbitan trioleate
- cling agent, PVC films**  
Glycerol oleate
- coagulant**  
Ageflex FA-2; Albumen; Aluminasol 100;  
Aluminasol 200; Bufloc® 5551; Bufloc® 5554;  
DA-4; Diethylaminoethyl acrylate; Hartfloc®  
207; Hydrad® 8105; PEG-160M; Poly (2-  
hydroxypropyl-N,N-dimethyl ammonium  
chloride); Qemifloc 8086; Qemifloc CEPG 164;  
Qemifloc FL 81; Steartrimonium chloride
- coagulant, activated silica**  
Sodium silicate
- coagulant, calcium carbonate-starch fine  
paper furnishes**  
Densefloc 30
- coagulant, color removal**  
Qemireten 8015
- coagulant, dewatering industrial slurries**  
Drewfloc® 2270
- coagulant, effluent treatment: aq. systems**  
Bubreak® 401D; Bubreak® 403
- coagulant, effluent treatment: paper**  
Magnafloc®
- coagulant, emulsion breaking**  
Clar-Ion™ A405P; Clar-Ion™ A410P; Clar-Ion™  
A415P; Clar-Ion™ A420P; Hyper-Ion™ 1050;  
Hyper-Ion™ 1050A; Hyper-Ion™ 2050A
- coagulant, flotation enhancement**  
Polyquaternium-6
- coagulant, industrial liq.-solid separation  
processes**  
Qemireten 8015
- coagulant, industrial process water treatment**  
Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC;  
Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC;  
Ageflex FM-1Q80DMS
- coagulant, industrial waste treatment**  
Ferric chloride
- coagulant, industrial wastewater**  
Pass®-55; Pass®-70; Pass®-80; PASS®-100
- coagulant, industrial wastewater treatment**  
Clar-Ion™ 603; Clar-Ion™ 605; Clar-Ion™ 610;  
Clar-Ion™ 610M; Clar-Ion™ A405P; Clar-Ion™  
A410P; Clar-Ion™ A415P; Clar-Ion™ A420P;  
Hyper-Ion™ 1050; Hyper-Ion™ 1050A;  
Hyper-Ion™ 2050A; TurboCLEAR™ PC-1
- coagulant, industrial water**  
WAC® Paper
- coagulant, industrial water treatment**  
Clar-Ion™ A405P; Clar-Ion™ A410P; Clar-Ion™  
A415P; Clar-Ion™ A420P; Hyper-Ion™ 1050;  
Hyper-Ion™ 1050A; Hyper-Ion™ 2050A;  
Polyaluminum chloride; Polyaluminum  
chlorosulfate; TurboCLEAR™ PC-1
- coagulant, influent clarification**  
Qemireten 8015
- coagulant, inorg. sludge filtration**  
Drewfloc® 2270
- coagulant, lagoon treatment**  
Clar-Ion™ A405P; Clar-Ion™ A410P; Clar-Ion™  
A415P; Clar-Ion™ A420P; Hyper-Ion™ 1050;  
Hyper-Ion™ 1050A; Hyper-Ion™ 2050A
- coagulant, liq.-solids separation processes**  
Qemifloc FL 71
- coagulant, mill water treatment: pulp/paper**  
Hartfloc® 207; Hartfloc® Cationic Series
- coagulant, oily waste treatment**  
Drewfloc® 2270
- coagulant, oily wastewater demulsification**  
Amerfloc® 485
- coagulant, oily wastewater separation**  
Qemireten 8015
- coagulant, oily/greasy effluents**  
Qemifloc 707
- coagulant, paper**  
Amerfloc® 275; Clar-Ion™ 603; Clar-Ion™ 605;  
Clar-Ion™ 610; Clar-Ion™ 610M; Clar-Ion™  
A405P; Clar-Ion™ A410P; Clar-Ion™ A415P;  
Clar-Ion™ A420P; Hyper-Ion™ 1050;  
Hyper-Ion™ 1050A; Hyper-Ion™ 2050A;  
Nissan Cation AB; Sumaclear 2000; Sumaclear  
P10, P20; Sumaclear P30, P35; Sumalchlor  
100, 200
- coagulant, paper mill/air scrubber water  
clarification**  
Drewfloc® 2270
- coagulant, paper recycle clarification**  
Qemireten 8015
- coagulant, paper wastewater**  
Qemifloc 707
- coagulant, paper: food-contact**  
WAC® Paper
- coagulant, paperboard**  
Amerfloc® 275
- coagulant, papermaking**  
Aluminum hydroxide sulfate; Dimethylamine/  
epichlorohydrin copolymer; Papermaker's Alum;  
Polyaluminum chloride; TurboCLEAR™ PC-1;  
WAC® Paper
- coagulant, papermaking makeup water  
treatment**  
Densefloc 30
- coagulant, papermaking water treatment**  
Agefloc B4508P
- coagulant, pitch control**  
Qemireten 8015
- coagulant, preconditioning of raw waters:**
- industrial process feedstocks**  
TurboCLEAR™ PC-1
- coagulant, primary: greasy tower treatment**  
Chargepac® 8
- coagulant, primary: oily wastewater demulsifi-  
cation**  
Chargepac® 8
- coagulant, primary: paper, food-contact**  
Cat-Floc® DL; Cat-Floc® L; Cat-Floc® LS; Cat-  
Floc® TL
- coagulant, primary: paperboard, food-contact**  
Cat-Floc® DL; Cat-Floc® L; Cat-Floc® LS; Cat-  
Floc® TL
- coagulant, primary: raw water clarification**  
Cat-Floc® L; Cat-Floc® LS; Cat-Floc® TL
- coagulant, primary: wastewater clarification**  
Cat-Floc® L; Cat-Floc® LS; Cat-Floc® TL;  
Chargepac® 8
- coagulant, primary: water clarification**  
Cat-Floc® 8959; Cat-Floc® DL; Chargepac® 8
- coagulant, process treatment**  
Bufloc® 5551; Bufloc® 5554
- coagulant, pulp**  
Aluminum hydroxide sulfate
- coagulant, pulp/paper mills**  
Alcan Aluminum Sulphate Solid; Alcan Aluminum  
Sulphate Sol'n.; Aluminum sulfate
- coagulant, raw water clarification**  
Qemifloc FL 61
- coagulant, raw water: paper**  
Magnafloc®
- coagulant, save-all clarification**  
Amerfloc® 485
- coagulant, save-all: paper**  
Magnafloc®
- coagulant, sludge conditioning**  
Drewfloc® 2270
- coagulant, sludge dewatering**  
Qemireten 8015
- coagulant, stickies control**  
Qemireten 8015
- coagulant, upstream retention prods.**  
WAC® Paper
- coagulant, waste minimization programs: aq.  
systems**  
Bubreak® 401D; Bubreak® 403
- coagulant, waste sludges**  
Agefloc A50HV-P; Agefloc A50LV-P; Agefloc A50-  
P; Agefloc B50-P
- coagulant, wastewater**  
Aluminum hydroxide sulfate; Polyaluminum  
chloride; WAC® Paper
- coagulant, wastewater clarification**  
Amerfloc® 485
- coagulant, wastewater treatment**  
Acrylates/acrylamide copolymer; Aquapac™;  
Bufloc® 5551; Bufloc® 5554; Polyaluminum  
hydroxide chloride sulfate; Polyquaternium-6;  
Qemifloc FL 61; Sumaclear 800B; Sumaclear  
801B; Sumaclear 802B; Sumaclear 803B;  
Sumaclear 804B; Sumaclear 805B; Sumaclear  
820B; Sumaclear 1000; Sumaclear 2000;  
Sumaclear P10, P20; Sumaclear P30, P35;  
Sumalchlor 50; Sumalchlor 100, 200
- coagulant, wastewater treatment: paper mills**  
Densefloc 30
- coagulant, wastewater: pulp/paper**  
PAC-300
- coagulant, water clarification**  
Polyquaternium-6; Qemifloc FL 71
- coagulant, water purification**  
Ammonium alum
- coagulant, water treatment**  
Acrylates/acrylamide copolymer; Alcan Aluminum  
Sulphate Solid; Alcan Aluminum Sulphate Sol'n.;  
Bentonite; Calcium hydroxide; Calcium  
monocarbonate; Calcium oxide; Cetrimonium  
chloride; Diethylaminoethyl acrylate dimethyl  
sulfate quat.; Dimethylamine/epichlorohydrin  
copolymer; Dimethylaminoethyl acrylate

## coagulant, wet-end papermaking

*dimethyl sulfate*; *Dimethylaminoethyl acrylate methyl chloride quat.*; *Dimethylaminoethyl methacrylate dimethyl sulfate quat.*; *Dimethylaminoethyl methacrylate methyl chloride quat.*; *Ferric chloride*; *Guar (Cyanopsis tetragonoloba) gum*; Nissan Cation AB; Nissan Cation PB-40; Nissan Cation PB-300; *Potassium alum dodecahydrate*; *Sodium aluminate*

**coagulant, wet-end papermaking**  
Pass<sup>®</sup>-55; Pass<sup>®</sup>-70; Pass<sup>®</sup>-80

**coagulation**  
*Sodium hydroxide*

**coagulation, latex**  
*Benzalkonium chloride*

**coalescing agent, resin films**  
Pycal 94

**coalescing solvent, cellulose**  
*Methoxyisopropanol*

**coalescing solvent, dyes**  
*Methoxyisopropanol*

**coalescing solvent, oils/greases**  
*Methoxyisopropanol*

**coalescing solvent, resins**  
*Methoxyisopropanol*

**coating agent, paper**  
*Behenyl methacrylate*; Blemmer BMA; Blemmer CMA; Blemmer EHMA; Blemmer IBMA; Blemmer IDMA; Blemmer PMA; Blemmer SLMA; Blemmer SMA; Blemmer VMA; *Butyl methacrylate*; Caster Wax A; *Cetyl methacrylate*; Cuirol<sup>®</sup> RZ 80; *2-Ethylhexyl methacrylate*; Haricoat; *Isobutyl methacrylate*; Leukonöl LBA-2; *Pentadecyl methacrylate*; Polyox<sup>®</sup> WSR 205; *Stearamide MEA-stearate*; *Stearyl methacrylate*; Wiltamide<sup>®</sup> MAS

**coating agent, pigment**  
Nissan Cation AB; Nissan Cation BB; Nissan Cation FB; *Steartrimonium chloride*

**coating binder, board coatings**  
*Vinyl acrylate*

**coating binder, fiber laminates**  
*Ethylene/VA copolymer*

**coating binder, paper**  
*Ethylene/VA copolymer*

**coating binder, paper: food-contact**  
*Vinyl acrylate*

**coating binder, paperboard**  
*Ethylene/VA copolymer*

**coating binder, size press sol'n's.**  
*Vinyl acrylate*

**coating modifier**  
*Sucrose benzoate*

**coating modifier, paper**  
Sucrose Benzoate Regular and Coatings Grade

**coating polymer, thermosetting**  
*Alkyd resin*

**coating resin**  
Atlas<sup>®</sup> 382-05; Atlas<sup>®</sup> 382-05A; Atlas<sup>®</sup> 382-05AC; Herculite<sup>®</sup> 240; Herculite<sup>®</sup> 290; PAPHEN<sup>®</sup> PKHC<sup>®</sup>; PAPHEN<sup>®</sup> PKHJ

**coating resin, board: convenience food pkg.**  
Ultradur<sup>®</sup> B 2550

**coating resin, board: oven-ready deep-freeze food pkg.**  
Ultradur<sup>®</sup> B 2550

**coating resin, hot-melt/solvent-based**  
Ulathene<sup>®</sup> UE 631-04; Ulathene<sup>®</sup> UE 634-04; Ulathene<sup>®</sup> UE 639-67; Ulathene<sup>®</sup> UE 649-04; Ulathene<sup>®</sup> UE 653-67; Ulathene<sup>®</sup> UE 654-67

**coating resin, liq. form**  
*Polybutadiene*

**coating resin, paper**  
PAPHEN<sup>®</sup> PKHH; Pliolite<sup>®</sup> AC-L; Pliolite<sup>®</sup> S-5D; Pliolite<sup>®</sup> S-5E; Pliolite<sup>®</sup> VTAC; *Tetrachloronaphthalene*

**coating resin, paper: carton stock coating**  
Chevron PE 4517

**coating resin, paper: convenience food pkg.**  
Ultradur<sup>®</sup> B 2550

**coating resin, paper: gloss overlacquers**  
Pliolite<sup>®</sup> VT-L

**coating resin, paper: oven-ready deep-freeze food pkg.**  
Ultradur<sup>®</sup> B 2550

**coating resin, photographic paper**  
Chevron PE 4517

**coating, papermaking**  
Polyox<sup>®</sup> WSR N-750

**coatings**  
*Butyl oleate*; *Cellulose*; *Cellulose acetate butyrate*; *Cellulose acetate propionate*; *Corn (Zea mays) starch*; C20-40 *pareth-3*; C20-40 *pareth-40*; C30-50 *pareth-3*; *Deodorized kerosene*; *Di/tri-isopropylbiphenyl*; *Dodecylbenzenesulfonic acid*; *Epoxy, bisphenol A*; *Epoxy cresol novolac*; *2-(2-Ethoxyethoxy) ethyl acrylate*; *Ethylene/acrylic acid copolymer*; *Ethylene dioleamide*; *Ethylene/methacrylic acid copolymer*; *Hexamethylenetetramine*; *Hydrogenated castor oil*; *Hydroxypropyl methacrylate*; *Isopropanolamine*; *Kaolin*; *Linoleic acid*; *Melamine-formaldehyde resin, methylated*; *Mica*; *Nonoxynol-12*; *Octoxynol-9*; *Octoxynol-13*; *PEG-10 tetramethyl decylenediol*; *Pentaerythrityl tetrastearate*; *Phenolic resin*; *Phenoxy resin*; *Pigment violet 19*; *Pigment violet 23*; *Polyurethane, thermoplastic*; *Polyvinylidene fluoride resin*; *Propylene carbonate*; *Silicone glycol copolymer*; *Sodium methylnaphthalenesulfonate*; *Styrene/MA copolymer*; *Tall oil acid*; *p-Toluene sulfonic acid*; *Triacetin*; *Vinyl isobutyl ether*

**coatings additive**  
*Aluminum distearate*

**coatings additive, conductive: computer read-out printer paper**  
Conductive Polymer 261<sup>®</sup> RV

**coatings additive, conductive: electrostatic copy machine paper**  
Conductive Polymer 261<sup>®</sup> RV

**coatings additive, conductive: nonimpact reproduction device paper**  
Conductive Polymer 261<sup>®</sup> RV

**coatings modifier**  
Hoechst Wax PE 890; Hoechst Wax PED 821; Hoechst Wax PED 822; Uniplex 600

**coatings, acrylate ester copolymer: food-contact**  
*Sodium borate*

**coatings, adhesion: paper**  
*Polyvinylidene chloride*

**coatings, antiadhesion**  
*Dimethicone*; *Silicone emulsions*

**coatings, aq.**  
*Alcohol*; Shamrock Hydrocer 145

**coatings, barrier**  
CAB-553-0.4; *Pentaerythrityl hydrogenated rosinate*; Scripset<sup>®</sup> 500; Scripset<sup>®</sup> 520; Scripset<sup>®</sup> 540; Scripset<sup>®</sup> 542; Scripset<sup>®</sup> 550; Scripset<sup>®</sup> 640; Scripset<sup>®</sup> 700; Scripset<sup>®</sup> 720; Scripset<sup>®</sup> 740; Scripset<sup>®</sup> 742; Scripset<sup>®</sup> 745; Scripset<sup>®</sup> 746; Scripset<sup>®</sup> 747; Scripset<sup>®</sup> 808

**coatings, barrier: hot-melt-applied**  
Staybelite<sup>®</sup> Ester 10

**coatings, board**  
Coatmaster<sup>®</sup> K50F

**coatings, board AP conversions**  
B20F; B200

**coatings, calender: curl control, recycled paperboard**  
Vandro<sup>®</sup> 185F

**coatings, clay**  
*Ammonium polymethacrylate*

**coatings, clear: laminates**  
Ebeycril<sup>®</sup> 3502; Ebeycril<sup>®</sup> 3720-TH20

**coatings, clear: paper**  
Ebeycril<sup>®</sup> 3500; Ebeycril<sup>®</sup> 3502; Ebeycril<sup>®</sup> 3701; Ebeycril<sup>®</sup> 3701-20T; Ebeycril<sup>®</sup> 3720-TH20; Ebeycril<sup>®</sup> 4830; Ebeycril<sup>®</sup> 4849; Ebeycril<sup>®</sup> 6700

**coatings, dry: paper**  
Microthene<sup>®</sup> FA 709-00

**coatings, emulsion polymerization**  
*Sodium octoxynol-3 sulfate*; *Sodium octyl sulfate*

**coatings, extrusion**  
*Erucamide*; Escor<sup>®</sup> AT-310; *Melamine-formaldehyde resin, methylated-butylated*; *Polyethylene, low-density*

**coatings, extrusion: board trays**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: box liners**  
Lumitac<sup>®</sup>; Nipolon<sup>®</sup>-Z

**coatings, extrusion: corrugated boxes**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: critical specialty coatings**  
Rexene<sup>®</sup> PE 5000 Series

**coatings, extrusion: fiber drums**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: fiberboard containers**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: films**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: flexible pkg. base stocks**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: food pkg.**  
Sclair<sup>®</sup> 69A

**coatings, extrusion: food-contact applics.**  
Petrothene<sup>®</sup> NA 204-000

**coatings, extrusion: kraft paper**  
Lumitac<sup>®</sup>; Nipolon<sup>®</sup>-Z

**coatings, extrusion: laminations**  
Petrothene<sup>®</sup> NA 214-000

**coatings, extrusion: milk carton stocks**  
Lumitac<sup>®</sup>; Nipolon<sup>®</sup>-Z

**coatings, extrusion: milk cartons**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: multiwall bags**  
Petrothene<sup>®</sup> NA 214-000

**coatings, extrusion: paper**  
Petrothene<sup>®</sup> NA 219-000; Sclair<sup>®</sup> 69A

**coatings, extrusion: paper, food-contact**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: photographic paper**  
Rexene<sup>®</sup> PE 5000 Series

**coatings, extrusion: polymer films**  
Sclair<sup>®</sup> 69A

**coatings, extrusion: polymeric films**  
Lumitac<sup>®</sup>; Nipolon<sup>®</sup>-Z

**coatings, extrusion: single-ply bags**  
Petrothene<sup>®</sup> NA 219-000

**coatings, extrusion: sugar pouches**  
Petrothene<sup>®</sup> NA 214-000

**coatings, extrusion: treated/primed films**  
Petrothene<sup>®</sup> NA 214-000

**coatings, extrusion: woven scrim**  
Sclair<sup>®</sup> 69A

**coatings, food pkg.**  
A-C<sup>®</sup> 6; A-C<sup>®</sup> 6A; A-C<sup>®</sup> 7; A-C<sup>®</sup> 7A; A-C<sup>®</sup> 8; A-C<sup>®</sup> 8A; A-C<sup>®</sup> 9, 9A, 9F; A-C<sup>®</sup> 15; A-C<sup>®</sup> 16; A-C<sup>®</sup> 316; A-C<sup>®</sup> 316A; A-C<sup>®</sup> 400; A-C<sup>®</sup> 400A; A-C<sup>®</sup> 405(M); A-C<sup>®</sup> 405(S); A-C<sup>®</sup> 405(T); A-C<sup>®</sup> 430; A-C<sup>®</sup> 540; A-C<sup>®</sup> 540A; A-C<sup>®</sup> 580; A-C<sup>®</sup> 617; A-C<sup>®</sup> 617A; A-C<sup>®</sup> 629; A-C<sup>®</sup> 629A; A-C<sup>®</sup> 655; A-C<sup>®</sup> 5120; A-C<sup>®</sup> 5180; Acintol<sup>®</sup> R Type S; *Acrylates/C10-30 alkyl acrylate crosspolymer*; Acumer<sup>®</sup> 1850; ACumist<sup>®</sup> B-6; ACumist<sup>®</sup> B-9; ACumist<sup>®</sup> B-12; ACumist<sup>®</sup> B-18; ACumist<sup>®</sup> C-5; ACumist<sup>®</sup> C-9; ACumist<sup>®</sup> C-12; ACumist<sup>®</sup> C-18; ACumist<sup>®</sup> C-30; Advawax<sup>®</sup> 280; Aerosol<sup>®</sup> OT-70 PG; Aerosol<sup>®</sup> OT-75%; Aerosol<sup>®</sup> OT-100%; Aerosol<sup>®</sup> OT-B; Aerosol<sup>®</sup> OT-S; Airvol<sup>®</sup> 805; Airvol<sup>®</sup> 823; Airvol<sup>®</sup> 840; Alcosperse<sup>®</sup> 149; Ancamide<sup>®</sup> 220; Ancamide<sup>®</sup> 220-IPA-73; Ancamide<sup>®</sup> 220-X-70; Ancamide<sup>®</sup> 260A; Ancamide<sup>®</sup> 260TN; Ancamide<sup>®</sup> 350A; Ancamide<sup>®</sup> 375A; Ancamide<sup>®</sup> 500; Ancamide<sup>®</sup> 501; Ancamide<sup>®</sup> 502; Ancamide<sup>®</sup> 503; Ancamide<sup>®</sup> 506; Ancamide<sup>®</sup> 507; Ancamide<sup>®</sup> 700-B-75; Ancamine<sup>®</sup> DETA; Ancamine<sup>®</sup>

TEPA; Ancamine® TETA; Arizona DR-22; ATBC; ATEC; Busperse® 203; CAB-171-15; CAB-321-0.1; CAB-381-0.1; CAB-381-0.5; CAB-381-2; CAB-381-2BP; CAB-381-20; CAB-500-1; CAB-500-5; CAB-531-1; CAB-551-0.01; CAB-551-0.2; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® LM-150D; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Cab-O-Sil® PTG; Candelilla Wax SP 24A; Candelilla Wax SP 50; Candelilla Wax SP 75; Candelilla Wax SP 76; Candelilla Wax SP 78 Prime Quality Crude; Candelilla Wax SP 99; Candelilla Wax SP 350; Candelilla Wax SP 803; Candelilla Wax Fine; CAP-482-0.5; CAP-482-20; CAP-504-0.2; *Carbomer*; Carbopol® 907; Carbopol® 910; Carbopol® 934; Carbopol® 934P; Carbopol® 940; Carbopol® 941; Carbopol® 971P; Carbopol® 974P; Carbopol® 980; Carbopol® 981; Carbopol® 1342; Carbopol® 1382; Carbopol® 2984; Carbopol® 5984; Carbopol® ETD 2001; Carbopol® ETD 2020; Carbopol® ETD 2050; *Ceteareth*; Citroflex® A-4; Citroflex® A-4 Special; Colloid™ 202; *Cottonseed acid*; C10-12 parath-3; C10-12 parath-6; C10-12 parath-8; C12-14 parath-1; C12-14 parath-3; C12-14 parath-4; C12-14 parath-7; C12-14 parath-8; C12-14 parath-11; C14-16 parath-7; Crill 1; Crill 4; Cumar® LX®-509; Cumar® R-3; Cumar® R-11; Cumar® R-12 (V-2, V-2½); Cumar® R-13; Cumar® R-17; Dapro® DF 3163; Daratak® SP1012; DeMULS PSML-20; DeMULS PSMO-80; DeMULS SMS; DePEG 40-CO; DeSULF SLS-30LS; DeTHOX ACID TO-8.5; DeTHOX ACID TO-14; DeTHOX ACID TO-16.5; DeWET SDO-70PG; DeWET SDO-75E; Disponil® SUS IC 875; DREWPLUS® L-140; DREWPLUS® L-493; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06; Elvanol® 90-50; Empol® 1004; Empol® 1007; Empol® 1008; Empol® 1016; Empol® 1018; Empol® 1020; Empol® 1022; Empol® 1024; Empol® 1026; Epolene® C-10; Epolene® C-13; Epolene® C-14; Epolene® C-15; Epolene® C-17; Epolene® N-10; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; EPON® Resin 825; EPON® Resin 826; EPON® Resin 828; EPON® Resin 1001F; EPON® Resin 1004F; EPON® Resin 1007F; EPON® Resin 1009F; EPON® Resin 2002-FC-10; Foam Blast 106; Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-765 Polymer; Good-Rite® K-766 Polymer; Good-Rite® K-7028 Polymer; Good-Rite® K-7058 Polymer; GPRI™ 4000; GPRI™ 7550; GPRI™ 7590; GPRI™ BKS-2600; GPRI™ BKS-2900; GPRI™ BKS-2901; Herculite® 240; Herculite® 290; Herculyn® D; Hycar® 26138; Ionac Corcat® P-12; Ionac Corcat® P-600; Irganox® 259; Irganox® 1520 D/L; Jayflex® DHP; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Koster Keunen Candelilla; Koster Keunen Paraffin Wax; *Linoleamide DEA*; Loxiol® G 20; Lucidene® 5030; Lucidene® 5040; Lumulose™ GMO; Metasol® CB-225 L.C.; *Methyl hydrogenated rosinate*; Modaflow® Powder III; Modaflow® Resin; Monawet MO-70; Monawet MO-70E; Monawet MO-70R; Monawet MO-70S; Monawet MO-75E; Monawet MO-84R2W; Monawet MO-85P; *Nonyl nonoxynol-7*; Ombrelub® CD; Pamolyn® 200; Pamolyn® 240; ParCell™ A; ParCell™ R; ParCell™ S; Patcote® 801; Patcote® 806; Patcote® 814; Patcote® 8060; *PEG-14 tallate*; *PEG-1.3 tetramethyl decyenediol*; *PEG-3.5 tetramethyl decyenediol*; *PEG-10 tetramethyl decyenediol*; *PEG-30 tetramethyl decyenediol*;

Pluronic® P-2000; *Polydimethylsiloxane*; *Polyethylene imine*; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-7; POLYSTEP® B-24; Polystix® 90 Resin; Polywax® 500; Polywax® 600; Polywax® 655; Polywax® 850; Polywax® 1000; Polywax® 2000; Polywax® 3000; Polywet® ND-35; Polywet® WTC 6512; Polywet® Z1766; Rheolate® 2001; Rhodapon® L-22; Rhodapon® LCP; Rhodapon® LSB; Rhodapon® SM; *Rosin, maleated*; Ross Candelilla Wax; Ross Japan Wax; Ross Wax #140; Shamrock Hydrocer 145; Shamrock Hydrocer EEP 33; Shamrock Hydrocer EP 91; Shamrock Neptune 968; Shamrock Neptune 5038; Shamrock Neptune I N1; Shamrock Neptune I SP5; Shamrock S-232 MG; Shamrock S-232 N1; Shamrock S-232 N5; Shamrock S-236; Shamrock S-379 H; Shamrock S-379 N; Shamrock S-379 N3; Shamrock S-381 N1; Shamrock S-381 N5; Shamrock S-394 N1; Shamrock S-394 N5; Shamrock S-394 SP5; Shamrock S-395 N2; Shamrock S-395 N5; Shamrock S-395 SP5; Shamrock S-400 N1; Shamrock S-400 N5; Shamrock S-400 SP5; Shamrock S-483; Shamrock S-Nauba 5021; Shamrock Taber Tiger 5512; *Silica, amorphous*; *Silica, fumed*; Sipernat® 50S; Strip-Ayd® SL 555; *Sodium polycarboxylate*; Struktol® TR 121; Struktol® TR 131; Super Nextac® 99; Surfonic® DNP-70; Surfonic® DNP-80; Surfonic® DNP-100; Surfonic® DNP-1500; Surfonic® L12-3; Surfonic® L12-6; Surfonic® L12-8; Surfonic® L24-1.3; Surfonic® L24-3; Surfonic® L24-4; Surfonic® L24-7; Surfonic® L24-9; Surfonic® L24-12; Surfonic® L46-7; Surfonic® L68-18; Surfonic® L610-3; Surfonic® L1270-2; Surfonic® L1285-2; Surfonic® N-10; Surfonic® N-31.5; Surfonic® N-40; Surfonic® N-60; Surfonic® N-85; Surfonic® N-95; Surfonic® N-100; Surfonic® N-102; Surfonic® N-120; Surfonic® N-150; Surfonic® N-200; Surfonic® N-300; Surfonic® N-400; Surfonic® NB-307; Surfonic® NB-407; Surfonic® NB-557; Surfonic® OP-15; Surfonic® OP-35; Surfonic® OP-50; Surfonic® OP-70; Surfonic® OP-100; Surfonic® OP-120; Surfonic® OPB-407; Surfynol® 420; Surfynol® 440; Surfynol® 465; Surfynol® 485; Surfynol® 504; Surfynol® DF-37; Surfynol® DF-70; Surfynol® DF-695; Surfynol® PSA-336; Surfynol® SE-F; Surfynol® SM-740; Surfynol® SM-745; Sylvaros® R; Sylvatic® 40N; Sylvatic® 80N; Sylvatic® 100NS; Sylvatic® 105NS; Sylvatic® 295; Sylvatic® 1085; Sylvatic® 1100; Sylvatic® 1103; Sylvatic® 2110; *Tall oil glycerides*; Tamol® 850; Tamol® 960; T-Det® A126; T-Det® A243; T-Det® A247; T-Det® A249; T-Det® A467; T-Det® A2412; Teric™ N2; Teric™ N4; Teric™ N5; Teric™ N6; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N20; Teric™ N30; Ucarfloc® Polymer 300; Ucarfloc® Polymer 302; Ucarfloc® Polymer 304; Ucarfloc® Polymer 309; Uniplex 84; Uniplex 108; Uniplex 150; Uniplex 155; Uniplex 260; Vinac® XX-211; Vinac® XX-241; Zonarez® 7115; Zonarez® 7115 LT; Zonarez® 7125; Zonarez® 7125 LT; Zonarez® A-25; Zonarez® B-115; Zonarez® B-125; Zonarez® M-1115; Zonatac® 105; Zonatac® 105L; Zonatac® 115L; Zonester® 85; Zonester® 100

**coatings, food-contact**  
Araldite® PY 302-2; *Cellulose acetate*; *Cetyl alcohol*; *Coconut (Cocos nucifera) oil*; *Coumarone/indene resin*; *Dammir*; *Decyl alcohol*; DeMULS SML; DeTHOX ACID O-9; DeTHOX ACID O-14; DeTHOX ACID O-16; *Diocetyl sodium sulfosuccinate*; DK-230; Nonsilicone Defoamer; *Elemi gum*; *Epoxy, bisphenol A*; *Epoxy, bisphenol F*; *Epoxy resin*;

*Ethylene/VA copolymer*; *Glycerol rosinate*; *Hydrogenated castor oil*; *Hydrogenated polybutene*; *Hydroxyethylcellulose*; *Isobutylene/isoprene copolymer*; *Jayflex® DINA*; *Jayflex® DNP*; *Lecithin*; Leukonol LBA-2; Loxiol® G 10; Loxiol® G 15; Loxiol® G 23; Loxiol® HOB 7111; Loxiol® HOB 7169; *Melamine-formaldehyde resin*; *Melamine-formaldehyde resin, butylated*; *Melamine-formaldehyde resin, isobutylated*; *Methylcellulose*; *Methyl rosinate*; *Myristyl alcohol*; *Natural rubber*; Naugard® 10; *Nitrocellulose*; *Nonoxynol-55*; *Nonoxynol-70*; *Nonyl nonoxynol-8*; *Nonyl nonoxynol-10*; *Nonyl nonoxynol-150*; *PEG tetramethyl decyenediol*; *Pentaerythrityl rosinate*; *Phenolic resin*; *Phenoxy resin*; *Polybond® 3002*; *Polybond® 3150*; *Polychloroprene*; *Poly [2-(diethylamino) ethyl methacrylate] phosphate*; *Polyester resin, thermosetting*; *Polyethylene*; *Polyethylene glycol*; *Polyethylene, oxidized*; *Poly- $\alpha$ -methylstyrene*; *Polyox® WSR 205*; *Polyox® WSR 301*; *Polyox® WSR 303*; *Polyox® WSR 308*; *Polyox® WSR 3333*; *Polyox® WSR Coagulant*; *Polyox® WSR N-10*; *Polyox® WSR N-12K*; *Polyox® WSR N-60K*; *Polyox® WSR N-80*; *Polyox® WSR N-750*; *Polyox® WSR N-3000*; *Propylglylene*; *Polystyrene*; *Polyvinyl acetate*; *Polyvinyl alcohol*; *Polyvinyl butyral*; *Polyvinyl chloride*; *Polyvinyl formal*; *Polyvinyl stearate*; *PVP*; *Rubber, chlorinated*; *Rubber hydrochloride*; *Sandarac (Callitris quadrivalvis) gum*; *Shellac*; *Sodium lauryl sulfate*; *Sodium oleate*; *Sodium phosphate dibasic anhydrous*; *Sodium polyacrylate*; *Sodium stearate*; *Sodium 2-sulfoethyl methacrylate*; *Stearyl alcohol*; *Styrene/acrylates copolymer*; *Styrene/butadiene polymer*; *Styrene/isobutylene copolymer*; *Styrene/methyl methacrylate copolymer*; *Surfonic® N-550*; *Surfonic® N-700*; *Surfonic® N-1000*; *Tallow amide*; *TEC*; *TEGO® Airex 960*; *TEGO® Airex 970*; *Terpene resin*; *Tetramethyl decyenediol*; *Tetrasodium pyrophosphate*; *Troypersperse W*; *Ureal formaldehyde resin*; *Urealformaldehyde resin, butylated*; *Urealformaldehyde resin, isobutylated*; *Vantac® 6H*; *Vinyl chloride/acrylonitrile copolymer*; *Vinyl chloride/vinyl acetate copolymer*; *Webnix CAL-183*

**coatings, food-contact polyolefin films**  
*Vinyl acetate/crotonic acid copolymer*

**coatings, grease-resistant**  
Hycar® 1578X1

**coatings, heat-seal**  
*Rubber, chlorinated*; *Vinyl acetate/butyl acrylate copolymer*

**coatings, heat-seal: paper**  
Microthene® FA 709-00

**coatings, heat-sealable barrier**  
Elvax® 310; Elvax® 350; Elvax® 360

**coatings, high-gloss: paper**  
NeoCryl® A-630

**coatings, hot-melt: paper**  
Epolene® C-16; Epolene® C-18

**coatings, impregnating hydrogel**  
*Glycidyl methacrylate*

**coatings, industrial**  
Ageflex FA-2; *Ammonium nonoxynol-9 sulfate*; *Ammonium nonoxynol-30 sulfate*; *Dihexyl sodium sulfosuccinate*; *Dimethylaminoethyl methacrylate*; *Sodium laurth sulfate*; *Tetramethyl decyenediol*; *Vinyl acrylic copolymer*

**coatings, nonporous substrates**  
Novapol® LC-0717-A

**coatings, oil-based**  
PPG-36 oleate

**coatings, paper**  
Abalyn®; Acronal® S 728; Admex® 515; Ageflex FM-10; Airflex® CE35; Airflex® CF50; Albrit® Isooctyl Acid Phosphate; *Amylase*; *Barium*

sulfate; Beetle® 1047; Bis(methylethyl)-1,1'-biphenyl; Butofan®; s-Butyl acetate; 2-Butyl octanoic acid; CA-398-3; CA-398-6; CA-398-10; CAB-553-0.4; Calcium resinate; Calcium sulfite; CD-401; CD-406; CD 501; Cellulose; Cellulose acetate propionate; Cetylarchidol; Chempol 13-1905; CN 104; CN 104 A80; CN 112 C60; CN 117; CN 118; CN 120; CN 120 A75; CN 120 B60; CN 120 B80; CN 120 C60; CN 120 C80; CN 120 D80; CN 120 E50; CN 120 M50; CN 124; CN 292; CN 953 B70; CN 963 A80; CN 963 B80; CN 963 E75; CN 963 E80; CN 963 J85; CN 964 A85; CN 970 A60; CN 970 E60; CN 970 H75; CN 972; CN 973 A80; CN 973 H85; CN 973 J75; CN 978; CN 980; CN 980 M50; CN 981 A75; CN 982 A75; CN 982 B88; CN 982 E75; CN 982 P90; CN 983; CN 983 B88; CN 985 B88; Coatmaster® K50F; Coatmaster® K500; Crisanol FH-1400; Cumar® LX®-509; Dammar; 2-Decyl tetradecanoic acid; 2-Decyl-1-tetradecanol; Desmocap®; Desmolac®; Desmotherm®; Dibutyl phthalate; Diisobutyl sodium sulfosuccinate; Dodecylhexadecanol; Ebecryl® 600; Ebecryl® 3720-HD20; Elemi gum; Emersol® 869; Emersol® 872; Epolene® N-10; Epolene® N-10P; Estane® 5715; Ethylene/butyl acrylate copolymer; FC-520; Foamkill® 618; Foamkill® 830; Harol D; Heveatec NR; Hi-Mar DFC-21; Hycar® 1552; Hycar® 1561; Hycar® 1562; Hycar® 1572; Hycar® 1572X64; Hycar® 1577; Hycar® 1578X1; Hycar® 26084; Isodecyl methacrylate; Isooctyl acid phosphate; K-Cure® 1040; K-Cure® 1040W; K-Flex® UD-320; K-Flex® UD-320-100; Masil® SFR 100; Masil® SFR 750; Masil® SFR 2000; Masil® SFR 3500; Masil® SFR 50,000; Melamine-formaldehyde resin, methylated; Methyl acrylate; Microthene® FA 700-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Microthene® MN 701-00; Microthene® MN 710-20; Milk protein; MP-22; MP-22C; MP-22VF; MP-22XF; MT 15-120; MT 1970-D; Nevchem® 70; Nevchem® 100; Nevchem® 110; Nevchem® 120; Nevchem® 130; Nevchem® 140; Nevchem® 150; Nevex® 100; Nonoxynol-30; Nonoxynol-40; Nonoxynol-50; N® Sodium Silicate; Octomer DOM; Octowax 437; 2-Octyl dodecanoic acid; Paraffin; PEG-4; PEG-6; PEG-8; PEG-9; PEG-12; PEG-14; PEG-16; PEG-20; PEG-32; PEG-40; PEG-75; PEG-100; PEG-150; PEG-200; PEG-350; Perbunan N Latex 2818; Perbunan N Latex 3310; Perbunan N Latex 3415 M; Perbunan N Latex T; Perbunan N Latex VT; Photomer® 3016-40R; Photomer® 4158; Photomer® 6210; Plectron® 430; Polyester tetraacrylate; Polyethylene; Polyethylene glycol; Polyethylene, low-density; Polysol®; Polyvinyl acetate; Polyvinyl chloride; PPG-3 trimethylolpropane triacrylate; PPG-6 trimethylolpropane triacrylate; Propylene glycol alginate; Q-Thane® QW20-1; Q-Thane® QW28; Q-Thane® TE2028; Rohamere® 132; Rohamere® 977; Ross Candelilla Wax; Sancure® 1511; Sarbox® SB 500 E50; Sarbox® SB 500 K60; Sarbox® SB 510 E35; Sarbox® SB 520 E35; Sarbox® SB 520 M35; SMA® 1000; SMA® 2000; SMA® 3000; Sodium abietate; Sodium allyloxy hydroxypropyl sulfonate; Sodium laureth sulfate; SPA; SPI; SPM; SR 205; SR 268; SR 306HP; SR 399; SR 454HP; SR 492; SR 499; SR 502; SR 9003; SR 9020; SR 9020HP; SR 9021; SR 9035; SR 9209; Starwax® 100; Stearyl methacrylate; Styronal™ BN 4204; Suprapal®; Tiona® A-2000; TLV 68-SB; TLV 68-UB; TLV

70-SB; TLV 70-UB; Upaco® 2956; Vinac® A50; Vinac® Z 50; Vinyl acetate/butyl acrylate copolymer; Vinyl acetate/ethylene/vinyl chloride terpolymer; Vinylidene chloride copolymer; Water; W.G.S. Hydrogenated Fish Glyceride 128; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS

**coatings, paper AP conversions**  
B20F; B200

**coatings, paper plate**  
Tykote 2400C

**coatings, paper: aq./fatty food-contact**  
Sodium silicoaluminate; Sodium 2-sulfoethyl methacrylate; Styrene/acrylates copolymer; Styrene/butadiene/vinylidene chloride copolymer; Styrene/dimethylstyrene/α-methylstyrene copolymer; Styrene/isobutylene copolymer; Styrene/MA copolymer; Styrene/vinylidene chloride copolymer; Vinyl acetate/ethylene/N-(hydroxymethyl) acrylamide copolymer

**coatings, paper: concrete bags**  
Tykote WTR-3; Tykote WTR-AF

**coatings, paper: conductive**  
Diethylaminoethyl acrylate

**coatings, paper: detergent boxes**  
Tykote WTR-3; Tykote WTR-AF

**coatings, paper: dry-mix bags**  
Tykote WTR-3; Tykote WTR-AF

**coatings, paper: electroconductive**  
Blemmer QA

**coatings, paper: food pkg.**  
PolyFree; PolyFree OC

**coatings, paper: food-contact**  
Aqua Superslip 6550; Beetle® 216-8; Beetle® 227-8; Beetle® 1032-10; Beetle® 1047; Beetle® 1050; CA-394-60S; CA-398-3; CA-398-6; CA-398-10; CA-398-30; Cymel® 245-8; Cymel® 247-10; Cymel® 248-8; Cymel® 255-10; Cymel® 1158; Melmac® 243-3; Polyisobutene; Sodium borate; Sodium dodecylbenzenesulfonate

**coatings, paper: grease-resistance**  
Michem® Coat 50 Series; Michem® Coat 500 Series

**coatings, paper: heat transfer printing applics.**  
RC 8003

**coatings, paper: heat-seal**  
Nucrel® 0407; Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214; Nucrel® 3990

**coatings, paper: liq.**  
Microthene® FA 709-00

**coatings, paper: oil-resistance**  
Michem® Coat 50 Series; Michem® Coat 500 Series

**coatings, paper: paper wraps**  
Tykote WTR-3; Tykote WTR-AF

**coatings, paper: paperboard wraps**  
Tykote WTR-3; Tykote WTR-AF

**coatings, paper: tie layer**  
Nucrel® 0407; Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214; Nucrel® 3990

**coatings, paper: UV-curable**  
RC 8005

**coatings, paper: water-resistance**  
Michem® Coat 50 Series; Michem® Coat 500 Series

**coatings, paperboard**  
Coatmaster® K500; Ebecryl® 600; Photomer® 3016-40R

**coatings, paperboard: aq./fatty food-contact**  
Sodium silicoaluminate; Sodium 2-sulfoethyl methacrylate; Styrene/acrylates copolymer; Styrene/butadiene/vinylidene chloride copolymer; Styrene/dimethylstyrene/α-methylstyrene copolymer; Styrene/isobutylene copolymer; Styrene/MA copolymer; Styrene/vinylidene chloride copolymer; Vinyl acetate/

ethylene/N-(hydroxymethyl) acrylamide copolymer

**coatings, paperboard: food-contact**  
Aqua Superslip 6550; Beetle® 216-8; Beetle® 227-8; Beetle® 1032-10; Beetle® 1047; Beetle® 1050; CA-394-60S; CA-398-3; CA-398-6; CA-398-10; CA-398-30; Cymel® 245-8; Cymel® 247-10; Cymel® 248-8; Cymel® 255-10; Cymel® 1158; Melmac® 243-3

**coatings, paraffin copolymer**  
Epolene® C-16; Epolene® C-18

**coatings, paraffin wax**  
Epolene® C-16; Epolene® C-18

**coatings, PC film: food-contact**  
Vinylidene chloride copolymer

**coatings, photographic paper**  
Vestolen® A5016

**coatings, photosensitive**  
Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 85-30; Elvanol® 85-82

**coatings, pigmented paper**  
Geo FM® DF-122; Geo FM® DF-122-NS

**coatings, polymeric: food-contact**  
Hoechst Wax PE 890

**coatings, polymerization**  
Ammonium polymethacrylate

**coatings, protective**  
Candelilla (Euphorbia cerifera) wax; Castor (Ricinus communis) oil; Cellulose acetate butyrate; Coumarone/indene resin; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Glyceryl stearate; HB-40®; Multiwax® ML-445; Naphtha; Paracol® 404G; PEG-2 stearate; PEG-2 stearate SE; Pentaerythritol hydrogenated rosinate; Polyester resin, thermosetting; Polysorbate 60; Polystix® 90 Resin; Ross Carnuba Wax; Synthetic wax; Triethylenetetramine; Vybar® 103; Xylene

**coatings, protective paper: food pkg.**  
Tykote 2200C; Tykote 2300C

**coatings, protective paper: food wraps**  
Tykote 2300C

**coatings, protective paper: liners**  
Tykote 2300C

**coatings, protective paper: multiwall bags**  
Tykote 2300C

**coatings, protective: paper**  
Caprolactone acrylate monomer; SR 495; Witcobond® W-213

**coatings, protective: pulp/paper mill bleaching operations**  
Dykor® 204

**coatings, pulp/paper mills**  
Araldite® PY 302-2

**coatings, release: paper**  
TEGO® RC 704; TEGO® RC 705; TEGO® RC 706; TEGO® RC 708; TEGO® RC 711; TEGO® RC 726

**coatings, release: syn. films**  
TEGO® RC 704; TEGO® RC 705; TEGO® RC 706; TEGO® RC 708; TEGO® RC 711; TEGO® RC 726

**coatings, resinous/polymeric food-contact**  
AF 645:35; Agitan® 650; Agitan® B 13; Disponil® SUS IC 865; Esi-Rez™ 50; Esi-Rez™ 53; Formasil® 45; Hoechst Wax PED 121; L-45 Series; Shamrock Hydrocer EC 98; Sodium MBT; Struktol® PE H-100

**coatings, resinous/polymeric: food pkg.**  
PEG-4 castor oil; PEG-54 castor oil

**coatings, resinous/polymeric: food-contact**  
AF 645:35; Agitan® 650; Agitan® B 13; Aluminum stearates; Behenyl hydroxyethyl imidazoline; Calcium monocarbonate; Diethyl sodium sulfosuccinate; Disponil® SUS IC 865; Esi-Rez™ 50; Esi-Rez™ 53; Formasil® 45; Hoechst Wax PED 121; L-45 Series; Menhaden oil; α-Methyl styrene/acrylic acid copolymer; α-Methyl styrene/butyl acrylate copolymer; α-Methyl styrene/2-ethylhexylacrylate copolymer;

- α*-Methyl styrene/methacrylic acid copolymer; *α*-Methyl styrene/methyl methacrylate copolymer; PEG-2 castor oil; PEG-100 castor oil; PEG-200 castor oil; PEG-8 cocoate; PEG-15 cocoate; PEG-20 corn glycerides; PEG-60 corn glycerides; PEG-2 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-12 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-2 distearate; PEG-20 distearate; PEG-32 distearate; PEG-8 di/triricinoleate; PEG-40 glyceryl cocoate; PEG-12 glyceryl dioleate; PEG-12 glyceryl laurate; PEG-20 glyceryl laurate; PEG-15 glyceryl oleate; PEG-20 glyceryl oleate; PEG-15 glyceryl ricinoleate; PEG-20 glyceryl ricinoleate; PEG-20 laurate; PEG-32 laurate; PEG-2M; PEG-5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; PEG-90M; PEG-115M; PEG-8 myristate; PEG-20 myristate; PEG-4 octanoate; PEG-4 oleate; PEG-6 oleate; PEG-9 oleate; PEG-10 oleate; PEG-14 oleate; PEG-20 oleate; PEG-32 oleate; PEG-36 oleate; PEG-75 oleate; PEG-150 oleate; PEG-20 palmitate; PEG-8 ricinoleate; PEG-8 sesquiolaurate; PEG-8 sesquioleate; PEG-40 sorbitan hexaoleate; PEG-40 sorbitan laurate; PEG-80 sorbitan laurate; PEG-3 sorbitan oleate; PEG-6 sorbitan oleate; PEG-40 sorbitan peroleate; PEG-6 sorbitan stearate; PEG-40 sorbitan stearate; PEG-40 sorbitan tetraoleate; PEG-4 stearate; PEG-6 stearate; PEG-20 stearate; PEG-32 stearate; PEG-40 stearate; PEG-100 stearate; PEG-4 tallate; PEG-8 tallate; PEG-16 tallate; PEG-20 tallate; PEI-1500; Pentaerythrityl tetracocoate; Phosphoric acid; Polyacrylic acid; Polyethylacrylate; Polyethylenimine; Polyethyl methacrylate; Polysorbate 21; Polysorbate 61; Polysorbate 81; Potassium stearate; PPG-17 dioleate; PPG-26 oleate; PPG-36 oleate; Propylene glycol dicaprylate; Propylene glycol dicocoate; Propylene glycol dilaurate; Propylene glycol distearate; Propylene glycol myristate; Propylene glycol oleate; Propylene glycol soyate; Propylene glycol stearate; Safflower (*Carthamus tinctorius*) oil; Sesame (*Sesamum indicum*) oil; Silica, hydrated; Sodium MBT; Soybean (*Glycine soja*) oil; Struktol® PE H-100; Styrene/acrylic acid copolymer; Styrene/butyl acrylate copolymer; Styrene/2-ethylhexyl acrylate copolymer; Styrene/isobutylene copolymer; Styrene/methacrylic acid copolymer; Sunflower (*Helianthus annuus*) seed oil; Tall oil acid; Vinyl chloride/acrylonitrile copolymer; Vinylidene chloride/methyl acrylate copolymer; Vinylidene chloride/propyl acrylate copolymer; Zinc rosinate
- coatings, resinous/polymeric: food-contact, for polyolefin films**  
PEI-1400
- coatings, resinous/polymeric: polyolefin films, food-contact**  
Aluminum myristates/palmitates; Ammonium oleate; Ammonium stearate; Ammonium tallate; Magnesium cocoate; Microcrystalline wax; PEI-15; PEI-30; PEI-275; PEI-1000; PEI-1750; PEI-2500; Polyacrylic acid; Sodium cocoate; Sodium laurate; Sodium myristate; Sodium tallowate; Sorbitan sesquioleate; Tallow acid
- coatings, resinous/polymeric: polyolefin films, food-contacts**  
PEI-700
- coatings, resinous/polymeric: polyolefin food pkg.**  
Methylstyrene/vinyltoluene copolymer
- coatings, solvent**  
Butyl acrylate; Butyl methacrylate; PEG-12 dioleate
- coatings, solventless**  
PEG-12 dioleate
- coatings, special paper**  
Etopol 62-L; Etopol 63-L
- coatings, specialty**  
PAPHEN® PKHM-301
- coatings, specialty: films**  
Elvacite® 2008, 2009, 2010, 2021, 2041, 6010; Elvacite® 2013, 2014, 2016, 2028, 2614, 2550, 2552, 6016; Elvacite® 2042, 2043; Elvacite® 2044, 2045, 2046
- coatings, specialty: reproduction paper**  
Elvacite® 2008, 2009, 2010, 2021, 2041, 6010; Elvacite® 2013, 2014, 2016, 2028, 2614, 2550, 2552, 6016; Elvacite® 2042, 2043; Elvacite® 2044, 2045, 2046
- coatings, surface**  
Acrylamide; Acrylates copolymer; Crill 4; Diethylaminoethanol; Dimer acid, hydrogenated; Epoxy, bisphenol F; 2,2',4,4',5,5'-Hexachlorobiphenyl; Polyurethane, polyester; Polyvinyl alcohol; Terpene-phenolic resin
- coatings, surface: paper**  
Cyastat® SN
- coatings, surface: paperboard**  
Vinsol® Resin
- coatings, top: films**  
Shamrock Neptune I N1; Shamrock Neptune I SP5
- coatings, top: paper**  
Shamrock Neptune I N1; Shamrock Neptune I SP5
- coatings, UV light reflecting**  
ZAA
- coatings, UV/EB-curable: paper**  
CN 981; CN 981 B88
- coatings, waterproof**  
Isobutyl stearate
- coatings, waterproofing**  
Multiwax® ML-445
- coatings, waterproofing heat-seal: paper**  
Microthene® FA 700-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00
- coatings, water-resistant**  
Hycar® 1578X1
- coatings, white: multiwall paper bags**  
Bag White 9
- coatings, white: paper**  
ColorCoat White 2A™; Max White 5R™; Mill White 5™; Rod White 950™
- coatings, Yankee dryer**  
Unisoft® Yankee Dryer Coating
- coatings: pigment: paper/board**  
Hydrocarb 60-ME 78%; Hydrocarb 75-ME 78%; Hydrocarb 90-ME 78%
- cobinder, board coatings**  
Acrosol™ C 50 L
- cobinder, paper**  
Pro-Cote®
- cobinder, paper coatings**  
Acrosol®; Acrosol™ C 50 L
- cobinder, paper saturation**  
Styronal™ ND 834
- cobinder, paperboard**  
Pro-Cote®
- cobinder, paperboard coatings**  
Acrosol™ PR 8720 X
- coefficient of friction reducer, board**  
Nopcote® DC-1153
- coefficient of friction reducer, paper**  
Nopcote® DC-1153
- coefficient of friction reducer, rigid pkg. coatings**  
Shamrock S-400 N1; Shamrock S-400 N5; Shamrock S-400 SP5
- coemulsifier**  
Alkamul® EL-620; Antarox® PGP 23-7; Cetolet-2; Cetolet-3; Cetolet-6; Glyceryl distearate; Hyonic® OP-100; Isostearyl alcohol; Propylene glycol oleate; Teric™ N30; Trideceth-2; Trideceth-8; Trycol® 5941; Trycol® 6970
- coemulsifier, acrylate-vinyl acetate copolymers**  
Disponil® AAP 307; Disponil® AAP 436
- coemulsifier, coatings**  
C20-40 alcohols; Imbentin-N/7 A; Imbentin-N/O20 I; Imbentin-OAM/O20; Imbentin-TAM/O20
- coemulsifier, emulsion polymerization**  
Imbentin-N/7 A; Imbentin-N/O20 I; PEG-4 castor oil
- coemulsifier, mineral oils**  
Teric™ 127
- coemulsifier, papermaking**  
Imbentin-N/7 A; Imbentin-N/O20 I; Imbentin-OAM/O20; Imbentin-TAM/O20
- coemulsifier, paraffinic waxes**  
Teric™ 127
- coemulsifier, polyacrylates**  
Disponil® AAP 307; Disponil® AAP 436
- coemulsifier, polymerization**  
Sodium 2-ethylhexyl sulfate
- coemulsifier, pulp/paper**  
Propylene glycol laurate
- coemulsifier, silicone emulsions**  
PEG-4 castor oil
- coemulsifier, solvents**  
Teric™ 127
- coemulsifier, syn. esters**  
Chemax HCO-5
- coemulsifier, syn. latexes**  
Nonyl nonoxynol-15
- coemulsifier, vinyl acetate copolymers**  
Avirol® SA 4106
- coemulsifier, vinyl chloride**  
Avirol® SA 4106
- coemulsifier, wax emulsions**  
Imbentin-N/7 A; Imbentin-N/O20 I; PEG-4 castor oil
- cofoam builder, latex foams**  
Sodium tallow sulfate
- color base**  
Hoechst Wax LP; Hoechst Wax S; Hoechst Wax UL
- color concs.**  
Polywet® ND-2
- color developer, carbonless copy paper**  
Copsisil®
- color developer, chemical test paper**  
Copsisil®
- color developer, heat-sensitive recording paper**  
Nipabenzyl
- color developer, thermoreactive paper**  
Copsisil®
- color dispersion, paper**  
Octotint 120; Octotint 138; Octotint 150; Octotint 155; Octotint 572; Octotint 601; Octotint 825
- color enhancer**  
Cetyl alcohol; Polyethylene, low-density
- color enhancer, color concs.**  
Ethylene/VA copolymer; Luwax® OA; Luwax® OA 3; Luwax® OA 5
- color purification, coatings**  
Sodium borohydride
- color purification, laminates**  
Sodium borohydride
- color removal, influent/effluent waters**  
Bufloc® 5551; Bufloc® 5554
- color remover**  
Sodium aluminate
- color remover, water treatment**  
Calcium hydroxide; Calcium oxide; Ozone
- colorant, carbon paper**  
Black Pearls® L; Carbon black; Mogul® L
- colorant, cigarette paper**  
Tronox A-X; Tronox R-PL-1
- colorant, coatings**  
Aluminum; Black Pearls® L; Pigment blue 15:3;

**colorant, dry toners**

*Pigment yellow 150*; Ponolith™ Supra Black B Liq.; Ponolith™ Supra Yellow GY Liq.; Ponolith™ Supra Yellow RD Liq.

**colorant, dry toners**

Black Pearls® L

**colorant, fine paper**

Levacell® Scarlet KS BP Liq.; Levacell® Yellow 2GNX; Pontamine™ Beige FX Liq.; Pontamine™ Black LFS; Pontamine™ Brilliant Blue A; Pontamine™ Brilliant Blue A2G Liq.; Pontamine™ Brilliant Blue A Liq.; Pontamine™ Brilliant Violet 6B Liq. 50; Pontamine™ Fast Red 8BLX; Pontamine™ Fast Red BA Liq. New; Pontamine™ Fast Scarlet 4BA; Pontamine™ Fast Yellow 5GF Liq.; Pontamine™ Fast Yellow E-2G Liq.; Pontamine™ Grey K-CGL; Pontamine™ Kraft Brown JCC Liq.; Pontamine™ Orange OCC Liq.; Pontamine™ Violet BBN Liq.; Pontamine™ Yellow 3GRC; Pontamine™ Yellow GFB Liq.; Pontamine™ Yellow GG-N Liq.; Pontamine™ Yellow GX; Tronox A-X; Tronox R-PL-1

**colorant, finishes**

*Copper phthalocyanine blue*

**colorant, food pkg. polymers**

*Aluminum; Aluminum distearate; Aluminum hydroxide; Aluminum stearate; Aluminum tristearate; Kaolin*

**colorant, food-contact polymers**

*Barium sulfate; Bentonite; Calcium monocarbonate; Calcium silicate; Calcium sulfate; Carbon black; Chromium oxide (ic); Cobalt aluminate; Copper phthalocyanine blue; Diatomaceous earth; Iron oxides; Magnesium oxide; Mica; Pigment violet 19; Silica; Talc; Titanium dioxide; Zinc carbonate; Zinc oxide; Zinc sulfide*

**colorant, food-grade polymers**

*Ferric oxide; Iron oxide black*

**colorant, gravure**

Regal® SRF-S; Sterling® R

**colorant, ligneous pulp**

Vernoa™ Basic Black S Liq.; Vernoa™ Basic Blue GS Liq.; Vernoa™ Basic Blue RFK Liq.; Vernoa™ Basic Brown Y Liq.; Verona™ Basic Green M Powd.; Vernoa™ Basic Red 4B Liq.; Vernoa™ Basic Red 4G Liq.; Vernoa™ Basic Violet 2B Liq.; Vernoa™ Basic Yellow 7GLL Liq.; Vernoa™ Basic Yellow 10G Liq.

**colorant, newsprint paper**

Vernoa™ Basic Black S Liq.; Vernoa™ Basic Blue GS Liq.; Vernoa™ Basic Blue RFK Liq.; Vernoa™ Basic Brown Y Liq.; Verona™ Basic Green M Powd.; Vernoa™ Basic Red 4B Liq.; Vernoa™ Basic Red 4G Liq.; Vernoa™ Basic Violet 2B Liq.; Vernoa™ Basic Yellow 7GLL Liq.; Vernoa™ Basic Yellow 10G Liq.

**colorant, paper**

*Acid violet 49; Acilan™ W Liq.; Aquis®; Black Pearls® 450; Copper phthalocyanine blue; Pigment yellow 65; Pigment yellow 150; Regal® 300R; Regal® 330; Regal® 330R*

**colorant, paper coatings**

*Copper phthalocyanine blue; Stabiloid® 833-0042; Stabiloid® 833-0048; Stabiloid® 833-0549; Stabiloid® 833-0575; Stabiloid® 833-0665; Stabiloid® 833-1022; Stabiloid® 833-1833; Stabiloid® 833-2826; Stabiloid® 833-9919*

**colorant, paper coatings**

Stabiloid® 833-9927

**colorant, paper saturation**

Stabiloid® 833-0042; Stabiloid® 833-0048; Stabiloid® 833-0549; Stabiloid® 833-0575; Stabiloid® 833-0665; Stabiloid® 833-1022; Stabiloid® 833-1833; Stabiloid® 833-2826; Stabiloid® 833-9919; Stabiloid® 833-9927

**colorant, paper surfacing**

*Phthalocyanine green*

**colorant, paper/paperboard: aq./fatty food-contact**

*Aluminum; Aluminum distearate; Aluminum*

*hydroxide; Aluminum stearate; Aluminum tristearate; Barium sulfate; Bentonite; Calcium silicate; Calcium sulfate; Cobalt aluminate; Copper phthalocyanine blue; Diatomaceous earth; Iron oxides; Kaolin; Magnesium oxide; Mica; Silica; Talc; Tartrazine; Titanium dioxide; Zinc carbonate; Zinc oxide*

**colorant, resins**

*Copper phthalocyanine blue*

**colorant, sizing**

*Copper phthalocyanine blue*

**colorant, specialty paper**

Levacell® Scarlet KS BP Liq.; Levacell® Yellow 2GNX; Pontamine™ Beige FX Liq.; Pontamine™ Black LFS; Pontamine™ Brilliant Blue A; Pontamine™ Brilliant Blue A2G Liq.; Pontamine™ Brilliant Blue A Liq.; Pontamine™ Brilliant Violet 6B Liq. 50; Pontamine™ Fast Red 8BLX; Pontamine™ Fast Red BA Liq. New; Pontamine™ Fast Scarlet 4BA; Pontamine™ Fast Yellow 5GF Liq.; Pontamine™ Fast Yellow E-2G Liq.; Pontamine™ Grey K-CGL; Pontamine™ Kraft Brown JCC Liq.; Pontamine™ Orange OCC Liq.; Pontamine™ Violet BBN Liq.; Pontamine™ Yellow 3GRC; Pontamine™ Yellow GFB Liq.; Pontamine™ Yellow GG-N Liq.; Pontamine™ Yellow GX; Tronox A-X; Tronox R-PL-1

**colorant, tissue paper**

Levacell® Scarlet KS BP Liq.; Levacell® Yellow 2GNX; Pontamine™ Beige FX Liq.; Pontamine™ Black LFS; Pontamine™ Brilliant Blue A; Pontamine™ Brilliant Blue A2G Liq.; Pontamine™ Brilliant Blue A Liq.; Pontamine™ Brilliant Violet 6B Liq. 50; Pontamine™ Fast Red 8BLX; Pontamine™ Fast Red BA Liq. New; Pontamine™ Fast Scarlet 4BA; Pontamine™ Fast Yellow 5GF Liq.; Pontamine™ Fast Yellow E-2G Liq.; Pontamine™ Grey K-CGL; Pontamine™ Kraft Brown JCC Liq.; Pontamine™ Orange OCC Liq.; Pontamine™ Violet BBN Liq.; Pontamine™ Yellow 3GRC; Pontamine™ Yellow GFB Liq.; Pontamine™ Yellow GG-N Liq.; Pontamine™ Yellow GX

**colorant, water systems**

Stabiloid® 833-0042; Stabiloid® 833-0048; Stabiloid® 833-0549; Stabiloid® 833-0575; Stabiloid® 833-0665; Stabiloid® 833-1022; Stabiloid® 833-1833; Stabiloid® 833-2826; Stabiloid® 833-9919; Stabiloid® 833-9927

**colorant, waxes**

*Arachidic acid; Behenic acid; Candelilla (Euphorbia cerifera) wax; Glycol*

**colorant, wood coatings**

*Copper phthalocyanine blue*

**colorant, wood-containing printing paper**

Vernoa™ Basic Black S Liq.; Vernoa™ Basic Blue GS Liq.; Vernoa™ Basic Blue RFK Liq.; Vernoa™ Basic Brown Y Liq.; Verona™ Basic Green M Powd.; Vernoa™ Basic Red 4B Liq.; Vernoa™ Basic Red 4G Liq.; Vernoa™ Basic Violet 2B Liq.; Vernoa™ Basic Yellow 7GLL Liq.; Vernoa™ Basic Yellow 10G Liq.

**coloring, highly lightfast paper**

Pigmosol®

**compatibilizer**

Epolene® C-16; Epolene® C-18; Polybond® 3002; Polybond® 3150; Triaryl phosphate

**compatibilizer, ethylene-vinyl acetate systems**

Nevex® 100

**compatibilizer, hot-melt coatings**

Acrawax® C

**compatibilizer, polymers**

Escor® AT-310; Escor® AT-320; Escor® AT-325

**compatibilizer, polymers/blends for paper coatings**

*Ethylene/MA copolymer*

**compatibilizer, substrates for paper coatings**

*Ethylene/MA copolymer*

**compatibilizer, wax systems**

Nevex® 100

**complexing agent, heavy metal ions**

PEI-1500

**complexing agent, iron: cooling water systems**

*Citric acid*

**complexing agent, paper**

PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120

**complexing agent, pulp bleaching: paper**

Trilon® PC

**complexing agent, starch**

*Glycerol palmitate/stearate*

**compounding agent, paper**

Airvol® 205; Airvol® 523; Airvol® 540

**compounding agent, polymerization**

*Polyvinyl alcohol (partially hydrolyzed)*

**condensate protectant, pulp/paper mill boiler systems**

OptiGuard™

**conditioner**

*Calcium stearate; Diatomaceous earth; Solan E; Solan X; Soyamidopropyl dimethylamino gluconate*

**conditioner, alkaline**

Felt Cleaner P-70155

**conditioner, felt**

FeltECCel™ 905

**conditioner, felt/fabric: pulp/paper, batch treatments**

Vinfelt®

**conditioner, felt/fabric: pulp/paper, continuous treatments**

Vinfelt®

**conditioner, felt: paperboard**

Presstige™

**conditioner, felt: press section roll treatment**

Presstige™

**conditioner, felt: pulp/paper**

Presstige™

**conditioner, industrial**

*Quaternium-18*

**conditioner, paper**

Carsoquat® SDQ-25; Micro-Cel® T-26; Micro-Cel® T-49; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000

**conditioner, paperboard**

Micro-Cel® T-26

**conditioner, papermaking**

Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP

**conditioner, pulp/paper**

*Linoleamide dimethylamino lactate; Paxogen COB; Paxogen LAO; Polypax EGDS; Polypax EGMS; Polyquat 188*

**conditioner, silicone emulsification**

*Ceteth-2*

**conditioner, sludge**

*Ferric chloride; Floclair® HKL; Floclair® LP 15; Floclair® LP 25; Sodium p-styrenesulfonate; Spinomar NaSS*

**conditioning base, paper**

*Trilauryl phosphate*

**conductor, pulp/paper**

Adeka Catioace DM-30A

**containers, paper**

Polysat® 2015

**converting/printing improver, wood-containing paper grades**

Keydime® NU

**cooling water treatment**

*Calcium hypochlorite; Dequest® 2060*

**copolymerization, paper**

*Itaconic acid*

**copolymerization, plasticizers**

*Itaconic acid*

**copolymerization, PVC**

*Diocetyl maleate*

**copolymerization, resins**

- Itaconic acid*  
**copolymerization, vinyl acetates**  
*Diocetyl maleate*  
**copper deposits removal**  
*Citric acid*  
**corrosion inhibition**  
*Oleic amidoethylimidazoline; Sodium diethylenetriaminepentakis (methylene phosphonate)*  
**corrosion inhibitor**  
 Ageflex FM-1; Albrite® N-Butyl Acid Phosphate; Albrite® Isooctyl Acid Phosphate; Alkasurf® CO-630; Alkasurf® CO-710; Alkasurf® CO-720; *Alkenyl succinic anhydride; Alkenyl Succinic Anhydride C1618 (ASA); Amine D®; Amino-methyl propanol; Ammonium bromide; Armeen® 2C; ASA 100; Baypren Latex 4 R; Baypren Latex B; Baypren Latex GK; Baypren Latex MKB; Baypren Latex SK; Baypren Latex T; BHMT Amine; BHMT-HP; Bis-hexamethylenetriamine; Borax; Burco® Imidazoline O; Burco® Imidazoline T; Butyl acid phosphate; Chemquat 12/33; Chemquat 12/50; Chemquat 16/50; Coccoalkonium chloride; Cocotrimonium chloride; Cocoyl hydroxyethyl imidazoline; Crill 1; Crill 2; Deceth-4 phosphate; DeMIDE SBA-100; DeMULS SMO; DePHOS HP-739; DeTHOX TDA-8.5; Dicoamine; Dicoadimonium chloride; Diethylaminoethanol; Diethylenetriamine; Diisopropanolamine; Dimethylaminoethyl methacrylate; Dimethylethanolamine; Eldorado FCD-142; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Ethanolamine; Ethoduomeen® T/20; Ethylene/acrylic acid copolymer; Ethylenediamine; Ethyl hydroxymethyl oleyl oxazoline; Formaldehyde; Hexamethylenetetramine; Hoechst Wax LP; Hydrogenated ditallowamine; Igepal® CA-630; Igepal® CO-630/EP; Imidazoline 18OH; Isooctyl acid phosphate; Isopropanolamine; Isopropyl phosphate; Isostearyl ethylimidonium ethosulfate; Isostearyl hydroxyethyl imidazoline; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; LamChem C-100-L; LamChem C-100-O; LamChem C-100-S; LamChem C-100-T; Lithium hydroxide monohydrate; Lumisorb™ STO; Lumisorb™ STS; Methacrylamidopropyltrimethylammonium chloride; Metso Beads® 2048; Metso Pentabead® 20; Mhoromer® BM 613; Milldride® ODSA; Miramine® CC; Morpholine; Neobor®; Nissan Cation MA; Nissan Cation SA; Nonoxynol-9 phosphate; Nopcate® DC-1153; N® Sodium Silicate; Octadecenyl succinic anhydride; Oleamide DEA; Oleyl hydroxyethyl imidazoline; PEG cocamine; PEG-10 cocamine; PEG-2 oleamine; PEG stearamine; PEG-10 tallow aminopropylamine; Penreco Red; Pentaerythrityl tetraoleate; Pentasodium triphosphate; Phosphoric acid; Polyamidoamine; Polyspartic acid homopolymer, sodium salt; Polysorbate 21; Polysorbate 65; Potassium oleate; Potassium phosphate dibasic; Rhodafac® RE-610; Rhodafac® RS-610; Rhodafac® RS-710; Schercozoline 1; Schercozoline L; Schercozoline S; Sipol NP-10; Sodium benzoate; Sodium bisulfide; Sodium bisulfite; Sodium borate; Sodium borate decahydrate; Sodium dimethyldithiocarbamate; Sodium hydroxide; Sodium 2-mercaptobenzothiazole; Sodium metasilicate; Sodium metasilicate pentahydrate; Sodium phosphate tribasic; Sodium silicate; Sodium sulfite; Sodium tetraborate pentahydrate; Sorbitan oleate; Sorbitan palmitate; Sorbitan tristearate; Soyamide DEA; Stearamide; Stearamide DEA;*
- Stearamine; Steareth-2; Steareth-10; Steareth-20; Stearyl hydroxyethyl imidazoline; Tallamide DEA; Tall oil hydroxyethyl imidazoline; Tallowtrimonium chloride; Teric™ 18M2; Teric™ 18M5; Teric™ 18M10; Teric™ 18M20; Teric™ 18M30; Tetrapotassium pyrophosphate; Tetrasodium pyrophosphate; Thiourea; TLV 68-SB; TLV 68-UB; TLV 70-SB; TLV 70-UB; Tolcide® PS 352C; Tolcide® PS 355A; Trideceth-3; Trideceth-6; Trideceth-9; Trideceth-12; Triethanolamine; Triisopropanolamine; Trilinoleic acid; Trycol® 6961; Tysul® WW 35; Tysul® WW 50; Tysul® WW 70 DG; Vestowax® AO 1535; Vestowax® AO 2733; Wayfos® M-100; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS*  
**corrosion inhibitor, alkaline/acid soak cleaners**  
 Wayfos® D-10N  
**corrosion inhibitor, aq. emulsions containing oil-based ingreds.**  
*Sodium petroleum sulfonate*  
**corrosion inhibitor, aq. systems**  
 Dequest® 2010; Dequest® 2054; Dequest® 2060; D® Sodium Silicate; Octasodium diethylene triamine penta (methylene phosphonate); Potassium hexamethylene diamine tetra (methylene phosphonate); Sodium MBT; Tamol® 731A; Tamol® 808  
**corrosion inhibitor, bleach stabilization**  
 Briquest® 543-45AS  
**corrosion inhibitor, coatings**  
 Busan® 11-M2; Polyethylene, ultrahigh m.w.  
**corrosion inhibitor, condensate**  
*Ammonia*  
**corrosion inhibitor, condensate: paper mills**  
 Formula 44  
**corrosion inhibitor, coolants**  
*Tallamide DEA*  
**corrosion inhibitor, cooling systems**  
*2-Phosphono butane tricarboxylic acid-1,2,4*  
**corrosion inhibitor, cooling water treatment**  
*Aminotrimethylene phosphonic acid; Dequest® 2000; Dequest® 2006; Dequest® 2066; Sulfamic acid*  
**corrosion inhibitor, copper: water treatment**  
*Sodium 2-mercaptobenzothiazole*  
**corrosion inhibitor, emulsions**  
*Lauryl hydroxyethyl imidazoline*  
**corrosion inhibitor, flocculation**  
*Stearamine acetate*  
**corrosion inhibitor, flotation frothing agent: minerals**  
*Stearamine acetate*  
**corrosion inhibitor, industrial water systems**  
*Hexamethylene diamine tetra (methylene phosphonate)*  
**corrosion inhibitor, kaolin clay slurries**  
 Dequest® 2016 D Powder  
**corrosion inhibitor, kraft pulp paper mills: cooling water**  
 Belcene® 283  
**corrosion inhibitor, kraft pulp paper mills: industrial water**  
 Belcene® 283  
**corrosion inhibitor, lubricants**  
 PEG-20 stearamine; PEG-30 stearamine  
**corrosion inhibitor, lubricating oils**  
*Dodecenylnsuccinic anhydride; Hexadecenyl succinic anhydride*  
**corrosion inhibitor, paper**  
 Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Igepal® CO-630; Igepal® CO-660; Igepal® CO-710; Igepal® CO-720; Lauritrimonium chloride; Nopcozen 22-O; PVM/MA copolymer; Schercozoline O; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP  
**corrosion inhibitor, paper machine lubrication systems**  
 PMO Ashless 150; PMO Ashless 220; PMO Ashless 320; PMO Ashless 460  
**corrosion inhibitor, paper reclamation**  
 Drymet® 59; Drymet® Fines  
**corrosion inhibitor, paper softening**  
 Arquad® 2HT-75; Arquad® 2HT-75PG  
**corrosion inhibitor, paper surface treatment: high speed copier paper**  
 Elfugin® AKT Liq.  
**corrosion inhibitor, paper surface treatment: noncontact printing paper**  
 Elfugin® AKT Liq.  
**corrosion inhibitor, paper surface treatment: punch tape paper**  
 Elfugin® AKT Liq.  
**corrosion inhibitor, paper/paperboard internal sizes: aq./fatty/dry food-contact**  
*Sodium nitrite*  
**corrosion inhibitor, papermaking**  
 Eldorado WT-30; OptiSpense™; Wayfos® D-10N  
**corrosion inhibitor, peroxide bleach stabilization**  
 Unihib® 905  
**corrosion inhibitor, pigment flushing**  
*Stearamine acetate*  
**corrosion inhibitor, pigment grinding**  
 Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP  
**corrosion inhibitor, pigments**  
*Lauryl hydroxyethyl imidazoline*  
**corrosion inhibitor, polymerization**  
 Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP  
**corrosion inhibitor, protective coatings**  
*Dilinoleic acid*  
**corrosion inhibitor, pulp bleaching**  
 Drymet® 59; Drymet® Fines  
**corrosion inhibitor, pulp/paper**  
 Briquest® 543-45AS; Lumisorb™ SML; Lumisorb™ SMO; Lumisorb™ SMP; Polyquat 2 C; Polyquat PR  
**corrosion inhibitor, pulp/paper bleaching**  
 Unihib® 905  
**corrosion inhibitor, pulp/paper chemicals**  
 Aquacid-105 EX  
**corrosion inhibitor, pulp/paper mill boiler systems**  
 OptiGuard™  
**corrosion inhibitor, pulp/paper mill condensate systems**  
 Formula 435; Steamate™  
**corrosion inhibitor, recirculated cooling water**  
 Tamol® 731A; Tamol® 808  
**corrosion inhibitor, steam generating systems**  
*Ammonium hydroxide*  
**corrosion inhibitor, waste treatment**  
*Sodium carbonate*  
**corrosion inhibitor, water systems**  
*Acrylic resin; N® Clear Sodium Silicate*  
**corrosion inhibitor, water treatment**  
 Aquacid-105 EX; Briquest® 543-45AS; Calcium oxide; Dequest® 2016 D Powder; D® Sodium Silicate; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Etidronic acid; 2-Mercaptobenzothiazole; Myristamine acetate; Nissan Cation MA; Nissan Cation SA; N® Sodium Silicate; PEG-8 dioleate; Potassium hexamethylene diamine tetra (methylene phosphonate); Potassium phosphate dibasic; Potassium thiocyanate; Potassium tripolyphosphate; Sodium carbonate; Sodium hexametaphosphate; Sodium phosphate dibasic anhydrous; Sodium thiocyanate; Stearamine acetate  
 cosolubilizer



## Polyisobutene

## cosolvent

*Behenyl alcohol; Butoxyethanol; Castor (Ricinus communis) oil; Cetyl alcohol; Crill 1; Crill 2; PEG-8 dilaurate; PEG-12 dilaurate; PEG-12 dioleate; PEG-20 dioleate; Sorbitan laurate; Sorbitan palmitate; Stearyl alcohol*

## cosolvent, dyes

## Alcohol

## cosolvent, hydrogen peroxide prod.

*Triethyl phosphate*

## cosolvent, lipophilic: paper

*Oleth-2*

## cosolvent, pulp/paper

*Oleyl alcohol*

## cosolvent, water treatment

*PEG-4 dilaurate; PEG-8 dioleate*

## costabilizer

*Cetoleth-10; Cetoleth-25; C12-14 parath-3; C16-18 parath-11; Octoxynol-16*

## costabilizer, heat: PVC

*Bisphenol A diglycidyl ether; Sorbitol; Stearic acid*

## costabilizer, polymer dispersions

*C16-18 parath-30; Disponil® AAP 43; Disponil® AAP 307; Disponil® AAP 436; Disponil® NP 4; Disponil® NP 6; Disponil® NP 10; Disponil® NP 11; Disponil® NP 12; Disponil® NP 20; Disponil® NP 208; Disponil® NP 307; Disponil® O 250*

## coupling agent

*Ceteareth-2; Cetyl alcohol; C9-11 parath-6; C12-15 parath-12; DePEG 200; DePEG 300; DeTHOX TDA-6; Dicocondonium chloride; Diethylaminoethyl acrylate; Diphenyldimethoxysilane; Ethylene dioleamide; Glyceryl dilaurate; Isolaureth-3; Laureth-9; Macol® OP-10 SP; Nonyl nonoxynol-10; Octoxynol-1; Octoxynol-3; Octoxynol-10; Octoxynol-12; Octoxynol-13; Octoxynol-30; Octoxynol-40; Octyldodecanol; Oleyl hydroxyethyl imidazoline; PEG-135; PEG-4 laurate; PEG-5 laurate; PEG-40 sorbitan hexaoleate; Polyethylene, linear low density; Potassium cocoate; Sodium laureth sulfate; Sodium oleic sulfate; Sodium xylenesulfonate; Sorbitan tristearate; Steareth-2; Steareth-10; Struktol® TR 016; Tergitol® TMN-3; Tetrahydrofurfuryl alcohol; p-Toluene sulfonic acid; Trideceth-3; Trideceth-6; Trideceth-12; Triton® X-405-70%*

## coupling agent, aq. coatings

*t-Butyl alcohol*

## coupling agent, cleaners

*Alcohol*

## coupling agent, coatings

*Alcohol; Triton® X-15; Triton® X-35*

## coupling agent, disperse dyes: syn. fiber

*N-Ethyl-N-hydroxyethyl-m-toluidine; 2-(N-Methylanilino) ethanol*

## coupling agent, dyes: syn. fiber

*Phenylethylethanolamine*

## coupling agent, emulsion polymerization

*Nonoxynol-15; PVM/MA copolymer; Triton® X-15; Triton® X-35*

## coupling agent, fiber lubricants

*Tergitol® 15-S-12; Triton® XL-80N*

## coupling agent, industrial

*Sorbitan stearate*

## coupling agent, paper

*Carbowax® PEG 300; Chemax DNP-18; Chemax DNP-150/50; Chemax NP-1.5; Chemax NP-4; Chemax NP-6; Chemax NP-9; Chemax NP-10; Chemax OP-10; Chemax OP-30/70; Nonoxynol-15; Nonyl nonoxynol-8; Nonyl nonoxynol-18; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; PVM/MA copolymer; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12*

## coupling agent, paper deinking

*Triton® XL-80N*

## coupling agent, papermaking

*Triton® X-15; Triton® X-35*

## coupling agent, polyamide-paraffin

*Advawax® 240; Advawax® 280*

## coupling agent, polymerization

*Sorbitan sesquioleate; Sorbitan stearate*

## coupling agent, pulp/paper

*Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Isodeceth-6 phosphate; Oleyl alcohol; Sipophos DA-6P*

## coupling agent, pulping

*Pilot® SXS-40*

## coupling agent, water treatment

*Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Triton® XL-80N*

## creping aid, handtowel crepe

*Cartaflex® RW Liq.*

## creping aid, tissue

*Cartaflex® RW Liq.; Crepetrol®*

## creping aid, tissue paper

*ProSoft™*

## creping aid, towel

*Crepetrol®*

## creping aid, Yankee dryers

*Unicrepe® 315D54; Unicrepe® 457T20; Unicrepe® C77*

## crosslinking agent

*Acrylamide; Acrylic acid/acrylamide copolymer; Ageflex FA-1; Ageflex FA-2; Ammonium persulfate; Beetle® 216-8; Beetle® 227-8; Beetle® 1032-10; Beetle® 1047; Beetle® 1050; Curesan™ 199; Curesan™ 200; Cymel® 245-8; Cymel® 247-10; Cymel® 248-8; Cymel® 255-10; Cymel® 1158; Diethylaminoethyl acrylate; Epiol NPG-100; Epiol TMP-100; Ethylene glycol dimethacrylate; Hexamethylenetetramine; Melamine-formaldehyde resin, butylated; Melmac® 243-3; Polyamide/epichlorohydrin polymer; Polyamidoamine; Polyquaternium-5; Triisopropanolamine; Urea/formaldehyde resin, isobutylated; Zirconium acetate*

## crosslinking agent, ABS

*Ageflex EGDMA; Ethylene glycol dimethacrylate*

## crosslinking agent, binders: paper

*Cartabond® TSI Liq.*

## crosslinking agent, board coatings

*Synthro®-Stab Z*

## crosslinking agent, board sticking applics.

*Synthro®-Stab Z*

## crosslinking agent, calender stack water box treatments

*Eldorado PA-500*

## crosslinking agent, carboxylated SBR latexes

*Polycup® 172; Polycup® 1884*

## crosslinking agent, carboxymethyl cellulose

*Polycup® 172; Polycup® 1884*

## crosslinking agent, cellulose fiber

*Acrolein*

## crosslinking agent, cellulose resins

*Hexamethoxymethylmelamine*

## crosslinking agent, coatings

*Bisomer PEG 200DMA; 1,6-Hexanediol diacrylate; Melamine-formaldehyde resin; PEG-4 dimethacrylate; Pentaerythrityl tetraacrylate; Pentaerythrityl triacrylate; Polyacrylamide; SR 209; 1,1,1-Trimethylolpropane triacrylate; Urea-formaldehyde resin, methylated*

## crosslinking agent, fast-curing finishes

*Melamine-formaldehyde resin, isobutylated*

## crosslinking agent, fiber

*Bisomer PEG 200DMA; PEG-4 dimethacrylate; SR 209*

## crosslinking agent, high-solids pigmented coatings

*Eldorado PA-500*

## crosslinking agent, moisture barrier films

*Ageflex EGDMA*

## crosslinking agent, paper

*PEG-4 dimethacrylate; SR 209*

## crosslinking agent, paper coatings

*Cymel® 300; Eldorado PA-500; Resimene® 717; Resimene® 730; Resimene® 735; Resimene® 745; Resimene® 747; Resimene® 757; Resimene® 797; Resimene® 7111; Resimene® 7112; Resimene® AQ-1616; Resimene® AQ-7550; Resimene® BM-5901; Resimene® CE-6517; Resimene® HM-2608; Resimene® U-901; Resimene® U-918; Resimene® U-920; Resimene® U-933; Resimene® U-970; Resimene® U-975; Resimene® U-980; SR 295; SR 444; SR 494; SR 9041; Synthro®-Stab Z*

## crosslinking agent, paper sticking

*Synthro®-Stab Z*

## crosslinking agent, paper waterproofing

*Formaldehyde*

## crosslinking agent, paperboard coatings

*Eldorado PA-500; Resimene® AQ-1616*

## crosslinking agent, papermaking aids

*Ageflex EGDMA*

## crosslinking agent, pigmented size presses

*Eldorado PA-500*

## crosslinking agent, plastisols

*Bisomer PEG 200DMA; PEG-4 dimethacrylate; SR 209*

## crosslinking agent, polymer systems

*Tris [1-(2-methyl-aziridinyl) phosphine oxide]*

## crosslinking agent, polymerization: paper/paperboard protein, aq./fatty/dry food-contact

*Hexamethylenetetramine*

## crosslinking agent, polymerization: paper/paperboard, dry food-contact

*Tetraethylenepentamine; Triethylenetetramine*

## crosslinking agent, polymers: water-sol.

*Polycup® 172; Polycup® 1884*

## crosslinking agent, polysulfide polymer/polyepoxy resins: food-contact

*Paraffin, chlorinated*

## crosslinking agent, PVA

*Polycup® 172; Polycup® 1884*

## crosslinking agent, PVC

*Ageflex EGDMA; Ethylene glycol dimethacrylate*

## crosslinking agent, radiation-cured coatings

*PEG-4 diacrylate*

## crosslinking agent, resins

*Di-t-butyl peroxide*

## crosslinking agent, starch

*Adipic acid; Epichlorohydrin; Pentasodium triphosphate*

## crosslinking agent, thermosetting surface coatings

*Melamine-formaldehyde resin, methylated; Melamine-formaldehyde resin, methylated-butylated*

## crosslinking agent, unsaturated polyester resins

*Cumene hydroperoxide*

## crosslinking agent, vinyl acetate/acrylic resins

*Glyoxal*

## crosslinking agent, water treatment

*Polyacrylamide*

## crosslinking agent, wax emulsification

*Borax*

## crosslinking coactivator, peroxide

*Diallyl phthalate*

## crosslinking monomer, papermaking

*Bisomer EGDMA*

## crosslinking monomer, surface coatings

*Bisomer EGDMA*

## crystal growth modifier, papermaking

*Eldorado WT-30*

## cups

*Parvan® 131; Parvan® 137*

## cups, paper

*Polysel® 2015*

## cure improver, pigmented systems

*Dipentaerythrityl pentaacrylate*

**curing agent**

*Dipentaerythryl pentaacrylate; Isobornyl acrylate; Nonylphenol; Paraformaldehyde; PEG-8 diacrylate; PEG-3 trimethylolpropane triacrylate*

**curing agent, adhesive paper**

*Epoxy acrylate*

**curing agent, epoxies**

*Bis(aminopropyl) piperazine; Dicyandiamide; Dimethylethanolamine; Dodeceny succinic anhydride; Ethylenediamine; Polyamide*

**curing agent, epoxy resins**

*Bis-hexamethylenetriamine; Hexadecenyl succinic anhydride; Octadecenyl succinic anhydride; Triethylenetetramine*

**curing agent, epoxy: hardener**

*Diethylenetriamine*

**curing agent, paper clear coatings**

*Epoxy acrylate*

**curing agent, paper coatings**

*Basocoll® OV; Modacure® Resin; SR 344; SR 351; SR 395; SR 454; SR 506*

**curing agent, polyester**

*Phenylethylethanolamine*

**curing agent, polyester resins**

*Phenylethylethanolamine*

**curing agent, polyethylene coatings**

*Epoxy acrylate*

**curing agent, polymers**

*DL-Diepoxybutane*

**curing agent, PU**

*Dimethylethanolamine*

**curing agent, PU resins: food-contact**

*Triethanolamine; Triisopropanolamine*

**curing agent, R.T. epoxy: coatings**

*Ancamine® 1916*

**curing agent, R.T. epoxy: food pkg. coatings**

*Ancamine® 1916*

**curing agent, R.T. epoxy: paper/paperboard**

*Ancamine® 1916*

**curing agent, R.T.: protective coating systems, two-pkg.**

*Tetraethylenepentamine*

**curing agent, resins**

*Di-t-butyl peroxide; Diethylaminoethanol*

**curing agent, two-pkg. protective coatings**

*Diethylenetriamine*

**curing agent, unsaturated polyester resins**

*Cumene hydroperoxide*

**curing catalyst/accelerator, coatings**

*Butyl acid phosphate*

**curing catalyst/accelerator, resins**

*Butyl acid phosphate*

**curl control agent, paper at calender**

*Aqualon® CMC-T*

**curl control agent, paper at size presses**

*Aqualon® CMC-T*

**deaerating agent, alkaline papermaking**

*Eldorado DEF-795*

**deaerating agent, chemical pulp**

*Afrasil® SLO*

**deaerating agent, coating colors**

*Etingal® L*

**deaerating agent, effluent treating plants**

*Agitan® 634*

**deaerating agent, liq. stock: board**

*Afrasil® F*

**deaerating agent, liq. stock: fibrous materials**

*Afrasil® F*

**deaerating agent, liq. stock: paper**

*Afrasil® F*

**deaerating agent, paper**

*Agitan® 634*

**deaerating agent, paper coatings**

*Antispumin®*

**deaerating agent, paper stock**

*Afrasil® MG; Afrasil® SLO; Eldorado DEF-795*

**deaerating agent, paper/board**

*Agitan® 960-R*

**deaerating agent, paper: food-contact**

*Agitan® 960-R; Eldorado DEF-795*

**deaerating agent, pigment slurries**

*Etingal® L*

**deaerating agent, pulp**

*Agitan® 634; Antispumin®*

**deaerating agent, pulp prod.**

*Agitan® VP 4/180*

**deaerating agent, pulp/paper**

*Agitan® 92-N; Agitan® 94-N*

**deaerating agent, strong alkaline systems**

*Agitan® 960-R*

**deaerating agent, surface sizing preps.**

*Etingal® L*

**deaerating agent, wastewater clarification**

*Antispumin®*

**deaerating agent, wastewater treatment**

*Agitan® 960-R*

**deaerating agent, wastewater/effluent treatment**

*Agitan® 92-N; Agitan® 94-N*

**deaerating agent, wet-end paper**

*Moussex® 9101 GE*

**de-air entrainment aid, aq. coatings**

*Surfynol® DF-110D; Surfynol® DF-110L*

**de-air entrainment aid, emulsion polymerization**

*Surfynol® DF-110D; Surfynol® DF-110L*

**de-air entrainment aid, highly pigmented systems: paper coatings**

*Surfynol® DF-110D; Surfynol® DF-110L*

**de-air entrainment aid, PVC**

*Surfynol® DF-110D; Surfynol® DF-110L*

**debonding agent**

*Hartosoft™ 333CP*

**debonding agent, fluff pulp**

*Berocell® 509; Berocell® 509HA; Berocell® 582;*

*Berocell® 584; Berocell® 587K; Berocell® 614*

**debonding agent, paper**

*Hartosoft™ 85S*

**debonding agent, pulp: disposable diapers**

*AMV 100*

**debonding agent, pulp: facial tissue**

*AMV 100*

**debonding agent, pulp: toweling**

*AMV 100*

**debonding agent, recycled fiber systems**

*ReChem®*

**debonding agent, tissue paper**

*Ablupol PD100; Ablusol PD100; ProSoft™*

**debonding inhibitor, fluff pulp**

*Berocell® 569*

**dechlorinating agent, air treatment**

*Carbon, activated*

**dechlorinating agent, effluent**

*Sulfur dioxide*

**dechlorinating agent, paper**

*Sodium bisulfite*

**dechlorinating agent, pulp mills**

*Drew™ 6123*

**dechlorinating agent, sewage**

*Sulfur dioxide*

**dechlorinating agent, waste treatment**

*Ammonium thiosulfate*

**dechlorinating agent, wastewater treatment**

*Carbon, activated*

**dechlorinating agent, water treatment**

*Carbon, activated; Sodium bisulfite; Sulfur dioxide*

**decolorizer**

*Bentonite; Bone black; Dialkyl dimethyl ammonium chloride; Dimethylamine/epichlorohydrin copolymer; Silica*

**decolorizer, air treatment**

*Carbon, activated*

**decolorizer, paper**

*Agefloc B50LV*

**decolorizer, papermaking water treatment**

*Agefloc B4508P*

**decolorizer, process effluent**

*Agequat C1405; Agequat C3204*

**decolorizer, raw water: papermaking water****treatment**

*Agefloc B4508P*

**decolorizer, raw/in-process water: paper**

*Agefloc A4506; Agefloc A4510*

**decolorizer, resin**

*Phosphonic acid*

**decolorizer, wastewater treatment**

*Carbon, activated*

**decolorizer, water treatment**

*Carbon, activated; Diatomaceous earth*

**deduster**

*DelONIC OPE-10; DelONIC OPE-12; Dodoxynol-10; Octoxynol-13; Pluronic® 17R2*

**deduster, paper**

*Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F*

**deduster, papermaking**

*Poly-Tergent® P-32A*

**deduster, pulp/paper**

*Nonionic 1035-L*

**defibering agent, stock: pulping**

*Eldorado DIC-100*

**defibering agent, wet-strengthened paper**

*Bekaperg 67*

**defibering agent, wet-strengthened waste paper**

*Bekaperg 203; Bekaperg 825; Bekaperg 830*

**deflocculant**

*Darvan® 811; Dequest® 2006; Diethylene triamine pentamethylene phosphonic acid; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Tetrapotassium pyrophosphate*

**deflocculant, calcium carbonate**

*Polysodium vinyl sulfonate*

**deflocculant, carbonless copy paper**

*Alpha-Cel*

**deflocculant, clay slurries: paper coatings**

*Daxad® 37LN7*

**deflocculant, coatings**

*Polysodium vinyl sulfonate*

**deflocculant, cooling water treatment**

*Hexasodium diethylenetriaminepenta (methylene phosphonate); Pentasodium aminotrimethylene phosphonate; Sodium diethylenetriamine penta (methylene phosphonate)*

**deflocculant, deinking**

*Sodium diethylenetriamine penta (methylene phosphonate)*

**deflocculant, paper**

*Dequest® 2000; Dequest® 2010; Dequest® 2054;*

*Dequest® 2066; Pentasodium aminotrimethylene phosphonate; Pentasodium triphosphate;*

*Sodium hexametaphosphate; Tetrasodium pyrophosphate*

**deflocculant, paper coatings**

*Daxad® 37LN10-35; Polysodium vinyl sulfonate*

**deflocculant, paper stock deinking**

*D® Sodium Silicate; K® Sodium Silicate; N®*

*Clear Sodium Silicate; N® Sodium Silicate; O®*

*Sodium Silicate; Star® Sodium Silicate; Stixso®*

*RR*

**deflocculant, papermaking**

*Eldorado WT-30*

**deflocculant, peroxide bleach stabilization**

*Hexasodium diethylenetriaminepenta (methylene phosphonate)*

**deflocculant, pigment slurries**

*Gradol 400; Polysodium vinyl sulfonate*

**deflocculant, pigments**

*Daxad® 37LN10-35*

**deflocculant, process waters**

*Pentasodium aminotrimethylene phosphonate*

**deflocculant, pulp bleach stabilization**

*Sodium diethylenetriamine penta (methylene*

*phosphonate)*

**curing agent**

*Dipentaerythrityl pentaacrylate; Isobornyl acrylate; Nonylphenol; Paraformaldehyde; PEG-8 diacrylate; PEG-3 trimethylolpropane triacrylate*

**curing agent, adhesive paper**

*Epoxy acrylate*

**curing agent, epoxies**

*Bis(aminopropyl) piperazine; Dicyandiamide; Dimethylethanolamine; Dodecylsuccinic anhydride; Ethylenediamine; Polyamide*

**curing agent, epoxy resins**

*Bis-hexamethylenetriamine; Hexadecyl succinic anhydride; Octadecyl succinic anhydride; Triethylenetetramine*

**curing agent, epoxy: hardener**

*Diethylenetriamine*

**curing agent, paper clear coatings**

*Epoxy acrylate*

**curing agent, paper coatings**

*Basocoll® OV; Modacure® Resin; SR 344; SR 351; SR 395; SR 454; SR 506*

**curing agent, polyester**

*Phenylethylethanolamine*

**curing agent, polyester resins**

*Phenylethylethanolamine*

**curing agent, polyethylene coatings**

*Epoxy acrylate*

**curing agent, polymers**

*DL-Diepoxybutane*

**curing agent, PU**

*Dimethylethanolamine*

**curing agent, PU resins: food-contact**

*Triethanolamine; Triisopropanolamine*

**curing agent, R.T. epoxy: coatings**

*Ancamine® 1916*

**curing agent, R.T. epoxy: food pkg. coatings**

*Ancamine® 1916*

**curing agent, R.T. epoxy: paper/paperboard**

*Ancamine® 1916*

**curing agent, R.T.: protective coating systems, two-pkg.**

*Tetraethylenepentamine*

**curing agent, resins**

*Di-t-butyl peroxide; Diethylaminoethanol*

**curing agent, two-pkg. protective coatings**

*Diethylenetriamine*

**curing agent, unsaturated polyester resins**

*Cumene hydroperoxide*

**curing catalyst/accelerator, coatings**

*Butyl acid phosphate*

**curing catalyst/accelerator, resins**

*Butyl acid phosphate*

**curl control agent, paper at calender**

*Aqualon® CMC-T*

**curl control agent, paper at size presses**

*Aqualon® CMC-T*

**deaerating agent, alkaline papermaking**

*Eldorado DEF-795*

**deaerating agent, chemical pulp**

*Afrasil® SLO*

**deaerating agent, coating colors**

*Etingal® L*

**deaerating agent, effluent treating plants**

*Agitan® 634*

**deaerating agent, liq. stock: board**

*Afrasil® F*

**deaerating agent, liq. stock: fibrous materials**

*Afrasil® F*

**deaerating agent, liq. stock: paper**

*Afrasil® F*

**deaerating agent, paper**

*Agitan® 634*

**deaerating agent, paper coatings**

*Antispumin®*

**deaerating agent, paper stock**

*Afrasil® MG; Afrasil® SLO; Eldorado DEF-795*

**deaerating agent, paper/board**

*Agitan® 960-R*

**deaerating agent, paper: food-contact**

*Agitan® 960-R; Eldorado DEF-795*

**deaerating agent, pigment slurries**

*Etingal® L*

**deaerating agent, pulp**

*Agitan® 634; Antispumin®*

**deaerating agent, pulp prod.**

*Agitan® VP 4/180*

**deaerating agent, pulp/paper**

*Agitan® 92-N; Agitan® 94-N*

**deaerating agent, strong alkaline systems**

*Agitan® 960-R*

**deaerating agent, surface sizing preps.**

*Etingal® L*

**deaerating agent, wastewater clarification**

*Antispumin®*

**deaerating agent, wastewater treatment**

*Agitan® 960-R*

**deaerating agent, wastewater/effluent treatment**

*Agitan® 92-N; Agitan® 94-N*

**deaerating agent, wet-end paper**

*Moussex® 9101 GE*

**de-air entrainment aid, aq. coatings**

*Surfynol® DF-110D; Surfynol® DF-110L*

**de-air entrainment aid, emulsion polymerization**

*Surfynol® DF-110D; Surfynol® DF-110L*

**de-air entrainment aid, highly pigmented systems: paper coatings**

*Surfynol® DF-110D; Surfynol® DF-110L*

**de-air entrainment aid, PVC**

*Surfynol® DF-110D; Surfynol® DF-110L*

**debonding agent**

*Hartosoft™ 333CP*

**debonding agent, fluff pulp**

*Berocell® 509; Berocell® 509HA; Berocell® 582;*

*Berocell® 584; Berocell® 587K; Berocell® 614*

**debonding agent, paper**

*Hartosoft™ 85S*

**debonding agent, pulp: disposable diapers**

*AMV 100*

**debonding agent, pulp: facial tissue**

*AMV 100*

**debonding agent, pulp: toweling**

*AMV 100*

**debonding agent, recycled fiber systems**

*ReChem®*

**debonding agent, tissue paper**

*Ablupol PD100; Ablusol PD100; ProSoft™*

**debonding inhibitor, fluff pulp**

*Berocell® 569*

**dechlorinating agent, air treatment**

*Carbon, activated*

**dechlorinating agent, effluent**

*Sulfur dioxide*

**dechlorinating agent, paper**

*Sodium bisulfite*

**dechlorinating agent, pulp mills**

*Drew™ 6123*

**dechlorinating agent, sewage**

*Sulfur dioxide*

**dechlorinating agent, waste treatment**

*Ammonium thiosulfate*

**dechlorinating agent, wastewater treatment**

*Carbon, activated*

**dechlorinating agent, water treatment**

*Carbon, activated; Sodium bisulfite; Sulfur dioxide*

**decolorizer**

*Bentonite; Bone black; Dialkyl dimethyl ammonium chloride; Dimethylamine/epichlorohydrin copolymer; Silica*

**decolorizer, air treatment**

*Carbon, activated*

**decolorizer, paper**

*Agefloc B50LV*

**decolorizer, papermaking water treatment**

*Agefloc B4508P*

**decolorizer, process effluent**

*Agequat C1405; Agequat C3204*

**decolorizer, raw water: papermaking water**

**treatment**

*Agefloc B4508P*

**decolorizer, raw/in-process water: paper**

*Agefloc A4506; Agefloc A4510*

**decolorizer, resin**

*Phosphonic acid*

**decolorizer, wastewater treatment**

*Carbon, activated*

**decolorizer, water treatment**

*Carbon, activated; Diatomaceous earth*

**deduster**

*DelONIC OPE-10; DelONIC OPE-12; Dodoxynol-10; Octoxynol-13; Pluronic® 17R2*

**deduster, paper**

*Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F*

**deduster, papermaking**

*Poly-Tergent® P-32A*

**deduster, pulp/paper**

*Nonionic 1035-L*

**defibering agent, stock: pulping**

*Eldorado DIC-100*

**defibering agent, wet-strengthened paper**

*Bekaperg 67*

**defibering agent, wet-strengthened waste paper**

*Bekaperg 203; Bekaperg 825; Bekaperg 830*

**deflocculant**

*Darvan® 811; Dequest® 2006; Diethylene triamine pentamethylene phosphonic acid; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Tetrapotassium pyrophosphate*

**deflocculant, calcium carbonate**

*Polysodium vinyl sulfonate*

**deflocculant, carbonless copy paper**

*Alpha-Cel*

**deflocculant, clay slurries: paper coatings**

*Daxad® 37LN7*

**deflocculant, coatings**

*Polysodium vinyl sulfonate*

**deflocculant, cooling water treatment**

*Hexasodium diethylenetriaminepenta (methylene-phosphonate); Pentasodium aminotrimethylene phosphonate; Sodium diethylenetriamine penta (methylene phosphonate)*

**deflocculant, deinking**

*Sodium diethylenetriamine penta (methylene phosphonate)*

**deflocculant, paper**

*Dequest® 2000; Dequest® 2010; Dequest® 2054; Dequest® 2066; Pentasodium aminotrimethylene phosphonate; Pentasodium triphosphate; Sodium hexametaphosphate; Tetrasodium pyrophosphate*

**deflocculant, paper coatings**

*Daxad® 37LN10-35; Polysodium vinyl sulfonate*

**deflocculant, paper stock deinking**

*D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; N® Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR*

**deflocculant, papermaking**

*Eldorado WT-30*

**deflocculant, peroxide bleach stabilization**

*Hexasodium diethylenetriaminepenta (methylene-phosphonate)*

**deflocculant, pigment slurries**

*Gradol 400; Polysodium vinyl sulfonate*

**deflocculant, pigments**

*Daxad® 37LN10-35*

**deflocculant, process waters**

*Pentasodium aminotrimethylene phosphonate*

**deflocculant, pulp bleach stabilization**

*Sodium diethylenetriamine penta (methylene*

- phosphonate)*  
**deflocculant, pulp/paper bleaching**  
 Dequest® 2000LC
- deflocculant, pulp/paper chems.**  
 Aquacid-105 EX; Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX
- deflocculant, water treatment**  
 Aquacid-105 EX; Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX; *Potassium hexamethylene diamine tetra (methylene phosphonate)*; *Tetrasodium etidronate*
- defoamer**  
 A-C® 6A; A-C® 7; A-C® 7A; A-C® 8; A-C® 9, 9A, 9F; A-C® 15; A-C® 16; A-C® 316; A-C® 316A; A-C® 405(T); A-C® 540A; Afranil® SLO; Alfol® 22+; Bubreak® 448; *Caprylic acid*; *Ceteth-20*; Chemax DFO-155; Chemax DFO-199M; DeWET SDO-70PG; *2-Ethylhexanol*; Foamaster® 111; Foamkill® 618; Foamkill® 830; Kemamide® W-20; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Mazu® DF 230SX; Multiflow® Resin; *Nonoxynol*; *Nonoxynol-1*; *Nonoxynol-2*; *Nonoxynol-3*; *Nonoxynol-4*; *Nonoxynol-5*; *Nonoxynol-8*; *Nonoxynol-9*; *Nonoxynol-10*; *Nonoxynol-11*; *Nonoxynol-12*; *Nonoxynol-13*; *Nonoxynol-14*; *Nonoxynol-18*; *Nonoxynol-20*; *Nonoxynol-23*; *Nonoxynol-25*; *Nonoxynol-30*; *Nonoxynol-40*; *Nonoxynol-50*; *Nonoxynol-60*; *Nonoxynol-70*; *Nonoxynol-100*; *Palmitic acid*; Patcote® 806; Patcote® 814; PEG-4; PEG-6; PEG-8; PEG-9; PEG-12; PEG-14; PEG-16; PEG-20; PEG-32; PEG-40; PEG-75; PEG-100; PEG-150; PEG-200; PEG-4 dicocotate; PEG-8 ditallate; PEG-12 ditallate; PEG-4 laurate; PEG-4M; PEG-8 sesquioleate; PEG tetramethyl decylenediol; PEG-10 tetramethyl decylenediol; Pluronic® 17R2; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; *Polypropylene glycol*: PPG-20; PPG-26; PPG-30; PPG-5-buteth-7; PPG-12-buteth-16; PPG-28-buteth-35; PPG-33-buteth-45; *Propylene glycol dicaprylate/dicaprate*; *Propylene glycol laurate*; Rheolate® 2001; *Silica*; Silicone Antifoam Agent S 203; Surfonic® LF-17; *Tallow alcohol*; T-Def® C-40; TEGO® Foamex 815; TEGO® Foamex 825; TEGO® Foamex 835; Ucon® LB-285; Ucon® LB-385; Ucon® LB-525; Ucon® LB-625; Ucon® LB-1145; Ucon® LB-1715; Ucon® LB-3000
- defoamer booster**  
 TEGOPREN® 5803; TEGOPREN® 5863
- defoamer component, paper**  
 Crisanol FA-260; Crisanol FA-660
- defoamer component, paperboard**  
 Crisanol FA-260; Crisanol FA-660
- defoamer emulsions**  
 Chemax DF-100
- defoamer, acid media**  
 Agitan® 290
- defoamer, acid papermaking operations**  
 Advantage® 494
- defoamer, acid papermaking systems**  
 Advantage® 5 Defoamer; Advantage® 6 Defoamer; Advantage® 7EH Defoamer; Advantage® 388 Defoamer; Hercules® 4 Defoamer
- defoamer, acid system coating colors**  
 Agitan® 285
- defoamer, acid-catalyzed systems**  
 Agitan® 731
- defoamer, alkaline paper machine systems**  
 FoamBrake™ 1697
- defoamer, alkaline papermaking systems**  
 Advantage® 5 Defoamer; Advantage® 6 Defoamer; Advantage® 7EH Defoamer; Advantage® 388 Defoamer; Advantage® 494; Eldorado DEF-795; Hercules® 4 Defoamer
- defoamer, amide/silica brownstock: hardwood**  
 Hi-Mar DFP-405
- defoamer, amide/silica brownstock: paper machine applics., high temp. linerboard**  
 Hi-Mar DFP-201
- defoamer, amide/silica brownstock: softwood**  
 Hi-Mar DFP-405
- defoamer, animal glues: food-contact**  
 Drewplus® L-474
- defoamer, aq. coatings**  
 Agitan® 218; Bubreak® 454C; Bubreak® 4400; Bubreak® 4419; PEG-5 laurate; PEG-1.3 tetramethyl decylenediol; PEG-30 tetramethyl decylenediol; Surfynol® 465; Surfynol® DF-110D; Surfynol® DF-110L; Surfynol® DF-695; TEGO® Foamex 1495; Troykyd® USM DP336
- defoamer, aq. epoxy resins**  
 Agitan® 260
- defoamer, aq. foaming systems**  
 Advantage® 388 Defoamer; Advantage® 494
- defoamer, aq. industrial systems**  
 AF 60
- defoamer, aq. paper coating colors**  
 Geo FM® VF
- defoamer, aq. paper coatings**  
 Bubble Breaker® 259, 260, 613-M, 622, 730, 737, 746, 748, 900, 913, 917
- defoamer, aq. pulp mill screen: sulfate pulps**  
 CNC Defoamer 30 Series
- defoamer, aq. pulp mill screen: sulfite pulps**  
 CNC Defoamer 30 Series
- defoamer, aq. resins**  
 Troykyd® D55
- defoamer, aq. slurries**  
 Alfol® 20+
- defoamer, aq. systems**  
 Agitan® 281; Colloid™ 60; Colloid™ 796; Colloid™ 999; DK-100 Nonsilicone Defoamer; DK-230 Nonsilicone Defoamer; Drewplus® L-419; Drewplus® L-768; Foamkill® 639; Foamkill® 649; Foamkill® 836B; GP-262 Defoamer; GP-295 Defoamer; Pluronic® P-2000; Silicone Antifoam Agent S 204; Surfynol® 104A; Surfynol® 104NP; Surfynol® DF-70; Surfynol® DF-75; Tergitol® 15-S-3; Tergitol® 15-S-5; Tergitol® TMN-3; Trans-10; Trans-20; Trans-30
- defoamer, aq.: food container liner**  
 CNC Defoamer 69
- defoamer, aq.: food pkg. coatings**  
 CNC Defoamer 69
- defoamer, aq.: min.-filled paper coatings**  
 CNC Defoamer 69
- defoamer, aq.: paper**  
 CNC Defoamer 69
- defoamer, aq.: paper mill effluents**  
 CNC Defoamer 67
- defoamer, aq.: paper mill waste treatment systems**  
 CNC Defoamer 59
- defoamer, aq.: paperboard**  
 CNC Defoamer 69
- defoamer, aq.: paperboard mill effluents**  
 CNC Defoamer 67
- defoamer, aq.: pigment-filled paper coatings**  
 CNC Defoamer 69
- defoamer, aq.: pulp/paper mill effluents**  
 CNC Defoamer 141
- defoamer, aq.: waste treatment systems**  
 CNC Defoamer 59
- defoamer, B/S**  
 Drewplus® Y-601
- defoamer, bleach plant applics.**  
 CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B; SM 1124XD
- defoamer, bleaching**  
 Hi-Mar DFP-213
- defoamer, board**  
 Afranil® F; PD-25; PD-28
- defoamer, boil-out treatments**  
 CNC Defoamer 403A
- defoamer, brownstock**  
 Hi-Mar DFP-203
- defoamer, brownstock screening**  
 CNC Defoamer 28; CNC Defoamer 226
- defoamer, brownstock washer drainage: paper**  
 CNC Defoamer 1037; CNC Defoamer 1066; CNC Defoamer 1090
- defoamer, brownstock washing**  
 CA 1124XD; CNC Defoamer 28; CNC Defoamer 226; FL 1124DD; FL 1124XD; MA 1124B; QEMI BSW 8131; QEMI BSW 8133; SM 1124XD
- defoamer, brownstock: bleach plants**  
 AU 122; Batch Defoamer 111; CS 116; FL 112A; GT 122; Kamyrr Defoamer 121; MA 115H; RC 503
- defoamer, brownstock: deckers**  
 Hi-Mar DFP-411
- defoamer, brownstock: hardwood**  
 DM-1735-D; DM-2184; Hi-Mar DFP-401; Hi-Mar DFP-403; Hi-Mar DFP-411; Hi-Mar DFP-413
- defoamer, brownstock: kraft washing**  
 AU 122; Batch Defoamer 111; CS 116; FL 112A; GT 122; Kamyrr Defoamer 121; MA 115H; RC 503
- defoamer, brownstock: pulp/paper**  
 Mazu® DF 255
- defoamer, brownstock: screen room operations**  
 AU 122; Batch Defoamer 111; CS 116; FL 112A; GT 122; Kamyrr Defoamer 121; MA 115H; RC 503
- defoamer, brownstock: semi-chemical pulp washing**  
 AU 122; Batch Defoamer 111; CS 116; FL 112A; GT 122; Kamyrr Defoamer 121; MA 115H; RC 503
- defoamer, brownstock: softwood**  
 DM-1735-D; DM-2184; Hi-Mar DFP-401; Hi-Mar DFP-403; Hi-Mar DFP-411; Hi-Mar DFP-413
- defoamer, brownstock: sulfite washing**  
 AU 122; Batch Defoamer 111; CS 116; FL 112A; GT 122; Kamyrr Defoamer 121; MA 115H; RC 503
- defoamer, brownstock: washing**  
 AU 122; Batch Defoamer 111; CS 116; FL 112A; GT 122; Kamyrr Defoamer 121; MA 115H; RC 503
- defoamer, calender boxes**  
 Geo FM® VFS
- defoamer, calender press sol'ns.**  
 Advantage® 494
- defoamer, casein/protein-based coatings**  
 Colloid™ 929
- defoamer, casein-based coatings**  
 Colloid™ 797
- defoamer, caustic treatment**  
 Foamkill® CMP
- defoamer, cellulose**  
 Colloid™ 985; Colloid™ 999
- defoamer, chemical pulp**  
 Afranil® SLO
- defoamer, clay**  
 CNC Defoamer 97
- defoamer, clear coatings**  
 Colloid™ 999
- defoamer, clear coats**  
 Colloid™ 646
- defoamer, coating applics.**  
 FoamBrake™ 1697
- defoamer, coating colors**  
 Agitan® 217; Agitan® 281; Agitan® 301; Etingal® A; Etingal® L; Etingal® S

**defoamer, coating colors: folding boxboard**

Agitan® 731; Agitan® 760

**defoamer, coating colors: paper**

Agitan® 218; Agitan® 232; Agitan® 260; Agitan® 280; Agitan® 305; Agitan® 380; Agitan® 620; Agitan® 650; Agitan® 760

**defoamer, coating colors: self-copying paper**

Agitan® 655

**defoamer, coating systems**

QEMI MDF 8023

**defoamer, coating: pulp/paper**

Mazu® DF 204

**defoamer, coatings**

Advantage® 136Z Defoamer; Colloid™ 985; Colloid™ 991; DK-100 Nonsilicone Defoamer; DK-230 Nonsilicone Defoamer; Dow Corning® 163 Additive; Drewplus® L-108; Drewplus® L-175; Drewplus® L-768; Foamaster® PL; Foam Blast 240; Foamkill® 639; Foamkill® 649; Foamkill® 836B; Pegospense® 600 DOT; PEG-12 tallate; Penreco 2251 Oil; Penreco 2257 Oil; Rexfoam 301-A; Silwet® L-7002

**defoamer, coatings: food pkg.**

Agitan® 301

**defoamer, coatings: food-contact**

A-C® 6; A-C® 325; A-C® 330; A-C® 392; A-C® 395, 395A; A-C® 400; A-C® 400A; A-C® 405(M); A-C® 405(S); A-C® 430; A-C® 580; A-C® 617; A-C® 617A; A-C® 629; A-C® 629A; A-C® 655; A-C® 656; A-C® 680; A-C® 712; A-C® 715; A-C® 725; A-C® 735; A-C® 5120; A-C® 5180; *Acrylates/C10-30 alkyl acrylate crosspolymer*; Advantage® 10 Defoamer; Advantage® 136Z Defoamer; AF 112; AF 585M; AF GN-11-P; AF HL-27; AF HL-40; AF HL-52; *Alcohol*; *Aluminum myristates/palmitates*; *Aluminum stearates*; *Ammonium oleate*; *Ammonium stearate*; *Ammonium tallow sulfate*; Arcol® 11-34; Arcol® PPG-425; Arcol® PPG-725; Arcol® PPG-1025; Arcol® PPG-2025; Arcol® PPG-3025; Bubreack® 454C; Bubreack® 4419; Busan® 90; *Butyl stearate*; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® LM-150D; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Cab-O-Sil® PTG; *Carbomer*; Carbopol® 907; Carbopol® 910; Carbopol® 934; Carbopol® 934P; Carbopol® 940; Carbopol® 941; Carbopol® 971P; Carbopol® 974P; Carbopol® 980; Carbopol® 981; Carbopol® 1342; Carbopol® 1382; Carbopol® 2984; Carbopol® 5984; Carbopol® ETD 2001; Carbopol® ETD 2020; Carbopol® ETD 2050; *Ceteareth*; *p-Chloro-m-cresol*; Colloid™ 60; Colloid™ 581B; Colloid™ 643; Colloid™ 646; Colloid™ 677; Colloid™ 679; Colloid™ 680; Colloid™ 681F; Colloid™ 685; Colloid™ 796; Colloid™ 797; Colloid™ 929; Colloid™ 962; Colloid™ 991; Colloid™ 999; *C10-12 pareth-3*; *C10-12 pareth-6*; *C10-12 pareth-8*; *C12-14 pareth-1*; *C12-14 pareth-3*; *C12-14 pareth-4*; *C12-14 pareth-7*; *C12-14 pareth-8*; *C12-14 pareth-11*; *C14-16 pareth-7*; *Cyclohexanol*; Dapro® DF 1161; Dapro® DF 2162; Dapro® DF 3163; Dapro® DF 4164; Dapro® DF 5165; DeMULS SMS; *Deodorized kerosene*; DeTHOX ACID O-9; DeTHOX ACID O-14; DeTHOX ACID O-16; DeTHOX ACID S-8; DeTHOX TDA-6; DeTHOX TDA-15; *Dilinoic acid*; *Dimethicone*; *Dipropylene glycol*; Dow EP530; Dow P1000TB; Dow P1200; Dow P2000; Drewplus® L-131; Drewplus® L-139; Drewplus® L-140; Drewplus® L-175; Drewplus® L-191; Drewplus® L-198; Drewplus® L-419; Drewplus® L-424; Drewplus® L-435; Drewplus® L-466; Drewplus® L-477; Drewplus® L-493; Drewplus® L-496; Drewplus® L-523; Drewplus® L-768; Drewplus® T-4202; Drewplus® Y-125;

Drewplus® Y-250; Drewplus® Y-281; Dymsol® 2031; Dymsol® B; Empol® 1004; Empol® 1007; Empol® 1008; Empol® 1016; Empol® 1018; Empol® 1020; Empol® 1022; Empol® 1024; Empol® 1026; Epolene® C-10; Epolene® C-13; Epolene® C-14; Epolene® C-15; Epolene® C-17; Epolene® N-10; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; Foamaster® 111; Foamaster® AP; Foamaster® JMY; Foamaster® NS-1; Foamaster® S; Foamaster® VC; Foam Blast 240; Foam Blast 433FW; Foam Blast 441; Foam Blast 476; Foamkill® MSF Conc.; *Glycerol hydroxystearate*; Good-Rite® K-739 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-7028N Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer; Good-Rite® K-7600N Polymer; GP-295 Defoamer; *Hexylene glycol*; *Hydrogenated tallow acid*; *Hydroxylated lecithin*; *Isobutyl alcohol*; *Isopropyl alcohol*; *Kerosene*; Leukonol LBA-2; *Light petroleum hydrocarbons, odorless*; Loxiol® HOB 7169; *Magnesium coccoate*; *Menhaden oil*; *Methyl alcohol*; *Methyl caprylate*; *Methyl caprylate/caprate*; *Methylcellulose*; *Methyl laurate*; *Methyl myristate*; *Methyl stearate*; *Microcrystalline wax*; *Mineral oil*; *Myristyl alcohol*; *Naphtha*; *Nonoxynol-55*; *Nonoxynol-70*; *Nonyl nonoxynol-7*; *Nonyl nonoxynol-8*; *Nonyl nonoxynol-10*; *Nonyl nonoxynol-150*; *Nonylphenol*; Nopco® NDW; Oleth-8; Oleth-12; Oleth-15; Oleth-20; Oleth-23; Oleth-25; Oleth-40; Oleth-50; Ombrelub® CD; Pamolyn® 200; Pamolyn® 240; Patcote® 801; Patcote® 814; Patcote® 8060; PEG-8 coccoate; PEG-8 coconut oil esters; PEG-4 dilaurate; PEG-8 dioleate; PEG-12 dioleate; PEG-2 laurate; PEG-8 oleate; PEG-12 oleate; PEG-15 oleate; PEG/PPG-35/9 copolymer; PEG/PPG-125/30 copolymer; PEG-12 ricinoleate; PEG-15 rosinate; PEG-2 stearate; PEG-8 stearate; PEG-10 tetramethyl decynediol; PEG-30 tetramethyl decynediol; *Petrolatum*; *Petroleum wax*; Petrolite® C-7500; Petrolite® C-9500; Petrolite® E-1040; Petrolite® E-2020; *Pine (Pinus palustris) oil*; Poloxamer 181; Poloxamer 182; Poloxamer 217; Poloxamer 237; Poloxamer 338; Poloxamer 407; *Polyethylene*; *Polyethylene, oxidized*; Polywax® 500; Polywax® 600; Polywax® 655; Polywax® 850; Polywax® 1000; Polywax® 2000; Polywax® 3000; Polywet® ND-35; Polywet® WTC 6512; Polywet® Z1766; *Potassium oleic sulfate*; *Potassium tallow sulfate*; PPG-17; PPG-26; PPG-24 butyl ether; PPG-33 butyl ether; PPG-40 butyl ether; *Propylene glycol soyate*; *Rosin*; *Rosin, polymerized*; Sag 275D; Shamrock Neptune 5038; Shamrock Neptune I N1; Shamrock Neptune I SP5; Shamrock S-232 MG; Shamrock S-232 N1; Shamrock S-232 N5; Shamrock S-394 N1; Shamrock S-394 N5; Shamrock S-394 SP5; Shamrock S-395 N2; Shamrock S-395 N5; Shamrock S-395 SP5; Shamrock S-483; Shamrock S-Nauba 5021; *Silica*; *Silica, amorphous*; *Silica, fumed*; *Silica, hydrated*; Silicone Antifoam Agent S 203; Silicone Antifoam Agent S 204; Silicone Antifoam Emulsion SE 21; Silicone Antifoam Emulsion SE 23; Silicone Antifoam Emulsion SE 25; *Silicone emulsions*; Sipernat® 22; Sipernat® 22S; Sipernat® 50; Sipernat® 50S; Slip-Ayd® SL 555; *Sodium laurate*; *Sodium tallow sulfate*; *Stearyl alcohol*; *Sulfated castor oil*; *Sulfated mustardseed oil*; *Sulfated oleic acid*; *Sulfated ricebran oil*; *Sulfated sperm oil*; Surfonic® DNP-70; Surfonic® DNP-80; Surfonic® DNP-100; Surfonic® DNP-1500; Surfonic® L12-3; Surfonic® L12-6; Surfonic® L12-8; Surfonic® L24-1.3; Surfonic® L24-3; Surfonic® L24-4; Surfonic® L24-7; Surfonic® L24-9; Surfonic®

L24-12; Surfonic® L46-7; Surfonic® L68-18; Surfonic® L610-3; Surfonic® L1270-2; Surfonic® L1285-2; Surfonic® N-10; Surfonic® N-31.5; Surfonic® N-40; Surfonic® N-60; Surfonic® N-85; Surfonic® N-95; Surfonic® N-100; Surfonic® N-102; Surfonic® N-120; Surfonic® N-150; Surfonic® N-200; Surfonic® N-300; Surfonic® N-400; Surfonic® N-550; Surfonic® N-700; Surfonic® N-1000; Surfonic® NB-307; Surfonic® NB-407; Surfonic® NB-557; Surfonic® OP-15; Surfonic® OP-35; Surfonic® OP-50; Surfonic® OP-70; Surfonic® OP-100; Surfonic® OP-120; Surfonic® OPB-407; Surfynol® 465; Surfynol® 485; Surfynol® DF-70; Surfynol® DF-75; Surfynol® DF-695; Surfynol® SE-F; SWS-101 Dimethyl Fluids; Sylvaros® R; Sylvatrac® 80N; Sylvatrac® 295; Sylvatrac® 1085; Sylvatrac® R85; Sylvatrac® RX; *Tall oil acid*; *Tall oil glycerides*; *Tallow acid*; T-Del® EPO-104; Teric™ N2; Teric™ N4; Teric™ N5; Teric™ N6; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N20; Teric™ N30; *Trideceth-3*; *Trideceth-4*; *Trideceth-5*; *Trideceth-6*; *Trideceth-7*; *Trideceth-8*; *Trideceth-9*; *Trideceth-10*; *Trideceth-11*; *Trideceth-12*; *Trideceth-14*; *Trideceth-15*; *Trideceth-18*; *Triethanolamine*; *Trisopropanolamine*; Ucon® 75-H-1400; Ucon® 75-H-9500; Ucon® 75-H-90000; Vista LPA; Vista LPA-142; Vista LPA-170; Zonester® 85

**defoamer, coatings: paper/paperboard**

Crisanol FB-625; Crisanol FB-1715

**defoamer, cold-stock systems**

Advantage® 91WWW

**defoamer, cooling towers**

Foam Blast 240

**defoamer, cooling water**

CNC Defoamer 403A

**defoamer, corrugated paper grades**

CNC Defoamer 28

**defoamer, coters**

QEMI SSSF 8013

**defoamer, deaeration on paper machines:****food pkg.**

Eldorado DEF-731

**defoamer, degassing**

Drewplus® L-139

**defoamer, deinking**

FoamBrake™ SW-54 M 50

**defoamer, deinking systems**

Advantage® 5 Defoamer; Advantage® 6 Defoamer; Advantage® 7EH Defoamer; Hercules® 4 Defoamer

**defoamer, delimiting agents**

Agitan® 290

**defoamer, dispersions**

Agitan® 305

**defoamer, dyes**

Adekanate B-556; Norfox® C-75; Surfynol® 104E

**defoamer, dyestuffs***Tetramethyl decynediol***defoamer, effluent**

CA 1124XD; Colloid™ 797; FL 1124DD; FL 1124XD; Foam Blast 443; Foam Blast 476; Mazu® DF 255; PEG-4 dicocotate; Silicone; SM 1124XD

**defoamer, effluent treating plants**

Agitan® 633; Agitan® 634

**defoamer, effluent treatment**

Advantage® M201 Defoamer; Chemax DF-10; Chemax DF-10A; Chemax DF-30; Chemax DF-100; Chemax DFO-155; Colloid™ 796; FoamBrake™ SW-54 M 50; Surfonic® TOFA-5; Surfonic® TOFA-6; Surfonic® TOFA-X10; Surfonic® TOFA-20; Teric™ T5; Teric™ T10

**defoamer, effluent wastewater treatment**

Webnix 69C; Webnix 1065-3; Webnix 5113; Webnix 5116

**defoamer, effluent: kraft/sulfite screen rooms**

Hi-Mar DFP-101

**defoamer, effluent: paper**

Foam Blast 433C; Foam Blast 433FW

**defoamer, emulsion polymerization**

*Nonoxynol-15*; *PEG-2 laurate*; *PEG-30 tetramethyl decylenediol*; Pluronic® L81; Surfynol® 104A; Surfynol® 104DPM; Surfynol® 104E; Surfynol® 104PA; Surfynol® 104PG-50; Surfynol® 485; Surfynol® DF-110D; Surfynol® DF-110L

**defoamer, emulsion polymers**

Agitan® 217; Agitan® 280; Agitan® 281; Agitan® 301; Agitan® 305; Agitan® 650; Agitan® 655

**defoamer, emulsion: deaeration**

Contraspum LPE

**defoamer, emulsion: paper/board**

Contraspum E 509

**defoamer, emulsion: size presses**

Contraspum LPE

**defoamer, emulsion: stuff-deaeration**

Contraspum E 509

**defoamer, emulsion-based systems**

Bubreak® 4400; Bubreak® 4419

**defoamer, emulsions**

TEGO® Foamex 1495

**defoamer, EVA**

Drewplus® L-523

**defoamer, evaporators**

Foamkill® 660F

**defoamer, fats**

Norfox® C-75

**defoamer, fiber lubricants**

PD-25; PD-28

**defoamer, fiber processing**

FoamBrake™ WB-40

**defoamer, fibrous materials**

Afraniil® F

**defoamer, food-contact**

A-C® 540; DeIONIC OPE-12; DeMULS PSML-20; DeMULS PSMO-80; DeMULS PSMS-60

**defoamer, food-contact coatings**

Advantage® 491A Defoamer; DK-100 Nonsilicone Defoamer

**defoamer, general purpose**

Pluronic® 25R2

**defoamer, general purpose: coatings**

Colloid™ 677

**defoamer, general purpose: resin emulsions**

Colloid™ 677

**defoamer, ground wood**

QEMI BSW 8131; QEMI BSW 8133; QEMI SSSD 8013

**defoamer, groundwood**

Afraniil® F

**defoamer, groundwood pulping**

CNC Defoamer 177

**defoamer, heavy weight paper grades**

CNC Defoamer 28; CNC Defoamer 1030

**defoamer, high resin content coating systems**

CNC Defoamer 34

**defoamer, highly pigmented systems: paper coatings**

Surfynol® DF-110D; Surfynol® DF-110L

**defoamer, high-solids coating systems**

CNC Defoamer 34

**defoamer, high-temp. surfactant-stabilized foam systems**

Advantage® 52-B; Advantage® 52EH Defoamer; Advantage® 52-JS

**defoamer, hydropulpers**

Defoamer CK-55; Defoamer CK-75; QEMI BSW 8131; QEMI BSW 8133; QEMI SSSD 8013

**defoamer, impregnations**

Agitan® 633

**defoamer, industrial***Sorbitan stearate***defoamer, industrial effluents**

CNC Defoamer 403A

**defoamer, industrial wastes**

Emka® Defoam BC

**defoamer, influent wastewater treatment**

Webnix 69C; Webnix 1065-3; Webnix 5113;

Webnix 5116

**defoamer, Japanese paper**

Foamlex 372

**defoamer, kraft brownstock: pulp/paper**

Glycowax® 765

**defoamer, kraft mill screen rooms**

Hi-Mar DFP-153

**defoamer, kraft mills**

Hi-Mar DFP-301

**defoamer, kraft mills: bleach plants**

CNC Defoamer 10B; FL 413

**defoamer, kraft mills: paper machines**

FL 413

**defoamer, kraft mills: screenroom**

CNC Defoamer 10B; FL 413

**defoamer, kraft mills: waste treatment**

FL 413

**defoamer, kraft paper machine systems**

Advantage® M201 Defoamer

**defoamer, kraft pulp mill brownstock washing operations**

Advantage® 91WW; Advantage® 136Z Defoamer; Advantage® 187Z Defoamer; Advantage® 951 Defoamer; Advantage® 1512 Defoamer; Advantage® M104Z Defoamer

**defoamer, kraft pulp mill screening operations**

Advantage® 7EH Defoamer

**defoamer, kraft pulp mill screening/bleaching**

Advantage® 388 Defoamer

**defoamer, kraft pulp/paper**

CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B; SM 1124XD

**defoamer, kraft pulp/paper: bleach plant**

CA 1124B

**defoamer, kraft pulp/paper: brownstock washing**

CA 1124B

**defoamer, kraft pulp/paper: effluent**

CA 1124B

**defoamer, kraft pulp/paper: paper machine**

CA 1124B

**defoamer, kraft pulp/paper: screenroom**

CA 1124B

**defoamer, kraft screen room operations**

Hi-Mar DFP-203

**defoamer, latex stripping: paper coatings:****food-contact**

Foamaster® G

**defoamer, linear board**

CNC Defoamer 1030

**defoamer, liner board**

CNC Defoamer 28

**defoamer, machine: coters**

QEMI MDF 8019; QEMI MDF 8021

**defoamer, machine: effluent treatment**

QEMI MDF 8831

**defoamer, machine: ground wood**

QEMI MDF 8019; QEMI MDF 8021

**defoamer, machine: hydropulpers**

QEMI MDF 8019; QEMI MDF 8021

**defoamer, machine: paper**

QEMI MDF 8831

**defoamer, machine: starch systems**

QEMI MDF 8019; QEMI MDF 8021

**defoamer, machine: wastewater**

QEMI MDF 8019; QEMI MDF 8021

**defoamer, machine: white paper white water loops**

QEMI MDF 8019; QEMI MDF 8021

**defoamer, mill effluent**

Defoamer™ 230

**defoamer, mill effluent/waste treatment systems**

Advantage® 388 Defoamer

**defoamer, min.-filled paper grades**

CNC Defoamer 28

**defoamer, multipurpose: effluent treatment**

Advantage® Eff-101 Defoamer

**defoamer, multipurpose: industrial operations**

Advantage® Eff-101 Defoamer

**defoamer, multipurpose: paper machines**

Advantage® Eff-101 Defoamer

**defoamer, multipurpose: pulp mills**

Advantage® Eff-101 Defoamer

**defoamer, multipurpose: wastewater treatment**

Advantage® Eff-101 Defoamer

**defoamer, natural/syn. binders**

Agitan® 620

**defoamer, nonaq. systems**

Drewplus® L-768; Silicone Antifoam Agent S 204

**defoamer, nonpigmented surface applics.**

Geo FM® VFS

**defoamer, oil-base: bleach plant applic.**

CNC Defoamer 309

**defoamer, oil-base: kraft screen room**

CNC Defoamer 309

**defoamer, oil-based: aq. systems**

CNC Defoamer 1191

**defoamer, oil-based: heavy weight grades**

CNC Defoamer 1191

**defoamer, oil-based: liner board**

CNC Defoamer 1191

**defoamer, oil-based: paper machines**

CNC Defoamer 1191

**defoamer, oils**

Norfox® C-75

**defoamer, paper**

A-C® 6; Adekanol G-135, G-145; Afraniil® F; Agitan® 634; Alfol® 20+; Amgard® TBEP; Burcomul DFE-45; Chermal BP 235; Chermal BP 261; Chermal BP 261PO; Chermal BP-262; Chermal BP 268; Chermal BP-2101; Chermal BP 3172P; Chermal BP 3174; Chermal BP 3252; Chemax DFO-155; CNC Antifoam 10-FG; CNC Antifoam 30-FG; CNC Defoamer 12; CNC Defoamer 34; CNC Defoamer 407; Contraspum 1105; Crisanol FH-1400; Defoamer/Drainage Aid CK-25; DeSonic™ 4N; DeSonic™ 13N; DK-100 Nonsilicone Defoamer; DK-230 Nonsilicone Defoamer; Eldorado DEF-741; *EO/PO block polymer or copolymer*; Foamaster® 1320; Foam Blast 443; Foamkill® 649; Foamkill® 836B; *Isodecyl oleate*; Kemamide® W-20; Lipowax C; Mackester™ EGDS; Mackester™ EGMS; Mackester™ IP; Mackester™ SP; Mazu® DF 210SX; *Meroxapol 108*; *Meroxapol 171*; *Meroxapol 172*; *Meroxapol 174*; *Meroxapol 178*; *Meroxapol 251*; *Meroxapol 252*; *Meroxapol 254*; *Meroxapol 255*; *Meroxapol 258*; *Meroxapol 311*; *Meroxapol 312*; *Meroxapol 314*; *Nonoxynol-15*; PD-23; PD-25; PD-28; *PEG-3 dioctoate*; Pegosperser® 400 DOT; Pegosperser® 600 DOT; *PEG/PPG-35/9 copolymer*; *PEG/PPG-125/30 copolymer*; *PEG-12 tallate*; Penreco 2251 Oil; Penreco 2257 Oil; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; Pluronic® L10; Protocol™; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Serdas® GLN; Silwet® L-7002; Surfonic® N-40; T-Det® EPO-61; T-Det® EPO-62L; T-Det® EPO-64L; Teric™ 164; Teric™ 165; Teric™ 167; Teric™ 168; Teric™ 170; Teric™ 171; Teric™ 173; Teric™ N4; Teric™ N5; Tetronic® 90R4; Tetronic® 150R1; Trans-10; Trans-20; Trans-30; Ucon® 75-H-1400; Ucon® 75-H-9500; Ucon® 75-H-90000

**defoamer, paper coating pigments**

Contraspum 1217

**defoamer, paper coatings**

Advantage® 831 Defoamer; Advantage® 833 Defoamer; Antarox® L-64; Antispumin®; BYK®-045; Colloid™ 796; Colloid™ 962; Drewplus® L-131; Drewplus® L-139; Drewplus® L-140; Drewplus® L-198; Drewplus® L-475; Drewplus® Y-601; Foam Blast 102; Foamkill® 608; Foamkill® 639J-F; Hi-Mar DFC-21; Hi-Mar DFC-26; Hi-Mar DFI-51; Hi-Mar DFI-51-S; KP-

140®; Nopalcol 4-O; Norfox® C-75; Norfox® Sulfated Castor Oil #75; PEG-1.3 tetramethyl decylenediol; PEG-30 tetramethyl decylenediol; Poloxamer 184; Reomol® TBP; Sodium MBT; Surfynol® 104A; Surfynol® 104BC; Surfynol® 104DPM; Surfynol® 104E; Surfynol® 104H; Surfynol® 104NP; Surfynol® 104PA; Surfynol® 104PG-50; Surfynol® 420; Surfynol® 485; Surfynol® 502; Surfynol® DF-37; Surfynol® DF-70; Surfynol® DF-75; Surfynol® PC; Surfynol® PG-50; Tetramethyl decylenediol; Tributoxylethyl phosphate; Tributyl phosphate; Troykyd® D55; Troykyd® D666

**defoamer, paper coatings: food-contact**

Abex® 2005; Adekanate B-3056A; Advantage® 494; Aluminum caprylate; Ammonium castor oil sulfate; Ammonium oleic acid sulfate; Bevaloid 581B; Bevaloid 2512; Bevaloid 2514; Bevaloid 6624; Bevaloid 6683; Bubreake® 448; Bubreake® 453; Butyl alcohol; *t*-Butyl alcohol; Capric acid; Caprylic acid; Cardipol® LP O-25; Ceteth-3; Ceteth-4; Ceteth-5; Ceteth-6; Ceteth-7; Ceteth-10; Ceteth-11; Ceteth-12; Ceteth-14; Ceteth-15; Ceteth-16; Ceteth-17; Ceteth-20; Ceteth-23; Ceteth-24; Ceteth-25; Ceteth-30; Ceteth-40; Ceteth-45; Cetyl alcohol; Coconut acid; Coconut (Cocos nucifera) oil; Cod liver oil; Colloid™ 985; Corn acid; Corn (Zea mays) oil; Cottonseed acid; Cottonseed (Gossypium) oil; Cyclohexane; Dow Corning® 163 Additive; Drewplus® L-418; Dymol® 2031; Foamaster® 333; Foamaster® 1320; Foamaster® A-7; Foamaster® DS; Foamaster® O; Foamaster® PD-1 Powd.; Foamaster® PL; Foamaster® R; Foamaster® RD; Foamaster® SA-5; Foamaster® V; Foamaster® VF; Foamaster® WBA; Foamkill® 810F; Foamkill® 830F; Foamkill® 836A; Geo FM® 1220; Geo FM® 1224; Geo FM® DF-122; Geo FM® DF-122-NS; Geo FM® VF; Geo FM® VFS; Glyceryl stearate; Hexane; Isobutylparaben; Kessco® Cetyl Alcohol NF; Lauric acid; Linseed acid; Magnesium myristate; Magnesium palmitate; Magnesium stearate; Methyl cocoate; Methyl oleate; Methyl palmitate; Modicol® S; Monex®; Myristic acid; Nopco® NX2; Nopco® Color-Sperse® 188A; Nopcosperse® 44; Nopco® 3560; Oleic acid; Oleth-5; Oleth-6; Oleth-7; Oleth-9; Oleth-10; Oleth-16; Oleth-18; Oleth-30; Oleth-44; Oleth-80; Olive (Olea europaea) oil; Palmitic acid; Palm (Elaeis guineensis) kernel oil; Palm (Elaeis guineensis) oil; Peanut (Arachis hypogaea) oil; PEG-9 oleate; PEG-10 oleate; PEG-11 oleate; PEG-13 oleate; PEG-14 oleate; PEG-16 oleate; PEG-20 oleate; PEG-23 oleate; PEG-24 oleate; PEG-32 oleate; PEG-36 oleate; PEG-40 oleate; PEG-75 oleate; PEG-100 oleate; PEG-150 oleate; PEG-200 oleate; PEG-300 oleate; PEG-40 stearate; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 183; Poloxamer 212; Poloxamer 215; Poloxamer 284; Potassium castorate; Potassium castor oil sulfate; Potassium cocoate; Potassium cornate; Potassium laurate; Potassium myristate; Potassium oleate; Potassium palmitate; Potassium stearate; Potassium tallowate; PPG-15; PPG-20; PPG-34; PPG-22 butyl ether; PPG-53 butyl ether; Propylene glycol tallowate; Rexfoam PI-53; Rhodapon® L-22; Rhodasurf® 870H2O; Rhodasurf® A-60; Rhodasurf® CET/20; Rhodasurf® CET/55; Rhodasurf® TR15/40; Rice (Oryza sativa) bran oil; Safflower (Carthamus tinctorius) oil; Sesame (Sesamum indicum) oil; Silicone Antifoam Emulsion SE 26; Sodium castorate; Sodium castor oil sulfate; Sodium cocoate; Sodium myristate; Sodium oleic sulfate; Sodium tallowate; Soybean (Glycine soja) oil; Soygold® 1000; Soygold® 2000; Sulfated

peanut oil; Sulfated tallow; Sulfated tallow acid; Sunflower (Helianthus annuus) seed oil; Tall oil; Trideceth-2; Trideceth-20; Trideceth-23; Trideceth-25; Trideceth-29; Trideceth-30; Trideceth-40; Trideceth-50; Trideceth-100; Trideceth-150; Trilinoleic acid

**defoamer, paper coatings: food-grade**

Dow P4000

**defoamer, paper deinking**

Emery® Methyl Oleate

**defoamer, paper machine white water loops**

Qemiban

**defoamer, paper machine: tissues**

Defoamer™ PM

**defoamer, paper machine: towels**

Defoamer™ PM

**defoamer, paper machines**

CA 1124XD; CNC Defoamer 28; CNC Defoamer 127; CNC Defoamer 505; CNC Defoamer 546; Defoamer CK-35; Defoamer CK-55; Defoamer CK-75; DM-2146; FL 1124DD; FL 1124XD; Foam Blast 433C; Foam Blast 433FW; Foam Blast 441; Foam Blast 445; Foam Blast 448; Foam Blast 469; Hi-Mar DFP-213; QEMI MDF 8023; SM 1124XD

**defoamer, paper machines: filled grades**

CNC Defoamer 403; CNC Defoamer 477

**defoamer, paper machines: resin-sized grades**

CNC Defoamer 403; CNC Defoamer 477

**defoamer, paper machines: starch-sized grades**

CNC Defoamer 403; CNC Defoamer 477

**defoamer, paper pulp**

Alfol® 22+

**defoamer, paper reclaiming**

Foamkill® CMP

**defoamer, paper sizing**

Agitan® 290; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF

**defoamer, paper stock**

Afraniil® MG; Afraniil® SLO; Eldorado DEF-795

**defoamer, paper/board**

Agitan® 633; Agitan® 960-R

**defoamer, paper/paperboard**

A-C® 656; A-C® 680; A-C® 712; A-C® 715; A-C® 725; A-C® 735; A-C® 5120; A-C® 5180; Advantage® 136Z Defoamer; AF 112; AF 585M; AF GN-11-P; AF HL-27; AF HL-40; AF HL-52; Aluminum caprylate; Aluminum stearates; Arcol® 11-34; Arcol® PPG-425; Arcol® PPG-725; Arcol® PPG-1025; Arcol® PPG-2025; Bubreake® 454C; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® LM-150D; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Cab-O-Sil® PTG; Capric acid; Caprylic acid; Cetareth; Chemax DFO-199M; Coconut acid; Coconut (Cocos nucifera) oil; Cod liver oil; Colloid™ 60; Colloid™ 581B; Colloid™ 643; Colloid™ 677; Colloid™ 679; Colloid™ 680; Colloid™ 681F; Colloid™ 685; Corn acid; Corn (Zea mays) oil; Cottonseed acid; Cottonseed (Gossypium) oil; C12-14 parath-3; C12-14 parath-4; C12-14 parath-7; C12-14 parath-8; C12-14 parath-11; C14-16 parath-7; Cyclohexanol; Dapro® DF 2162; Dapro® DF 4164; Dapro® DF 5165; DeMULS SMS; Drewplus® L-131; Drewplus® L-139; Drewplus® L-140; Drewplus® L-424; Drewplus® L-435; Drewplus® L-477; Drewplus® L-496; Drewplus® L-523; Drewplus® L-768; Drewplus® T-4202; Drewplus® Y-125; Drewplus® Y-250; Drewplus® Y-281; Dymol® B; Empol® 1004; Empol® 1007; Empol® 1008; Empol® 1016; Empol® 1018; Empol® 1020; Empol® 1022; Empol® 1024; Empol® 1026; Epolene® C-10; Epolene® C-13; Epolene® C-14; Epolene® C-15; Epolene® C-17; Epolene® N-10; Epolene® N-11; Epolene® N-14;

Epolene® N-20; Epolene® N-21; Epolene® N-34; Foamaster® 111; Foam Blast 240; Foam Blast 441; Foamkill® MSF Conc.; Glyceryl stearate; GP-262 Defoamer; Lauric acid; Linseed acid; Magnesium myristate; Magnesium palmitate; Magnesium stearate; Methyl cocoate; Methyl oleate; Methyl palmitate; Myristic acid; Oleic acid; Olive (Olea europaea) oil; Ombrelub® CD; Palmitic acid; Palm (Elaeis guineensis) kernel oil; Palm (Elaeis guineensis) oil; Peanut (Arachis hypogaea) oil; PEG-40 stearate; Petrolite® C-7500; Petrolite® C-9500; Petrolite® E-1040; Petrolite® E-2020; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 183; Poloxamer 212; Poloxamer 215; Poloxamer 284; Polywax® 600; Polywax® 1000; Polywax® 2000; Polywax® 3000; Potassium castorate; Potassium cocoate; Potassium cornate; Potassium laurate; Potassium myristate; Potassium oleate; Potassium palmitate; Potassium stearate; PPG-15; PPG-20; PPG-22 butyl ether; Rice (Oryza sativa) bran oil; Rosin, polymerized; Safflower (Carthamus tinctorius) oil; Sag 275D; Sesame (Sesamum indicum) oil; Shamrock S-483; Silica, amorphous; Silica, fumed; Silicone Antifoam Agent S 203; Silicone Antifoam Emulsion SE 21; Silicone Antifoam Emulsion SE 23; Silicone Antifoam Emulsion SE 25; Silicone emulsions; Sipernat® 22; Sipernat® 22S; Sipernat® 50; Sipernat® 50S; Sodium castorate; Sodium cocoate; Sodium myristate; Soybean (Glycine soja) oil; Surfonic® L24-3; Surfonic® L24-4; Surfonic® L24-7; Surfonic® L24-9; Surfonic® L24-12; Surfonic® L46-7; Surfonic® L68-18; Surfonic® L610-3; Surfonic® L1270-2; Surfonic® L1285-2; Surfonic® N-31.5; Surfonic® N-60; Surfonic® N-85; Surfonic® N-95; Surfonic® N-100; Surfonic® N-102; Surfonic® N-120; Surfonic® N-150; Surfynol® DF-70; Surfynol® DF-75; SWS-101 Dimethyl Fluids; Sylvaros® R; Sylvatoc® 80N; Sylvatoc® 295; Sylvatoc® 1085; Sylvatoc® R85; Sylvatoc® RX; Tall oil; Tall oil glycerides; Teric™ N2; Teric™ N6; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N20; Vista LPA; Vista LPA-142; Vista LPA-170; Zonester® 85

**defoamer, paper/paperboard: aq./fatty/dry food-contact**

Advantage® 187Z Defoamer; Advawax® 290

**defoamer, paper/paperboard: food-contact**

Abitol®-E; Acrylates/PVP copolymer; Advantage® DF 285; Alcohol; Aluminum caprylate; Aluminum myristates/palmitates; Ammonium laureth-30 sulfate; Ammonium oleate; Ammonium stearate; *n*-Amyl alcohol; Beef tallow triglycerides; Behenyl hydroxyethyl imidazoline; BHA; BHT; Bubreake® 4419; Busperse® 288; Butoxyethanol; Butyl myristate; Butyl oleate; Calcium lignosulfonate; Capramide DEA; Capric acid; Caprylic acid; Castor oil triglycerides; *p*-Chloro-*m*-cresol; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; C13-14 isoparaffin; Cocamide; Cocamide DEA; Coceth-8; Coconut acid; Coconut alcohol; Coconut (Cocos nucifera) oil; Coconut oil triglycerides; Cod liver oil; Colloid™ 796; Colloid™ 797; Colloid™ 929; Colloid™ 962; Colloid™ 991; Colloid™ 999; Corn acid; Corn (Zea mays) oil; Corn oil triglycerides; Cottonseed acid; Cottonseed (Gossypium) oil; Cottonseed oil triglycerides; Deceth-4 phosphate; Deodorized kerosene; DeTHOX TDA-6; DeTHOX TDA-15; Diacetylated tallow monoglyceride, tartaric acid ester; Di-*t*-butylhydroquinone; Diethanolamine; Diethylenetriamine; Diisopropanolamine; Dilinoleic acid; Dimethicone; Dimethicone copolyol; 2,6-



Dimethyl heptanol-4; *s*-Diocetyl phthalate; Diocetyl sodium sulfosuccinate; Dodecylbenzenesulfonic acid; Dodoxynol-5; Dodoxynol-7; Dodoxynol-9; Dodoxynol-12; DREWPLUS® L-198; Ethanolamine; 2-Ethylhexanol; Fish oil triglycerides; Formaldehyde; Glyceryl caprylate; Glyceryl caprylate/caprinate; Glyceryl cocoate; Glyceryl dioleate; Glyceryl distearate; Glyceryl laurate; Glyceryl myristate; Glyceryl oleate; Glyceryl palmitate/stearate; Glyceryl stearate; Glycol distearate; Glycol oleate; Glycol palmitate; Glycol ricinoleate; Glycol stearate; 2-Heptadecenyl-4-methyl-4-hydroxymethyl-2-oxazoline; Hexylene glycol; Hydrogenated coconut acid; Hydrogenated coconut oil; Hydrogenated cottonseed oil; Hydrogenated lard glyceride; Hydrogenated lard glycerides; Hydrogenated menhaden acid; Hydrogenated menhaden oil; Hydrogenated palm glyceride; Hydrogenated palm oil; Hydrogenated peanut oil; Hydrogenated rice bran wax; Hydrogenated shark liver oil; Hydrogenated soybean oil; Hydrogenated soy glyceride; Hydrogenated soy glycerides; Hydrogenated tallow acid; Hydrogenated tallow glyceride; Hydrogenated tallow glycerides; Hydrogenated vegetable glyceride; Hydrogenated vegetable glycerides; Hydrogenated vegetable oil; Hydroxystearic acid; Isobutyl alcohol; Isobutyl palmitate; Isobutyl stearate; Isobutyl tallowate; Isopropanolamine; Isopropyl alcohol; Isopropylamine dodecylbenzenesulfonate; Isopropyl laurate; Isopropyl myristate; Isopropyl oleate; Isopropyl palmitate; Isopropyl stearate; Isopropyl tallowate; Kerosene; Lanolin; Lard oil triglycerides; Lauric acid; Light petroleum hydrocarbons, odorless; Linoleamide DEA; Linseed acid; Linseed oil triglycerides; Magnesium myristate; Magnesium palmitate; Magnesium stearate; Menhaden oil; Methyl alcohol; Methyl caprylate; Methyl caprylate/caprinate; Methyl cocoate; Methyl hydroxystearate; Methyl laurate; Methyl myristate; Methyl oleate; Methyl palmitate; Methyl ricinoleate; Methyl stearate; Mineral oil; MIPA-dodecylbenzenesulfonate; Montan wax; Morpholine; Mustardseed oil triglycerides; Myristamide DEA; Myristic acid; Myristyl alcohol; Naphtha; Nonoxynol-2; Nonoxynol-3; Nonoxynol-4; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-13; Nonoxynol-14; Nonoxynol-15; Nonylphenol; Octoxynol-3; Octoxynol-5; Octoxynol-7; Octoxynol-8; Octoxynol-9; Octoxynol-10; Octoxynol-11; Octoxynol-12; Octoxynol-13; Oleamide DEA; Oleic acid; Oleyl alcohol; Olive (*Olea europaea*) oil; Palmamide DEA; Palmitamide DEA; Palmitic acid; Palm (*Elaeis guineensis*) kernel oil; Palm (*Elaeis guineensis*) oil; Palm oil triglycerides; Peanut (*Arachis hypogaea*) oil; Peanut oil triglycerides; PEG-2 castor oil; PEG-4 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-33 castor oil; PEG-100 castor oil; PEG-8 cocoate; PEG-15 cocoate; PEG-20 corn glycerides; PEG-60 corn glycerides; PEG-4 decyl phosphate; PEG-8 dicocoate; PEG-4 di (2-ethylhexanoate); PEG-3 di-2-ethylhexoate; PEG-2 dilaurate; PEG-6 dilaurate; PEG-8 dilaurate; PEG-12 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-4 dioleate; PEG-6 dioleate; PEG-12 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-2 distearate; PEG-4 distearate; PEG-6 distearate; PEG-8 distearate; PEG-12 distearate; PEG-20 distearate; PEG-32 distearate; PEG-8 di/triricinoleate; PEG-40 glyceryl cocoate; PEG-12 glyceryl dioleate; PEG-12 glyceryl laurate; PEG-20 glyceryl laurate; PEG-15 glyceryl oleate; PEG-20 glyceryl oleate; PEG-15 glyceryl ricinoleate; PEG-20 glyceryl ricinoleate; PEG-4 laurate;

PEG-6 laurate; PEG-20 laurate; PEG-32 laurate; PEG-8 myristate; PEG-20 myristate; PEG-4 octanoate; PEG-4 oleate; PEG-6 oleate; PEG-15 oleate; PEG-20 palmitate; PEG/PPG-17/6 copolymer; PEG-8 ricinoleate; PEG-15 rosinate; PEG-8 sesquilaurate; PEG-8 sesquioleate; PEG-40 sorbitan hexaoleate; PEG-40 sorbitan laurate; PEG-6 sorbitan oleate; PEG-40 sorbitan peroleate; PEG-6 sorbitan stearate; PEG-40 sorbitan stearate; PEG-40 sorbitan tetraoleate; PEG-4 stearate; PEG-6 stearate; PEG-20 stearate; PEG-32 stearate; PEG-40 stearate; PEG-100 stearate; PEG-4 tallate; PEG-8 tallate; PEG-14 tallate; PEG-16 tallate; PEG-20 tallate; Pentaerythrityl dioleate; Pentaerythrityl distearate; Pentaerythrityl hydrogenated rosinate; Pentaerythrityl tetraoleate; Pentaerythrityl tetraoleate; Pentaerythrityl trioleate; Petrolatum; Petroleum distillates; Petroleum wax; Petroleum wax, oxidized; *o*-Phenylphenol; Pine (*Pinus palustris*) oil; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 212; Poloxamer 215; Poloxamer 217; Poloxamer 237; Poloxamer 284; Poloxamer 338; Poloxamer 407; Polyethylene; Polyethylene, oxidized; Potassium castorate; Potassium cocoate; Potassium cornate; Potassium distearyl phosphate; Potassium laurate; Potassium myristate; Potassium oleate; Potassium palmitate; Potassium stearate; PPG-15; PPG-20; PPG-26; PPG-2-buteth-2; PPG-2-buteth-3; PPG-3-buteth-5; PPG-5-buteth-7; PPG-7-buteth-10; PPG-9-buteth-12; PPG-12-buteth-16; PPG-15-buteth-20; PPG-20-buteth-30; PPG-24-buteth-27; PPG-26-buteth-26; PPG-28-buteth-35; PPG-33-buteth-45; PPG-18 butyl ether; PPG-22 butyl ether; PPG-24 butyl ether; PPG-30 butyl ether; PPG-33 butyl ether; PPG-40 butyl ether; PPG-17 dioleate; PPG-26 oleate; PPG-36 oleate; Propylene glycol dicaprylate; Propylene glycol dicaprylate/dicaprate; Propylene glycol dicocoate; Propylene glycol dilaurate; Propylene glycol distearate; Propylene glycol myristate; Propylene glycol oleate; Propylene glycol soyate; Propylene glycol stearate; PVP; Rapeseed (*Brassica campestris*) oil; Rapeseed oil triglycerides; Rice (*Oryza sativa*) bran oil; Ricebran oil triglycerides; Rosin; Safflower (*Carthamus tinctorius*) oil; Sesame (*Sesamum indicum*) oil; Shark liver oil; Silica; Silicone glycol copolymer; Sodium alkyl (C9-C15) benzenesulfonate; Sodium castorate; Sodium cocoate; Sodium distearyl phosphate; Sodium laurate; Sodium laureth sulfate; Sodium laureth-12 sulfate; Sodium lauryl sulfate; Sodium lignosulfonate; Sodium myristate; Sodium petroleum sulfonate; Sodium *o*-phenylphenate; Sodium polynaphthalene sulfonate; Sodium tallow sulfate; Sodium tridecylbenzene sulfonate; Soyamide DEA; Soybean (*Glycine soja*) oil; Soybean oil triglycerides; Sperm oil triglycerides; Stearyl alcohol; Tallamide DEA; Tall oil; Tall oil acid; Tall oil triglycerides; Tallow acid; Tallow amide; Tallowamide DEA; Talloweth-6; Tallow glyceride; Tallow glycerides; TEA cocoate; TEA-oleate; TEA-stearate; TEGO® Antifoam 2-18; TEGO® Foamex 1435; TEGO® Foamex 3062; TEGO® Foamex 826; Tetrahydrofurfuryl alcohol; Tetrasodium EDTA; Tributoxylethyl phosphate; Tributyl phosphate; Trideceth-3; Trideceth-4; Trideceth-5; Trideceth-6; Trideceth-7; Trideceth-8; Trideceth-9; Trideceth-10; Trideceth-11; Trideceth-12; Trideceth-14; Trideceth-15; Triethanolamine; Triisopropanolamine; Trioctyl phosphate; Tristearyl phosphate; Zinc laurate;

Zinc rosinate  
**defoamer, paper: food grade**  
 Dow EP530  
**defoamer, paper: food pkg.**  
 Agitan® 301; Agitan® 305  
**defoamer, paper: food-contact**  
 A-C® 325; A-C® 330; A-C® 392; A-C® 395; 395A; A-C® 400; A-C® 400A; A-C® 405(M); A-C® 405(S); A-C® 430; A-C® 580; A-C® 617; A-C® 617A; A-C® 629; A-C® 629A; A-C® 655; Acrylates/PVP copolymer; Advantage® 10 Defoamer; Advantage® 344 Defoamer; Advantage® 388 Defoamer; Advantage® 491A Defoamer; Advantage® DF 110; Advantage® M1251 Production Aid; AF 645;35; Agitan® 285; Agitan® 295; Agitan® 960-R; Agitan® B 13; Amergel® 100; Amergel® 200; Amergel® 500; Ammonium laureth-30 sulfate; *n*-Amyl alcohol; Aquatac® 6025; Aquatac® 6085; Aquatac® 6085B-1; Aquatac® 6085B-7; Arizona DR-22; Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Arizona DRS-44; Armeen® 2C; Bevaloid 581B; Bevaloid 2512; Bevaloid 2514; Bevaloid 6624; Bevaloid 6683; BHA; BHT; BIO-SOFT® S-120; Bubrex® 4400; Busperse® 229; Butoxyethanol; Butyl myristate; Butyl oleate; Calcium lignosulfonate; Calimulse EM-22; Calimulse EM-30; Calimulse EM-96F; Calimulse EM-99; Calimulse L-22; Calimulse L-30; Calimulse L-50; Calimulse PR; Calimulse PRS; Calimulse SLS; Calsoft® LAS-99; Capramide DEA; Cardipol® LP 0-25; Castor oil triglycerides; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; C13-14 isoparaffin; CNC Antifoam 10-FG; CNC Antifoam 30-FG; Cocamide; Cocamide DEA; Coceth-8; Coconut alcohol; Coconut oil triglycerides; Colloid™ 646; Colloid™ 675; Corn oil triglycerides; Cottonseed oil triglycerides; Crill 2; Crill 3; Crill 41; Crill 43; Crill 45; Crillet 1 HP; Crillet 1 NF; Crillet 2; Crillet 3; Crillet 11; Crillet 31; Crillet 35; Crillet 41; Crillet 45; Deceth-4 phosphate; Dehydran® 1293; DeIONIC OPE-5; DeIONIC OPE-7.5; DeIONIC OPE-10; DeIONIC OPE-30; DeIONIC OPE-40; DeMIDE MFM-200; DeMIDE MFS-200; DeMIDE RCN-100; DeMIDE RCN-100HV; DeMIDE RCN-200; DeMIDE RCN-276; DeMIDE RCN-MCY-100; DeMIDE RCN-ME-100; DeMIDE SBA-100; DeMULS PSTS-65; DeMULS SML; DeMULS SMO; DePEG 30-CO; DePHOS RA-40; DeSULF SLS-30LC; DeSULF SLS-30LS; DeTHOX ACID TO-8.5; DeTHOX ACID TO-14; DeTHOX ACID TO-16.5; DeTHOX LA-4; DeTHOX LA-23; DeWET SMA-80; Diacetylated tallow monoglyceride, tartaric acid ester; Di-*t*-butylhydroquinone; Diethanolamine; Diethyl-ene-tri-amine; Diisopropanolamine; Dimethicone copolyol; 2,6-Dimethyl heptanol-4; *s*-Diocetyl phthalate; Diocetyl sodium sulfosuccinate; Disponil® SUS IC 865; Disponil® SUS IC 875; Dodecylbenzenesulfonic acid; Dodoxynol-5; Dodoxynol-7; Dodoxynol-9; Dodoxynol-12; Dow Corning® 26 Additive; Dow Corning® 163 Additive; DREWPLUS® L-175; DREWPLUS® L-191; DREWPLUS® L-407; DREWPLUS® L-419; DREWPLUS® L-466; DREWPLUS® L-474; DREWPLUS® L-493; Eldorado DEF-741; Eldorado DEF-795; Ethanolamine; 2-Ethylhexanol; Exxsol® D 60; Exxsol® D 80; Exxsol® D 110; Exxsol® D 130; Fish oil triglycerides; Foamaster® AP; Foamaster® JMY; Foamaster® NS-1; Foamaster® S; Foamaster® VC; Foam Blast 433FW; Foam Blast 445; Foam Blast 448; Foam Blast 469; Foam Blast 476; Formaldehyde; Geo FM® 1220; Geo FM® 1224; Geo FM® 1425; Geo FM® DF-122; Geo FM® DF-122-NS; Geo FM® VF; Geo FM® VFS; Glyceryl caprylate; Glyceryl caprylate/caprinate; Glyceryl cocoate; Glyceryl dioleate;

*Glyceryl distearate; Glyceryl laurate; Glyceryl myristate; Glyceryl oleate; Glyceryl palmitate/ stearate; Glycol distearate; Glycol oleate; Glycol palmitate; Glycol ricinoleate; Glycol stearate; 2-Heptadecenyl-4-methyl-4-hydroxymethyl-2-oxazoline; Hydrogenated coconut acid; Hydrogenated coconut oil; Hydrogenated cottonseed oil; Hydrogenated lard glyceride; Hydrogenated lard glycerides; Hydrogenated menhaden acid; Hydrogenated menhaden oil; Hydrogenated palm glyceride; Hydrogenated palm oil; Hydrogenated peanut oil; Hydrogenated polybutene; Hydrogenated rice bran wax; Hydrogenated shark liver oil; Hydrogenated soybean oil; Hydrogenated soy glyceride; Hydrogenated soy glycerides; Hydrogenated tallow glyceride; Hydrogenated tallow glycerides; Hydrogenated vegetable glyceride; Hydrogenated vegetable glycerides; Hydrogenated vegetable oil; Hydroxystearic acid; Igepal® CA-630; Igepal® CA-897; Igepal® CO-897; Igepal® CO-977; Isobutyl palmitate; Isobutyl stearate; Isobutyl tallowate; Isopar® G; Isopar® H; Isopar® K; Isopar® L; Isopar® M; Isopar® V; Isopropanolamine; Isopropylamine dodecylbenzenesulfonate; Isopropyl laurate; Isopropyl myristate; Isopropyl oleate; Isopropyl palmitate; Isopropyl stearate; Isopropyl tallowate; Lanolin; Lard oil triglycerides; Larostat® 902 A; Larostat® 902 AS; Lignosite® 260; Lignosite® 431; Lignosite® 458; Lignosite® 823; Lignosite® AC; Linoleamide DEA; Linseed oil triglycerides; Loxiol® G 11; Loxiol® G 13; Loxiol® G 16; Loxiol® G 20; Loxiol® G 53; Loxiol® HOB 7121; Lumulse™ GMO; Magnesium cocoate; Methyl hydroxystearate; Methyl ricinoleate; MIPA-dodecylbenzenesulfonate; Monawet MO-70; Monawet MO-70E; Monawet MO-70R; Monawet MO-70S; Monawet MO-75E; Monawet MO-84R2W; Monawet MO-85P; Montan wax; Morpholine; Moussex® 9101 GE; Mustardseed oil triglycerides; Myristamide DEA; Nonoxynol-2; Nonoxynol-3; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-13; Nonoxynol-14; Nonoxynol-15; Nopcote® 3560; Nopcote® DC-1153; Norpar® 12; Norpar® 13; Norpar® 15; Octowet 70D; Octoxynol-3; Octoxynol-5; Octoxynol-7; Octoxynol-8; Octoxynol-9; Octoxynol-10; Octoxynol-11; Octoxynol-12; Octoxynol-13; Oleamide DEA; Oleyl alcohol; Palmamide DEA; Palmitamide DEA; Palm oil triglycerides; Peanut oil triglycerides; PEG-2 castor oil; PEG-4 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-33 castor oil; PEG-100 castor oil; PEG-15 cocoate; PEG-20 corn glycerides; PEG-60 corn glycerides; PEG-4 decyl phosphate; PEG-8 dicocoate; PEG-4 di (2-ethylhexanoate); PEG-3 di-2-ethylhexoate; PEG-2 dilaurate; PEG-6 dilaurate; PEG-8 dilaurate; PEG-12 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-4 dioleate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-2 distearate; PEG-4 distearate; PEG-6 distearate; PEG-8 distearate; PEG-12 distearate; PEG-20 distearate; PEG-32 distearate; PEG-8 di/triricinoleate; PEG-40 glyceryl cocoate; PEG-12 glyceryl dioleate; PEG-12 glyceryl laurate; PEG-20 glyceryl laurate; PEG-15 glyceryl oleate; PEG-20 glyceryl oleate; PEG-15 glyceryl ricinoleate; PEG-20 glyceryl ricinoleate; PEG-4 laurate; PEG-6 laurate; PEG-20 laurate; PEG-32 laurate; PEG-8 myristate; PEG-20 myristate; PEG-4 octanoate; PEG-4 oleate; PEG-6 oleate; PEG-20 palmitate; PEG/PPG-17/6 copolymer; PEG-8 ricinoleate; PEG-8 sesquiolate; PEG-8 sesquiolate; PEG-40 sorbitan hexaoleate; PEG-40 sorbitan laurate; PEG-6 sorbitan oleate; PEG-40 sorbitan peroleate; PEG-6*

*sorbitan stearate; PEG-40 sorbitan stearate; PEG-40 sorbitan tetraoleate; PEG-4 stearate; PEG-6 stearate; PEG-20 stearate; PEG-32 stearate; PEG-100 stearate; PEG-4 tallate; PEG-8 tallate; PEG-14 tallate; PEG-16 tallate; PEG-20 tallate; Pentaerythrityl dioleate; Pentaerythrityl distearate; Pentaerythrityl hydrogenated rosinate; Pentaerythrityl tetracocoate; Pentaerythrityl tetralaurate; Pentaerythrityl tetraoleate; Pentaerythrityl trioleate; Petroleum distillates; Petroleum wax, oxidized; Petrolite® C-3500; o-Phenylphenol; Poloxamer 101; POLYSTEP® A-7; POLYSTEP® A-11; POLYSTEP® A-13; POLYSTEP® A-15; POLYSTEP® A-15-30K; POLYSTEP® A-16; POLYSTEP® A-16-22; POLYSTEP® A-17; POLYSTEP® AE-120; POLYSTEP® AE-307; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-7; POLYSTEP® B-11; POLYSTEP® B-20; POLYSTEP® B-22; POLYSTEP® B-23; POLYSTEP® B-24; POLYSTEP® B-330S; POLYSTEP® LAS-50; POLYSTEP® OP-9; Polystix® 90 Resin; Polywet® ND-2; Potassium distearyl phosphate; PPG-2-buteth-2; PPG-2-buteth-3; PPG-3-buteth-5; PPG-5-buteth-7; PPG-7-buteth-10; PPG-9-buteth-12; PPG-12-buteth-16; PPG-15-buteth-20; PPG-20-buteth-30; PPG-24-buteth-27; PPG-26-buteth-26; PPG-28-buteth-35; PPG-33-buteth-45; PPG-18 butyl ether; PPG-30 butyl ether; PPG-17 dioleate; PPG-26 oleate; PPG-36 oleate; Propylene glycol dicaprylate; Propylene glycol dicaprylate/ dicaprate; Propylene glycol dicocoate; Propylene glycol dilaurate; Propylene glycol distearate; Propylene glycol myristate; Propylene glycol stearate; Protectol® PP; Prox®-Amine CE 9122 AL; Pulpasil® 160 C; Pulpasil® 760 E; PVP; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8019; QEMI MDF 8021; QEMI MDF 8023; QEMI SSDF 8013; Qemiban; Qemidink 8001; Qemidink 8002; Rapeseed (*Brassica campestris*) oil; Rapeseed oil triglycerides; Rexfoam 301-A; Rhodacal® DS-10; Rhodafac® RE-610; Rhodafac® RS-610; Rhodafac® RS-710; Rhodapex® CO-436; Rhodapon® LCP; Rhodapon® LSB; Rhodapon® SM; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Ricebran oil triglycerides; Ross Montan Wax; Shark liver oil; Silicone Antifoam Agent S 204; Silicone glycol copolymer; Silwet® L-7200; Silwet® L-7210; Silwet® L-7220; Silwet® L-7230; Sodium MBT; Sodium alkyl (C9-C15) benzenesulfonate; Sodium distearyl phosphate; Sodium laureth sulfate; Sodium laureth-12 sulfate; Sodium lauryl sulfate; Sodium lignosulfonate; Sodium petroleum sulfonate; Sodium o-phenylphenate; Sodium polynaphthalene sulfonate; Sodium tridecylbenzene sulfonate; Sorbitol Sol'n. High Mannitol; Sorbitol Sol'n. Noncrystallizing; Soyamide DEA; Soybean oil triglycerides; Sperm oil triglycerides; Stanfax 996; Stanfax 997; STEPANOL® LCP; Struktol® TR 044; SULFONIC 100; Sylvatac® 5N; Sylvatac® 40N; Sylvatac® 100NS; Sylvatac® 105NS; Sylvatac® 1100; Sylvatac® 1103; Sylvatac® 2110; Sylvatac® 40B3; Sylvatac® 4105; Sylvatac® 4136; Sylvatac® 4203; Sylvatac® 4216; Tallamide DEA; Tall oil triglycerides; Tallowamide DEA; Talloweth-6; Tallow glyceride; Tallow glycerides; T-Det® A126; T-Det® A243; T-Det® A247; T-Det® A249; T-Det® A467; TEA cocoate; TEA-oleate; TEA-stearate; TEGO® Airex 901 W; TEGO® Airex 960; TEGO® Airex 970; TEGO® Antifoam 1-60; TEGO® Antifoam 1-62; TEGO® Antifoam 2-57; TEGO® Antifoam 2-67; TEGO® Antifoam 2-80; TEGO® Antifoam 2-82; TEGO® Antifoam 2-89; TEGO® Antifoam 2-92; TEGO® Antifoam 14; TEGO® Antifoam*

28; TEGO® Antifoam 81; TEGO® Antifoam 93; TEGO® Antifoam 105; TEGO® Antifoam 200; TEGO® Antifoam 201; TEGO® Antifoam 202; TEGO® Antifoam 793; TEGO® Antifoam 1488; TEGO® Antifoam 3062; TEGO® Antifoam KE 400; TEGO® Antifoam KE 600; TEGO® Antifoam KS 6; TEGO® Antifoam KS 10; TEGO® Antifoam KS 53; TEGO® Antifoam KS 95; TEGO® Antifoam KS 100; TEGO® Antifoam KS 911; TEGO® Antifoam KS 1100; TEGO® Antifoam MR 1000; TEGO® Antifoam MR 1015; TEGO® Antifoam MR 1016; TEGO® Antifoam N; TEGO® Antifoam WM 20; TEGO® Dispers 740 W; TEGO® Foamex 800; TEGO® Foamex 805; TEGO® Foamex 810; TEGO® Foamex 815; TEGO® Foamex 825; TEGO® Foamex 835; TEGO® Foamex 1488; TEGO® Foamex 1495; TEGO® Foamex 7447; TEGO® Foamex 8020; TEGO® Foamex 8030; TEGO® Foamex KS 4; TEGO® Foamex N; TEGO® Glide 100; TEGO® Glide 403; TEGO® Glide B 1484; TEGO® Glide ZG 400; TEGOPREN® 5803; TEGOPREN® 5852; TEGOPREN® 5863; TEGOPREN® 5884; Tergitol® NP-4; Tergitol® NP-6; Teric™ N9; Tetrahydrofurfuryl alcohol; Tetrasodium EDTA; Tributoxylethyl phosphate; Tributyl phosphate; Trioctyl phosphate; Tristearyl phosphate; Triton® X-15; Triton® X-45; Triton® X-100; Triton® X-102; Triton® X-114; Triton® X-120; Triton® X-305-70%; Triton® X-405-70%; Troykyd® USM DP336; Ucon® 50-HB-260; Ucon® 50-HB-400; Ucon® 75-H-450; Uni-Tac® 70; Zinc laurate; Zinc rosinate; Zonarez® A-25; Zonester® 25; Zonester® 100

**defoamer, paper: food-grade**

Dow P1000TB; Dow P1200; Dow P2000; PPG-17

**defoamer, paperboard**

Chemax DFO-155; Cisanol FH-1400; DK-100 Nonsilicone Defoamer; DK-230 Nonsilicone Defoamer; PD-23; Protocol™

**defoamer, paperboard coatings**

PEG-3.5 tetramethyl decylenol; Surfynol® 440

**defoamer, paperboard: food-contact**

Acrylates/PVP copolymer; Advantage® 344 Defoamer; Advantage® 388 Defoamer; Advantage® DF 110; Advantage® M1251 Production Aid; Agitan® 285; Agitan® 295; Agitan® B 13; Amergel® 100; Amergel® 200; Amergel® 500; Ammonium laureth-30 sulfate; n-Amyl alcohol; Aquatac® 6025; Aquatac® 6085; Aquatac® 6085B-1; Aquatac® 6085B-7; Arizona DR-22; Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Arizona DRS-44; Armeen® 2C; Beef tallow triglycerides; Bevaloid 581B; Bevaloid 2512; Bevaloid 2514; Bevaloid 6624; Bevaloid 6683; BHA; BHT; BIO-SOFT® S-120; Bubrex® 4400; Busperse® 229; Butoxyethanol; Butyl myristate; Butyl oleate; Calcium lignosulfonate; Calimulose EM-22; Calimulose EM-30; Calimulose EM-96F; Calimulose EM-99; Calimulose L-22; Calimulose L-30; Calimulose L-50; Calimulose PR; Calimulose PRS; Calimulose SLS; Calsoft® LAS-99; Capramide DEA; Cardipol® LP 0-25; Castor oil triglycerides; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; C13-14 isoparaffin; CNC Antifoam 10-FG; CNC Antifoam 30-FG; Cocamide; Cocamide DEA; Coceth-8; Coconut alcohol; Coconut oil triglycerides; Colloid™ 675; Corn oil triglycerides; Cottonseed oil triglycerides; Crill 2; Crill 41; Crill 43; Crill 45; Crillet 1 HP; Crillet 1 NF; Crillet 2; Crillet 3; Crillet 11; Crillet 31; Crillet 35; Crillet 41; Crillet 45; Deceth-4 phosphate; Dehydran® 1293; DeIONIC OPE-5; DeIONIC OPE-10; DeIONIC OPE-30; DeIONIC OPE-40; DeMIDE MFM-200; DeMIDE MFS-200; DeMIDE RCN-100; DeMIDE RCN-100HV; DeMIDE RCN-200; DeMIDE RCN-276; DeMIDE RCN-MCY-100; DeMIDE RCN-ME-

100; DeMIDE SBA-100; DeMULS PSTS-65; DeMULS SML; DeMULS SMO; DePEG 30-CO; DePHOS RA-40; DeSULF SLS-30LC; DeSULF SLS-30LS; DeTHOX ACID TO-8.5; DeTHOX ACID TO-14; DeTHOX ACID TO-16.5; DeTHOX LA-4; DeTHOX LA-23; DeWET SMA-80; *Diacetylated tallow monoglyceride, tartaric acid ester; Di-1-butylhydroquinone; Diethanolamine; Diethylenetriamine; Diisopropanolamine; Dimethicone copolyol; 2,6-Dimethyl heptanol-4; s-Dioctyl phthalate; Dioctyl sodium sulfosuccinate; Disponil® SUS IC 865; Disponil® SUS IC 875; Dodecylbenzenesulfonic acid; Dodoxynol-5; Dodoxynol-7; Dodoxynol-9; Dodoxynol-12; Dow Corning® 26 Additive; Dow Corning® 163 Additive; Drewplus® L-407; Drewplus® L-493; Ethanolamine; 2-Ethylhexanol; Exxsol® D 60; Exxsol® D 80; Exxsol® D 110; Exxsol® D 130; Fish oil triglycerides; Foam Blast 443; Formaldehyde; Geo FM® 1220; Geo FM® 1224; Geo FM® 1425; Geo FM® DF-122; Geo FM® DF-122-NS; Geo FM® VF; Geo FM® VFS; Glyceryl caprylate; Glyceryl caprylate/caprinate; Glyceryl cocoate; Glyceryl dioleate; Glyceryl distearate; Glyceryl laurate; Glyceryl myristate; Glyceryl oleate; Glyceryl palmitate/stearate; Glycol distearate; Glycol oleate; Glycol palmitate; Glycol ricinoleate; Glycol stearate; 2-Heptadecenyl-4-methyl-4-hydroxymethyl-2-oxazoline; Hydrogenated coconut acid; Hydrogenated coconut oil; Hydrogenated cottonseed oil; Hydrogenated lard glyceride; Hydrogenated lard glycerides; Hydrogenated menhaden acid; Hydrogenated menhaden oil; Hydrogenated palm glyceride; Hydrogenated palm oil; Hydrogenated peanut oil; Hydrogenated rice bran wax; Hydrogenated shark liver oil; Hydrogenated soybean oil; Hydrogenated soy glyceride; Hydrogenated soy glycerides; Hydrogenated tallow glyceride; Hydrogenated tallow glycerides; Hydrogenated vegetable glyceride; Hydrogenated vegetable glycerides; Hydrogenated vegetable oil; Hydroxystearic acid; Igepal® CA-630; Igepal® CA-897; Igepal® CO-897; Igepal® CO-977; Isobutyl palmitate; Isobutyl stearate; Isobutyl tallowate; Isopar® G; Isopar® H; Isopar® K; Isopar® L; Isopar® M; Isopar® V; Isopropanolamine; Isopropylamine dodecylbenzenesulfonate; Isopropyl laurate; Isopropyl myristate; Isopropyl oleate; Isopropyl palmitate; Isopropyl searate; Isopropyl tallowate; Lanolin; Lard oil triglycerides; Larostat® 902 A; Larostat® 902 AS; Lignosite® 260; Lignosite® 431; Lignosite® 458; Lignosite® 823; Lignosite® AC; Linoleamide DEA; Linseed oil triglycerides; Loxiol® G 11; Loxiol® G 13; Loxiol® G 16; Loxiol® G 20; Loxiol® G 53; Loxiol® HOB 7121; Lumulse™ GMO; Methyl hydroxystearate; Methyl ricinoleate; MIPA-dodecylbenzenesulfonate; Monawet MO-70; Monawet MO-70E; Monawet MO-70R; Monawet MO-70S; Monawet MO-75E; Monawet MO-84R2W; Monawet MO-85P; Montan wax; Morpholine; Moussex® 9101 GE; Mustardseed oil triglycerides; Myristamide DEA; Nonoxynol-2; Nonoxynol-3; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-13; Nonoxynol-14; Nonoxynol-15; Nopcote® 3560; Nopcote® DC-1153; Norpar® 12; Norpar® 13; Norpar® 15; Octowet 70D; Octoxynol-3; Octoxynol-5; Octoxynol-7; Octoxynol-8; Octoxynol-9; Octoxynol-10; Octoxynol-11; Octoxynol-12; Octoxynol-13; Oleamide DEA; Oleyl alcohol; Palmamide DEA; Palmamide DEA; Palm oil triglycerides; Peanut oil triglycerides; PEG-2 castor oil; PEG-4 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-33 castor oil; PEG-100 castor oil; PEG-15 cocoate; PEG-20 corn glycerides;*

PEG-60 corn glycerides; PEG-4 decyl phosphate; PEG-8 dicocoate; PEG-4 di (2-ethylhexanoate); PEG-3 di-2-ethylhexoate; PEG-2 dilaurate; PEG-6 dilaurate; PEG-8 dilaurate; PEG-12 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-4 dioleate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-2 distearate; PEG-4 distearate; PEG-6 distearate; PEG-8 distearate; PEG-12 distearate; PEG-20 distearate; PEG-32 distearate; PEG-8 di/triricinoleate; PEG-40 glyceryl cocoate; PEG-12 glyceryl dioleate; PEG-12 glyceryl laurate; PEG-20 glyceryl laurate; PEG-15 glyceryl oleate; PEG-20 glyceryl oleate; PEG-15 glyceryl ricinoleate; PEG-20 glyceryl ricinoleate; PEG-4 laurate; PEG-6 laurate; PEG-20 laurate; PEG-32 laurate; PEG-8 myristate; PEG-20 myristate; PEG-4 octanoate; PEG-4 oleate; PEG-6 oleate; PEG-20 palmitate; PEG/PPG-17/6 copolymer; PEG-8 ricinoleate; PEG-8 sesquilaurate; PEG-8 sesquioleate; PEG-40 sorbitan hexaoleate; PEG-40 sorbitan laurate; PEG-6 sorbitan oleate; PEG-40 sorbitan peroleate; PEG-6 sorbitan stearate; PEG-40 sorbitan stearate; PEG-40 sorbitan tetraoleate; PEG-4 stearate; PEG-6 stearate; PEG-20 stearate; PEG-32 stearate; PEG-100 stearate; PEG-4 tallate; PEG-8 tallate; PEG-14 tallate; PEG-16 tallate; PEG-20 tallate; Pentaerythrityl dioleate; Pentaerythrityl distearate; Pentaerythrityl hydrogenated rosinate; Pentaerythrityl tetraoleate; Pentaerythrityl tetralaurate; Pentaerythrityl tetraoleate; Pentaerythrityl trioleate; Petroleum distillates; Petroleum wax, oxidized; Petrolite® C-3500; o-Phenylphenol; Poloxamer 101; POLYSTEP® A-7; POLYSTEP® A-11; POLYSTEP® A-13; POLYSTEP® A-15; POLYSTEP® A-15-30K; POLYSTEP® A-16; POLYSTEP® A-16-22; POLYSTEP® A-17; POLYSTEP® AE-120; POLYSTEP® AE-307; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-7; POLYSTEP® B-11; POLYSTEP® B-20; POLYSTEP® B-22; POLYSTEP® B-23; POLYSTEP® B-24; POLYSTEP® B-330S; POLYSTEP® LAS-50; POLYSTEP® OP-9; Polystix® 90 Resin; Potassium distearyl phosphate; PPG-2-buteth-2; PPG-2-buteth-3; PPG-3-buteth-5; PPG-5-buteth-7; PPG-7-buteth-10; PPG-9-buteth-12; PPG-12-buteth-16; PPG-15-buteth-20; PPG-20-buteth-30; PPG-24-buteth-27; PPG-26-buteth-26; PPG-28-buteth-35; PPG-33-buteth-45; PPG-18 butyl ether; PPG-30 butyl ether; PPG-17 dioleate; PPG-26 oleate; PPG-36 oleate; Propylene glycol dicaprylate; Propylene glycol dicaprylate/dicaprate; Propylene glycol dicocotate; Propylene glycol dilaurate; Propylene glycol distearate; Propylene glycol myristate; Propylene glycol oleate; Propylene glycol stearate; Protectol® PP; Prox®-Amine CE 9122 AL; Pulpasil® 160 C; Pulpasil® 760 E; PVP; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8019; QEMI MDF 8021; QEMI MDF 8023; QEMI SDF 8013; Qemiban; Qemidink 8001; Qemidink 8002; Rapeseed (*Brassica campestris*) oil; Rapeseed oil triglycerides; Rexfoam 301-A; Rhodacal® DS-10; Rhodapex® CO-436; Rhodapex® LCP; Rhodapon® LSB; Rhodapon® SM; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Ricebran oil triglycerides; Ross Montan Wax; Shark liver oil; Silicone glycol copolymer; Silwet® L-7200; Silwet® L-7210; Silwet® L-7220; Silwet® L-7230; Sodium alkyl (C9-C15) benzenesulfonate; Sodium distearyl phosphate; Sodium laureth sulfate; Sodium laureth-12 sulfate; Sodium lauryl sulfate; Sodium lignosulfonate; Sodium petroleum sulfonate; Sodium o-phenylphenate; Sodium polynaphthalene

sulfonate; Sodium tridecylbenzene sulfonate; Sorbitol Sol'n. High Mannitol; Sorbitol Sol'n. Noncrystallizing; Soyamide DEA; Soybean oil triglycerides; Sperm oil triglycerides; Stanfax 996; Stanfax 997; STEPANOL® LCP; Struktol® TR 044; SULFONIC 100; Sylvatoc® 5N; Sylvatoc® 40N; Sylvatoc® 100NS; Sylvatoc® 105NS; Sylvatoc® 1100; Sylvatoc® 1103; Sylvatoc® 2110; Sylvatoc® 4083; Sylvatoc® 4105; Sylvatoc® 4136; Sylvatoc® 4203; Sylvatoc® 4216; Tallamide DEA; Tall oil triglycerides; Tallowamide DEA; Talloweth-6; Tallow glyceride; Tallow glycerides; T-Det® A126; T-Det® A243; T-Det® A247; T-Det® A249; T-Det® A467; TEA cocoate; TEA-oleate; TEA-stearate; TEGO® Airex 901 W; TEGO® Airex 960; TEGO® Airex 970; TEGO® Antifoam 1-60; TEGO® Antifoam 1-62; TEGO® Antifoam 2-57; TEGO® Antifoam 2-67; TEGO® Antifoam 2-80; TEGO® Antifoam 2-82; TEGO® Antifoam 2-89; TEGO® Antifoam 2-92; TEGO® Antifoam 14; TEGO® Antifoam 28; TEGO® Antifoam 81; TEGO® Antifoam 93; TEGO® Antifoam 105; TEGO® Antifoam 200; TEGO® Antifoam 201; TEGO® Antifoam 202; TEGO® Antifoam 793; TEGO® Antifoam 1488; TEGO® Antifoam 3062; TEGO® Antifoam KE 400; TEGO® Antifoam KE 600; TEGO® Antifoam KS 6; TEGO® Antifoam KS 10; TEGO® Antifoam KS 53; TEGO® Antifoam KS 95; TEGO® Antifoam KS 100; TEGO® Antifoam KS 911; TEGO® Antifoam KS 1100; TEGO® Antifoam MR 1000; TEGO® Antifoam MR 1015; TEGO® Antifoam MR 1016; TEGO® Antifoam N; TEGO® Antifoam WM 20; TEGO® Dispers 740 W; TEGO® Foamex 800; TEGO® Foamex 805; TEGO® Foamex 810; TEGO® Foamex 815; TEGO® Foamex 825; TEGO® Foamex 835; TEGO® Foamex 1488; TEGO® Foamex 1495; TEGO® Foamex 7447; TEGO® Foamex 8020; TEGO® Foamex 8030; TEGO® Foamex KS 4; TEGO® Foamex N; TEGO® Glide 100; TEGO® Glide 403; TEGO® Glide B 1484; TEGO® Glide ZG 400; TEGOPREN® 5803; TEGOPREN® 5852; TEGOPREN® 5863; TEGOPREN® 5884; Tergitol® NP-4; Tergitol® NP-6; Teric™ N9; Tetrahydrofurfuryl alcohol; Tetrasodium EDTA; Tributoxyethyl phosphate; Tributyl phosphate; Trioctyl phosphate; Tristearyl phosphate; Triton® X-15; Triton® X-45; Triton® X-100; Triton® X-102; Triton® X-114; Triton® X-120; Triton® X-305-70%; Triton® X-405-70%; Ucon® 75-H-450; Uni-Tac® 70; Zinc laurate; Zinc rosinate; Zonarez® A-25; Zonester® 25; Zonester® 100

#### defoamer, papermaking

Adekanate B-107F; Adekanol G-683; Advantage® DF 110; Advantage® DF 285; Advantage® M1251 Production Aid; Antaro® 17-R-2; Antaro® 25-R-2; Antaro® 31-R-1; Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Drewplus® L-108; Emka® Defoam BC; Etingal® L; Etingal® S; Foambreaker; Foamlex 372; Foamlex 711; Foamlex 747; Foamlex 797; Foamlex E-585K; Foamlex W-315; Foamlex W-320; GP-210 Silicone Antifoam Emulsion; GP-300-I Antifoam Compd.; Meroxapal 105; PEG-2 laurate

**defoamer, papermaking: thin paper**  
Foamlex 400; Foamlex 760; Foamlex 770

**defoamer, papermaking: tissues**  
Foamlex 760; Foamlex 770

**defoamer, papermaking: toilet rolls**  
Foamlex 760; Foamlex 770

**defoamer, papermaking: wood free paper**  
Foamlex 400

**defoamer, PCA emulsions**  
Drewplus® Y-125

**defoamer, pigment grinding**  
Propylene glycol myristate

- defoamer, pigment slurries**  
Etingal® L
- defoamer, pigmented paper coatings**  
Geo FM® 1425; Geo FM® VFS
- defoamer, pigmented systems**  
Agitan® 650; Agitan® 655
- defoamer, pigment-filled paper coatings**  
CNC Defoamer 97
- defoamer, pigments**  
Nopco® NDW; Norfox® C-75; Surfynol® 104E; Surfynol® 104PG-50
- defoamer, plant effluent systems**  
Advantage® 494
- defoamer, polybutadiene**  
Drewplus® L-139
- defoamer, polymer dispersions**  
*Polysiloxane polyether copolymer*; TEGO®  
Foamex 800; TEGO® Foamex 805; TEGO®  
Foamex 7447
- defoamer, polymer emulsions**  
TEGO® Foamex 1488
- defoamer, polymer stripping**  
Colloid™ 991
- defoamer, polymer synthesis**  
Colloid™ 991
- defoamer, polymerization**  
Drewplus® L-198; Nopco® NDW; *Silicone emulsions*; *Sorbitan stearate*
- defoamer, polyvinyl alcohol sol'ns.**  
Agitan® 290
- defoamer, process**  
*Sorbitan tristearate*
- defoamer, process: pulp/paper**  
Unicid™ 350; Unicid™ 425; Unicid™ 550; Unicid™ 700 Acid
- defoamer, protein**  
Colloid™ 999; Rhodaterge® BCC
- defoamer, protein systems**  
Foam Blast 102; Foam Blast 443
- defoamer, protein-based coatings**  
Colloid™ 797
- defoamer, pulp**  
Agitan® 633; Agitan® 634; Antispumin®; Disfoam C Series; Foamkill® D-1; Foamlex 372; Protocol™
- defoamer, pulp bleaching**  
KP-140®; Reomol® TBP; *Tributoxyethyl phosphate*; *Tributyl phosphate*
- defoamer, pulp mill bleaching**  
Advantage® 91WW
- defoamer, pulp mill brownstock washing operations**  
Advantage® 52-B; Advantage® 52EH Defoamer; Advantage® 52-JS
- defoamer, pulp mill effluent**  
Hi-Mar DFP-31; Hi-Mar DFP-203; Hi-Mar DFP-205; Hi-Mar DFP-213; Hi-Mar DFP-503
- defoamer, pulp mill screen rooms**  
FoamBrake™ JF-2; Antarox® EGE 25-2; Chemax DF-10; Chemax DF-10A; Chemax DF-30; Chemax DF-100; CNC Defoamer 403A; Defoamer™ 230; Defoamer™ 1418; DeTHOX ACID O-14; *Ethylene distearamide*; Etopol 31-L; Etopol 101-L; Fleetcol; Foamgard® 1332; Foamkill® 400A; Foamkill® 639; Foamkill® 660F; Foamkill® 679; Foamkill® 810F;
- Foamkill® 852; Foamkill® MS-1; Foamkill® NSP-1, NSP-3, NSP-4, NSP-5; Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Pluronic® 10R5; Pluronic® L81; Pluronic® L101; Polypax IC; Polypax SMS; Polysynth NDW; Polysynth SD; *PPG-66-glycereth-12*; Quso® G35, G38, WR55, WR83; Rai-X-Foam; *Silicone*; Surfonic® POA-25R2; Surfonic® POA-L42; Surfonic® POA-L44; Surfonic® POA-L61; Surfonic® POA-L62; Surfonic® POA-L62LF; Surfonic® POA-L64; Surfonic® POA-L81; Surfonic® POA-L101; Surfonic® POA-LF1; Surfonic® POA-LF2; Surfonic® POA-LF5; Surfonic® POA-S38; Surfonic® TOFA-5; Surfonic® TOFA-6; Surfonic® TOFA-X10; Surfonic® TOFA-20; Teric™ PE 61; Teric™ PE 62; Teric™ PE 64; Teric™ PE 68; Teric™ PE 75; Teric™ PE 87; Teric™ T5; Teric™ T10; Unilin® 425 Alcohol; Webnix 591C; Webnix 1065-3; Webnix 5113; Webnix 5116
- defoamer, pulp/paper effluents**  
Defoamer™ C5B
- defoamer, pulp/paper machine applics.: brownstock washers**  
De-Airex®
- defoamer, pulp/paper machines: coating systems**  
De-Airex®
- defoamer, pulp/paper machines: starch systems**  
De-Airex®
- defoamer, pulp/paper machines: wastewater treatment**  
De-Airex®
- defoamer, pulp/paper mill effluent**  
CNC Defoamer 9-W
- defoamer, pulp/paper mills**  
Spectrum X 6L
- defoamer, pulp/paper: bleaching**  
Defoamer™ KCE/S
- defoamer, pulp/paper: effluent**  
Defoamer™ KCE/S
- defoamer, pulp/paper: screen room**  
Defoamer™ KCE/S
- defoamer, pulp-deaeration: paper/board**  
Contraspum 211/2
- defoamer, pulp-deaeration: paper/board, food-contact**  
Contraspum 211/2
- defoamer, pulping liquor recovery**  
Adekanate B-556
- defoamer, PVA**  
Colloid™ 999; Drewplus® L-131; Drewplus® L-139; Foamkill® 639
- defoamer, PVA-acrylic copolymers emulsions**  
Patcote® 801
- defoamer, PVA-acrylic terpolymer emulsions**  
Patcote® 801
- defoamer, PVAc**  
Colloid™ 646; Drewplus® L-108; Drewplus® L-131; Drewplus® L-139; Drewplus® L-175; Drewplus® L-475; Drewplus® Y-601; Foamaster® AP; Foamaster® JMY; Foamaster® VF; Nopco® NDW
- defoamer, PVAc emulsions**  
Drewplus® L-493; Drewplus® Y-125
- defoamer, PVAl**  
Foamaster® V
- defoamer, PVC**  
Drewplus® L-108; Drewplus® L-139; Drewplus® Y-601; Foamkill® 639; Surfynol® 104E; Surfynol® 104PA; Surfynol® DF-110D; Surfynol® DF-110L
- defoamer, PVC emulsions**  
Bevaloid 2512; Bevaloid 2514; Bevaloid 6624; Colloid™ 685
- defoamer, PVC suspensions**  
Bevaloid 581B; Bevaloid 2514; Bevaloid 6624; Bevaloid 6683
- defoamer, PVC/PVdC**  
Foamaster® AP
- defoamer, PVdC**  
Drewplus® L-175; Drewplus® L-475
- defoamer, recycled fiber furnishes**  
Foam Blast 433C; Foam Blast 433FW
- defoamer, resin systems**  
Agitan® 633
- defoamer, resins**  
Bubreak® 454C; Bubreak® 4400; Bubreak® 4419
- defoamer, S/B**  
Foamaster® AP; Foamaster® VF
- defoamer, SBR**  
Drewplus® L-108; Drewplus® L-131; Drewplus® L-139; Drewplus® L-191; Drewplus® L-523; Drewplus® Y-601; Foamaster® 1320; Foamaster® VF; Nopco® NDW
- defoamer, SBR emulsions**  
Colloid™ 685; Drewplus® Y-125
- defoamer, screen rooms**  
CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B; SM 1124XD
- defoamer, screening**  
Hi-Mar DFP-213
- defoamer, silicone emulsion: industrial applics.**  
*Sorbitan stearate*
- defoamer, silicone-free: aq. systems**  
Agitan® 315
- defoamer, silicone-free: paper coating colors**  
Agitan® 315
- defoamer, size press sol'ns.**  
Advantage® 494; Geo FM® 1425; Geo FM® VF
- defoamer, size presses**  
Advantage® 833 Defoamer; FoamBrake™ 1697; Geo FM® VFS
- defoamer, size-protective emulsion: paper**  
Contraspum E 640
- defoamer, slurries**  
Mazu® DF 210SX
- defoamer, specialty coatings**  
CNC Defoamer 127; CNC Defoamer 505; CNC Defoamer 546
- defoamer, starch coatings**  
Foam Blast 240
- defoamer, starch modification**  
Trans-1741
- defoamer, starch processing**  
Trans-10; Trans-20; Trans-30
- defoamer, starch recovery**  
Trans-1741
- defoamer, starch systems**  
Foam Blast 102; Foam Blast 443; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8023; QEMI SSDF 8013
- defoamer, starch: paper, food-contact**  
Agitan® 281
- defoamer, starch: size presses**  
Rexfoam 301-A
- defoamer, starch-based operations**  
Trans-1741
- defoamer, starches**  
AF 60; Colloid™ 985; Colloid™ 999
- defoamer, stock**  
Eldorado PA-780; Eldorado Lube-20
- defoamer, strong alkaline systems**  
Agitan® 960-R
- defoamer, styrene-acrylics**  
Drewplus® L-175; Foamaster® AP
- defoamer, sulfate pulp systems**  
CNC Defoamer 28; CNC Defoamer 226
- defoamer, sulfite pulp**  
Afranil® F
- defoamer, sulfite pulp bleaching**  
Etopol 61-L
- defoamer, sulfite pulp systems**  
CNC Defoamer 28; CNC Defoamer 226
- defoamer, sulfite screen room operations**  
Hi-Mar DFP-203
- defoamer, surface-sized sheet**

- CNC Defoamer 44 Series  
**defoamer, surface-sizing preps.**  
 Etingal® L
- defoamer, syn. resin emulsions**  
 Adekanate B-187; Adekanate B-190; Adekanate B-192; Adekanate B-505; Adekanate B-556; Adekanate B-748A; Adekanate B-925; Adekanate B-940; Adekanate B-970; Adekanate B-988; Adekanate B-1011; Adekanate B-1012; Adekanate B-1015; Adekanate B-1016
- defoamer, syn. soluble polymers**  
 Foam Blast 443
- defoamer, tissue machines**  
 Eldorado DEF-741
- defoamer, toweling machines**  
 Eldorado DEF-741
- defoamer, unpigmented systems**  
 Agitan® 650; Agitan® 655
- defoamer, warp sizes**  
 Troykyd® D666
- defoamer, waste treatment**  
*Dimethicone*; FoamBrake™ JF-2; FoamBrake™ WB-40; Foamkill® 836B; Foamkill® CMP; *Silicone emulsions*; *Simethicone*; Trans-10; Trans-20; Trans-30
- defoamer, waste treatment systems**  
 Foam Blast 240
- defoamer, waste/effluent treatment**  
 Advantage® M1251 Production Aid
- defoamer, wastewater**  
 Adekanate B-107F; Adekanate B-187; Adekanate B-190; Adekanate B-192; Adekanate B-505; Adekanate B-748A; Adekanate B-925; Adekanate B-940; Adekanate B-970; Adekanate B-988; Adekanate B-1011; Adekanate B-1012; Adekanate B-1015; Adekanate B-1016; Foamlex 711; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8023; QEMI SSDF 8013; Qemiban
- defoamer, wastewater clarification**  
 Antispumin®
- defoamer, wastewater treatment**  
 Agitan® 232; Agitan® 260; Agitan® 301; Agitan® 380; Agitan® 731; Agitan® 960-R; DK-100 Nonsilicone Defoamer; FoamBrake™ SW-54 M 50; GP-262 Defoamer; Sag 730
- defoamer, wastewater/effluent treatment**  
 Agitan® 92-N; Agitan® 94-N
- defoamer, water cooling towers**  
 Foamkill® 660F
- defoamer, water treatment**  
 Burcomul DFE-45; CNC Defoamer 403A; *Dimethicone*; *EO/PO block polymer or copolymer*; *Ethylene diisearamide*; Foam Blast 240; PD-23; *PEG-4 dilaurate*; *PEG-8 dioleate*; Pegospense® 400 DOT; Pegospense® 600 DOT; *PEG-12 tallate*; Pluronic® 10R5; Pluronic® L81; Pluronic® L101; *Poloxamer 217*; T-Det® EPO-61; Teric™ 164; Teric™ 165; Teric™ 167; Teric™ 168; Teric™ 170; Teric™ 171; Teric™ 173
- defoamer, waterborne coatings**  
 Sag 275D; TEGO® Foamex 8020
- defoamer, water-dilutable systems**  
 Agitan® 650; Agitan® 655
- defoamer, water-extended: furnishes**  
 CNC Defoamer 297
- defoamer, water-extended: paper machines**  
 CNC Defoamer 297
- defoamer, water-reducible coatings**  
 Drewplus® L-419
- defoamer, water-reducible emulsion systems**  
 Agitan® 731
- defoamer, water-reducible systems**  
 Troykyd® D666; Troykyd® D999
- defoamer, water-soluble resins**  
 Nopco® NDW
- defoamer, water-thinnable systems**  
 TEGO® Foamex 805; TEGO® Foamex 1488; TEGO® Foamex 3062
- defoamer, waxes**  
 Norfox® C-75
- defoamer, wet process phosphoric acid**  
 Actrasol SP; *Sulfated tall oil, sodium salt*
- defoamer, wet-end**  
 FoamBrake™ 1697; FoamBrake™ JF-2; FoamBrake™ WB-40
- defoamer, wet-end: acid papermaking systems**  
 Advantage® 344 Defoamer
- defoamer, wet-end: alkaline papermaking systems**  
 Advantage® 344 Defoamer
- defoamer, wet-end: pulp mill effluents**  
 Advantage® 344 Defoamer
- defoamer, wet-end: pulp/paper**  
 Mazu® DF 204
- defoamer, wet-end: wastewater/effluent treatment**  
 Advantage® 344 Defoamer
- defoamer, white paper white water loops**  
 QEMI SSDF 8013
- defoamer, white water loops**  
 QEMI BSW 8131; QEMI BSW 8133
- defoamer, wood-free paper**  
 Foamlex 372
- degreaser**  
*Acetone*; *C9-11 parath-8*; *Dodoxynol-4*; *Sodium phosphate tribasic*; *Tetrasodium pyrophosphate*
- degreaser, emulsion cleaners**  
*Isotrileceth-9*
- degreaser, paper**  
*Isotrileceth-9*; Synperonic 10/6-100%; T-Det® C-40; Trylox® 5906
- degreaser, pigment dispersions**  
*Isotrileceth-9*
- degreaser, pulp/paper**  
 Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PSLs; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; Paxnol TLS; Paxonic CO 40; Paxonic CO 60; Surfonic® DA-4; Surfonic® DA-6; Surfonic® L108/85-5
- degreasing**  
 DePHOS HP-739
- dehydrating agent**  
*Butyl alcohol*; *t-Butyl alcohol*; *Isopropyl alcohol*; *Potassium acetate*; *Sulfuric acid*
- dehydrating agent, chlorine**  
*Sulfuric acid*
- dehydration accelerator**  
*Methacrylic acid copolymer*
- deinking agent**  
 Berocell Displector 210, 213, 5025; Deatron WB; Hartasperse™ DI-6; Hartasperse™ SE 6440; Lipotol LH-200; Resolution™ 5029
- deinking agent, coters**  
 Qemidink 8002
- deinking agent, flotation**  
 Hartafлот™ FA-5164; Hartafлот™ FA-7451; Hartafлот™ G-5000; Hartafлот™ P-621; Hartafлот™ SE-6250; Hartafлот™ SE-6400-1; Hartafлот™ SE-6405; Hartafлот™ SE-6500; Hartafлот™ SE-6600; Hartafлот™ SE-6620
- deinking agent, flotation process: waste newspaper**  
 Lipotol FA
- deinking agent, flotation systems**  
 Hartasperse™ SE 6412; Hartasperse™ SE 7311
- deinking agent, flotation: pulp**  
 Synthro®-Pon DI 237
- deinking agent, flotation: waste paper reproduction**  
 Ablupol D1101
- deinking agent, flotation: wood-free waste paper**  
 Berocell Displector 204; Berocell Displector 5024
- deinking agent, ground wood**  
 Qemidink 8002
- deinking agent, hydropulpers**  
 Qemidink 8002
- deinking agent, newsprint**  
 GOD-119; Resolution™ 5030; Wetsan™ DI284-1
- deinking agent, paper**  
 Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206; Aquagel Gold Seal™ 200; Aquagel Gold Seal™ 325; Carbodash 103; Qemidink 8787; T-Det® N-8; T-Det® N-9.5
- deinking agent, paper recycling**  
 Teric™ 128
- deinking agent, paper stock**  
 Eldorado DIC-107
- deinking agent, papermaking**  
 Eldorado DIC-100; Lionsurf®; SansInk SB 301
- deinking agent, pulp**  
 Synthro®-Pon DI 215; Synthro®-Sol DC 856 L
- deinking agent, pulp/paper**  
 Adekanol RP-807; Adekanol RP-870; Adekanol RP-882; Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; Rapisol B-30, B-80, B-90, C-70; Spectrum DI; T-Det® N-6
- deinking agent, pulping process**  
 Qemidink 8001
- deinking agent, reclaimed paper**  
 Tonerclear 208, 209
- deinking agent, recycled fiber systems**  
 ReChem®
- deinking agent, recycled paper**  
 Haritop
- deinking agent, recycled paper pulp**  
 Dequest® 2066
- deinking agent, repulping process**  
 BRD 2340
- deinking agent, starch systems**  
 Qemidink 8002
- deinking agent, stock: pulping**  
 Eldorado DIC-100
- deinking agent, wash**  
 Hartasperse™ DI-2609; Hartasperse™ DI-2805; Hartasperse™ DI-2915; Hartasperse™ DI-2920; Hartasperse™ DI-2940; Hartasperse™ DI-3670; Hartasperse™ DI-4670; Hartasperse™ DI-4900 Series; Hartasperse™ DI-6660
- deinking agent, wash: ledger paper**  
 Hartasperse™ DI-2710
- deinking agent, wash: pulp**  
 Synthro®-Pon DI 237
- deinking agent, wash: pulp/paper**  
 Surfonic® JL-80X; Surfonic® N-85
- deinking agent, wash: tissue from recycled mixed office waste**  
 Hartasperse™ T-502; Hartasperse™ T-503
- deinking agent, wash: white grade paper**  
 Hartasperse™ DI-2710
- deinking agent, waste newspaper**  
 Lipotol LH-900
- deinking agent, waste paper**  
 Adekanol RP-605D
- deinking agent, wastewater**  
 Qemidink 8002
- deinking agent, white leisure paper**  
 Lipotol LH-900
- deinking agent, white paper grade**  
 Surfonic® L24-1280
- deinking agent, white paper white water loops**  
 Qemidink 8002
- deinking agent, wood-free paper**  
 Wetsan™ DI284-1
- deinking newsprint**  
*Tetrasodium pyrophosphate*
- deinking paper**  
 DePHOS HP-739; *Methyl lardate*; Tergitol® TMN-3; Teric™ G9A6; Teric™ G9A8
- deinking plants**  
 Opazil®
- deinking pulp mills**  
*Sodium hydroxide*
- deinking pulp/paper**  
*Isolaureth-10*
- deinking tissue**

- DM-25100-C  
**delamination resistance aid, paper saturation: tag stock**  
 Nacrylic X 4280; X-Link 2833  
**delignification rate improver, white liquors**  
*Anthraquinone*  
**delivery/absorption enhancement**  
*Coconut (Cocos nucifera) oil*  
**delustering agent, cellulose acetate fiber**  
*Acetone*  
**delustering agent, fiber**  
*Titanium dioxide*  
**demulsifier**  
 Norfox® DCS; *Oleyl hydroxyethyl imidazoline; PEG/PPG-17/6 copolymer; PEG/PPG-35/9 copolymer; PEG/PPG-125/30 copolymer; Pluronic® 17R2; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; Poloxamine 701; Poloxamine 1301; Surfonic® DNP-140; Synperonic PE/L61; T-De® EPO-64L; Tetrasodium dicarboxyethyl stearyl sulfosuccinamate; Ucon® 50-HB-55; Ucon® 50-HB-100; Ucon® 50-HB-170; Ucon® 50-HB-260; Ucon® 50-HB-400; Ucon® 50-HB-660; Ucon® 50-HB-2000; Ucon® 50-HB-3520; Ucon® 50-HB-5100; Ucon® 75-H-450; Ucon® 75-H-1400; Ucon® 75-H-9500; Ucon® 75-H-90000; Ucon® LB-65; Ucon® LB-135; Ucon® LB-165; Ucon® LB-285; Ucon® LB-385; Ucon® LB-525; Ucon® LB-625; Ucon® LB-1145; Ucon® LB-1715; Ucon® LB-3000  
**demulsifier, antistatic additives and coatings**  
*Dimethyl diallyl ammonium chloride*  
**demulsifier, elec. conductive paper and coatings**  
*Dimethyl diallyl ammonium chloride*  
**demulsifier, hydrocarbons**  
*Benzalkonium chloride; Cocoalkonium chloride*  
**demulsifier, paper**  
 Chemal BP 261; Chemal BP-262; Chemal BP-2101; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Pluronic® L10; Tetronic® 90R4  
**demulsifier, paper machine oils**  
 K-Corr® 100A2; K-Corr® 181CA; K-Corr® 182CA  
**demulsifier, papermaking**  
 Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; Poly-Tergent® P-32A  
**demulsifier, pulp/paper**  
 Nonionic 1025-R; Nonionic 1035-L; Nonionic 2017-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Polyquat PR  
**demulsifier, water treatment**  
*Diocetyl ammonium sulfosuccinate; Nonionic 1025-R; Nonionic 2017-R; Nonionic 4025-R; Nonionic 5025-R; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamine 701; Poloxamine 1301; Surfonic® DNP-140; Synperonic PE/L61; T-De® EPO-64L; Tetrasodium dicarboxyethyl stearyl sulfosuccinamate; Ucon® 50-HB-55; Ucon® 50-HB-100; Ucon® 50-HB-170; Ucon® 50-HB-260; Ucon® 50-HB-400; Ucon® 50-HB-660; Ucon® 50-HB-2000; Ucon® 50-HB-3520; Ucon® 50-HB-5100; Ucon® 75-H-450; Ucon® 75-H-1400; Ucon® 75-H-9500; Ucon® 75-H-90000; Ucon® LB-65; Ucon® LB-135; Ucon® LB-165; Ucon® LB-285; Ucon® LB-385; Ucon® LB-525; Ucon® LB-625; Ucon® LB-1145; Ucon® LB-1715; Ucon® LB-3000  
 L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; *Poloxamer 217*  
**demulsifier, wet/dry strength resins**  
*Dimethyl diallyl ammonium chloride*  
**demulsifying formulation component**  
*PPG-5-buteth-7*  
**deodorizer, air treatment**  
*Carbon, activated*  
**deodorizer, formaldehyde: paper coatings**  
 Synthro®-Stab TF  
**deodorizer, formaldehyde: paper sticking applics.**  
 Synthro®-Stab TF  
**deodorizer, industrial/municipal water/wastewater**  
*Hydrogen peroxide*  
**deodorizer, wastewater treatment**  
*Carbon, activated*  
**deodorizer, water treatment**  
*Carbon, activated*  
**deodorizer, wood pulp**  
*Hydrogen peroxide*  
**deposit control agent**  
 FeltECCel™ 905  
**deposit control agent, alkaline papermaking**  
 Eldorado PA-742  
**deposit control agent, kraft digesters**  
 Drewfax® 342  
**deposit control agent, paper: aq./fatty food-contact**  
*Maleic anhydride, polymer with ethyl acrylate and vinyl acetate, hydrolyzed*  
**deposit control agent, paperboard**  
 Presstige™; Zenix™  
**deposit control agent, paperboard: aq./fatty food-contact**  
*Maleic anhydride, polymer with ethyl acrylate and vinyl acetate, hydrolyzed*  
**deposit control agent, papermaking**  
 DeTac™  
**deposit control agent, press section roll treatment**  
 Presstige™  
**deposit control agent, pulp/paper**  
 Presstige™; Zenix™  
**deposit control agent, water treatment**  
 Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-765 Polymer; Good-Rite® K-7028 Polymer; Good-Rite® K-7028N Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer  
**deposit control agent, wet felts: acid paper-making**  
 Eldorado PA-742  
**deposit control agent, wet felts: papermaking**  
 Eldorado PA-700  
**deposit control agent, wet-end papermaking**  
*Ammonium zirconium carbonate; Bacote™ 20; Protec ZA7*  
**deposit inhibitor, pulp/paper mill boiler systems**  
 OptiGuard™  
**depressant, mineral flotation**  
*Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl guar*  
**depressant, viscosity**  
*Ammonium naphthalene sulfonate; C20-40 alcohols*  
**deresinator, papermaking**  
 Berocell 451  
**descaling agent**  
*Pentetic acid; Polyaspartic acid homopolymer, sodium salt; Sodium diethylenetriamine penta (methylene phosphonate)*  
**descaling agent, bleaching: pulp/paper**  
 Magnabrite™  
**descaling agent, carbonate: paper stock systems**  
 Eldorado FCD-5050  
**descaling agent, deinking: pulp/paper**  
 Magnabrite™  
**descaling agent, inorg.**  
 Donlar C-20C; Donlar C-30D  
**descaling agent, polymer processing**  
 Zonyl® FSP  
**desiccant**  
*Alumina; Calcium sulfate; Silica, amorphous hydrated; Zeolite; Zeolite synthetic*  
**desilication, wastewater**  
*Magnesium hydroxide*  
**desizing agent**  
 FeltECCel™ 905; *PEG-15 soyamine*  
**desliming agent, paper**  
*PEG tallate*  
**desorbent, processing**  
*Hexane*  
**detackifier**  
 Paracol® 404C  
**detackifier, contaminants: pulp/paper mills**  
 Mistron® 100; Mistron® 102  
**detackifier, cylinder: creped paper**  
 Cartaflex® K Liq.  
**detackifier, cylinder: creped tissue**  
 Cartaflex® K Liq.  
**detackifier, cylinder: flower wrapping tissue**  
 Cartaflex® K Liq.  
**detackifier, cylinder: lightweight paper**  
 Cartaflex® K Liq.  
**detackifier, cylinder: one-way carbon paper**  
 Cartaflex® K Liq.  
**detackifier, cylinder: paper**  
 Cartaflex® RW Liq.  
**detackifier, pitch**  
 Proisorb®  
**detackifier, pitch: pulp/paper mills**  
 Mistron® 100; Mistron® 102; Mistron® Slurry  
**detackifier, stickies**  
 Proisorb®  
**detackifier, stickies: pulp/paper mills**  
 Mistron® 100; Mistron® 102; Mistron® Slurry  
**detergent**  
 Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882; Alkanol® 189-S; *Ammonium oleate; Arizona DR-22; Benzalkonium chloride; Burco® Imidazoline O; Burco® Imidazoline T; Ceteareth-2; Ceteareth-5; Ceteareth-20; Ceteareth-50; Ceteth-20; Cetyl betaine; Chemax DNP-8; Chemax DNP-15; Chemax DNP-150; Coco-betaine; C9-11 pareth-8; C10-12 pareth-5; C12-14 pareth-9; C12-15 pareth-12; C12-18 pareth-7; C13-15 pareth-9; Deceth-4; Deceth-4 phosphate; DeIONIC LF-EP-20; DeIONIC LF-EP-30; DeIONIC OPE-5; Dicoadodimium chloride; Dilitracyl sodium sulfosuccinate; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; EO/PO block polymer or copolymer; Ethyl hydroxymethyl oleyl oxazoline; Geropon® 99; Geropon® T-33; Geropon® T-43; Geropon® T-51; Igepal® CO-530; Isolaureth-6; Isolaureth-10; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; Laureth-3; Myristalkonium chloride; Nonoxynol-1; Nonoxynol-2; Nonoxynol-3; Nonoxynol-4; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-9; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; Nonoxynol-13; Nonoxynol-14; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-25; Nonoxynol-30; Nonoxynol-40; Nonoxynol-50; Nonoxynol-55; Nonoxynol-60; Nonoxynol-70; Nonoxynol-100; Nonoxynol-9 phosphate; Octadecenyl succinic anhydride; Octoxynol; Octoxynol-1; Octoxynol-3; Octoxynol-5; Octoxynol-7; Octoxynol-9; Octoxynol-10; Octoxynol-11; Octoxynol-12; Octoxynol-13; Octoxynol-20;***



- Octoxynol-30; Octoxynol-40; Octoxynol-70; Oleth-3; Oleth-18; Oleth-23; Oleth-40; Persoft NK-60, NK-100; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; Poloxamine 701; Poloxamine 1301; PPG-7-buteth-10; Sabofos PP 75; Sodium butyl oleate sulfonate; Sodium methyl tall oil acid taurate; Sodium oleic sulfate; Sodium tallow sulfate; Steareth-2; Stearyl hydroxyethyl imidazoline; Surfonic® JL-80X; Synperonic OP10; Trideceth-2; Trideceth-7; Trideceth-15; Trideceth-20; Triton® X-305-70%; Triton® X-405-70%; Trycol® 6970; Undeceth-7*
- detergent aid, pigment grinding**  
*Propylene glycol myristate*
- detergent aid, waxes**  
*Propylene glycol myristate*
- detergent polymer**  
*Acrylates copolymer*
- detergent, ABS**  
Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Sodium rosinat
- detergent, ABS polymerization**  
*Potassium rosinate*
- detergent, acrylate polymerization**  
Abex® 18S; Abex® 22S
- detergent, alkaline**  
Monafax 1214
- detergent, alkaline cleaners**  
Aerosol® 18
- detergent, aq. systems**  
*C12-14 pareth-17; C12-14 pareth-22; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Surfonic® LF-17*
- detergent, bleach stabilization**  
Briquest® 543-45AS
- detergent, bleaching**  
Rhodafac® BG-510
- detergent, bleaching operations**  
Atlas EMJ-C
- detergent, butadiene polymerization**  
Abex® 18S
- detergent, coatings**  
*Ammonium lauryl sulfate; DelONIC 100-VLF; Diethanolamine; PEG-25 stearamine; Triton® X-102; Triton® X-165-70%*
- detergent, dispersions**  
Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389
- detergent, dust control**  
Volpo C2; Volpo C20; Volpo CS50; Volpo L3
- detergent, emulsion polymers**  
Antarox® PGP 18-2LF
- detergent, emulsions**  
Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389
- detergent, felt: paper machines**  
Ablupol FD101
- detergent, felt: papermaking process**  
Niccasunclean FP-100; Niccasunclean TA
- detergent, fiber lubricants**  
Tergitol® 15-S-12; Triton® XL-80N
- detergent, industrial cleaners**  
*Isodeceth-6*
- detergent, low-foaming**  
Pluronic® 25R2
- detergent, low-foaming: paper**  
*Dodoxynol-10*
- detergent, low-foaming: pulp/paper**  
Pluronic® L61; Pluronic® L62; Pluronic® L62D
- detergent, low-foaming: water treatment**  
Pluronic® L61; Pluronic® L62; Pluronic® L62D
- detergent, oil-based systems**  
*Isopropylamine dodecylbenzenesulfonate*
- detergent, oils**  
*Cetareth-15*
- detergent, paper**  
Ablunol NP9; Alcodet® SK; Alkamuls® EL-620; Alkaterge®-E; Atlas EMJ-C; Carsonon® TD-10; Chemax DNP-18; Chemax DNP-150/50; Chemax NP-1.5; Chemax NP-4; Chemax NP-6; Chemax NP-9; Chemax NP-10; Chemax NP-15; Chemax NP-20; Chemax NP-30; Chemax NP-30/70; Chemax OP-10; Chemax OP-30/70; Chimin P40; Chimin P45; DeSonic™ 4N; DeSonic™ 9N; DeSonic™ 10N; DeSonic™ 11N; DeSonic™ 13N; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Igepal® CA-620; Igepal® CO-630; Igepal® CO-630/EP; Igepal® CO-660; Igepal® CO-710; Igepal® CO-720; Igepal® DM-710; Igepal® DM-730; Igepal® DM-970 FLK; *Isodeceth-4; Isodeceth-6; Isotrideceth-9; Laureth-8; Laureth-9; MAKON® 4; MAKON® 6; MAKON® 8; MAKON® 10; MAKON® 12; MAKON® 14; MAKON® 30; MAKON® NP-5570; Mersol® HCS; Mersol® SH; NACCONOL® 40G; NACCONOL® 90G; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Nonoxynol-15; Nonoxynol-20; Nonyl nonoxynol-15; Nonyl nonoxynol-18; Nonyl nonoxynol-24; Nonyl nonoxynol-150; Oxetal 500/85; Oxetal D 104; Oxetal ID 104; Oxetal O 108; Oxetal O 112; Oxetal TG 111; Oxetal TG 118; PEG-25 stearamine; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; Pluronic® L10; Propetal 99; Propetal 241; Stafoam F; Stafoam FK; Surfonic® LF-17; Surfonic® LF-37; Syntergent K; T-Det® DD-10; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Teric™ 13A9; Tetronic® 150R1; *Trideceth-10; Trideceth-18; Triton® X-45; Ufaryl DL 80 CW; Ufaryl DL 85; Ufaryl DL 90 C**
- detergent, paper coatings**  
*Lauramine oxide; Monawet MM-80*
- detergent, paper contaminants: press felts**  
Eldorado FCD-141
- detergent, paper deinking**  
Igepal® CO-610; Metso Beads® 2048; Metso Pentabead® 20; Synperonic 91/6; Synperonic 91/8; Synperonic 91/8T; Tergitol® Min-Foam 1X; Tergitol® Min-Foam 2X; Tergitol® TMN-10; Triton® XL-80N
- detergent, paper deresination**  
Rhodafac® BG-510
- detergent, paper felt washing**  
Surmax® CS-504; Surmax® CS-515; Surmax® CS-521; Surmax® CS-522; Surmax® CS-555; Surmax® CS-586
- detergent, paper reclamation**  
Synperonic A9; Synperonic A11
- detergent, paper separation: PET recycling systems**  
Rhodaterge® PRC
- detergent, paper stock deinking**  
D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; N® Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR
- detergent, paper towels**  
Hyonic® PE-100; Trycol® 5941
- detergent, paper: food-contact**  
*Sodium octyl sulfate*
- detergent, papermaking**  
Alkasurf® CO-630; Alkasurf® CO-710; Alkasurf® CO-720; Antarox® 25-R-2; Antarox® 31-R-1; Hyonic® PE-90; Sipol XAL-7; Synperonic OP7.5; Synperonic OP8; Synperonic OP10.5; Synperonic OP11; Triton® DF-16; Triton® X-102; Triton® X-114; Triton® X-165-70%; Volpo C2; Volpo C20; Volpo CS50; Volpo L3
- detergent, pigment dispersants**  
DeMOX CAPO; DeMOX LAO
- detergent, pigment dispersions**  
*Isotrideceth-9; Texapon® VHC Needles*
- detergent, pigment grinding**  
DelONIC 100-VLF
- detergent, pigment/resin wet milling**  
*PEG-5 tallate; Teric™ T5; Teric™ T10*
- detergent, pigments**  
Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389
- detergent, polymer dispersions**  
Texapon® VHC Needles
- detergent, polymeric coatings**  
Rhodapon® LSB
- detergent, pulp bleaching**  
Metso Beads® 2048; Metso Pentabead® 20
- detergent, pulp processing**  
*C12-16 pareth-1; C12-16 pareth-2; C12-16 pareth-3; C12-16 pareth-5; C12-16 pareth-6; C12-16 pareth-7; C12-16 pareth-8; C12-16 pareth-11*
- detergent, pulp/paper**  
Adekahope DES-3025; Adekahope DS-25; Adekahope HAN-40; Adekahope LS-35; Adekahope LS-90; Adekahope LST; Adekahope MS-30C; Adekahope MS-90P; Adekahope NES-60N; Adekahope SAN-40PD; Adekahope TR-45; Adekahope YES-25; Adekanol 25R-1; Adekanol 25R-2; Adekanol B-608; Adekanol B-713; Adekanol B-714; Adekanol B-722; Adekanol B-733; Adekanol B-750; Adekanol B-762; Adekanol B-786; Adekanol B-795; Adekanol B-797; Adekanol B-2020; Adekanol B-2030; Adekanol B-4001; Adekanol B-4009; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; Adekatol SO-105; Adekatol SO-120; Adekatol SO-135; Adekatol SO-145; Adekatol SO-160; Alcodet® 218; Alcodet® 260; Briquest® 543-45AS; *C12-14 pareth-17; C12-14 pareth-22; DelONIC 100-VLF; DeSonic™ 6T; Igepal® CA-520; Igepal® CO-610; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Nonionic 1025-R; Nonionic 1035-L; Nonionic 2017-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; *Nonyl nonoxynol-70; Oleyl alcohol; Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PSLs; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; Paxnol TLS; Pluronic® L62LF; Pluronic® L81; Pluronic® L92; Pluronic® L101; Pluronic® L121; Steareth-10; Steareth-20; Surfonic® DA-4; Surfonic® DA-6; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Surfonic® L28-890; Surfonic® L108/85-5; Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Teric™ N6; Teric™ N8; Teric™ N11; Teric™ N30L; Trideceth-3; Trideceth-6; Trideceth-9; Trideceth-12**
- detergent, pulp/paper deinking**  
Tergitol® 15-S-5
- detergent, pulp/paper processing**  
Alfonic® 1012-5.5; Sipol NP-10
- detergent, pulping**  
Rhodafac® BG-510
- detergent, resins**



- Isodeceth-6*  
**detergent, surface treatment**  
 Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389
- detergent, suspension polymerization**  
 Monawet MM-80
- detergent, syn. elastomers**  
 Arizona DRS-40; Arizona DRS-42; Arizona DRS-43
- detergent, vinyl acetate polymerization**  
 Abex® 18S; Abex® 22S
- detergent, water treatment**  
 Briquest® 543-45AS; C12-14 *pareth-17*; C12-14 *pareth-22*; Monawet MM-80; Nonionic 1025-R; Nonionic 2017-R; Nonionic 4025-R; Nonionic 5025-R; Pluronic® L62LF; Pluronic® L81; Pluronic® L101; Pluronic® L121; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Tergitol® 15-S-3; Tergitol® 15-S-5; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Tergitol® Min-Foam 2X; Tergitol® TMN-10; Triton® XL-80N
- detergent, waxes**  
*Ceteareth-15*; *Isodeceth-6*
- detergent, wood pulp/paper**  
 PEG-6 *isolauryl thioether*; PEG-10 *isolauryl thioether*
- detoxicant, paper**  
 PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120
- developer, paper: heat-sensitive**  
 BPS-24; BPS-P; 2,4-*Dihydroxydiphenyl sulfone*
- developer, paper: thermal print**  
 DPG
- dewatering agent**  
 Agequat C1405; Agequat C3204; Imidazoline 18 DA; Imidazoline 18OH; Imidazoline SOH; *Oleic amidoethylimidazoline*; Perglutin® K 418; Polymix® PR 971 L; Tylose® C-G1
- dewatering agent, acidic papermaking**  
 Hanwet HCD-31
- dewatering agent, alkaline papermaking**  
 Hanwet HCD-31
- dewatering agent, fiber: paper**  
 Agefloc PC20HV; Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- dewatering agent, filter cake**  
 C9-11 *pareth-6*; C13-15 *pareth-3*; *Isotrideceth-7*; Teric™ 13A7; Teric™ G9A6
- dewatering agent, flotation concs.**  
 Geroon® DOS
- dewatering agent, industrial slurries**  
 Amerfloc® 285
- dewatering agent, lime mud**  
 Surfonic® DOS-70MS; Unidri™ P-0820
- dewatering agent, papermaking**  
 Secoren™-VE
- dewatering agent, pulp/paper**  
 Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24
- dewatering agent, secondary: waste treatment**  
 Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744;
- Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24
- dewatering agent, sludge**  
 Bufloc® 5551; Bufloc® 5554; Novus™; Polymin® KE 78 PF; Polymin® KE 84; *Polyquaternium-7*
- dewatering agent, sludge: industrial water treatment**  
 Qemifloc 8086
- dewatering agent, sludge: paper mill effluent treatment**  
 Qemifloc 8086
- dewatering agent, sludge: papermaking**  
 Agequat C505
- dewatering agent, sludge: papermaking water treatment**  
 Agefloc B4508P
- dewatering agent, sludge: pulp/paper**  
 Pura-Chem®
- dewatering agent, sludge: water treatment, paper**  
 Agefloc A4506; Agefloc A4510
- dewatering agent, vacuum filtration of minerals**  
 Unidri™ M-40
- dewatering agent, waste sludges**  
 Agefloc A50HV-P; Agefloc A50LV-P; Agefloc A50-P; Agefloc B50-P
- dewatering agent, wastewater clarification**  
 Amerfloc® 285
- dewatering agent, water treatment**  
 Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24
- dewatering agent, wet-end furnishes**  
 Topcat™ Cationic Additive
- dewatering, sludge**  
*Ferric chloride*
- dewebber**  
 Surfynol® DF-37
- dewebber, pulp/paper**  
 Webnix FreeSil 581; Webnix FreeSil 622; Webnix FreeSil 642; Webnix FreeSil A; Webnix FreeSil B; Webnix FreeSil C; Webnix FreeSil G; Webnix FreeSil H
- dewebber, wastewater treatment**  
 Webnix FreeSil 581; Webnix FreeSil 622; Webnix FreeSil 642; Webnix FreeSil A; Webnix FreeSil B; Webnix FreeSil C; Webnix FreeSil G; Webnix FreeSil H
- diazo compound, light-sensitive: reproductive paper coatings**  
*p-Diazodiphenylamine sulfate*
- digester additive, alkali consumption reduction**  
 Diaq 60; Fleetquest 8800
- digester additive, papermaking**  
 Fleetquest QH-37
- digester additive, pulp yield improvement**  
 Diaq 60; Fleetquest 8800
- digester additive, pulping**  
 Fleetquest 8009
- diluent**  
 Coconut (*Cocos nucifera*) oil; Epoxy resin; Ethyl acetate; Exxsol® D 40; Exxsol® D 60; Exxsol® D 80; Exxsol® D 110; *Sodium chloride*; Water
- diluent, board**  
 PD-25; PD-28
- diluent, color**  
 Acetic acid; Cetyl alcohol; Naphtha; Polysorbate 80; PVP
- diluent, epoxy resin**  
 Trimethylolpropane triglycidyl ether
- diluent, fiber lubricants**  
 PD-25; PD-28
- diluent, nonreactive epoxy resin**  
 Dibutyl phthalate; *s-Dioctyl phthalate*; Nonylphenol; Pine (*Pinus palustris*) oil
- diluent, overprint varnishes**  
 Polyester acrylate resin
- diluent, paper**  
 Micro-Cel® T-26; Micro-Cel® T-49; PD-23; PD-25; PD-28
- diluent, paper coatings**  
 Ebecryl® 2047; Polyester acrylate resin
- diluent, paper upgrading**  
 Ebecryl® 2047; Polyester acrylate resin
- diluent, paperboard**  
 Micro-Cel® T-26; PD-23
- diluent, plastic coatings**  
 Polyester acrylate resin
- diluent, polymer processing**  
 Vista LPA-142
- diluent, reactive**  
 Diallyl phthalate; EPON® Resin 826; 2-(2-Ethoxyethoxy) ethyl acrylate; Glycidyl methacrylate; Methoxy tripropylene glycol acrylate; Methyl methacrylate; Mhoromer® BM 903; Mhoromer® BM 905; Mhoromer® BM 923; Mhoromer® BM 951; Mhoromer® BM 955; PEG-4 diacrylate; PEG-8 diacrylate; Photomer® 8061; Propylene carbonate; SR 379
- diluent, reactive: coatings**  
 Isodecyl acrylate; 1,1,1-Trimethylolpropane triacrylate; V-Cap™/RC
- diluent, reactive: lacquers**  
 1,6-Hexanediol diacrylate; Isodecyl acrylate; Pentaerythrityl tetraacrylate; Pentaerythrityl triacrylate
- diluent, reactive: paper**  
 V-Cap™/RC
- diluent, reactive: paper coatings**  
 SR 506
- diluent, reactive: peroxide cures**  
 SR 395
- diluent, reactive: radiation cures**  
 Mhoromer® AM 414; Mhoromer® AM 438; SR 395
- diluent, reactive: radiation-cured coatings**  
 2-Hydroxyethyl acrylate; Isobornyl acrylate; Isobornyl methacrylate; 2-Phenoxyethyl acrylate; PPG-3 diacrylate; N-Vinyl-2-caprolactam
- diluent, water treatment**  
 PD-23
- disinfectant**  
 Alcohol; Barquat® MB-50; *t-Butyl alcohol*; Calcium hydrogen sulfite; Calcium hydroxide; *p-Chloro-m-cresol*; Cocotrimonium chloride; Didecylidmonium chloride; Disodium EDTA; 2-Ethylhexanol; Ferric chloride; Formaldehyde; Formic acid; Glyoxal; Magnesium chloride; Myristalkonium chloride; Paraformaldehyde; Pine (*Pinus palustris*) oil; Protectol® GL 40; Protectol® KLC 50; Sodium bisulfate; Sodium *o*-phenylphenate
- disinfectant, cooling towers**  
 Protectol® GDA
- disinfectant, cooling water systems**  
 Sanibrom™ 40; Sanibrom™ 45
- disinfectant, industrial water treatment**  
 Protectol® GDA

disinfectant, once-thru cooling water systems  
 Stabrom® 909

disinfectant, paper  
 Alkaquat® DMB-451-50, DMB-451-80; Nipacide® OPP; Protectol® GDA; Varicid BCD

disinfectant, plant wastes  
 Drewchlor®

disinfectant, pulp/paper  
 Paxgard BK 20; Paxgard BKC; Paxgard EM; Stearalkonium chloride

disinfectant, pulp/paper mills  
 Sanibrom™ 40; Sanibrom™ 45; Stabrom® 909

disinfectant, recirculating cooling water systems  
 Stabrom® 909

disinfectant, wastewater  
 Chlorine dioxide; Stabrom® 909

disinfectant, wastewater systems  
 Sanibrom™ 40; Sanibrom™ 45

disinfectant, water treatment  
 Ozone; Sodium chlorite

disinfection, water  
 Bromine

disinfection, water treatment  
 Diatomaceous earth

dispersant  
 Acumer® 9000; Acumer® 9141; Acumer® 9400; Acumer® 9460; Aerosol® MA-80; Alfontic® 1412-9; Aluminasol 100; Aluminasol 200; Antarox® PGP 23-7; Behenyl hydroxyethyl imidazoline; Behenyl methacrylate; Blemmer BMA; Blemmer EHMA; Blemmer IBMA; Blemmer VMA; Busperse® 39; Butyl methacrylate; Calcium lignosulfonate; Calnox® 214; Calnox® 214 DN; Carboset® 514A; Carboset® 514H; Carboset® 515; Carboset® 525; Carboset® 531; Cetareth-2; Cetareth-18; Cetareth-20; Ceteleth-8; Ceteleth-10; Ceteleth-25; Cetrimonium chloride; Cetyl betaine; C13-14 isoparaffin; Citric acid; Cocotrimonium chloride; C9-11 pareth-3; C9-11 pareth-6; C9-11 pareth-8; C9-11 pareth-12; C10-12 pareth-5; C12-14 pareth-5; C12-14 pareth-9; C12-15 pareth-3; C12-15 pareth-5; C12-15 pareth-6; C12-15 pareth-10; C13-15 pareth-20; C16-18 pareth-80; C11let 1 NF; Daxad® 15; Deceth-4 phosphate; DeMULS SML; Dequest® 2006; DeTHOX ACID O-9; DeTHOX ACID O-16; Dimethicone copolyol; Disponil® O 250; Ditridecyl sodium sulfosuccinate; Empilan® KA3; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; 2-Ethylhexyl methacrylate; Hexyldodecanol; Hydrogenated tallow glycerides; 2-Hydroxy 3-methacryl oxypropyl trimoniumchloride; Imidazoline 18OH; Isobutyl methacrylate; Isolaureth-6; Isopar® M; Isotrideceth-9; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; Lecithin; Lignosite® AC; Lomar® LS-1; Methylcellulose; MIPADodecylbenzenesulfonate; Monawet MT-70; Monawet SNO-35; Nonoxynol-1; Nonoxynol-2; Nonoxynol-3; Nonoxynol-4; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-9; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; Nonoxynol-13; Nonoxynol-14; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-25; Nonoxynol-30; Nonoxynol-40; Nonoxynol-50; Nonoxynol-55; Nonoxynol-60; Nonoxynol-70; Nonoxynol-100; Nonyl nonoxynol-16; Nonyl nonoxynol-30; Octoxynol-1; Octoxynol-3; Octoxynol-5; Octoxynol-7; Octoxynol-9; Octoxynol-10; Octoxynol-11; Octoxynol-12; Octoxynol-13; Octoxynol-16;

Octoxynol-20; Octoxynol-30; Octoxynol-40; Octoxynol-70; Oleic amidoethylimidazoline; Oleth-3; Oleth-5; Oleth-15; Oleth-18; Oleth-23; Paxogen LAO; Paxonix CO 40; Paxonix CO 60; PEG castor oil; PEG-5 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-6 dilaurate; PEG-8 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-8 ditallate; PEG-12 ditallate; PEG-20 glyceryl laurate; PEG-20 glyceryl oleate; PEG-15 glyceryl ricinoleate; PEG-75 lanolin; PEG-2 laurate SE; PEG-4 laurate; PEG-8 laurate; PEG-12 laurate; PEG-32 laurate; PEG-6M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; PEG-90M; PEG-115M; PEG-4 oleate; PEG-12 oleate; PEG-16 oleate; PEG-20 oleate; PEG-32 oleate; PEG-75 oleate; PEG-200 oleate; PEG-80 sorbitan laurate; PEG-2 soyamine; PEG-20 stearamine; PEG-30 stearamine; PEG-8 stearate; PEG-32 stearate; Pentasodium diethylene triamine pentamethylene phosphonate; Pentasodium ethylene diamine tetramethylene phosphonate; Petrolatum; 2-Phosphono butane tricarboxylic acid-1,2,4; Pluronic® 17R2; Pluronic® P-2000; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; Polyethylene, low-density; Polysorbate 20; Polyvinyl acetate; Polywet® WTC 6512; Potassium castorate; Potassium lignosulfonate; Propylene glycol stearate; Rhodacal® 3594; Rhodacal® DS/4-E25; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Servoxyl® VPNZ 7/100; Silwet® L-7200; Silwet® L-7210; Silwet® L-7230; Sodium methyl oleoyl taurate; Sodium octoxynol-2 ethane sulfonate; Sodium xylenesulfonate; Sorbitan tristearate; Steareth-2; Stearic acid; Steartrimonium chloride; Stearyl hydroxyethyl imidazoline; Struktol® TR 121; Styrene/MA copolymer, sodium salt; Sulfated castor oil; Sulfated peanut oil; Surfonic® CO-15; Surfonic® CO-20; Surfonic® CO-25; Surfonic® CO-30; Surfonic® CO-42; Surfonic® JL-80X; Tamol® 808; TEGO® Dispers 740 W; Teric™ 16M10; Teric™ 18M2; Teric™ 18M5; Teric™ 18M10; Teric™ 18M20; Teric™ 18M30; Teric™ G9A6; Tetrapotassium pyrophosphate; Trideceth-4; Trideceth-7; Trideceth-20; Trycol® 6970; Trycol® 6984; Ucarfloc® Polymer 300; Ucarfloc® Polymer 302; Ucarfloc® Polymer 304; Ucarfloc® Polymer 309; Urea; Zeolite; Zinc rosinate

dispersant, ABS polymerization  
 Potassium rosinate

dispersant, acrylate emulsion polymerization  
 Ammonium nonoxynol-4 sulfate

dispersant, acrylates  
 Avirol® SL 2010

dispersant, adhesion promoters  
 Polypropylene

dispersant, alkaline cleaners  
 Aerosol® 18

dispersant, alkaline deinking systems:  
 papermaking  
 Sansperse™ WTC

dispersant, anionic  
 2-Acrylamido-2-methylpropanesulfonic acid

dispersant, aq. coatings

PEG-1.3 tetramethyl decynediol

dispersant, aq. systems  
 C12-14 pareth-17; C12-14 pareth-22; C16-18 pareth-16; C16-18 pareth-22; C16-18 pareth-29; Daxad® 37LN10-35; Isopropylamine dodecylbenzenesulfonate; Nopcosant® L; PEG hydrogenated castor oil; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Surfynol® 104NP; TEGOPREN® 5852; Troysperse W

dispersant, bleaching  
 Atlas EMJ-C; Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K; Rhodafac® BG-510

dispersant, butadiene emulsion polymerization  
 Ammonium nonoxynol-4 sulfate

dispersant, calcium carbonate  
 Acumer® 2100; Polysodium vinyl sulfonate

dispersant, calcium carbonate dispersions  
 Harol D

dispersant, calcium carbonate slurries:  
 papermaking  
 Darvan® 811

dispersant, calcium carbonate: board coatings  
 Esi-Cryl™ 1056

dispersant, calcium carbonate: corrugated coatings  
 Esi-Cryl™ 1056

dispersant, calcium carbonate: newsprint coatings  
 Esi-Cryl™ 1056

dispersant, calcium carbonate: paper coatings  
 Esi-Cryl™ 1056

dispersant, carbon black  
 Harol D; Tamol® 819

dispersant, carbon black: gypsum slurries  
 Lomar® PWA Liq.

dispersant, carbonless paper microcapsules  
 Acrylidone® Resins

dispersant, casein  
 Triethanolamine

dispersant, chemical pulping  
 Aquaprox® TD 1100; Dilurit 853 T

dispersant, specialty specialties  
 Ammonium lauryl sulfate

dispersant, clay  
 Tall oil hydroxyethyl imidazoline

dispersant, clay dispersions  
 Daxad® 16; Harol D

dispersant, clay slurries: paper coatings  
 Daxad® 37LN7

dispersant, clay slurries: papermaking  
 Darvan® 7; Darvan® 811

dispersant, clay: board coatings  
 Esi-Cryl™ 1056

dispersant, clay: corrugated coatings  
 Esi-Cryl™ 1056

dispersant, clay: newsprint coatings  
 Esi-Cryl™ 1056

dispersant, clay: paper  
 Aminotrimethylene phosphonic acid; Ammonium polymethacrylate; PEG-16 castor oil; PEG-25 castor oil; PEG-30 castor oil; PEG-40 castor oil; PEG-200 castor oil; PEG-5 hydrogenated castor oil; PEG-16 hydrogenated castor oil; PEG-25 hydrogenated castor oil; PEG-200 hydrogenated castor oil; Sodium polyacrylate

dispersant, clay: paper coating colors  
 Daxad® 34N10

dispersant, clay: paper coatings  
 Esi-Cryl™ 1056

dispersant, clay: solvents  
 Oleyl hydroxyethyl imidazoline

dispersant, clays  
 Daxad® 17; Daxad® 37LN7; Daxad® 37LN10-35; Gradol 400; Polystar OM; Polystar OMP

dispersant, coating pigments  
 Polywet® Z1766

dispersant, coatings

- Alkaterge®-E; *Ammonium lauryl sulfate*; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cyastat® SN; *Diethanolamine*; *Distearyl-dimonium chloride*; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; *PEG-8 oleate*; Pegospense® 600 DOT; *PEG-12 tallate*; *Polyacrylamide*; *Polysodium vinyl sulfonate*; Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7500
- dispersant, color concs.**  
Epolene® C-10; Epolene® C-15; Epolene® C-15P; Epolene® N-20; Epolene® N-21; *Ethylene/VA copolymer*; *Hydrogenated soy glyceride*; Luwax® OA; Luwax® OA 3; Luwax® OA 5; *Polyethylene, high-density*; Struktol® TR 131
- dispersant, colorants**  
*Polysorbate 61*; *Polysorbate 81*; *Synthetic wax*; *Tristearin*
- dispersant, colorants: hot melts**  
Vestowax® C 60
- dispersant, colorants: wax compds.**  
Vestowax® C 60
- dispersant, compatibilizers**  
*Polypropylene*
- dispersant, cooling towers**  
Polywet® ND-2
- dispersant, cooling water**  
*Phosphinopolycarboxylic acid*
- dispersant, cooling water treatment**  
*Pentasodium aminotrimethylene phosphonate*; *Sodium polyacrylate*
- dispersant, deinking**  
Daxad® 16; Daxad® 17; Radiaflot®
- dispersant, deinking processes**  
Berocel® 283; Berocell® 286
- dispersant, deinking sec. fiber: laser printed office waste**  
Busperse® 288
- dispersant, deinking sec. fiber: magazine stock**  
Busperse® 288
- dispersant, deinking sec. fiber: papermaking**  
Busperse® 288
- dispersant, deinking: pulp/paper**  
Belsperse® 164
- dispersant, deposits: papermaking**  
Neonal™-HSC
- dispersant, disperse dyes**  
Maraspense 52 CP; *Sodium lignosulfonate*
- dispersant, dispersions**  
Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389
- dispersant, drainage aids**  
Stabilix®
- dispersant, dust control**  
Volpo C2; Volpo C20; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15
- dispersant, dye leveling compds.**  
Teric™ 16M15
- dispersant, dye wet grinding**  
Daxad® 16
- dispersant, dye: coatings**  
DeIONIC 100-VLF
- dispersant, dye: dyestuffs**  
*Tetramethyl decynediol*
- dispersant, dye: emulsion polymerization**  
DeIONIC 100-VLF
- dispersant, dye: pigment grinding**  
DeIONIC 100-VLF
- dispersant, dye: polymerization**  
*Isobutylene/MA copolymer*
- dispersant, dye: pulp/paper**  
DeIONIC 100-VLF
- dispersant, dyeing**  
Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K; Product BCO;
- Sodium dibutyl naphthalene sulfonate*
- dispersant, dyes**  
*Ammonium lauryl sulfate*; DeTHOX LA-4; *Ditridecyl sodium sulfosuccinate*; Geropon® 99; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Norfox® DCS; *Oleth-20*; *PEG cocamine*; *PEG-2 oleamine*; Peregol® ST; Pluriol® E 1500; Pluriol® E 4000; Pluriol® E 6000; Pluriol® E 8000; Pluriol® E 9000; Polystar OM; Polystar OMP; Rhodacal® BX-78; *Sodium oleic sulfate*; *Sodium polynaphthalene sulfonate*; Surfynol® 104E; Tamol® 731A; *Tetrasodium pyrophosphate*; *Triethanolamine*
- dispersant, dyes/pigments**  
DeTHOX ACID L-9; Pluriol® E 200
- dispersant, dyes: electrostatic**  
*PEG stearamine*
- dispersant, dyes: org. systems**  
Aerosol® TR-70
- dispersant, dyes: papermaking**  
Taurine-DFX
- dispersant, dyestuff pastes**  
Maracarb N-1
- dispersant, dyestuffs**  
Carsoquat® SDQ-25; Daxad® 17; DeWET SDO-70PG; DeWET SDO-75E; Incroquat SDQ-25; Lignosite® 823; Newrex Paste H
- dispersant, elastomers**  
Supragil RM77 DL
- dispersant, emulsification PVAC**  
Tergitol® NP-4; Tergitol® NP-6
- dispersant, emulsion coatings**  
Busperse® 275; Busperse® 282
- dispersant, emulsion polymerization**  
Aerosol® OT-100%; *Ammonium lauryl sulfate*; Daxad® 17; DeWET SDDT-70; *Dihexyl sodium sulfosuccinate*; *Dioctyl sodium sulfosuccinate*; *EO/PO block polymer or copolymer*; Geropon® WT-27; Igepal® CO-630; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Monawet MB-45; Monawet MO-70; NACCONOL® 40G; NACCONOL® 90G; *Nonoxynol-15*; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; *PEG hydrogenated castor oil*; *PEG-20 hydrogenated castor oil*; *PEG-2 laurate*; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; *PVM/MA copolymer*; *Sodium methylnaphthalene-sulfonate*; Surfonic® DNP-80; Surfonic® DNP-100; Surfonic® N-70; Surfonic® N-110; Surfonic® N-200; Surfonic® N-300; Surfonic® N-500; Surfonic® NB-1007; Surfynol® 104E; *TEA-lauryl sulfate*; Teric™ N8; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N30; Teric™ N30L; Texapon® ZHC Powder; Wayfos® D-10N
- dispersant, emulsion polymerization: SBRs**  
Aerosol® 18
- dispersant, emulsion polymerization: vinyl chloride**  
Aerosol® 18
- dispersant, emulsions**  
Acritamer® 504E; *2-Ethylhexyl hydrogenated tallowalkyl methosulfate*; *Lauryl hydroxyethyl imidazoline*; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389
- dispersant, extenders**  
Polysalt; *Sodium polynaphthalene sulfonate*
- dispersant, extenders in aq. systems**  
*Sodium maleic anhydride/diisobutylene copolymer*
- dispersant, extenders: aq. systems**  
Lomar® PL; Lomar® PW
- dispersant, fiber**  
Celite® 263; Celite® 321; Celite® 388; *Isostearamidopropyl ethyldimonium ethosulfate*; *Isostearyl ethyldimonium ethosulfate*; Schercoquat IAS; Schercoquat IIS; Silwet® L-722
- dispersant, fiber lubricants**  
Tergitol® 15-S-12; Triton® XL-80N
- dispersant, fiber processing**  
Acritamer® 501E
- dispersant, fiber suspensions**  
Acritamer® 504E
- dispersant, filled compositions**  
Epolene® C-18
- dispersant, filled systems**  
Struktol® TR 016
- dispersant, fillers**  
Gradol 400; *Sodium polynaphthalene sulfonate*; *Tall oil acid*
- dispersant, fillers: aq. systems**  
Lomar® PL; Lomar® PW
- dispersant, fillers: paper**  
*Ammonium polymethacrylate*; *Stearamine*
- dispersant, flame retardants**  
*Nonoxynol-7 phosphate*
- dispersant, flocculation**  
*Stearamine acetate*
- dispersant, flotation aids**  
*Nonoxynol-7 phosphate*
- dispersant, flotation frothing agent: minerals**  
*Stearamine acetate*
- dispersant, food-contact coatings**  
*Polyvinyl alcohol*
- dispersant, fuel treatment**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate*
- dispersant, high-gloss pigment: coatings**  
Esi-Rez™ 50
- dispersant, highly filled compositions**  
Epolene® C-16
- dispersant, high-solids slurries**  
Alcosperse® 602-N
- dispersant, industrial cleaners**  
Lignosite® 431; *Sodium dibutyl naphthalene sulfonate*
- dispersant, inorg. deposits: pulp/paper mills**  
Orlene® 1340
- dispersant, inorg. pigment dispersions**  
Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA
- dispersant, inorg. pigments**  
Lastaron 891; Tamol® 850
- dispersant, low color applics.**  
Daxad® 16
- dispersant, low-dusting applics.**  
Daxad® 17
- dispersant, methacrylate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- dispersant, mineral slurries**  
Donlar C-20C; Donlar C-30D; *Polyaspartic acid homopolymer, sodium salt*
- dispersant, mineral slurries: papermaking**  
Darvan® 811
- dispersant, mineral: coatings**  
Alcosperse® 149
- dispersant, mineral: pigments**  
Alcosperse® 149
- dispersant, minerals**  
*Polypropylene*
- dispersant, newsprint**  
Wetsan™ DI284-1
- dispersant, nonaq. systems**

Alkaterge®-E  
**dispersant, nonfoaming: extenders**  
 Polywet® ND-2  
**dispersant, nonfoaming: extenders in aq. systems**  
 Polywet® ND-35  
**dispersant, nonfoaming: fillers in aq. systems**  
 Polywet® ND-2; Polywet® ND-35  
**dispersant, nonfoaming: minerals**  
 Polywet® ND-2  
**dispersant, nonfoaming: pigments**  
 Polywet® ND-2  
**dispersant, nonfoaming: pigments in aq. systems**  
 Polywet® ND-35  
**dispersant, nonwovens**  
 Schercopol DSB  
**dispersant, NR**  
 Borax; Sodium borate decahydrate  
**dispersant, o/w emulsions**  
 DeWET SDTD-70; Mergol® SE; PEG-8 di/triricinoleate  
**dispersant, oil-based systems**  
 C16-18 *pareth-16*; C16-18 *pareth-22*; C16-18 *pareth-29*; Isopropylamine dodecylbenzenesulfonate; PEG-5 tallate; Teric™ T5; Teric™ T10  
**dispersant, org. systems**  
 TEGOPREN® 5852  
**dispersant, paper**  
 Acritamer® 501E; Aerosol® OT-75%; Aerosol® OT-75-PG; Airvol® 205; Airvol® 523; Airvol® 540; Arquad® 2C-70 Nitrite; Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® 210-50; Arquad® 218-75; Arquad® C-50; Arquad® HTL8(W) MS-85; Arquad® T-27W; Atlas EMJ-C; Chemal BP 261; Chemal BP-262; Chemal BP-2101; Chemax DNP-18; Chemax DNP-150/50; Chemax HCO-5; Chemax HCO-16; Chemax NP-1.5; Chemax NP-4; Chemax NP-6; Chemax NP-9; Chemax NP-10; Chemax OP-10; Chemax OP-30/70; Dilurit 853 T; Dioctyl sodium sulfosuccinate; Drewfax® 0007; 2-Ethylhexyl hydrogenated tallowalkyl methosulfate; Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K; Geropon® WT-27; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Igepal® CO-530; Igepal® CO-630; Igepal® CO-720; Igepal® DM-710; Igepal® DM-970 FLK; Isodeceth-4; Laureth-8; Laureth-9; Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K80; Luviskol® K90; Meroxapol 108; Meroxapol 171; Meroxapol 172; Meroxapol 174; Meroxapol 178; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 255; Meroxapol 258; Meroxapol 311; Meroxapol 312; Meroxapol 314; Mergol® SE; NACCONOL® 40G; NACCONOL® 90G; Nissan Cation AB; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Nonoxynol-15; Nonyl nonoxynol-150; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; *Oleth-2*; Oxetal 500/85; Oxetal D 104; Oxetal ID 104; Oxetal O 108; Oxetal O 112; Oxetal TG 111; Oxetal TG 118; PEG-26 castor oil; PEG-180 castor oil; Pegosperse® 400 DOT; Pegosperse® 600 DOT; PEG-10 stearamine; PEG-12 tallate; Pentasodium aminotrimethylene phosphonate; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; Pluronic® L10; PVM/MA copolymer; Rhodacal® BX-78; Schercopol DSB; Serpol

OPA 160; Servirox® OEG 55; Servirox® OEG 90; Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7500; Sodium dibutyl naphthalene sulfonate; Stearamine acetate; Tamol® 819; Tamol® 850; T-Det® C-40; Tergitol® 15-S-7; Tergitol® 15-S-12; Teric™ 13A9; Tetric® 90R4; Trideceth-18; Triton® X-45; Varonic® K-210; Zohar ZDB; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP  
**dispersant, paper auxiliary**  
 Zusolat 1005/85  
**dispersant, paper bleaching**  
 Alkanol® XC  
**dispersant, paper coating fillers**  
 Lastaron 891  
**dispersant, paper coating pigments**  
 Polysalt  
**dispersant, paper coatings**  
 Ablusol SEP40; Alcosperse® 404; Alcosperse® 602-N; Cecavon® CA 350 P; Daxad® 37LN10-35; Gradol 400; Monawet MB-45; Nopcosant® L; PEG-1.3 tetramethyl decynediol; Polysodium vinyl sulfonate; Surfynol® 104E; Surfynol® 104NP; Surfynol® 420  
**dispersant, paper deinking**  
 Triton® XL-80N  
**dispersant, paper depitching**  
 Adekamine 4DAC-80; Adekamine 4DAC-85; Adekamine 4MAC-30; Adekamine ADG-30; Adekamine LDM; Adekamine MD-30; Adekamine MT-50; Adekamine PMS-100  
**dispersant, paper deresination**  
 Rhodafac® BG-510  
**dispersant, paper dyeing**  
 Alkanol® XC  
**dispersant, paper finishing**  
 Rohagit® SL 252  
**dispersant, paper industry**  
 PEG hydrogenated castor oil  
**dispersant, paper mill slime control**  
 Daxad® 13  
**dispersant, paper softening**  
 Arquad® 2HT-75; Arquad® 2HT-75PG  
**dispersant, paper stock**  
 Eldorado DIC-107  
**dispersant, paper stock deinking**  
 Slixso® RR  
**dispersant, paper suspensions**  
 Acritamer® 504E  
**dispersant, paper treatment**  
 Acritamer® 501E  
**dispersant, paper: aq./fatty food-contact**  
 Aminomethyl propanol  
**dispersant, paper: emulsions**  
 PEG-20 hydrogenated castor oil  
**dispersant, paper: food-contact**  
 Acrylic acid/sulfonic acid copolymer; Good-Rite® K-776 Polymer; Sodium octyl sulfate  
**dispersant, paperboard coatings**  
 Ethoduomeen® T120; PEG-10 tallow aminopropylamine  
**dispersant, paperboard: aq./fatty food-contact**  
 Aminomethyl propanol  
**dispersant, paperboard: food-contact**  
 Acrylic acid/sulfonic acid copolymer; Good-Rite® K-776 Polymer  
**dispersant, papermaking**  
 Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA; AntaroX® 17-R-2; AntaroX® 25-R-2; AntaroX® 31-R-1; Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Cithrol A; Cithrol DGML N/E; Cithrol DGMS N/E; Cithrol EGDS N/E; Cithrol EGMS N/E; Cithrol EGMS S/E; Eldorado WT-30; Glyceryl dilaurate; Glyceryl dilaurate SE; Glycol dilaurate; Glycol dilaurate SE; Glycol dioleate; Glycol dioleate SE; Glycol distearate SE; Glycol laurate; Glycol laurate SE; Glycol oleate; Glycol oleate SE;

Glycol ricinoleate; Glycol ricinoleate SE; Meroxapol 105; PEG-2 dilaurate; PEG-2 dilaurate SE; PEG-2 dioleate; PEG-2 dioleate SE; PEG-2 distearate; PEG-2 distearate SE; PEG-2 laurate; PEG-2 oleate; PEG-2 oleate SE; PEG-2 stearate; PEG-2 stearate SE; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Poly-Tergent® P-32A; PPG-2 laurate; PPG-2 laurate SE; PPG-2 oleate; PPG-2 oleate SE; PPG-2 stearate; PPG-2 stearate SE; Rohagit® SL 252; Teric™ 12M2; Teric™ 12M5; Teric™ 12M15; Volpo C2; Volpo C20; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15; Wayfos® D-10N  
**dispersant, papermaking operations**  
 Daxad® 13  
**dispersant, paraffins**  
 TEA-stearate  
**dispersant, peroxide bleach stabilization**  
 Unihib® 905  
**dispersant, peroxide stabilization**  
 Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; Ethylenedi-aminetetra (methylene phosphonic acid); Sodium diethylenetriamine penta (methylene phosphonate); SPE 9528; Tetrasodium etidronate  
**dispersant, pigment**  
 Abalyn®; A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 400A; A-C® 540; A-C® 540A; Actrasol PSR; Aerosol® C-61; Aerosol® OT-B; Aerosol® TR-70; Alcosperse® 149; Aminomethyl propanol; Armid® 18; Busperse® 229; Butyl stearate; Calcium sulfate; Calimulser PR; Calimulser PRS; Crill 1; Crill 2; Crill 43; Crill 45; DeMULS SMO; DePEG 30-CO; DePEG 40-CO; DeWET SDO-70PG; DeWET SDO-75E; DeWET SMA-80; Diethylaminoethanol; Dihexyl sodium sulfosuccinate; Dodoxynol-10; Drakeol® 9; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Ethylene/acrylic acid copolymer; Ethyl hydroxymethyl oleyl oxazoline; Hercolyn® D; Isopropyl myristate; Kronitex® TBP; Mergol® HCS; N-Methyl-2-pyrrolidone; Microthene® MN 701-00; Microthene® MN 710-20; Modaflow® 2100; Modaflow® Powder 2000; Modaflow® Resin; Multiflow® Resin; Myristamine acetate; Nissan Cation MA; Nissan Cation S2-100; Nissan Cation SA; Nonyl nonoxynol-10; Noppco Color-Sperse® 188A; Nopcosperse® 44; Nuosept® 166; Octyldodecanol; Octyl stearate; Paradene® No. 2; PEG-2 castor oil; PEG-5 castor oil; PEG-20 castor oil; Pentaerythritol tetraoleate; Polyethylene wax; POLYSTEP® A-11; POLYSTEP® F-1; POLYSTEP® F-2; POLYSTEP® F-3; Potassium ricinoleic sulfate; Reomol® TBP; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; Silicone glycol copolymer; SMA® 1000; SMA® 2000; SMA® 3000; Sodium castor oil sulfate; Sodium diisooctyl sulfosuccinate; Sodium polycarboxylate; Stearamide; Stearamine; Styrene/acrylates copolymer; Styrene/MA copolymer; Sulfopolyester; Tamol® 960; T-Det® N-8; T-Det® N-9.5; Tergitol® NP-7; Tergitol® NP-8; Tergitol® NP-9; Tergitol® NP-9.5; Tergitol® NP-10; Tergitol® NP-11; Tergitol® NP-12; Tergitol® NP-13; Tergitol® NP-15;

- Tetrapotassium pyrophosphate*; Veegum® T
- dispersant, pigment dispersions**  
Daxad® 13; DeWET SDDT-70
- dispersant, pigment flushing**  
*Stearamine acetate*
- dispersant, pigment grinding**  
*Propylene glycol myristate*; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP
- dispersant, pigment slurries**  
Alcosperse® 404; Busperse® 275; Busperse® 282; Daxad® 13; Gradol 400; *Polysodium vinyl sulfonate*; Polywet® ND-35
- dispersant, pigment slurries: papermaking**  
Polystabil®
- dispersant, pigment wet grinding**  
Daxad® 16
- dispersant, pigment: aq. coatings**  
SER-AD® FA 620; SER-AD® FX 504
- dispersant, pigment: aq. systems**  
Adeka Catioace DM-30A
- dispersant, pigment: bleached wood pulp**  
Fastusol® P
- dispersant, pigment: clays**  
Dumasperse 540
- dispersant, pigment: coatings**  
Acumer® 9400; Acumer® 9460; *Ammonium polyacrylate*; *Ammonium polycarboxylate*; DeIONIC 100-VLF; Morcryl® 535; *Nonoxynol-8*
- dispersant, pigment: coatings: food-contact**  
*Sodium zinc potassium polyphosphate*
- dispersant, pigment: emulsion polymerization**  
Ancowet A-70; DeIONIC 100-VLF; Rhodasurf® L-25; *Sodium polymethacrylate*
- dispersant, pigment: emulsions**  
Rhodasurf® L-25
- dispersant, pigment: fluorescent: aq. coatings**  
Glo-Sperse™ EPX Fine Grind Disps.
- dispersant, pigment: fluorescent: paper coatings**  
Glo-Sperse™ EPX Fine Grind Disps.
- dispersant, pigment: food-contact coatings**  
*Sodium polyacrylate*
- dispersant, pigment: hot-melt coatings**  
Acrawax® C
- dispersant, pigment: inorg. fillers**  
Vybar® 103
- dispersant, pigment: inorg. pigments**  
Vybar® 103
- dispersant, pigment: kaolin clay slurries**  
Dequest® 2016 D Powder
- dispersant, pigment: paper**  
Agefloc PC20HV; Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206; Alkamuls® EL-620; *Ammonium polyacrylate*; *Ammonium polymethacrylate*; Chemax CO-5; Chemax CO-16; Chemax CO-30; Chemax CO-40; Dumasperse 540; Morcryl® 535; Morez® 500; PEG-16 castor oil; PEG-25 castor oil; PEG-28 castor oil; PEG-30 castor oil; PEG-36 castor oil; PEG-40 castor oil; PEG-80 castor oil; PEG-200 castor oil; PEG-5 hydrogenated castor oil; PEG-16 hydrogenated castor oil; PEG-25 hydrogenated castor oil; PEG-200 hydrogenated castor oil; Trylox® 5906
- dispersant, pigment: paper coatings**  
Dispex®; SER-AD® FA 620; SER-AD® FX 504; SER-AD® FX 505
- dispersant, pigment: paper finishes**  
Rhodasurf® L-4; Rhodasurf® L-25
- dispersant, pigment: paper finishing**  
Calgon PTH
- dispersant, pigment: paper wax coatings**  
DeMULS SMS
- dispersant, pigment: paper: aq./fatty food-contact**  
*Polyquaternium-6*
- dispersant, pigment: paper: food-contact**  
*Sodium zinc potassium polyphosphate*
- dispersant, pigment: paperboard: aq./fatty food-contact**  
*Polyquaternium-6*
- dispersant, pigment: paperboard: food-contact**  
*Sodium zinc potassium polyphosphate*
- dispersant, pigment: papermaking**  
Actrasol C-50; Actrasol C-75; Actrasol C-85; Darvan® 1
- dispersant, pigment: pigment flushing**  
Actrasol C-50; Actrasol C-75; Actrasol C-85
- dispersant, pigment: pigment grinding**  
DeIONIC 100-VLF
- dispersant, pigment: pigment slurries**  
Busperse® 203
- dispersant, pigment: polymerization**  
*Isobutylene/MA copolymer*; *Nonoxynol-8*; *Sorbitan sesquioleate*
- dispersant, pigment: polyolefin color concs.**  
Epolene® N-10; Epolene® N-10P
- dispersant, pigment: pulp/paper**  
Ancowet A-70; Ancowet S-60; Ancowet S-70PG; DeIONIC 100-VLF; *Oleyl alcohol*
- dispersant, pigment: resin systems**  
Advawax® 240; Advawax® 280; Advawax® 290; *Ethylene dioleamide*
- dispersant, pigment: resins**  
Alkamide® STEDA
- dispersant, pigment: S/B polymerization**  
*Nonoxynol-8*
- dispersant, pigment: sludge conditioning**  
*Sodium polymethacrylate*
- dispersant, pigment: styrene acrylic polymerization**  
*Nonoxynol-8*
- dispersant, pigment: vinyl acrylic polymerization**  
*Nonoxynol-8*
- dispersant, pigment: water treatment**  
Ancowet A-70; Dequest® 2016 D Powder; *Sodium polymethacrylate*
- dispersant, pigment: water treatment paper coatings**  
Aquaquest 2130
- dispersant, pigments**  
Adekamine 4DAC-80; Adekamine 4DAC-85; Adekamine 4MAC-30; Adekamine ADG-30; Adekamine E Series; Adekamine LDM; Adekamine MD-30; Adekamine MT-50; Adekamine PMS-100; Alcosperse® 602-N; Alkamuls® EL-719; *Ammonium naphthalene sulfonate*; Carsoquat® SDQ-25; Daxad® 17; Daxad® 37LN10-35; *Distearyldimonium chloride*; *Ditridecyl sodium sulfosuccinate*; *2-Ethylhexyl hydrogenated tallowalkyl methosulfate*; Gradol 400; Incroquat SDQ-25; *Lauryl hydroxyethyl imidazoline*; Lignosite® 260; Lignosite® 431; Lignosite® 458; Lignosite® 823; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Newrex Paste H; *Oleyl hydroxyethyl imidazoline*; PEG cocamine; PEG-2 oleamine; Pluriol® E 1500; Pluriol® E 4000; Pluriol® E 6000; Pluriol® E 8000; Pluriol® E 9000; *Polypropylene*; Polystar OM; Polystar OMP; Rhodacal® BX-78; Serwet® WH 170; *Sodium polynaphthalene sulfonate*; Surfynol® 104E; *Tall oil acid*; *Tall oil hydroxyethyl imidazoline*; Tamol® 731A; Tamol® 819; T-Det® C-40
- dispersant, pigments: aq. media**  
Daxad® 11G
- dispersant, pigments: aq. systems**  
Lomar® PL; Lomar® PW; *Sodium maleic anhydride/disobutylene copolymer*
- dispersant, pigments: electrostatic**  
*PEG stearamine*
- dispersant, pigments: org. systems**  
Aerosol® TR-70
- dispersant, pigments: paper coating dispersions**  
Daxad® 11G
- dispersant, pigments: paper mill slime control**  
Daxad® 11G
- dispersant, pigments: pigment dispersions**  
Daxad® 11G
- dispersant, pigments: pigment slurries**  
Daxad® 11G
- dispersant, pigments: pitch control**  
Daxad® 11G
- dispersant, pigments: pulp digestion**  
Daxad® 11G
- dispersant, pitch**  
Daxad® 17; Rapisol B-30, B-80, B-90, C-70
- dispersant, pitch control**  
Daxad® 13
- dispersant, pitch: kraft furnish systems**  
Qemisperse 8845
- dispersant, pitch: newsprint furnish systems**  
Qemisperse 8845
- dispersant, pitch: paper**  
Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- dispersant, pitch: paper mills**  
Maraspense 52 CP
- dispersant, pitch: pulp**  
Igepal® NP-9
- dispersant, pitch: pulp machine**  
Dispersant LF-88
- dispersant, pitch: pulp/paper**  
Dispersant 1084; Dispersant 3000E; Harol RG-71L; *Isotrideceth-9*; Wayfos® M-100
- dispersant, pitch: pulp/paper mills**  
Surfonic® N-95; Teric™ N9
- dispersant, pitch: pulp/paper processing**  
*C12-14 pareth-7*; Surfonic® L24-7; Surfonic® TDA-9
- dispersant, pitch: thick stock**  
Qemisperse 8845
- dispersant, pitch: water treatment, paper**  
Agequat C1405; Agequat C3204; Agestat 41T
- dispersant, plastic prod.**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate*
- dispersant, polymerization**  
*Polyvinyl alcohol (partially hydrolyzed)*; Supragil RM/77 DL; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP
- dispersant, polymers**  
*Ditridecyl sodium sulfosuccinate*; Tergitol® NP-7; Tergitol® NP-8; Tergitol® NP-9; Tergitol® NP-9.5; Tergitol® NP-10; Tergitol® NP-11; Tergitol® NP-12; Tergitol® NP-13; Tergitol® NP-15; Volpo T10; Volpo T15
- dispersant, polymers: org. systems**  
Aerosol® TR-70
- dispersant, polyolefins**  
*Hydrogenated palm glyceride*
- dispersant, powder materials**  
Struktol® TR 044
- dispersant, process waters**  
*Pentasodium aminotrimethylene phosphonate*
- dispersant, protective coatings**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate*
- dispersant, proteins**  
*Thiourea*
- dispersant, PS**  
*Hydrogenated palm glyceride*
- dispersant, pulp**  
Radiaflot®; Synthro®-Sol DC 856 L; Taurine-DEI
- dispersant, pulp digestion**  
Daxad® 13
- dispersant, pulp pitch**  
Persoft NK-60, NK-100
- dispersant, pulp processing**  
*C12-16 pareth-1*; *C12-16 pareth-2*; *C12-16 pareth-3*; *C12-16 pareth-5*; *C12-16 pareth-6*; *C12-16 pareth-7*; *C12-16 pareth-8*; *C12-16 pareth-11*
- dispersant, pulp quality improvement**  
Stabilix®
- dispersant, pulp/paper**  
Adekanol 25R-1; Adekanol 25R-2; Adekanol F-

- 68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; C12-14 *pareth-17*; C12-14 *pareth-22*; C16-18 *pareth-16*; C16-18 *pareth-22*; C16-18 *pareth-29*; Igepal® CA-520; *Isosteamidopropyl ethyldimonium ethosulfate*; *Isostearyl ethylimidonium ethosulfate*; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Monafax 1293; Newrex Paste H; Newrex Powd. F; Newrex R; Nonionic 1025-R; Nonionic 1035-L; Nonionic 2017-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PSLs; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; Paxnol TLS; *PEG-80 sorbitan laurate*; *Phosphinopolycarboxylic acid*; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Polypax IC; Polypax SMS; Polyquat PR; Polysynth RRE; Rhodacal® N; Schercoquat IAS; Schercoquat IIS; Sintrex EHR; *Stearath-10*; *Stearath-20*; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Surfonic® L108/85-5; Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Teric™ 12A3; Teric™ 12A9; Teric™ 12A23; Teric™ 16A16; Teric™ 16A22; Teric™ 16A29; Teric™ 17A2; Teric™ 17A3; Teric™ 17A6; Teric™ 17A8; Teric™ 17A10; Teric™ 17A13; Teric™ 17A25; Teric™ BL8; Teric™ G9A2; Teric™ G9A10; Teric™ G12A6; Teric™ G12A12; Teric™ N6; Teric™ N8; Teric™ N11; Teric™ N30L; *Trideceth-3*; *Trideceth-6*; *Trideceth-9*; *Trideceth-12*
- dispersant, pulp/paper bleaching**  
Dequest® 2000LC; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; *Ethylenediaminetetra (methylene phosphonic acid)*; *Sodium diethylenetriamine penta (methylene phosphonate)*; SPE 9528; *Tetrasodium etidronate*; Unihib® 905
- dispersant, pulp/paper processing systems**  
Acumer® 4161
- dispersant, pulp/paper slurries**  
Tamol® L Conc.
- dispersant, pulping**  
Rhodafac® BG-510
- dispersant, PVAc**  
Nopcosperse® 44
- dispersant, PVC**  
*Hydrogenated palm glyceride*; Surfynol® 104E
- dispersant, PVC suspension polymerization**  
*Polyvinyl alcohol*
- dispersant, PVC systems**  
Nopcosperse® 44
- dispersant, PVdC systems**  
Nopcosperse® 44
- dispersant, repulping sec. fiber: laser printed office waste**  
Busperse® 288
- dispersant, repulping sec. fiber: magazine stock**  
Busperse® 288
- dispersant, repulping sec. fiber: papermaking**  
Busperse® 288
- dispersant, resins**  
*Ditridecyl sodium sulfosuccinate*  
**dispersant, resins: org. systems**  
Aerosol® TR-70  
**dispersant, S/B**  
Nopcosperse® 44  
**dispersant, SBR polymerization**  
*Potassium rosinate*  
**dispersant, scale deposits: pulp/paper mills**  
Orlene® 1340  
**dispersant, screen room pitch: pulp/paper**  
Dispersant LF-89  
**dispersant, silt**  
*Sodium hydroxide*  
**dispersant, size presses**  
Cecavon® CA 350 P  
**dispersant, sludge**  
*Methacrylic acid copolymer*  
**dispersant, sludge: oil drilling**  
*Coccolonium chloride*  
**dispersant, sludge: wastewater treatment**  
*Coccolonium chloride*  
**dispersant, solvent emulsions**  
*PEG hydrogenated castor oil*  
**dispersant, specialized paper coatings**  
Dumasperse 543  
**dispersant, SR latexes**  
Borax; *Sodium borate decahydrate*  
**dispersant, styrene acrylic**  
Avirol® SL 2010  
**dispersant, styrene emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*  
**dispersant, surface treatment**  
Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389  
**dispersant, surface-active**  
*Cetyl alcohol*  
**dispersant, surfactants**  
Aerosol® 18  
**dispersant, suspended matter in water**  
Good-Rite® K-732 Polymer  
**dispersant, suspension polymerization**  
Aerosol® OT-100%; DeWET SDTD-70; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Monawet MO-70  
**dispersant, syn. fiber**  
Schercopol DSB  
**dispersant, tall oil separation**  
Daxad® 13  
**dispersant, titanium dioxide**  
Polywet® Z1766  
**dispersant, titanium dioxide slurries: papermaking**  
Darvan® 7; Darvan® 811  
**dispersant, titanium dioxide: board coatings**  
Esi-Cryl™ 1056  
**dispersant, titanium dioxide: corrugated coatings**  
Esi-Cryl™ 1056  
**dispersant, titanium dioxide: newsprint coatings**  
Esi-Cryl™ 1056  
**dispersant, titanium dioxide: paper coatings**  
Esi-Cryl™ 1056  
**dispersant, trash: waste treatment**  
Agequat C1405; Agequat C3204  
**dispersant, trash: water treatment, paper**  
Agequat C1405; Agequat C3204; Agestat 41T  
**dispersant, vinyl acetate copolymers**  
Avirol® SL 2010  
**dispersant, vinyl acetate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*  
**dispersant, vinyl polymerization**  
*PEG-2M; PEG-5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; PEG-90M; PEG-115M*  
**dispersant, vinylidene chloride copolymers**  
Avirol® SL 2010  
**dispersant, w/o emulsions**  
DeWET SDTD-70  
**dispersant, wastewater treatment**  
Arquad® 2C-70 Nitrite; Arquad® 210-50; Arquad® 218-75; Arquad® HTL8(W) MS-85; *2-Ethylhexyl hydrogenated tallowalkyl methosulfate*  
**dispersant, water systems**  
*Acrylic resin*  
**dispersant, water treatment**  
*Acrylic acid/sulfonic acid copolymer*; Acumer® 1510; Acumer® 4161; *Calcium lignosulfonate*; *Cetrimonium chloride*; C12-14 *pareth-17*; C12-14 *pareth-22*; C16-18 *pareth-16*; C16-18 *pareth-22*; C16-18 *pareth-29*; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; *Diethylene triamine penta-methylene phosphonic acid*; Good-Rite® K-776 Polymer; Monawet MB-45; Monawet MO-70; Monawet MO-70R; Nissan Cation AB; Nissan Cation PB-40; Nissan Cation PB-300; Nonionic 1025-R; Nonionic 2017-R; Nonionic 4025-R; Nonionic 5025-R; *PEG-4 dilaurate*; *PEG-8 dioleate*; *PEG-6 distearate*; Pegosperse® 400 DOT; Pegosperse® 600 DOT; *PEG-12 tallate*; *Phosphinopolycarboxylic acid*; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; *Poloxamer 217*; *Polyacrylamide*; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Polywet® ND-2; *Potassium tripolyphosphate*; *Sodium hexametaphosphate*; *Sodium lignosulfonate*; SPE 9528; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Tergitol® 15-S-7; Tergitol® 15-S-12; Teric™ 12A3; Teric™ 12A9; Teric™ 12A23; Teric™ 16A16; Teric™ 16A22; Teric™ 16A29; Teric™ 17A2; Teric™ 17A3; Teric™ 17A6; Teric™ 17A8; Teric™ 17A10; Teric™ 17A13; Teric™ 17A25; Teric™ BL8; Teric™ G9A2; Teric™ G9A10; Teric™ G12A6; Teric™ G12A12; Triton® XL-80N  
**dispersant, water-reducible coatings**  
Busperse® 275; Busperse® 282  
**dispersant, wax emulsions**  
Lignosite® 431; Lignosite® 458; Lignosite® 823; Surfonic® DNP-100  
**dispersant, waxes**  
*Dihexyl sodium sulfosuccinate*; *Glyceryl laurate*; *Propylene glycol myristate*; *TEA-stearate*; Teric™ 16M2  
**dispersant, wet-end paper**  
Synthro®-Sol DC 819 L  
**dispersant, wettable powds.**  
Lignosite® 431  
**dispersant, white trash: paper**  
Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206  
**dispersant, wood-free paper**  
Wetsan™ DI284-1  
**dispersant-collector, flotation deinking: waste paper**  
Floatsan™ 209  
**dispersing media, peroxide catalysts**  
*Triaryl phosphate*  
**dispersion aid, pigment**  
Rhodapon® L-22  
**dispersion, paper**  
Norsocryl® MA  
**donor face prod., noncarbon copying paper**  
Micronal®  
**drainage aid**  
Cartarelin® F Liq.; Cartarelin® K Liq.; Catiofast® GM; Catiofast® PL; CNC Defoamer 28; CNC Defoamer 1191; *Dimethylamine/epichlorohydrin copolymer*; Eldorado PA-755; Polymin® PL

- drainage aid, acid papermaking wet-end**  
Sta-Lok® 156; Sta-Lok® 356
- drainage aid, acidic papermaking**  
Hanwet HCD-31
- drainage aid, acidified pulp: paper**  
Drainaid GL-73
- drainage aid, alkaline fine paper**  
Compozil™ P BMA 780; Compozil™ P BMB
- drainage aid, alkaline papermaking**  
Eldorado DEF-795; Hanwet HCD-31
- drainage aid, backwater clarification**  
Cartaretin® F Liq.; Cartaretin® K Liq.;  
*Polyamidoamine*
- drainage aid, belt press operations**  
Hartfloc® C-470
- drainage aid, bleach plant operations**  
CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B;  
SM 1124XD
- drainage aid, bleaching**  
Pulpsil® 760 E
- drainage aid, board**  
Cartaretin® 5CP Powd.; Cartaretin® 10AE Liq.;  
Cartaretin® 10AP Powd.; Cartaretin® 10CE  
Liq.; Cartaretin® 10CP Powd.; Cartaretin®  
20AE Liq.; Cartaretin® 20AP Powd.;  
Cartaretin® 20CE Liq.; Cartaretin® 30AE Liq.;  
Cartaretin® 30AP Powd.; Cartaretin® 30CP  
Powd.; Cartaretin® 40CE Liq.; Cartaretin® DS  
Liq.; Cartaretin® Dual System; Cartaretin® F  
Liq.; Cartaretin® K Liq.; Cartaretin® U Liq.;  
Compozil™ BMA 0; Compozil™ BMA 9;  
Compozil™ P BMA 780; Compozil™ P BMB;  
Compozil™ S BMA 670; Compozil™ S BMA  
890; DA-4; Jaguar® CP-4; Jaguar® CP-13;  
*Polyamidoamine*; Polymin® 978 L; Polymin®  
PL; Polymin® SNA
- drainage aid, board paper**  
Torez Resin P-1020R
- drainage aid, brownstock washing**  
CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B;  
SM 1124XD
- drainage aid, closed loop recycle paper  
machines**  
Sta-Lok® 480
- drainage aid, coatings**  
Advantage® 136Z Defoamer
- drainage aid, cold-stock systems**  
Advantage® 91WW
- drainage aid, effluent**  
Advantage® M201 Defoamer; CA 1124XD; FL  
1124DD; FL 1124XD; SM 1124XD
- drainage aid, fiber recovery operations**  
Cartaretin® 5CP Powd.; Cartaretin® 10AE Liq.;  
Cartaretin® 10AP Powd.; Cartaretin® 10CE  
Liq.; Cartaretin® 10CP Powd.; Cartaretin®  
20AE Liq.; Cartaretin® 20AP Powd.;  
Cartaretin® 20CE Liq.; Cartaretin® 30AE Liq.;  
Cartaretin® 30AP Powd.; Cartaretin® 30CP  
Powd.; Cartaretin® 40CE Liq.; *Polyamidoamine*
- drainage aid, filtering processes**  
Advantage® 357 Defoamer
- drainage aid, fine paper**  
Compozil™ BMA 0; Compozil™ BMA 9;  
Compozil™ S BMA 670; Compozil™ S BMA  
890; Jaguar® CB-123
- drainage aid, heavier paper**  
Cydrain® 145 Drainage Aid
- drainage aid, high conductivity/cationic  
demand systems**  
Compozil™ P BMA 780
- drainage aid, high-temp. surfactant-stabilized  
foam systems**  
Advantage® 52-B; Advantage® 52EH Defoamer;  
Advantage® 52-JS
- drainage aid, kraft mill screen rooms**  
Hi-Mar DFP-153
- drainage aid, kraft mills**  
Hi-Mar DFP-301
- drainage aid, kraft paper machines**  
Advantage® M201 Defoamer
- drainage aid, kraft pulp mill brownstock  
washing operations**  
Advantage® 91WW; Advantage® 136Z Defoamer;  
Advantage® 187Z Defoamer; Advantage® 951  
Defoamer; Advantage® 1512 Defoamer;  
Advantage® M104Z Defoamer
- drainage aid, kraft pulp/paper**  
CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B;  
SM 1124XD
- drainage aid, kraft pulp/paper: bleach plant**  
CA 1124B
- drainage aid, kraft pulp/paper: brownstock  
washing**  
CA 1124B
- drainage aid, kraft pulp/paper: effluent**  
CA 1124B
- drainage aid, kraft pulp/paper: paper machine**  
CA 1124B
- drainage aid, kraft pulp/paper: screenroom**  
CA 1124B
- drainage aid, kraft screen room operation**  
Hi-Mar DFP-203
- drainage aid, liner**  
DA-4
- drainage aid, liner paper**  
Torez Resin P-1020R
- drainage aid, linerboard**  
Jaguar® CB-123
- drainage aid, mech. furnishes: groundwood  
specialties**  
Organopol®
- drainage aid, mech. furnishes: newsprint**  
Organopol®
- drainage aid, mech. furnishes: paperboard**  
Organopol®
- drainage aid, microparticle: paper**  
Hydrocol®
- drainage aid, microparticle: paperboard**  
Hydrocol®
- drainage aid, microparticle: pulp**  
Hydrocol®
- drainage aid, mill water clarification: pulp/  
paper**  
Hydraid® 2010; Hydraid® 8105
- drainage aid, paper**  
*Acrylamides copolymer*; Agefloc PC20HV;  
Agefloc PC20VHV; Agefloc PC40; Agefloc  
PC40HV; Agefloc PC2206; Amerfloc® 485;  
Cartaretin® 5CP Powd.; Cartaretin® 10AE Liq.;  
Cartaretin® 10AP Powd.; Cartaretin® 10CE  
Liq.; Cartaretin® 10CP Powd.; Cartaretin®  
20AE Liq.; Cartaretin® 20AP Powd.;  
Cartaretin® 20CE Liq.; Cartaretin® 30AE Liq.;  
Cartaretin® 30AP Powd.; Cartaretin® 30CP  
Powd.; Cartaretin® 40CE Liq.; Cartaretin® DS  
Liq.; Cartaretin® Dual System; Cartaretin® F  
Liq.; Cartaretin® K Liq.; Cartaretin® U Liq.;  
Defoamer/Drainage Aid CK-25; Jaguar® CP-4;  
Jaguar® CP-13; Polymin® 978 L; Polymin®  
KE 78 PF; Polymin® KE 84; Polymin® PL;  
Polymin® PR 266 L; Polymin® PR 973;  
Polymin® PR 8578; Polymin® SNA; *Polysilicic  
acid*; QEMI BSW 8131; QEMI BSW 8133;  
*Stearamine acetate*
- drainage aid, paper machine web formation**  
Polymin® KE 78 PF; Polymin® KE 84
- drainage aid, paper machine wire**  
Polymin® PR 973; Polymin® PR 8578
- drainage aid, paper machines**  
CA 1124XD; DM-2146; FL 1124DD; FL 1124XD;  
SM 1124XD
- drainage aid, paper prod.**  
*Polyamidoamine*; *Poly (glycidyltrimethyl  
ammonium chloride)*
- drainage aid, paper stock**  
Eldorado DEF-795; Polymin® SO
- drainage aid, paper: aq./fatty food-contact**  
*Polyquaternium-7*
- drainage aid, paper: aq./fatty/dry food-contact**  
*Poly [acrylamide-acrylic acid-N-(dimethylamino-  
methyl) acrylamide]*; *Poly (2-aminoethyl  
acrylate nitrate-co-2-hydroxypropyl acrylate)*
- drainage aid, paper: food-contact**  
Cartaretin® F Liq.; Cartaretin® K Liq.; Eldorado  
DEF-795
- drainage aid, paperboard**  
Cydrain® 145 Drainage Aid; PerForm™
- drainage aid, paperboard: aq./fatty food-  
contact**  
*Polyquaternium-7*
- drainage aid, paperboard: aq./fatty/dry food-  
contact**  
*Poly [acrylamide-acrylic acid-N-(dimethylamino-  
methyl) acrylamide]*; *Poly (2-aminoethyl  
acrylate nitrate-co-2-hydroxypropyl acrylate)*
- drainage aid, papermaking**  
Accurac® T-100 Retention/Drainage Aid; Agequat  
C505; Chargemaster® R415; Chargemaster®  
R515; Chargemaster® R615; Jaguar® 8707;  
Particol®; Polymin® 978 L; Secoren™-VE;  
Torez Resin P-1020R; Ultimer™ 1460
- drainage aid, papermaking water treatment**  
Agefloc B4508P
- drainage aid, papermaking wet-end**  
Interbond® C; Sta-Lok® 120, 160, 180, 182; Sta-  
Lok® 140; Sta-Lok® 300, 310, 330; Sta-Lok®  
400, 410, 430, 440; Sta-Lok® 480; Sta-Lok®  
600
- drainage aid, papermaking: presses**  
MPD-7
- drainage aid, papermaking: wire**  
MPD-7
- drainage aid, pulp machine**  
Drainaid PM-85
- drainage aid, pulp mill bleaching**  
Advantage® 91WW
- drainage aid, pulp mill brownstock washing**  
Advantage® 52-B; Advantage® 52EH Defoamer;  
Advantage® 52-JS
- drainage aid, pulp mill effluent**  
Hi-Mar DFP-203; Hi-Mar DFP-205
- drainage aid, pulp mill screening**  
Advantage® 91WW
- drainage aid, pulp screening**  
Pulpsil® 760 E
- drainage aid, pulp washing**  
Pulpsil® 760 E
- drainage aid, pulp/paper**  
Etopol 61-L; Hydraid® 7736 EZ; Hydraid® 7871;  
Hydraid® 8182 EZ; PerForm™; Retek®;  
Unidri™ M-40
- drainage aid, recycled board**  
Interbond® C; Sta-Lok® 300, 310, 330; Sta-Lok®  
400, 410, 430, 440; Sta-Lok® 600
- drainage aid, save-all operation: pulp/paper**  
Hydraid® 2010; Hydraid® 8105
- drainage aid, screen room**  
CA 1124XD; FL 1124DD; FL 1124XD; MA 1124B;  
SM 1124XD
- drainage aid, slow draining stock**  
Cellite® 263; Cellite® 321; Cellite® 388
- drainage aid, sludge**  
Hartomer™ N40V
- drainage aid, sulfite screen room**  
Hi-Mar DFP-203
- drainage aid, tissue paper**  
Jaguar® CB-123
- drainage aid, waste treatment**  
Agequat C1405; Agequat C3204
- drainage aid, water treatment: paper**  
Agefloc A4506; Agefloc A4510; Agequat C1405;  
Agequat C3204; Agestat 41T
- drainage aid, wet-end paper**  
Synthro®-Pac 812 L
- drainage aid, wet-end: alkaline papermaking**  
Sta-Lok® 374, 376
- drainage aid, wood-containing paper**  
Compozil™ P BMA 780; Compozil™ P BMB
- drier**  
Tylose® C-G1



**drier, fine paper**

**drier, fine paper**

Jaguar® CB-123

**drier, food-contact coatings**

Zinc 2-ethylhexanoate

**drier, linerboard**

Jaguar® CB-123

**drier, papermaking**

Suntorl 311; Suntorl C-500; Suntorl KL; Suntorl P-40

**drier, tissue paper**

Jaguar® CB-123

**drier, varnish**

Aluminum stearate; Aluminum tristearate; Cobalt acetate (ous)

**dry colors**

Sodium alum

**drying agent**

Alumina; Sodium sulfate

**drying agent, board**

Jaguar® CP-4; Jaguar® CP-13

**drying agent, food-contact coatings**

Aluminum caprylate; Aluminum oleate; Aluminum palmitate; Aluminum stearate; Calcium resinolate; Calcium stearate; Magnesium palmitate; Magnesium stearate; Zinc palmitate; Zinc rosinate; Zinc stearate

**drying agent, paper**

Jaguar® CP-4; Jaguar® CP-13

**drying agent, papermaking**

Jaguar® 8707

**drying agent, protective coatings**

Linoleic acid

**drying agent, resins**

Zinc rosinate

**drying agent, varnishes**

Magnesium palmitate; Magnesium stearate; Zinc rosinate

**drying oil**

Castor (*Ricinus communis*) oil; Dillinoic acid; Fumaric acid; Safflower (*Carthamus tinctorius*) oil

**drying oil, alkyd resins**

Sunflower (*Helianthus annuus*) seed oil

**drying oil, coatings: food-contact**

Castor (*Ricinus communis*) oil; Corn (*Zea mays*) oil; Cottonseed (*Gossypium*) oil; Linseed (*Linum usitatissimum*) oil; Polybutadiene; Safflower (*Carthamus tinctorius*) oil; Sesame (*Sesamum indicum*) oil; Soybean (*Glycine soja*) oil; Tall oil

**drying oil, paper coatings: food-contact**

Sunflower (*Helianthus annuus*) seed oil

**drying oil, resins: food pkg.**

Tung oil

**drying oil, varnishes**

Soybean (*Glycine soja*) oil

**dry-strength agent**

Guar (*Cyanopsis tetragonoloba*) gum; Hydroxypropyl guar

**dry-strength agent papermaking wet-end**

Sta-Lok® 600

**dry-strength agent recycled board**

Sta-Lok® 600

**dry-strength agent, alkaline fine paper**

Compozil™ P BMA 780; Compozil™ P BMB

**dry-strength agent, alkaline papermaking wet-end**

Sta-Lok® 374, 376

**dry-strength agent, board**

Compozil™ BMA 0; Compozil™ BMA 9; Compozil™ P BMA 780; Compozil™ P BMB; Compozil™ S BMA 670; Compozil™ S BMA 890; Luredur® AS 10, 60%; Luredur® JP 2; Luredur® NB-25

**dry-strength agent, carton**

Praestamin®

**dry-strength agent, closed loop recycle paper machines**

Sta-Lok® 480

**dry-strength agent, fine paper**

Compozil™ BMA 0; Compozil™ BMA 9;

Compozil™ S BMA 670; Compozil™ S BMA 890

**dry-strength agent, high conductivity/cationic demand systems**

Compozil™ P BMA 780

**dry-strength agent, paper**

Carboxymethylcellulose sodium; Chargemaster® R415; Chargemaster® R515; Chargemaster® R615; Eldorado PA-650; Jaguar® CB-11; Luredur® AS 10, 60%; Luredur® JP 2; Luredur® NB-25; Luresin®; Maleic resin; Polyamidoamine-epichlorohydrin; Praestamin®; Prox® AC 553 L

**dry-strength agent, paper saturation**

Dur-O-Set® E-646; X-Link 2893

**dry-strength agent, paper saturation: filtration**

Dur-O-Set® E-623; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33; Resyn® 1090; X-Link 5627

**dry-strength agent, paper saturation: label stock**

Aerosol® 18; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33

**dry-strength agent, paper saturation: tag stock**

Aerosol® 18; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33

**dry-strength agent, paper/paperboard: aq./fatty food-contact**

Sodium carboxymethyl guar gum

**dry-strength agent, paper/paperboard: aq./fatty/dry food-contact**

Poly [acrylamide-acrylic acid-*N*-(dimethylamino-methyl) acrylamide]

**dry-strength agent, paperboard**

Eldorado PA-650; Jaguar® 2100®

**dry-strength agent, papermaking**

Accostrength® 1000 Dry Strength Resin; Hanwet HW-96E; Harmide; Hercobond®; Lycoid® 260; MPD-7

**dry-strength agent, papermaking wet-end**

Interbond® C; Sta-Lok® 120, 160, 180, 182; Sta-Lok® 140; Sta-Lok® 156; Sta-Lok® 300, 310, 330; Sta-Lok® 356; Sta-Lok® 400, 410, 430, 440; Sta-Lok® 480

**dry-strength agent, recycled board**

Interbond® C; Sta-Lok® 300, 310, 330; Sta-Lok® 400, 410, 430, 440

**dry-strength agent, recycled pulp**

MS-290; MSG-329

**dry-strength agent, roto applics.**

SNAP 2042

**dry-strength agent, secondary fiber-containing furnishes**

Luredur® JP 2

**dry-strength agent, secondary fiber-containing stocks**

Luredur® AS 10, 60%; Luredur® NB-25

**dry-strength agent, sheetfed offset paper**

SNAP 2042; SNAP 2048

**dry-strength agent, short fiber/recycled furnishes**

Eldorado PA-650

**dry-strength agent, short-fibered containing furnishes**

Luredur® JP 2

**dry-strength agent, short-fibered containing stocks**

Luredur® AS 10, 60%; Luredur® NB-25

**dry-strength agent, starches**

Hanwet HW-96E

**dry-strength agent, sulfite pulp**

MS-290

**dry-strength agent, sulfuric acid pulp**

MS-290

**dry-strength agent, synthetically bound paper coatings**

SNAP 2042; SNAP 2048

**dry-strength agent, web offset paper**

SNAP 2042; SNAP 2048

**dry-strength agent, wet-end furnishes**

Topcat™ Cationic Additive

**dry-strength agent, wood-containing paper**

Compozil™ P BMA 780; Compozil™ P BMB

**dry-strength resin, board paper**

Torez Resin P-4010

**dry-strength resin, corrugated board**

Torez Resin P-215-A

**dry-strength resin, liner paper**

Torez Resin P-4010

**dry-strength resin, paper**

QEMI DSR 8116A; QEMI DSR 8117A

**dry-strength resin, paper/paperboard: aq./fatty food-contact**

QEMI DSR 8116A; QEMI DSR 8117A

**dry-strength resin, paperboard**

QEMI DSR 8116A; QEMI DSR 8117A

**dry-strength resin, printing paper**

Torez Resin P-215-A; Torez Resin P-4010

**dry-strength resin, thick paper stock systems**

Ambond® 1505; Ambond® 1590

**dry-strength resin, thin paper stock systems**

Ambond® 1505; Ambond® 1590

**dry-strength resin, tissue paper**

Hartomer™ RB-25

**dry-strength resin, wrapping paper**

Torez Resin P-215-A; Torez Resin P-4010

**duckweed killer, water treatment**

Cetrimonium chloride; Nissan Cation MA; Nissan Cation PB-40; Nissan Cation PB-300; Nissan Cation SA

**durability improver, paper saturation: label stock**

Nacrylic X 4280; X-Link 2833

**durability improver, paper saturation: tag stock**

Nacrylic X 4280; X-Link 2833

**dust control agent**

Acintol® R Type S; Armul™ 910; Deodorized kerosene; PD-25; PD-28; TLV 68-SB; TLV 68-UB; TLV 70-SB; TLV 70-UB; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS

**dust control agent, coated paper surface finish: calendaring process**

Sequaflow® 502; Sequaflow® 566

**dust control agent, coated paperboard surface finish: calendaring process**

Sequaflow® 502; Sequaflow® 566

**dust control agent, fiber lubricants**

PD-25; PD-28

**dust control agent, paper**

PD-23

**dust control agent, paperboard**

PD-23

**dust control agent, polymers**

Volpo T10; Volpo T15

**dust control agent, water treatment**

PD-23

**dust control oil**

Dicocodimonium chloride

**dust settling agent**

DeWET SDO-70PG; DeWET SDO-75E

**dusting agent**

Hubercarb® Q 1; Hubercarb® Q 3; Hubercarb® Q 4; Hubercarb® Q 6; Hubercarb® Q 200T; Hubercarb® Q 325; Mica; Talc

**dustproofing agent, pigmented paper: size presses**

Prox®-Amine AP

**dye**

Isobutyl stearate;  $\beta$ -Naphthol; Potassium alum dodecahydrate; Sodium benzoate; Sodium hydroxide; Sulfur; Sulfuric acid; Tall oil acid; *p*-Toluene sulfonic acid

**dye acceptor**

Acrylamide

**dye additive**

Ageflex FA-2; Ageflex FM-2; Diethylaminoethyl acrylate; Diethylaminoethyl methacrylate; Dimethylaminoethyl methacrylate

**dye mordant, paper**

- Sol-U-Tein EA  
**dye pastes, thickening**  
*Dextrin*  
**dye prod.**  
*Sodium nitrite*  
**dye retardant**  
 Harol RG-71L  
**dye retention aid, cellulosic fiber**  
 Agefloc A4506; Agefloc A4510; Agefloc B4508P  
**dye, acetate**  
*Direct red 39*  
**dye, acid: calender press dyeing, papermaking**  
 Anthosin®  
**dye, acid: size press dyeing, papermaking**  
 Anthosin®  
**dye, acid: specialty paper**  
 Intracid®  
**dye, aniline**  
*Ammonium persulfate*  
**dye, basic: coarse paper**  
 Sevron®  
**dye, basic: egg cartons**  
 Sevron®  
**dye, basic: industrial tissues**  
 Sevron®  
**dye, basic: kraft specialties**  
 Sevron®  
**dye, basic: newsprint**  
 Sevron®  
**dye, basic: paper**  
 Basazol®; Basazol® C; *Basic blue 7; Basic violet 10*  
**dye, basic: purple: paper**  
*Basic violet 3*  
**dye, basic: recycled paper**  
 Sevron®  
**dye, basic: saturation paper grades**  
 Sevron®  
**dye, basic: unbleached paper**  
 Sevron®  
**dye, black: beater applic., acid-sized paper**  
 Ponolith™ Supra Black B Liq.  
**dye, black: beater applic., alkaline-sized paper**  
 Ponolith™ Supra Black B Liq.  
**dye, black: beater applic., neutral-sized paper**  
 Ponolith™ Supra Black B Liq.  
**dye, board: fine paper**  
 Cartasol® Brilliant Orange 2RFN Liq.; Cartasol® Red 2GFN Liq.  
**dye, board: tissue**  
 Cartasol® Brilliant Orange 2RFN Liq.; Cartasol® Red 2GFN Liq.  
**dye, board: white grade**  
 Cartasol® Blue 3RFN Liq.; Cartasol® Brilliant Violet 5BFN Liq.  
**dye, brilliant green-shade blue: acid paper**  
 Pontamine™ Fast Turquoise 8GL Liq.  
**dye, brilliant green-shade blue: alkaline paper**  
 Pontamine™ Fast Turquoise 8GL Liq.  
**dye, brilliant green-shade blue: sized paper**  
 Pontamine™ Fast Turquoise 8GL Liq.  
**dye, brilliant green-shade blue: tissue paper**  
 Pontamine™ Fast Turquoise 8GL Liq.  
**dye, carbon paper**  
*Pigment red 3*  
**dye, cationic aq. coating systems**  
 Cartasol K  
**dye, cationic: carbon paper coatings**  
 Basonyl® Dyes  
**dye, cellulose acetate**  
*Pigment red 3*  
**dye, cellulose**  
*Direct black 38; Direct blue 6*  
**dye, cotton**  
*Basic red 1; Basic violet 4; Direct red 39*  
**dye, direct: acid white paper**  
 Pontamine™ Black LD Liq.  
**dye, direct: alkaline white paper**  
 Pontamine™ Black LD Liq.  
**dye, direct: board**  
 Pergasol®  
**dye, direct: cover stocks**  
 Intrabond®; Intralite®; Sol-Aqua-Fast®  
**dye, direct: fine paper**  
 Intrabond®; Intralite®; Sol-Aqua-Fast®  
**dye, direct: paper**  
 Pergasol®  
**dye, direct: paperboard**  
 Intrabond®; Intralite®; Sol-Aqua-Fast®  
**dye, direct: pkg. paper**  
 Fastusol®; Fastusol® C  
**dye, direct: printing paper**  
 Fastusol®; Fastusol® C  
**dye, direct: sized white paper**  
 Pontamine™ Black LD Liq.  
**dye, direct: specialty paper**  
 Fastusol®; Fastusol® C  
**dye, direct: tissue grades**  
 Intrabond®; Intralite®; Sol-Aqua-Fast®  
**dye, direct: toweling**  
 Intrabond®; Intralite®; Sol-Aqua-Fast®  
**dye, direct: wood-free board**  
 Cartasol® Yellow 3GSFN Liq.  
**dye, direct: wood-free paper**  
 Cartasol® Yellow 3GSFN Liq.; Fastusol®; Fastusol® C  
**dye, direct: writing paper**  
 Fastusol®; Fastusol® C  
**dye, fiber**  
 Lomar® PL; Lomar® PW  
**dye, orange: paper**  
*Acid orange 7*  
**dye, paper**  
*Acid blue 1; Acid blue 29; Acid blue 40; Acid green 1; Acid green 5; Acid green 9; Acid green 16; Acid green 20; Acid green 25; Acid orange 8; Acid orange 10; Acid orange 11; Acid orange 51; Acid red 4; Acid red 26; Acid red 37; Acid red 52; Acid red 87; Acid red 88; Acid red 97; Acid red 137; Acid violet 12; Acid violet 17; Acid violet 49; Acid yellow 3; Acid yellow 36; Basic orange 1; Basic red 1; Basic red 2; Basic red 12; Basic yellow 2; Basic yellow 37; Carbon black; Cartasol® Brilliant Blue 3GF Liq.; Cartasol® Red 3BFN Liq.; Cartasol® Turquoise RF Liq.; Cartasol® Yellow 3GF Liq.; 4,4'-Diaminostilbene-2,2'-disulfonic acid; Dianisidine; Direct black 38; Direct blue 6; Direct brown 2; Direct green 1; Direct red 39; Vat yellow 4*  
**dye, paper coatings**  
*Pigment red 3*  
**dye, paper: deep shades**  
 Cartasol® Brilliant Violet 5BFN Liq.  
**dye, paper: fine paper**  
 Cartasol® Brilliant Orange 2RFN Liq.; Cartasol® Red 2GFN Liq.  
**dye, paper: low wood content**  
 Cartasol® Blue 3RFN Liq.; Cartasol® Brilliant Orange 2RFN Liq.; Cartasol® Brilliant Violet 5BFN Liq.; Cartasol® Red 2GFN Liq.  
**dye, paper: tissue**  
 Cartasol® Brilliant Orange 2RFN Liq.; Cartasol® Red 2GFN Liq.  
**dye, paper: white grade**  
 Cartasol® Blue 3RFN Liq.; Cartasol® Brilliant Violet 5BFN Liq.  
**dye, photochromic**  
*p-Diazodiphenylamine sulfate*  
**dye, polyamide**  
*Acid blue 29; Acid blue 40; Acid green 5; Acid green 9; Acid green 20; Acid orange 8; Acid red 52; Acid violet 12*  
**dye, polyamide fiber**  
*Tartrazine*  
**dye, red-blue: acid paper**  
 Pontamine™ Blue BT Liq.; Pontamine™ Blue SP Liq.; Pontamine™ Blue SP-N Liq.  
**dye, red-blue: alkaline paper**  
 Pontamine™ Blue BT Liq.; Pontamine™ Blue SP Liq.; Pontamine™ Blue SP-N Liq.  
**dye, red-blue: paper**  
 Pontamine™ Blue BT Liq.; Pontamine™ Blue SP Liq.; Pontamine™ Blue SP-N Liq.  
**dye, red-blue: sized paper**  
 Pontamine™ Blue BT Liq.; Pontamine™ Blue SP Liq.; Pontamine™ Blue SP-N Liq.  
**dye, red-blue: tissue paper**  
 Pontamine™ Blue BT Liq.; Pontamine™ Blue SP Liq.; Pontamine™ Blue SP-N Liq.  
**dye, red-brown: acid paper**  
 Pontamine™ Kraft Brown ES Liq.  
**dye, red-brown: alkaline paper**  
 Pontamine™ Kraft Brown ES Liq.  
**dye, red-brown: molded paper**  
 Pontamine™ Kraft Brown ES Liq.  
**dye, red-brown: paper**  
 Pontamine™ Kraft Brown ES Liq.  
**dye, red-brown: sized paper**  
 Pontamine™ Kraft Brown ES Liq.  
**dye, red-brown: tissue paper**  
 Pontamine™ Kraft Brown ES Liq.  
**dye, reddish-yel.: acid paper**  
 Pontamine™ Golden Yellow RB Liq.  
**dye, reddish-yel.: alkaline paper**  
 Pontamine™ Golden Yellow RB Liq.  
**dye, reddish-yel.: paper**  
 Pontamine™ Golden Yellow RB Liq.  
**dye, reddish-yel.: sized paper**  
 Pontamine™ Golden Yellow RB Liq.  
**dye, reddish-yel.: tissue paper**  
 Pontamine™ Golden Yellow RB Liq.  
**dye, red-yel.: acid paper**  
 Levacell® Fast Yellow KS-R Liq.; Pontamine™ Yellow GXG Liq.; Pontamine™ Yellow GXW Liq.  
**dye, red-yel.: alkaline paper**  
 Pontamine™ Yellow GXG Liq.; Pontamine™ Yellow GXW Liq.  
**dye, red-yel.: alkaline-sized paper**  
 Levacell® Fast Yellow KS-R Liq.  
**dye, red-yel.: paper**  
 Levacell® Fast Yellow KS-R Liq.; Pontamine™ Yellow GXG Liq.; Pontamine™ Yellow GXW Liq.  
**dye, red-yel.: sized paper**  
 Pontamine™ Yellow GXG Liq.; Pontamine™ Yellow GXW Liq.  
**dye, red-yel.: tissue paper**  
 Levacell® Fast Yellow KS-R Liq.; Pontamine™ Yellow GXG Liq.; Pontamine™ Yellow GXW Liq.  
**dye, security paper**  
 Check Dye AS Liq.  
**dye, silk**  
*Acid blue 1; Acid blue 29; Acid blue 40; Acid green 5; Acid green 9; Acid green 20; Acid orange 8; Acid orange 11; Acid red 52; Acid violet 12; Basic red 1; Direct red 39*  
**dye, sl. greener-shade blue direct: alkaline-sized paper**  
 Pontamine™ Blue GTB Liq.  
**dye, sl. greener-shade blue direct: sized paper**  
 Pontamine™ Blue GTB Liq.  
**dye, sl. greener-shade blue direct: tissue paper**  
 Pontamine™ Blue GTB Liq.  
**dye, tissue printing**  
 Cartasol® Turquoise K-ZL Liq.  
**dye, white grade board**  
 Cartasol® Blue 3RF Liq.  
**dye, white grade paper**  
 Cartasol® Blue 3RF Liq.  
**dye, wood-free paper**  
 Cartasol® Blue 3RF Liq.; Cartasol K; Cartasol® Turquoise K-ZL Liq.  
**dye, wood-free pulp: board**  
 Cartasol® Blue K-5R Liq.  
**dye, wood-free pulp: paper**  
 Cartasol® Blue K-5R Liq.  
**dye, yel.: acid-sized paper beaters**  
 Ponolith™ Supra Yellow GY Liq.; Ponolith™ Supra Yellow RD Liq.

**dyeing**

*Butoxyethanol; Calcium sulfate; Cetyl betaine; Gallic acid; Potassium aluminate; Sodium alum; Sodium p-styrenesulfonate*

**dyeing assistant**

Ajidew A-100; Ajidew N-50; Ajidew SP-100; Alkanol® 189-S; Alkanol® 1009C; Alkanol® 6112; Alkanol® A-CN; Alkanol® ND; Alkanol® SB; *Ammonium nonoxynol-4 sulfate; Ammonium phosphate; Cetareth-10; Cetareth-11; Cetareth-14; Cetareth-18; Cetyl betaine; DeTHOX ACID O-9; Geropon® T-33; Geropon® T-43; Geropon® T-51; Geropon® T-77; Hydrolyzed collagen; Igepal® CA-880; Igepal® CA-887; Igepal® CA-890; Igepal® CA-897; Igepal® CO-897; Isodeceth-6; Lauryl hydroxyethyl imidazoline; Octoxynol-25; Oleth-18; Oleth-23; PCA; PEG-80 castor oil; PEG-20 laurate; PEG-14 oleate; PEG-8 tallate; PEG-16 tallate; Persoft NK-60, NK-100; Polyquat 188; Product BCO; Rapisol B-30, B-80, B-90, C-70; Sodium butyl oleate sulfonate; Sodium butyl tallate sulfate; Sodium methyl oleoyl taurate; Sodium PCA; Stafoam F; Sulfated butyl tallate; Surfonic® OPB-407; Trydet 2676*

**dyeing assistant, acid dyes: paper**

Avitex® 6311; Avitex® DN-100; Avitex® E; Avitex® R

**dyeing assistant, acid/azo dyes**

Igepal® CO-977

**dyeing assistant, cationic direct dyes: paper**

Cartafix® F Liq.

**dyeing assistant, direct dyes: paper**

Avitex® 6311; Avitex® DN-100; Avitex® E; Avitex® R

**dyeing assistant, paper**

Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Chemax CO-16; Chemax CO-30; Chemax CO-40; Merpol® HCS; *PEG-16 castor oil; PEG-25 castor oil; PEG-30 castor oil; PEG-36 castor oil; PEG-40 castor oil; PEG-200 castor oil; PEG-5 hydrogenated castor oil; PEG-16 hydrogenated castor oil; PEG-25 hydrogenated castor oil; PEG-200 hydrogenated castor oil; Schercozoline I; Schercozoline L; Schercozoline O; Schercozoline S*

**dyeing assistant, polyurethane foams**

*PEG-36 castor oil*

**dyeing assistant, pulp/paper**

Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123

**dyeing, beater: paper**

*Direct black 80*

**dyeing, fiber**

*Sodium polynaphthalene sulfonate*

**dyeing, paper**

*Direct blue 53*

**dye-receptive resin, paper**

PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120

**dyestuff, black: molded, tissue**

Pontamine™ Black SP Liq.

**dyestuff, black: paper**

Pontamine™ Black SP Liq.

**dyestuff, black: paperboard**

Pontamine™ Black SP Liq.

**dyestuff, bluer-shade red: paper**

Levacell® Red KS-4BE Conc.

**dyestuff, bluer-shade red: tissue**

Levacell® Red KS-4BE Conc.

**dyestuff, blue-shade green direct: alkaline paper**

Pontamine™ Green 2B

**dyestuff, blue-shade green direct: sized paper**

Pontamine™ Green 2B

**dyestuff, blue-shade green direct: tissue paper**

Pontamine™ Green 2B

**dyestuff, blue-shade red: acid paper**

Pontamine™ Fast Red 8BF Liq.; Pontamine™ Fast Red 8BLX Liq.; Pontamine™ Fast Red 9BL Liq.

**dyestuff, blue-shade red: alkaline paper**

Pontamine™ Fast Red 8BF Liq.; Pontamine™ Fast Red 8BLX Liq.; Pontamine™ Fast Red 9BL Liq.

**dyestuff, blue-shade red: sized paper**

Pontamine™ Fast Red 8BF Liq.; Pontamine™ Fast Red 8BLX Liq.; Pontamine™ Fast Red 9BL Liq.

**dyestuff, blue-shade red: tissue paper**

Pontamine™ Fast Red 8BF Liq.; Pontamine™ Fast Red 8BLX Liq.; Pontamine™ Fast Red 9BL Liq.

**dyestuff, bright green-shade blue: acid paper**

Levacell® Blue 6GLL Liq.

**dyestuff, bright green-shade blue: alkaline paper**

Levacell® Blue 6GLL Liq.

**dyestuff, bright green-shade blue: sized paper**

Levacell® Blue 6GLL Liq.

**dyestuff, bright green-shade blue: tissue paper**

Levacell® Blue 6GLL Liq.

**dyestuff, bright grn.-shade, fluorescent yel.: acid paper**

Pontamine™ Brilliant Flavine 6G-N Sol'n.

**dyestuff, bright grn.-shade, fluorescent yel.: alkaline paper**

Pontamine™ Brilliant Flavine 6G-N Sol'n.

**dyestuff, bright grn.-shade, fluorescent yel.: sized paper**

Pontamine™ Brilliant Flavine 6G-N Sol'n.

**dyestuff, bright grn.-shade, fluorescent yel.: tissue paper**

Pontamine™ Brilliant Flavine 6G-N Sol'n.

**dyestuff, bright neutral-shade blue: internal paper coloration, acid**

Pontamine™ Blue BN Liq. 200%

**dyestuff, bright neutral-shade blue: internal paper coloration, alkaline**

Pontamine™ Blue BN Liq. 200%

**dyestuff, bright neutral-shade blue: internal paper coloration, sized**

Pontamine™ Blue BN Liq. 200%

**dyestuff, bright neutral-shade blue: internal paper coloration, tissue**

Pontamine™ Blue BN Liq. 200%

**dyestuff, bright reddish-shade yel.: acid paper**

Pontamine™ Yellow 2RF Liq.

**dyestuff, bright reddish-shade yel.: alkaline paper**

Pontamine™ Yellow 2RF Liq.

**dyestuff, bright reddish-shade yel.: sized paper**

Pontamine™ Yellow 2RF Liq.

**dyestuff, bright reddish-shade yel.: tissue paper**

Pontamine™ Yellow 2RF Liq.

**dyestuff, bright red-shade blue: acid paper**

Pontamine™ Blue WE-N Liq.

**dyestuff, bright red-shade blue: alkaline paper**

Pontamine™ Blue WE-N Liq.

**dyestuff, bright red-shade blue: sized paper**

Pontamine™ Blue WE-N Liq.

**dyestuff, bright red-shade blue: tissue paper**

Pontamine™ Blue WE-N Liq.

**dyestuff, bright red-shade orange direct: alkaline-sized paper**

Pontamine™ Brilliant Orange 2R Liq.

**dyestuff, bright red-shade orange direct: sized paper**

Pontamine™ Brilliant Orange 2R Liq.

**dyestuff, bright red-shade orange direct: tissue paper**

Pontamine™ Brilliant Orange 2R Liq.

**dyestuff, brilliant blue basic: acid paper**

Verona™ Basic Blue GE Liq.; Verona™ Basic Blue R Liq.; Verona™ Basic Violet M Liq.

**dyestuff, brilliant blue basic: directory paper**

Verona™ Basic Blue GE Liq.; Verona™ Basic Blue R Liq.; Verona™ Basic Violet M Liq.

**dyestuff, brilliant blue basic: newsprint paper**

Verona™ Basic Blue GE Liq.; Verona™ Basic Blue R Liq.; Verona™ Basic Violet M Liq.

**dyestuff, brilliant blue basic: publication paper**

Verona™ Basic Blue GE Liq.; Verona™ Basic Blue R Liq.; Verona™ Basic Violet M Liq.

**dyestuff, brilliant blue basic: sized paper**

Verona™ Basic Blue GE Liq.; Verona™ Basic Blue R Liq.; Verona™ Basic Violet M Liq.

**dyestuff, brilliant blue basic: white paper tinting**

Verona™ Basic Blue GE Liq.; Verona™ Basic Blue R Liq.; Verona™ Basic Violet M Liq.

**dyestuff, brilliant blue-shade red basic: acid paper**

Verona™ Basic Red P Liq.

**dyestuff, brilliant blue-shade red basic: directory paper**

Verona™ Basic Red P Liq.

**dyestuff, brilliant blue-shade red basic: newsprint paper**

Verona™ Basic Red P Liq.

**dyestuff, brilliant blue-shade red basic: publication paper**

Verona™ Basic Red P Liq.

**dyestuff, brilliant blue-shade red basic: sized paper**

Verona™ Basic Red P Liq.

**dyestuff, brilliant blue-shade red basic: white paper tinting**

Verona™ Basic Red P Liq.

**dyestuff, brilliant blue-shade red direct: alkaline paper**

Pontamine™ Red Sern Liq.

**dyestuff, brilliant blue-shade red direct: sized paper**

Pontamine™ Red Sern Liq.

**dyestuff, brilliant blue-shade red: acid paper**

Pontamine™ Bordeaux 8B Liq.

**dyestuff, brilliant blue-shade red: alkaline paper**

Pontamine™ Bordeaux 8B Liq.

**dyestuff, brilliant blue-shade red: sized paper**

Pontamine™ Bordeaux 8B Liq.

**dyestuff, brilliant blue-shade red: tissue paper**

Pontamine™ Bordeaux 8B Liq.

**dyestuff, brilliant green basic: acid paper**

Verona™ Basic Green M Liq.

**dyestuff, brilliant green basic: decorative paper**

Verona™ Basic Green M Liq.

**dyestuff, brilliant green basic: directory paper**

Verona™ Basic Green M Liq.

**dyestuff, brilliant green basic: lignin pulp**

Verona™ Basic Green M Liq.

**dyestuff, brilliant green basic: newsprint paper**

Verona™ Basic Green M Liq.

**dyestuff, brilliant green basic: publication paper**

Verona™ Basic Green M Liq.

**dyestuff, brilliant green basic: sized paper**

Verona™ Basic Green M Liq.

**dyestuff, brilliant grn.-shade blue: acid paper**

Pontamine™ Brilliant Bond Blue A Liq.

**dyestuff, brilliant grn.-shade blue: alkaline paper**

Pontamine™ Brilliant Bond Blue A Liq.

**dyestuff, brilliant grn.-shade blue: sized paper**

Pontamine™ Brilliant Bond Blue A Liq.

- dyestuff, brilliant grn.-shade blue: tissue paper**  
Pontamine™ Brilliant Bond Blue A Liq.
- dyestuff, brilliant grnsh.-shade yel. basic: directory grade paper**  
Verona™ Basic Yellow 4GN Liq. 125
- dyestuff, brilliant grnsh.-shade yel. basic: lignin pulp grade paper**  
Verona™ Basic Yellow 4GN Liq. 125
- dyestuff, brilliant grnsh.-shade yel. basic: newsprint grade paper**  
Verona™ Basic Yellow 4GN Liq. 125
- dyestuff, brilliant grnsh.-shade yel. basic: publication grade paper**  
Verona™ Basic Orange G Liq.
- dyestuff, brilliant orange basic: acid paper**  
Verona™ Basic Orange G Liq.
- dyestuff, brilliant orange basic: sized paper**  
Verona™ Basic Orange G Liq.
- dyestuff, brilliant red-shade orange: acid paper**  
Pontamine™ Fast Orange WN Liq.
- dyestuff, brilliant red-shade orange: alkaline paper**  
Pontamine™ Fast Orange WN Liq.
- dyestuff, brilliant red-shade orange: sized paper**  
Pontamine™ Fast Orange WN Liq.
- dyestuff, brilliant red-shade orange: tissue paper**  
Pontamine™ Fast Orange WN Liq.
- dyestuff, brilliant scarlet: acid paper**  
Pontamine™ Fast Scarlet 4B Liq.
- dyestuff, brilliant scarlet: alkaline paper**  
Pontamine™ Fast Scarlet 4B Liq.
- dyestuff, brilliant scarlet: sized paper**  
Pontamine™ Fast Scarlet 4B Liq.
- dyestuff, brilliant scarlet: tissue paper**  
Pontamine™ Fast Scarlet 4B Liq.
- dyestuff, direct blk.: acid-sized paper**  
Pontamine™ Black LFS Liq.
- dyestuff, direct blk.: alkaline-sized paper**  
Pontamine™ Black LFS Liq.
- dyestuff, direct blk.: tissue**  
Pontamine™ Black LFS Liq.
- dyestuff, grn. shade yel.: paper**  
Pontamine™ Brilliant Yellow 5GA Liq.
- dyestuff, sl. green shade/fluorescent yel.: acid paper**  
Pontamine™ Bond Yellow 303 Liq.
- dyestuff, sl. green shade/fluorescent yel.: alkaline paper**  
Pontamine™ Bond Yellow 303 Liq.
- dyestuff, sl. green shade/fluorescent yel.: sized paper**  
Pontamine™ Bond Yellow 303 Liq.
- dyestuff, sl. green shade/fluorescent yel.: tissue paper**  
Pontamine™ Bond Yellow 303 Liq.
- dyestuff, sl. grn.-shade: acid fine paper**  
Pontamine™ Bond Blue B Liq.
- dyestuff, sl. grn.-shade: alkaline fine paper**  
Pontamine™ Bond Blue B Liq.
- dyestuff, sl. grn.-shade: sized fine paper**  
Pontamine™ Bond Blue B Liq.
- dyestuff, sl. reddish shade fluorescent yel.: acid paper**  
Pontamine™ Yellow 711 Liq.
- dyestuff, sl. reddish shade fluorescent yel.: alkaline paper**  
Pontamine™ Yellow 711 Liq.
- dyestuff, sl. reddish shade fluorescent yel.: sized paper**  
Pontamine™ Yellow 711 Liq.
- dyestuff, sl. reddish shade fluorescent yel.: tissue paper**  
Pontamine™ Yellow 711 Liq.
- dyestuff, violet: acid paper**  
Pontamine™ Brilliant Violet BRW Liq.
- dyestuff, violet: alkaline paper**  
Pontamine™ Brilliant Violet BRW Liq.
- dyestuff, violet: sized paper**  
Pontamine™ Brilliant Violet BRW Liq.
- dyestuff, violet: tissue paper**  
Pontamine™ Brilliant Violet BRW Liq.
- dyestuff, yel.: acid paper**  
Pontamine™ Brilliant Paper Yellow Liq.; Pontamine™ Yellow EM Liq.; Pontamine™ Yellow G Liq.
- dyestuff, yel.: acid-sized paper**  
Pontamine™ Fast Yellow 3GF Liq.
- dyestuff, yel.: alkaline paper**  
Pontamine™ Yellow EM Liq.; Pontamine™ Yellow G Liq.
- dyestuff, yel.: alkaline-sized paper**  
Pontamine™ Fast Yellow 3GF Liq.
- dyestuff, yel.: sized paper**  
Pontamine™ Brilliant Paper Yellow Liq.; Pontamine™ Yellow EM Liq.; Pontamine™ Yellow G Liq.
- dyestuff, yel.: tissue**  
Pontamine™ Yellow EM Liq.; Pontamine™ Yellow G Liq.
- dyestuff, yel.: tissue paper**  
Pontamine™ Fast Yellow 3GF Liq.
- dyestuff, yel.-shade orange: acid paper**  
Pontamine™ Kraft Orange A Liq.
- dyestuff, yel.-shade orange: alkaline paper**  
Pontamine™ Kraft Orange A Liq.
- dyestuff, yel.-shade orange: sized paper**  
Pontamine™ Kraft Orange A Liq.
- dyestuff, yel.-shade orange: tissue paper**  
Pontamine™ Kraft Orange A Liq.
- dyestuffs**  
*Ammonium naphthalene sulfonate; Bis(aminopropyl) piperazine; Bromine; Hydroquinone monomethyl ether; Nonylphenol; Potassium thiocyanate*
- effluent treatment**  
CS-10; Inductor®; Pittclor®; Polymin® PR 266 L; Polymin® PR 973; Polymin® PR 8578; *Sodium hypochlorite*
- elastomer, perfluorocarbon cured: food-contact**  
*Magnesium oxide*
- elec. conductive film, paper**  
Laponite® JS
- electroconductive agent, electrofax paper**  
Chemistat 6300 H
- emollient, waxes**  
*Propylene glycol myristate*
- emulsifier**  
Abex® JKB; Aerosol® 22; Aerosol® MA-80; Aerosol® OT-70 PG; *AlgIn; Alkenyl succinic anhydride; Aluminasol 100; Aluminasol 200; Aluminum distearate; Aluminum hydroxide; Ammonium oleic sulfate; AntaroX® L-64; Arizona DR-22; Armeen® 2C; Behenyl hydroxyethyl imidazoline; Calcium carrageenan; Calcium lignosulfonate; Calcium stearate; Calimulse PRS; Carbomer; Carbomer 910; Carboxymethylcellulose sodium; Cetareth; Cetareth-2; Cetareth-5; Cetareth-20; Ceteth-20; Cetolet-25; Cetyl betaine; Cocobetaine; Cocotrimonium chloride; C9-11 pareth-5; C9-11 pareth-12; C10-12 pareth-3; C10-12 pareth-5; C12-14 pareth-5; C12-14 pareth-9; C12-15 pareth-3; C12-15 pareth-10; C12-15 pareth-12; C12-18 pareth-7; C13-15 pareth-3; C13-15 pareth-7; C13-15 pareth-9; C13-15 pareth-11; C13-15 pareth-20; Crill 1; Crill 2; Crill 3; Crill 43; Crillet 1 HP; Crillet 1 NF; Crillet 2; Crillet 4; Crillet 11; Crillet 31; Crillet 35; Crillet 41; Crillet 45; Cuirol® RZ 80; DeIonic OPE-12; DeMIDE RCN-276; *Dicocamine; Dicocodimonium chloride; Dimethicone copolyol; Ditrildecyl sodium sulfosuccinate; Dodoxynol;**
- Dodoxynol-10; Eldorado FCD-142; Elvanol® 75-15; Empilan® KA3; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; Emsorb® 2505; Epolene® E-20; Glycerol distearate; Glycerol ricinoleate; Glycol palmitate; Hoechst Wax LP; Hydrogenated castor oil; Hydrogenated ditallowamine; Hydrogenated menhaden oil; Hydrogenated tallow; Hydrogenated tallow acid; Hydrogenated tallow glycerides; Hydrogenated vegetable glycerides; Isolaureth-3; Isolaureth-6; Isolaureth-10; Isopropyl myristate; Isopropyl palmitate; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; KELACID®; KELCOLOID® DH; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; KELCOSOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Kemester® 5500; Lanolin; Laureth-3; Laureth-12; Lignosite® AC; Linseed acid; Lomar® PL; Mazu® DF 210SX; Mazu® DF 230SX; Monawet MT-70; Monawet SNO-35; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-9; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; Nonoxynol-13; Nonoxynol-14; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-25; Nonoxynol-30; Nonoxynol-100; Nonoxynol-9 phosphate; Nonyl nonoxynol-100; Nopalcol 4-O; Octoxynol; Oleth-15; Oleth-18; Oleth-23; Oleth-40; Paxisorbate 20; Paxisorbate 60; Paxisorbate 80; PEG-5 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-28 castor oil; PEG-2 cocamine; PEG-15 cocamine; PEG-4 dicocaine; PEG-6 dilaurate; PEG-8 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-8 ditallate; PEG-12 ditallate; PEG-4 laurate; PEG-5 laurate; PEG-8 laurate; PEG-12 laurate; PEG-12 oleate; PEG-20 oleate; PEG-32 oleate; PEG-8 stearate; PEG-32 stearate; PEG-8 tallate; Pentasodium triphosphate; Persoft NK-60, NK-100; Pluronic® P-2000; Polysorbate 20; POLYSTEP® A-17; POLYSTEP® AE-120; POLYSTEP® AE-307; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-7; POLYSTEP® B-11; POLYSTEP® B-20; POLYSTEP® B-22; POLYSTEP® B-24; POLYSTEP® B-330S; POLYSTEP® F-1; POLYSTEP® F-2; POLYSTEP® F-3; POLYSTEP® F-4; POLYSTEP® F-5; POLYSTEP® F-6; POLYSTEP® F-9; POLYSTEP® F-9S; POLYSTEP® F-10; POLYSTEP® F-95B; POLYSTEP® LAS-50; POLYSTEP® OP-9; POLYSTEP® OP-3070; POLYSTEP® OP-4070; Polyvinyl alcohol; Propylene glycol distearate; Propylene glycol oleate; PVM/MA copolymer; Pycal 94; Rhodacal® 3594; Rhodacal® DS/4-E25; Rhodacal® DS-10; Rhodafac® RE-610; Rhodafac® RS-610; Rhodafac® RS-710; Rhodapex® CO-436; Rhodapon® LSB; Rhodapon® SM; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; Servoxy® VPDZ 6/100; Servoxy® VPFZ 7/100; Servoxy® VPIZ 100; Servoxy® VPNZ 7/100; Servoxy® VPPZ 100; Servoxy® VPRZ 006/100; Servoxy® VPRZ 0011/100; Servoxy® VPTZ 003/100; Servoxy® VPTZ 100; Servoxy® VPVZ 12/100; Silwet® L-7200; Silwet® L-7210; Silwet® L-7230; Sintrex EHR; Sipophos DA-6P; Sodium methyl oleoyl taurate; Sodium oleic sulfate; Sodium tallow sulfate; Sorbitan laurate; Soyamidopropyl dimethylamino gluconate;*

**dyestuff, brilliant grn.-shade blue: tissue paper**  
 Pontamine™ Brilliant Bond Blue A Liq.

**dyestuff, brilliant grnsh.-shade yel. basic: directory grade paper**  
 Verona™ Basic Yellow 4GN Liq. 125

**dyestuff, brilliant grnsh.-shade yel. basic: lignin pulp grade paper**  
 Verona™ Basic Yellow 4GN Liq. 125

**dyestuff, brilliant grnsh.-shade yel. basic: newsprint grade paper**  
 Verona™ Basic Yellow 4GN Liq. 125

**dyestuff, brilliant grnsh.-shade yel. basic: publication grade paper**  
 Verona™ Basic Yellow 4GN Liq. 125

**dyestuff, brilliant orange basic: acid paper**  
 Verona™ Basic Orange G Liq.

**dyestuff, brilliant orange basic: sized paper**  
 Verona™ Basic Orange G Liq.

**dyestuff, brilliant red-shade orange: acid paper**  
 Pontamine™ Fast Orange WN Liq.

**dyestuff, brilliant red-shade orange: alkaline paper**  
 Pontamine™ Fast Orange WN Liq.

**dyestuff, brilliant red-shade orange: sized paper**  
 Pontamine™ Fast Orange WN Liq.

**dyestuff, brilliant red-shade orange: tissue paper**  
 Pontamine™ Fast Orange WN Liq.

**dyestuff, brilliant scarlet: acid paper**  
 Pontamine™ Fast Scarlet 4B Liq.

**dyestuff, brilliant scarlet: alkaline paper**  
 Pontamine™ Fast Scarlet 4B Liq.

**dyestuff, brilliant scarlet: sized paper**  
 Pontamine™ Fast Scarlet 4B Liq.

**dyestuff, brilliant scarlet: tissue paper**  
 Pontamine™ Fast Scarlet 4B Liq.

**dyestuff, direct blk.: acid-sized paper**  
 Pontamine™ Black LFS Liq.

**dyestuff, direct blk.: alkaline-sized paper**  
 Pontamine™ Black LFS Liq.

**dyestuff, direct blk.: tissue**  
 Pontamine™ Black LFS Liq.

**dyestuff, grn. shade yel.: paper**  
 Pontamine™ Brilliant Yellow 5GA Liq.

**dyestuff, sl. green shade/fluorescent yel.: acid paper**  
 Pontamine™ Bond Yellow 303 Liq.

**dyestuff, sl. green shade/fluorescent yel.: alkaline paper**  
 Pontamine™ Bond Yellow 303 Liq.

**dyestuff, sl. green shade/fluorescent yel.: sized paper**  
 Pontamine™ Bond Yellow 303 Liq.

**dyestuff, sl. green shade/fluorescent yel.: tissue paper**  
 Pontamine™ Bond Yellow 303 Liq.

**dyestuff, sl. grn.-shade: acid fine paper**  
 Pontamine™ Bond Blue B Liq.

**dyestuff, sl. grn.-shade: alkaline fine paper**  
 Pontamine™ Bond Blue B Liq.

**dyestuff, sl. grn.-shade: sized fine paper**  
 Pontamine™ Bond Blue B Liq.

**dyestuff, sl. reddish shade fluorescent yel.: acid paper**  
 Pontamine™ Yellow 711 Liq.

**dyestuff, sl. reddish shade fluorescent yel.: alkaline paper**  
 Pontamine™ Yellow 711 Liq.

**dyestuff, sl. reddish shade fluorescent yel.: sized paper**  
 Pontamine™ Yellow 711 Liq.

**dyestuff, sl. reddish shade fluorescent yel.: tissue paper**  
 Pontamine™ Yellow 711 Liq.

**dyestuff, violet: acid paper**  
 Pontamine™ Brilliant Violet BRW Liq.

**dyestuff, violet: alkaline paper**  
 Pontamine™ Brilliant Violet BRW Liq.

**dyestuff, violet: sized paper**  
 Pontamine™ Brilliant Violet BRW Liq.

**dyestuff, violet: tissue paper**  
 Pontamine™ Brilliant Violet BRW Liq.

**dyestuff, yel.: acid paper**  
 Pontamine™ Brilliant Paper Yellow Liq.; Pontamine™ Yellow EM Liq.; Pontamine™ Yellow G Liq.

**dyestuff, yel.: acid-sized paper**  
 Pontamine™ Fast Yellow 3GF Liq.

**dyestuff, yel.: alkaline paper**  
 Pontamine™ Yellow EM Liq.; Pontamine™ Yellow G Liq.

**dyestuff, yel.: alkaline-sized paper**  
 Pontamine™ Fast Yellow 3GF Liq.

**dyestuff, yel.-shade orange: acid paper**  
 Pontamine™ Kraft Orange A Liq.

**dyestuff, yel.-shade orange: alkaline paper**  
 Pontamine™ Kraft Orange A Liq.

**dyestuff, yel.-shade orange: sized paper**  
 Pontamine™ Kraft Orange A Liq.

**dyestuff, yel.-shade orange: tissue paper**  
 Pontamine™ Kraft Orange A Liq.

**dyestuffs**  
*Ammonium naphthalene sulfonate; Bis(aminopropyl) piperazine; Bromine; Hydroquinone monomethyl ether; Nonylphenol; Potassium thiocyanate*

**effluent treatment**  
 CS-10; Inductor®; Pittclor®; Polymin® PR 266 L; Polymin® PR 973; Polymin® PR 8578; *Sodium hypochlorite*

**elastomer, perfluorocarbon cured: food-contact**  
*Magnesium oxide*

**elec. conductive film, paper**  
 Laponite® JS

**electroconductive agent, electrofax paper**  
 Chemistat 6300 H

**emollient, waxes**  
*Propylene glycol myristate*

**emulsifier**  
 Abex® JKB; Aerosol® 22; Aerosol® MA-80; Aerosol® OT-70 PG; *Alginate; Alkenyl succinic anhydride; Aluminasol 100; Aluminasol 200; Aluminum distearate; Aluminum hydroxide; Ammonium oleic sulfate; AntaroX® L-64; Arizona DR-22; Armeen® 2C; Behenyl hydroxyethyl imidazoline; Calcium carrageenan; Calcium lignosulfonate; Calcium stearate; Calimulse PRS; Carbomer; Carbomer 910; Carboxymethylcellulose sodium; Cetareth; Cetareth-2; Cetareth-5; Cetareth-20; Ceteth-20; Cetolet-25; Cetyl betaine; Cocobetaine; Cocotrimonium chloride; C9-11 parath-5; C9-11 parath-12; C10-12 parath-3; C10-12 parath-5; C12-14 parath-5; C12-14 parath-9; C12-15 parath-3; C12-15 parath-10; C12-15 parath-12; C12-18 parath-7; C13-15 parath-3; C13-15 parath-7; C13-15 parath-9; C13-15 parath-11; C13-15 parath-20; Crill 1; Crill 2; Crill 3; Crill 43; Crillet 1 HP; Crillet 1 NF; Crillet 2; Crillet 4; Crillet 11; Crillet 31; Crillet 35; Crillet 41; Crillet 45; Cuirol® RZ 80; DeIonic OPE-12; DeMIDE RCN-276; *Dicocamine; Dicocodimonium chloride; Dimethicone copolyol; Ditrildecyl sodium sulfosuccinate; Dodoxynol-7;**

*Dodoxynol-10; Eldorado FCD-142; Elvanol® 75-15; Empilan® KA3; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; Emsorb® 2505; Epolene® E-20; Glycerol distearate; Glycerol ricinoleate; Glycol palmitate; Hoechst Wax LP; Hydrogenated castor oil; Hydrogenated ditallowamine; Hydrogenated menhaden oil; Hydrogenated tallow; Hydrogenated tallow acid; Hydrogenated tallow glycerides; Hydrogenated vegetable glycerides; Isolaureth-3; Isolaureth-6; Isolaureth-10; Isopropyl myristate; Isopropyl palmitate; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; KELACID®; KELCOLOID® DH; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; KELCOSOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Kemester® 5500; Lanolin; Laureth-3; Laureth-12; Lignosite® AC; Linseed acid; Lomar® PL; Mazu® DF 210SX; Mazu® DF 230SX; Monawet MT-70; Monawet SNO-35; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-9; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; Nonoxynol-13; Nonoxynol-14; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-25; Nonoxynol-30; Nonoxynol-100; Nonoxynol-9 phosphate; Nonyl nonoxynol-100; Nopalcol 4-O; Octoxynol; Oleth-15; Oleth-18; Oleth-23; Oleth-40; Paxisorbate 20; Paxisorbate 60; Paxisorbate 80; PEG-5 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-28 castor oil; PEG-2 cocamine; PEG-15 cocamine; PEG-4 dicocaine; PEG-6 dilaurate; PEG-8 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-8 ditallate; PEG-12 ditallate; PEG-4 laurate; PEG-5 laurate; PEG-8 laurate; PEG-12 laurate; PEG-12 oleate; PEG-20 oleate; PEG-32 oleate; PEG-8 stearate; PEG-32 stearate; PEG-8 tallate; Pentasodium triphosphate; Persoft NK-60, NK-100; Pluronic® P-2000; Polysorbate 20; POLYSTEP® A-17; POLYSTEP® AE-120; POLYSTEP® AE-307; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-7; POLYSTEP® B-11; POLYSTEP® B-20; POLYSTEP® B-22; POLYSTEP® B-24; POLYSTEP® B-330S; POLYSTEP® F-1; POLYSTEP® F-2; POLYSTEP® F-3; POLYSTEP® F-4; POLYSTEP® F-5; POLYSTEP® F-6; POLYSTEP® F-9; POLYSTEP® F-9S; POLYSTEP® F-10; POLYSTEP® F-95B; POLYSTEP® LAS-50; POLYSTEP® OP-9; POLYSTEP® OP-3070; POLYSTEP® OP-4070; Polyvinyl alcohol; Propylene glycol distearate; Propylene glycol oleate; PVM/MA copolymer; Pycal 94; Rhodacal® 3594; Rhodacal® DS/4-E25; Rhodacal® DS-10; Rhodafac® RE-610; Rhodafac® RS-610; Rhodafac® RS-710; Rhodapex® CO-436; Rhodapon® LSB; Rhodapon® SM; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; Servoxy® VPDZ 6/100; Servoxy® VPFZ 7/100; Servoxy® VPIZ 100; Servoxy® VPNZ 7/100; Servoxy® VPPZ 100; Servoxy® VPRZ 006/100; Servoxy® VPRZ 0011/100; Servoxy® VPTZ 003/100; Servoxy® VPTZ 100; Servoxy® VPVZ 12/100; Silwet® L-7200; Silwet® L-7210; Silwet® L-7230; Sintrex EHR; Sipophos DA-6P; Sodium methyl oleoyl taurate; Sodium oleic sulfate; Sodium tallow sulfate; Sorbitan laurate; Soyamidopropyl dimethylamino gluconate;*

Stanfax 996; Stanfax 997; *Stearamine*; *Stearth-2*; STEPANOL® LCP; *Styrene/MA copolymer*; *Styrene/MA copolymer, sodium salt*; *Sulfated castor oil*; SULFONIC 100; Sulfofon® 101; Sulfofon® 101 Special; Sulfofon® 101 Special RHD; Surfonic® CO-15; Surfonic® CO-20; Surfonic® CO-25; Surfonic® CO-30; Surfonic® CO-42; Surfonic® DNP-100; Surfonic® DNP-1500; Surfonic® JL-80X; Surfonic® L12-3; Surfonic® L12-6; Surfonic® L12-8; Surfonic® L24-1.3; Surfonic® L24-3; Surfonic® L24-4; Surfonic® L24-7; Surfonic® L24-9; Surfonic® L24-12; Surfonic® L46-7; Surfonic® L68-18; Surfonic® L610-3; Surfonic® L1270-2; Surfonic® L1285-2; Surfonic® N-40; Surfonic® N-60; Surfonic® N-85; Surfonic® N-95; Surfonic® N-100; Surfonic® N-102; Surfonic® N-120; Surfonic® N-300; Surfonic® N-400; Surfonic® NB-307; Surfonic® NB-407; Surfonic® OP-50; Surfonic® OP-70; Surfonic® OP-100; Surfonic® OP-120; Surfonic® OPB-407; Synperonic 107/100%; Synperonic 13/10; Synperonic A7; Synperonic OP10; *Talloweth-11 phosphate*; *Tallowtrimonium chloride*; T-Det® A126; T-Det® A243; T-Det® A247; T-Det® A249; T-Det® A467; T-Det® A2412; T-Det® DD-10; T-Det® N-6; T-Det® N-8; T-Det® N-9.5; Tergitol® NP-4; Tergitol® NP-6; Tergitol® TMN-3; Teric™ 127; Teric™ 128; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N30; Teric™ OF8; Texapon® K-12 C Powd.; Texapon® K-12 Granules; Texapon® K-12 Needles; Texapon® K-12 PA 15; Texapon® K-1296 C Needles; Texapon® K-1296 Powd.; Texapon® LS Highly Conc. Needles; Texapon® OT Highly Conc. Needles; Texapon® T 42; Texapon® VHC Needles; Texapon® ZHC Needles; Texapon® ZHC Powder; *Trideceth-100*; Triton® X-45; Triton® X-100; Triton® X-102; Triton® X-114; Triton® X-120; Triton® X-305-70%; Triton® X-405-70%; Troysperse W; Trycol® 6965; Trycol® 6970; Trycol® 6974; Trycol® 6975; Trycol® 6984; *Undeceth-3*; Zonyl® A

**emulsifier, abrasive slurries**  
AF 10 IND

**emulsifier, ABS**  
Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Arizona DRS-44; *Hydrogenated tallow acid*; *Sodium rosinate*

**emulsifier, ABS polymerization**  
*Potassium rosinate*

**emulsifier, acid media**  
*Diethylaminoethanol*

**emulsifier, acidic systems**  
Nopcogen 22-O

**emulsifier, acrylate copolymers**  
Disponil® AES 21 IS; Disponil® AES 60 IS

**emulsifier, acrylate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*; *Nonoxynol-30*

**emulsifier, acrylate homopolymers**  
Disponil® AES 21 IS; Disponil® AES 60 IS

**emulsifier, acrylate polymerization**  
Abex® 18S; Abex® 22S; Igepal® CA-880

**emulsifier, acrylates**  
Avirol® SL 2010

**emulsifier, aliphatics**  
*Isostearamidopropyl ethyldimonium ethosulfate*

**emulsifier, alkaline cleaners**  
Aerosol® 18

**emulsifier, alkaline/acid soak cleaners**  
Wayfos® D-10N

**emulsifier, amides**  
*Cetareth*

**emulsifier, aq. emulsions containing oil-based ingreds.**  
*Sodium petroleum sulfonate*

**emulsifier, aq. systems**  
AF 10 IND; C12-14 *pareth-17*; C12-14 *pareth-22*; C16-18 *pareth-16*; C16-18 *pareth-22*; C16-18

*pareth-29*; Leukonol LBA-2; *PEG hydrogenated castor oil*; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22

**emulsifier, ASA sizes: food pkg. paper**  
Liquisize™ Emulsifier

**emulsifier, ASA sizes: papermaking**  
Liquisize™ Emulsifier

**emulsifier, barrier applics.**  
*Gum ghatti*

**emulsifier, bleaching**  
Atlas EMJ-C; Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K; Rhodafac® BG-510

**emulsifier, butadiene emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*

**emulsifier, butadiene polymerization**  
Abex® 18S

**emulsifier, cationic**  
*Bis-hexamethylenetriamine*

**emulsifier, chlorinated hydrocarbons**  
*Isostearamidopropyl ethyldimonium ethosulfate*

**emulsifier, chlorinated solvents**  
Alcodet® SK

**emulsifier, cleaners**  
Actrasol 6092; Actrasol OY-75; Actrasol SBO; Ancowet A-70; Ancowet S-60; Ancowet S-70PG; *Potassium oleic sulfate*; *Potassium ricinoleic sulfate*; *Sodium butyl oleate sulfate*; *Sodium butyl oleate sulfonate*; *Sodium glyceryl trioleate sulfate*; *Sodium soybean oil sulfate*; *Sulfated rapeseed oil*; *Sulfated tall oil*; *potassium salt*; *Sulfated tall oil, sodium salt*

**emulsifier, cleaning paper mill felts**  
Aerosol® 18

**emulsifier, coatings**  
*Ammonium laurth sulfate*; *Ammonium laurth-12 sulfate*; *Ammonium laurth-30 sulfate*; *Ammonium lauryl sulfate*; *Diethanolamine*; *Dimethylethanolamine*; *Glycerol ricinoleate*; Granular Gum Ghatti #1; *Gum ghatti*; *Nonoxynol-8*; *Nonoxynol-34*; Octowet 60-1; Octowet 70; Octowet 70BC; Octowet 75; *PEG-8 oleate*; Pegospers® 600 DO; Pegospers® 600 DOT; *PEG-12 tallate*; POLYSTEP® B-5; POLYSTEP® C-OP3S; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Silwet® L-722; Silwet® L-7001; Silwet® L-7500; *Sodium lauryl sulfate*; Staform P; Triton® X-15; Triton® X-35; Triton® X-165-70%; *Undeceth-8*

**emulsifier, copolymer coatings: polyethylene phthalate film, food-grade**  
*Sodium 2-sulfoethyl methacrylate*

**emulsifier, dispersions**  
Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389

**emulsifier, dust control**  
Volpo C2; Volpo C20; Volpo CS2; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo S2; Volpo T5; Volpo T10; Volpo T15

**emulsifier, dye carriers**  
*PEG castor oil*

**emulsifier, dyeing**  
Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K; Product BCO; *Sodium dibutyl naphthalene sulfonate*

**emulsifier, dyes**  
*Ammonium lauryl sulfate*; *Cetareth-15*; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Maraspere 52 CP; *PEG-2 tallowamine*; Polysorbate 60; Rhodacal® BX-78; *Sodium lignosulfonate*

**emulsifier, dyestuffs**  
Lignosite® 823

**emulsifier, effluents**

AF 10 IND

**emulsifier, emulsification/dispersion PVAC**  
Tergitol® NP-4; Tergitol® NP-6

**emulsifier, emulsion cleaners**  
*Tallamide DEA*

**emulsifier, emulsion polymerization**  
Aerosol® OT-100%; Aerosol® TR-70; *Ammonium laurth sulfate*; *Ammonium laurth-12 sulfate*; *Ammonium lauryl sulfate*; *Ammonium nonoxynol-9 sulfate*; *Ammonium nonoxynol-30 sulfate*; Ancowet A-70; Ancowet S-60; Ancowet S-70PG; Avirol® SL 2020 G; *Benzalkonium chloride*; Calimulse EM-30; Calimulse SLS; Cosmopon BN; DeWET SDDT-70; *Dihexyl sodium sulfosuccinate*; *Diocetyl sodium sulfosuccinate*; Disponil® O 250; Disponil® SUS IC 865; Disponil® SUS IC 875; *Ditridecyl sodium sulfosuccinate*; *Dodecylbenzenesulfonic acid*; Elvanol® 85-30; Elvanol® 85-82; Emulsifier K 30 40%; Emulsifier K 30 68%; Emulsifier K 30 76%; Emulsifier K 30 95%; *EO/PO block polymer or copolymer*; Geropon® SS-O-70PG; Geropon® WT-27; Igepal® CA-890; Igepal® CO-630; Igepal® CO-710; Igepal® DM-730; Igepal® NP-9; Lomar® LS-1; Lomar® PW; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Monawet MB-45; Monawet MO-70; *Nonoxynol*; *Nonoxynol-12*; *Nonoxynol-15*; *Nonoxynol-34*; *Nonoxynol-120*; *Nonyl nonoxynol-7*; *Nonyl nonoxynol-24*; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; NP4; NP6; NP8; NP9; NP10; NP12; *Octoxynol-25*; *Oleth-7*; *PEG-8 cocoate*; *PEG-12 ditallowate*; *PEG hydrogenated castor oil*; *PEG-20 hydrogenated castor oil*; *PEG-60 hydrogenated tallowate*; *PEG-12 ricinoleate*; *PEG-40 sorbitan tetraoleate*; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; *Polysorbate 61*; POLYSTEP® A-15; POLYSTEP® A-16-22; POLYSTEP® B-11; POLYSTEP® B-20; POLYSTEP® B-22; POLYSTEP® B-24; POLYSTEP® C-OP3S; POLYSTEP® F-1; POLYSTEP® F-4; POLYSTEP® F-6; POLYSTEP® F-9; POLYSTEP® F-10; POLYSTEP® F-95B; Ralufon® N3.5; Ralufon® N6; Ralufon® N9; Ralufon® N10; Ralufon® N20-90; Ralufon® NAPE 14-90; Resin 731D; Rewopol® B 2003; Rhodacal® 3594; Rhodacal® DS/4-E25; Rhodacal® DS-10; Rhodafac® RE-610; Rhodafac® RS-610; Rhodapex® CO-436; Rhodapex® UB/E-30; Rhodapex® UB/E-N; Rhodasurf® A-60; Rhodasurf® CET/20; Rhodasurf® CET/55; Rhodasurf® TR15/40; Sabopon SAM; *Sodium dodecylbenzenesulfonate*; *Sodium lauryl sulfate*; *Sodium lignosulfonate*; *Sodium methylphthalenesulfonate*; *Sodium oleyl sulfate*; *Sodium oleyl sulfosuccinamate*; *Sodium rosinate*; Sulfofon® 101 Special; Surfonic® NB-557; Surfonic® OPB-167; *TEA-lauryl sulfate*; Teric™ N8; Texapon® OT Highly Conc. Needles; Texapon® VHC Needles; *Trideceth-30*; *Trideceth-40*; *Trideceth-50*; Triton® X-15; Triton® X-35; Triton® X-165-70%; Trycol® 6984; *Undeceth-8*; Wayfos® D-10N

**emulsifier, emulsion polymerization of PVC**  
Geropon® BIS/SODICO-2

**emulsifier, emulsion polymerization: acrylates**  
*Sodium laurth sulfate*

**emulsifier, emulsion polymerization: butadiene**  
*Sodium laurth sulfate*

**emulsifier, emulsion polymerization: coatings**  
*Nonoxynol-10; Nonoxynol-14; POLYSTEP® A-7; POLYSTEP® A-11*

**emulsifier, emulsion polymerization: methacrylates**  
*Sodium laureth sulfate*

**emulsifier, emulsion polymerization: paper**  
 Abex® EP-120; Abex® EP-277

**emulsifier, emulsion polymerization: paper coatings**  
 Abex® 23S; Abex® 26S; Abex® 33S; Abex® AAE-301; Abex® EP-100

**emulsifier, emulsion polymerization: S/B**  
*Nonoxynol-10; Nonoxynol-14; POLYSTEP® A-7; POLYSTEP® B-3*

**emulsifier, emulsion polymerization: SBR**  
 Aerosol® 18

**emulsifier, emulsion polymerization: styrene**  
*Sodium laureth sulfate*

**emulsifier, emulsion polymerization: styrene-acrylics**  
*Nonoxynol-10; Nonoxynol-14*

**emulsifier, emulsion polymerization: vinyl acetate**  
*Sodium laureth sulfate*

**emulsifier, emulsion polymerization: vinyl acrylics**  
*Nonoxynol-10; Nonoxynol-14*

**emulsifier, emulsion polymers**  
 Antarox® PGP 18-2LF; Leukonol LBA-2; POLYSTEP® B-5

**emulsifier, emulsions**  
 Elvano® 71-30; *Lauryl hydroxyethyl imidazoline*; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389

**emulsifier, E-PVC**  
 EW-POL 7902 NaC 12

**emulsifier, ethylene vinyl acetate copolymers**  
 Abex® 2515; Abex® 2525; Abex® 2535; Abex® 2545

**emulsifier, fiber**  
 Alkamuls® S-8; *Isostearamidopropyl ethyldimonium ethosulfate*; *Isostearyl ethylimidonium ethosulfate*; Schercoquat IAS; Schercoquat IIS; Silwet® L-722

**emulsifier, fiber lubricants**  
 Chemax CO-16; Tergitol® 15-S-12; Triton® XL-80N

**emulsifier, fiber suspensions**  
 Carbopol® 934

**emulsifier, films**  
 Spinomar NaSS

**emulsifier, flocculation**  
*Stearamine acetate*

**emulsifier, flotation frothing agent: minerals**  
*Stearamine acetate*

**emulsifier, food pkg.**  
*Dihexyl sodium sulfosuccinate; Diisobutyl sodium sulfosuccinate; Dioctyl sodium sulfosuccinate; Ditridecyl sodium sulfosuccinate; Dodecylbenzenesulfonic acid; Polysorbate 20; Polysorbate 40; Polysorbate 60; Polysorbate 65; Polysorbate 80; Polysorbate 85; Potassium dodecylbenzene sulfonate; Sorbitan laurate; Sorbitan oleate; Sorbitan palmitate; Sorbitan stearate; Sorbitan trioleate; Sorbitan tristearate*

**emulsifier, food-contact**  
 DeMULS PSML-20; DeMULS PSMO-80; DeMULS PSMS-60

**emulsifier, food-contact articles**  
 Octoxynol-33

**emulsifier, germicides**  
 Aerosol® OT-75%

**emulsifier, high active: emulsion polymerization**  
 POLYSTEP® B-23

**emulsifier, industrial**

*Sorbitan stearate; Sorbitan trioleate*

**emulsifier, industrial cleaners**  
*Isodeceth-6; Sodium dibutyl naphthalene sulfonate; Trideceth-11*

**emulsifier, industrial emulsions**  
*PEG-8 distearate*

**emulsifier, industrial lubricants**  
*PEG-80 castor oil*

**emulsifier, lipophilic**  
*Synthetic beeswax*

**emulsifier, low-foaming**  
 Nopco® Color-Sperse® 188A

**emulsifier, low-foaming: acrylate homo/copolymers**  
 Disponil® AES 72 IS

**emulsifier, low-foaming: papermaking**  
*PEG-2 oleate*

**emulsifier, low-foaming: PVdC**  
 Disponil® AES 72 IS

**emulsifier, low-foaming: S/B latexes**  
 Disponil® AES 72 IS

**emulsifier, low-foaming: styrene-acrylate**  
 Disponil® AES 72 IS

**emulsifier, low-foaming: vinyl acetate homo/copolymers**  
 Disponil® AES 72 IS

**emulsifier, low-foaming: vinyl chloride homo/copolymer latexes**  
 Disponil® AES 72 IS

**emulsifier, low-foaming: vinyl propionate copolymers**  
 Disponil® AES 72 IS

**emulsifier, methacrylate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*

**emulsifier, methyl methacrylate-butadiene-styrene**  
*Hydrogenated tallow acid*

**emulsifier, nitrile polymerization**  
*Lauric acid*

**emulsifier, nitrocellulose coatings: paper/paperboard, aq./fatty food-contact**  
*PEG-42 castor oil*

**emulsifier, NR latex**  
 Octwet 75E

**emulsifier, o/w**  
*C12-14 pareth-4; Nonoxynol-55; PEG-80 castor oil; PEG-300 oleate; Stearoyl lactic acid; TEGOPREN® 5863*

**emulsifier, o/w emulsions**  
 DeWET SDDT-70; Disponil® NP 4; Disponil® NP 6; Disponil® NP 10; Disponil® NP 11; Disponil® NP 12; Disponil® NP 20; Disponil® NP 208; Disponil® NP 307; Disponil® O 250; Granular Gum Ghatti #1; Merpol® SE; *PEG-8 di/triricinoleate*; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Staform P; Teric™ OF4; Teric™ OF6

**emulsifier, o/w: coatings**  
*C9-11 pareth-9; C12-15 pareth-13; C12-18 pareth-11; C14-15 pareth-8; C16-18 pareth-8; Imbentim-N/30; Imbentim-N/35; Imbentim-N/40 A; Imbentim-N/44; Imbentim-N/52; Imbentim-N/55; Imbentim-N/60; Imbentim-N/63; Imbentim-N/82; Imbentim-N/85; Imbentim-N/91; Imbentim-N/98; Imbentim-OA/030; Imbentim-OA/050; Imbentim-OA/080; Undeceth-10*

**emulsifier, o/w: dust control**  
 Volpo S10; Volpo S20

**emulsifier, o/w: dye assistant**  
 Surfonic® NB-307; Surfonic® NB-407

**emulsifier, o/w: emulsion polymerization**  
*C9-11 pareth-9; C12-15 pareth-13; C12-18 pareth-11; C14-15 pareth-8; C16-18 pareth-8; Imbentim-AG/124/050; Imbentim-AG/124/075 90%; Imbentim-AG/124PG/070; Imbentim-AG/124S/045; Imbentim-AG/124S/060; Imbentim-AG/124S/065; Imbentim-AG/124S/070; Imbentim-AG/124S/080 90%; Imbentim-AG/124S/110 90%; Imbentim-AG/128/070 90%; Imbentim-AG/128/110*

*90%; Imbentim-AG/146/070; Imbentim-AG/200/120; Imbentim-C/91/35; Imbentim-C/91/040; Imbentim-C/91/060; Imbentim-C/91/080 I; Imbentim-C/91/85; Imbentim-C/123/065; Imbentim-C/125/050; Imbentim-C/125/55 90%; Imbentim-C/125/070; Imbentim-C/125/85; Imbentim-C/125/090; Imbentim-C/125/130 80%; Imbentim-C/135/070; Imbentim-C/135/090; Imbentim-C/135/110 85%; Imbentim-C/145/070; Imbentim-C/145/110; Imbentim-L/145/080; Imbentim-N/30; Imbentim-N/35; Imbentim-N/40 A; Imbentim-N/44; Imbentim-N/52; Imbentim-N/55; Imbentim-N/60; Imbentim-N/63; Imbentim-N/82; Imbentim-N/85; Imbentim-N/91; Imbentim-N/98; Imbentim-POA/080 90%; Imbentim-POA/180; Imbentim-T/050 I; Imbentim-T/060; Imbentim-T/65 100%; Imbentim-T/070; Imbentim-T/080; Imbentim-T/090; Imbentim-T/100 90%; Imbentim-T/120; Imbentim-U/050; Imbentim-U/060; Imbentim-U/070; Imbentim-U/080; Imbentim-U/100; Nonyl nonoxynol-70; Polysorbate 20; Polysorbate 81; Surfonic® DNP-100; Surfonic® DNP-700; Surfonic® DNP-1000; Surfonic® DNP-1500; Surfonic® N-200; Surfonic® N-300; Surfonic® N-400; Surfonic® N-1000; Surfonic® NB-307; Surfonic® NB-407; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N30; Undeceth-10*

**emulsifier, o/w: lubricants**  
*C12-18 pareth-11; C14-15 pareth-8; C16-18 pareth-8*

**emulsifier, o/w: paper**  
*C12-18 pareth-11; C16-18 pareth-8; Isotrideceth-9*

**emulsifier, o/w: paper defoamer formulations**  
 Pegosperse® 100 L

**emulsifier, o/w: papermaking**  
 Imbentim-AG/124/050; Imbentim-AG/124/075 90%; Imbentim-AG/124PG/070; Imbentim-AG/124S/045; Imbentim-AG/124S/060; Imbentim-AG/124S/065; Imbentim-AG/124S/070; Imbentim-AG/124S/080 90%; Imbentim-AG/124S/110 90%; Imbentim-AG/128/070 90%; Imbentim-AG/128/110 90%; Imbentim-AG/146/070; Imbentim-AG/200/120; Imbentim-C/91/35; Imbentim-C/91/040; Imbentim-C/91/060; Imbentim-C/91/080 I; Imbentim-C/91/85; Imbentim-C/123/065; Imbentim-C/125/050; Imbentim-C/125/55 90%; Imbentim-C/125/070; Imbentim-C/125/85; Imbentim-C/125/090; Imbentim-C/125/130 80%; Imbentim-C/135/070; Imbentim-C/135/090; Imbentim-C/145/070; Imbentim-C/145/110; Imbentim-L/145/080; Imbentim-N/30; Imbentim-N/35; Imbentim-N/40 A; Imbentim-N/44; Imbentim-N/52; Imbentim-N/55; Imbentim-N/60; Imbentim-N/63; Imbentim-N/82; Imbentim-N/85; Imbentim-N/91; Imbentim-N/98; Imbentim-OA/030; Imbentim-OA/050; Imbentim-OA/080; Imbentim-POA/080 90%; Imbentim-POA/180; Imbentim-T/050 I; Imbentim-T/060; Imbentim-T/65 100%; Imbentim-T/070; Imbentim-T/080; Imbentim-T/090; Imbentim-T/100 90%; Imbentim-T/120; Imbentim-U/050; Imbentim-U/060; Imbentim-U/070; Imbentim-U/080; Imbentim-U/100; Volpo S10; Volpo S20

**emulsifier, o/w: pigment dispersions**  
*Isotrideceth-9*

**emulsifier, o/w: pigments**  
 Lignosite® 260

**emulsifier, o/w: polymerization**  
*PEG-40 sorbitan hexaoleate; Polysorbate 40; Polysorbate 65*

**emulsifier, o/w: polymers**  
 Surfonic® NB-307; Surfonic® NB-407; Surfonic® OPB-407

**emulsifier, o/w: pulp/paper**  
*Nonyl nonoxynol-70; Polysorbate 65; Surfonic® DA-4; Surfonic® DA-6; Surfonic® L108/85-5; Teric™ N6*

**emulsifier, o/w: pulp/paper processing**



Surfonic® DNP-700; Surfonic® DNP-1000; Surfonic® DNP-1500

**emulsifier, o/w: solvent emulsion cleaners**  
*Isotrideceth-9*

**emulsifier, o/w: solventless coatings**  
Pegospense® 100 L

**emulsifier, o/w: wax emulsification**  
Surfonic® DNP-100

**emulsifier, o/w: wax emulsions**  
*C9-11 parath-9; C12-15 parath-13; C12-18 parath-11; C14-15 parath-8; C16-18 parath-8;* Imbentin-AG/124/050; Imbentin-AG/124/075 90%; Imbentin-AG/124PG/070; Imbentin-AG/124S/045; Imbentin-AG/124S/060; Imbentin-AG/124S/065; Imbentin-AG/124S/070; Imbentin-AG/124S/080 90%; Imbentin-AG/124S/110 90%; Imbentin-AG/128/070 90%; Imbentin-AG/128/110 90%; Imbentin-AG/146/070; Imbentin-AG/200/120; Imbentin-C/91/35; Imbentin-C/91/040; Imbentin-C/91/060; Imbentin-C/91/080 I; Imbentin-C/91/85; Imbentin-C/123/065; Imbentin-C/125/050; Imbentin-C/125/55 90%; Imbentin-C/125/070; Imbentin-C/125/85; Imbentin-C/125/090; Imbentin-C/125/130 80%; Imbentin-C/135/070; Imbentin-C/135/090; Imbentin-C/135/110 85%; Imbentin-C/145/070; Imbentin-C/145/110; Imbentin-L/145/080; Imbentin-N/30; Imbentin-N/35; Imbentin-N/40 A; Imbentin-N/44; Imbentin-N/52; Imbentin-N/55; Imbentin-N/060; Imbentin-N/63; Imbentin-N/82; Imbentin-N/85; Imbentin-N/91; Imbentin-N/98; Imbentin-POA/080 90%; Imbentin-POA/180; Imbentin-T/050 I; Imbentin-T/060; Imbentin-T/65 100%; Imbentin-T/070; Imbentin-T/080; Imbentin-T/090; Imbentin-T/100 90%; Imbentin-T/120; Imbentin-U/050; Imbentin-U/060; Imbentin-U/070; Imbentin-U/080; Imbentin-U/100; *Undeceth-10*

**emulsifier, o/w: waxes**  
Surfonic® OPB-407

**emulsifier, oil**  
*PEG-10 cocamine; Sodium tetraborate pentahydrate*

**emulsifier, oil/water systems**  
*Sodium oleate*

**emulsifier, oil: cooling towers**  
Triton® X-114

**emulsifier, oil: emulsion polymerization**  
Pluronic® L81; Pluronic® L121

**emulsifier, oil: general purpose**  
Pluronic® 25R2

**emulsifier, oil: paper**  
Tetric® 150R1

**emulsifier, oil: papermaking**  
*Octoxynol-8*

**emulsifier, oil: pulp/paper**  
Pluronic® L61; Pluronic® L62; Pluronic® L62D; Pluronic® L62LF; Pluronic® L81; Pluronic® L92; Pluronic® L101; Pluronic® L121

**emulsifier, oil: water treatment**  
Pluronic® L61; Pluronic® L62; Pluronic® L62D; Pluronic® L62LF; Pluronic® L81; Pluronic® L92; Pluronic® L101; Pluronic® L121

**emulsifier, oil-based systems**  
*C16-18 parath-16; C16-18 parath-22; C16-18 parath-29; Isopropylamine dodecylbenzenesulfonate*

**emulsifier, olein**  
*Trideceth*

**emulsifier, paper**  
Ablunol NP9; Alcodet® SK; Aldo® MS LG FG; Alkamuls® EL-620; Alkamuls® EL-719; Alkaquat® DMB-451-50, DMB-451-80; Alkaterge®-E; *Ammonium nonoxynol-30 sulfate*; Aromox® C/12; Aromox® C/12-W; Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Atlas EMJ-C; Burcumul DFE-45; 1,2,4-*Butanetriol*; Carsonson® TD-10; Chema BP 261; Chema BP-262; Chema BP-2101;

Chemax DNP-18; Chemax DNP-150/50; Chemax HCO-5; Chemax HCO-16; Chemax HCO-25; Chemax HCO-200/50; Chemax NP-1.5; Chemax NP-4; Chemax NP-6; Chemax NP-9; Chemax NP-10; Chemax NP-15; Chemax NP-20; Chemax NP-30; Chemax NP-30/70; Chemax OP-10; Chemax OP-30/70; DeSonic™ 4N; DeSonic™ 9N; DeSonic™ 10N; DeSonic™ 11N; DeSonic™ 13N; *Dodoxynol-6*; Geropon® WT-27; *Guanidine stearate*; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Igepal® CA-620; Igepal® CO-630; Igepal® CO-630/EP; Igepal® CO-660; Igepal® CO-710; Igepal® CO-720; Igepal® DM-710; Igepal® DM-730; *Isodeceth-4; Isodeceth-6; Isodecyl oleate*; Kemester® 6000SE; *Laureth-8; Laureth-9; Laurtrimonium chloride*; Mackester™ EGDS; Mackester™ EGMS; Mackester™ IP; Mackester™ SP; MAKON® 4; MAKON® 6; MAKON® 8; MAKON® 10; MAKON® 12; MAKON® 14; MAKON® 30; MAKON® NP-5570; *Meroxapol 108; Meroxapol 171; Meroxapol 172; Meroxapol 174; Meroxapol 178; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 255; Meroxapol 258; Meroxapol 311; Meroxapol 312; Meroxapol 314; Mersol® HCS; Mersol® SE; Mulsifan RT 110; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Nonoxynol-15; Nonoxynol-20; Nonyl nonoxynol-15; Nonyl nonoxynol-18; Nonyl nonoxynol-24; Nonyl nonoxynol-150; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; Octowet 40; Octowet 55; Octowet 60; Octowet 60-I; Octowet 65; Octowet 70; Octowet 70BC; Octowet 70PG; Octowet 75; Octowet 75E; *Oleth-2*; Oxetal 500/85; Oxetal D 104; Oxetal ID 104; Oxetal O 108; Oxetal O 112; Oxetal TG 111; Oxetal TG 118; *PEG-20 castor oil; PEG-26 castor oil; PEG-36 castor oil; PEG-180 castor oil; PEG-8 cocoate; PEG-3 dioctoate; PEG-12 ditallowate; PEG hydrogenated castor oil; PEG-60 hydrogenated tallowate*; Pegospense® 400 DOT; Pegospense® 600 DO; Pegospense® 600 DOT; *PEG-12 ricinoleate; PEG-10 stearamine; PEG-12 tallate*; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; Pluronic® L10; Propetal 99; Propetal 241; *PVM/MA copolymer*; Ralufon® N3.5; Ralufon® N6; Ralufon® N9; Ralufon® N10; Ralufon® N20-90; Ralufon® NAPE 14-90; Rhodacal® BX-78; Rhodasurf® TDA-8.5; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Servirox® OEG 55; Servirox® OEG 90; Silwet® L-722; Silwet® L-7001; Silwet® L-7500; *Sodium dibutyl naphthalene sulfonate*; Synperonic 10/6-100%; T-Det® C-20; T-Det® C-40; T-Det® EPO-62L; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Tetric™ 13A9; Tetric™ 18M10; *Trideceth-10; Trideceth-18*; Triton® X-45; Trylox® 5906; Ufaryl DL 85; Ufaryl DL 90 C; *Undeceth-8*; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP*

**emulsifier, paper auxiliaries**  
Zusolat 1005/85

**emulsifier, paper coating waxes**  
Wax Emulsifier 4106

**emulsifier, paper coatings**  
Abex® 3594; Ablunol NP30; Ablunol NP30 70%; Ablunol NP40; Ablunol NP40 70%; Ablunol NP50; Ablunol NP50 70%; Alkamuls® PSMS-20; DeMULS PSMS-60; Monawet MB-45; Serdas® GBO

**emulsifier, paper deinking**  
Igepal® CO-610; Synperonic 91/6; Synperonic

91/8; Synperonic 91/8T; Tergitol® TMN-10; Triton® XL-80N

**emulsifier, paper deinking**  
Adekamine 4DAC-80; Adekamine 4DAC-85; Adekamine 4MAC-30; Adekamine ADG-30; Adekamine E Series; Adekamine LDM; Adekamine MD-30; Adekamine MT-50; Adekamine PMS-100

**emulsifier, paper deresination**  
Rhodafac® BG-510

**emulsifier, paper finishes**  
Koster Keunen Beeswax; Rhodasurf® L-4

**emulsifier, paper reclamation**  
Synperonic A9; Synperonic A11

**emulsifier, paper sizing**  
Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Ticaxan® Regular

**emulsifier, paper softening**  
Arquad® 2HT-75; Arquad® 2HT-75PG

**emulsifier, paper stock deinking**  
Stixso® RR

**emulsifier, paper suspensions**  
Carbopol® 934

**emulsifier, paper toweling**  
Hyonic® PE-100

**emulsifier, paper towels**  
Densol P-82; Igepal® RC-520

**emulsifier, paper emulsions**  
*PEG-20 hydrogenated castor oil*

**emulsifier, paper: food-contact**  
*Sodium octyl sulfate*

**emulsifier, paperboard coatings**  
Ethoduomeen® T/20; *PEG-10 tallow aminopropylamine*

**emulsifier, papermaking**  
Actrasol 6092; Actrasol OY-75; Actrasol PSR; Actrasol SBO; Actrasol SP; Actrasol SP 175K; Actrasol SR 75; Actrasol SRK 75; Alkasurf® CO-630; Alkasurf® CO-710; Alkasurf® CO-720; AntaroX® 17-R-2; AntaroX® 25-R-2; AntaroX® 31-R-1; Eldorado DIC-100; Geropon® SS-O-70PG; *Glyceryl dilaurate; Glycol dilaurate; Glycol dilaurate SE; Glycol dioleate; Glycol dioleate SE; Glycol distearate SE; Glycol laurate; Glycol laurate SE; Glycol oleate; Glycol oleate SE; Glycol ricinoleate; Glycol ricinoleate SE; Hyonic® PE-90; Meroxapol 105; PEG-2 oleate SE; PEG-20 stearamine; PEG-30 stearamine; PEG-2 stearate; PEG-2 stearate SE; Potassium oleic sulfate; Potassium ricinoleic sulfate; Sipol LAL-7; Sodium butyl oleate sulfate; Sodium butyl oleate sulfonate; Sodium glyceryl trioleate sulfate; Sodium soybean oil sulfate; Sulfated rapeseed oil; Sulfated tall oil, potassium salt; Sulfated tall oil, sodium salt*; Surfonic® OP-50; Surfonic® OP-70; Tetric™ 12M2; Tetric™ 12M5; Tetric™ 12M15; Tetric™ 18M2; Tetric™ 18M5; Tetric™ 18M20; Tetric™ 18M30; Triton® X-15; Triton® X-35; Triton® X-165-70%; Volpo C2; Volpo C20; Volpo CS2; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo S2; Volpo T5; Volpo T10; Volpo T15; Wayfos® D-10N

**emulsifier, paraffin wax emulsions**  
*Montan acid wax*

**emulsifier, paraffins**  
DeMULS PSMS-60; Mulsifan RT 110; *TEA-stearate*

**emulsifier, paraffins: paper**  
Lamacit® AP 6; Mulsifan RT 258; Serdax® NKL 6

**emulsifier, PC emulsions**  
Disponil® MGS 65 IS

**emulsifier, PE emulsions**  
*Deceth-4*

**emulsifier, PE phthalate polymer prod.: food pkg.**  
*Sodium dodecylbenzenesulfonate*

**emulsifier, pigment dispersions**

DeWET SDTD-70; Texapon® VHC Needles

**emulsifier, pigment flushing**

Actrasol 6092; Actrasol OY-75; Actrasol PSR; Actrasol SBO; Actrasol SP; Actrasol SP 175K; Actrasol SR 75; Actrasol SRK 75; Potassium oleic sulfate; Potassium ricinoleic sulfate; Sodium butyl oleate sulfate; Sodium butyl oleate sulfonate; Sodium glyceryl trioleate sulfate; Sodium soybean oil sulfate; Stearic acid acetate; Sulfated rapeseed oil; Sulfated tall oil, potassium salt; Sulfated tall oil, sodium salt

**emulsifier, pigment grinding**

Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP

**emulsifier, pigment/resin wet milling**

PEG-5 tallate; Teric™ T5; Teric™ T10

**emulsifier, pigments**

Lauryl hydroxyethyl imidazoline; Lignosite® 458; Lignosite® 823; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Marasperse 52 CP; Rhodacal® BX-78; Sodium lignosulfonate

**emulsifier, pitch: paper**

Stearamine acetate

**emulsifier, polyester resins**

DePEG 40-CO

**emulsifier, polymer dispersions**

Sulfojon® 101 Special; Texapon® VHC Needles

**emulsifier, polymeric coatings**

Rhodapon® LSB

**emulsifier, polymerization**

Adekahope DES-3025; Adekahope DS-25; Adekahope LS-35; Adekahope LS-90; Adekahope LST; Adekahope NES-60N; Adekahope YES-25; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol P-84; Adekanol P-85; Adekanol P-103; Ammonium laureth-30 sulfate; DelONIC OPE-30; DelONIC OPE-40; Hydrogenated tallow acid; Nonoxynol-8; Octowet 70BC; Oleth-25; Palmitic acid; Polysorbate 60; Polysorbate 85; Sodium octoxynol-2 ethane sulfonate; Sorbitan laurate; Sorbitan oleate; Sorbitan palmitate; Sorbitan stearate; Sorbitan trioleate; Sorbitan tristearate; Tall oil acid; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP

**emulsifier, polymerization: coatings**

POLYSTEP® F-3

**emulsifier, polymerization: paper coatings**

Abex® 12S

**emulsifier, polymerization: SBR**

Rosin

**emulsifier, polymerization: styrene**

POLYSTEP® A-16

**emulsifier, polymers**

Glyceryl stearate SE; Volpo T10; Volpo T15

**emulsifier, primary: acrylate polymerization**

Chemax OP-10

**emulsifier, primary: emulsion polymerization**

Dymisol® 2031; Lomar® LS Liq.

**emulsifier, primary: PVC**

Dymisol® 2031

**emulsifier, primary: S/B emulsion copolymers**

Abex® EP-110

**emulsifier, primary: SBR**

Dymisol® 2031

**emulsifier, primary: vinyl acetate**

Abex® EP-110; Chemax OP-10

**emulsifier, primary: vinyl acrylate polymerization**

Igepal® CA-887; Igepal® CA-897

**emulsifier, pulp processing**

C12-16 *pareth-1*; C12-16 *pareth-2*; C12-16 *pareth-3*; C12-16 *pareth-5*; C12-16 *pareth-6*; C12-16 *pareth-7*; C12-16 *pareth-8*; C12-16

*pareth-11***emulsifier, pulp slurries**

AF 10 IND

**emulsifier, pulp/paper**

Adekahope DES-3025; Adekahope DS-25; Adekahope HAN-40; Adekahope LS-35; Adekahope LS-90; Adekahope LST; Adekahope MS-30C; Adekahope MS-90P; Adekahope NES-60N; Adekahope SAN-40PD; Adekahope TR-45; Adekahope YES-25; Adekanol 25R-1; Adekanol 25R-2; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; Alcodet® 218; Alcodet® 260; Alkasurf® CA-620; Ancowet A-70; Ancowet S-60; Ancowet S-70PG; C12-14 *pareth-17*; C12-14 *pareth-22*; C16-18 *pareth-16*; C16-18 *pareth-22*; C16-18 *pareth-29*; Igepal® CA-520; Igepal® CO-610; Isostearamidopropyl ethyldimonium ethosulfate; Isostearyl ethyldimonium ethosulfate; Linoleamido dimethylamino lactate; Lumisorb™ PSML-80; Lumisorb™ PSMO-5; Lumisorb™ PSMO-20; Lumisorb™ PSMP-20; Lumisorb™ PSMS-20; Lumisorb™ PSTO-20; Lumisorb™ PSTS-20; Lumisorb™ SML; Lumisorb™ SMO; Lumisorb™ SMP; Lumisorb™ STO; Lumisorb™ STS; Lumulse™ DGL; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Necon SOG; Necon SOG; Necon SOLC; Nonionic 1035-L; Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PLS; Paxnol SLS Liq.; Paxnol SLS Powder.; Paxnol SLS Pure; Paxnol TLS; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® L64; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Polypax IC; Polypax SMS; Polyquat 2 C; Polyquat 188; Polysorbate 60; Polysorbate 85; Propylene glycol laurate; Schercoquat IAS; Schercoquat IIS; Sorbitan oleate; Sorbitan palmitate; Sorbitan tristearate; Soyamidopropyl dimethylamino glycolate; Steareth-10; Steareth-20; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Teric™ 12A3; Teric™ 12A9; Teric™ 12A23; Teric™ 16A16; Teric™ 16A22; Teric™ 16A29; Teric™ 17A2; Teric™ 17A3; Teric™ 17A6; Teric™ 17A8; Teric™ 17A10; Teric™ 17A13; Teric™ 17A25; Teric™ BL8; Teric™ G9A2; Teric™ G9A10; Teric™ G12A6; Teric™ G12A12; Teric™ N8; Trideceth-3; Trideceth-6; Trideceth-9; Trideceth-12

**emulsifier, pulp/paper deinking**  
Tergitol® 15-S-3; Tergitol® 15-S-5

**emulsifier, pulp/paper processing**  
Alfonic® 1012-5.5; Alfonic® 1412-9; Sipol NP-10

**emulsifier, pulping**  
Rhodafac® BG-510

**emulsifier, PVAc emulsions**  
Disponil® MGS 65 IS

**emulsifier, PVC emulsions**  
Emulgator E 30; Rhodacal® 3594

**emulsifier, PVC polymerization**  
Polysorbate 21

**emulsifier, PvdC**  
Disponil® AES 21 IS; Disponil® AES 60 IS

**emulsifier, resin latex coatings: paper/paperboard, aq./fatty/dry food-contact**  
Disodium stearyl sulfosuccinamate; Tetrasodium

*dicarboxyethyl stearyl sulfosuccinamate***emulsifier, resins***Isodeceth-6*; *Oleic acid***emulsifier, rosin size aq. dispersions: paper/paperboard, aq./fatty/dry food-contact***Tetrasodium dicarboxyethyl stearyl sulfosuccinamate***emulsifier, S/B**

Nonoxynol-12; POLYSTEP® B-5

**emulsifier, S/B emulsion polymerization**

POLYSTEP® F-5

**emulsifier, S/B emulsions**

Calimulse SLS

**emulsifier, S/B latex**

Disponil® AES 21 IS; Disponil® AES 60 IS

**emulsifier, S/B polymerization**

Nonoxynol-8

**emulsifier, S/B systems**

Emulgator E 30

**emulsifier, SBR**

Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Arizona DRS-44; Hydrogenated tallow acid;

*Sodium rosinate; Sodium p-styrenesulfonate***emulsifier, SBR latex**

POLYSTEP® A-17; Spinomar NaSS

**emulsifier, SBR polymerization**

Arizona DR-22; Potassium rosinate

**emulsifier, secondary: elastomers**

Supragil RM/77 DL

**emulsifier, secondary: emulsion polymerization**

Dymisol® 2031

**emulsifier, secondary: polymerization**

Supragil RM/77 DL

**emulsifier, secondary: PVC**

Dymisol® 2031

**emulsifier, secondary: SBR**

Dymisol® 2031

**emulsifier, silicone defoamers**

DeMULS SMS

**emulsifier, silicone emulsification***Cetareth-15*; *Ceteth-2***emulsifier, silicone emulsions**

Carbopol® 934

**emulsifier, silicone oils: paper**

Serdox® NKL 6

**emulsifier, silicones**

Alcodet® SK; DeTHOX TDA-6; Igepal® CO-530;

T-DeI® N-6

**emulsifier, silicones/mineral oils**

Tergitol® NP-4; Tergitol® NP-6

**emulsifier, sizing: alkaline papermaking systems**

NovaSize® EML

**emulsifier, sizing: neutral papermaking systems**

NovaSize® EML

**emulsifier, sludge: oil drilling***Coccolonium chloride***emulsifier, sludge: wastewater treatment***Coccolonium chloride***emulsifier, solvent coatings**

Pegospere® 400 DOT

**emulsifier, solvent emulsions**

PEG hydrogenated castor oil

**emulsifier, solventless coatings**

Pegospere® 400 DOT

**emulsifier, solvents***Cetareth*; DeTHOX ACID L-9; MIPA-dodecylbenzenesulfonate; Nonoxynol; Octoxynol;*Trideceth***emulsifier, SR latex**

Octowet 75E

**emulsifier, starch processing**

AF 10 IND

**emulsifier, stock: pulping**

Eldorado DIC-100

**emulsifier, styrene emulsion polymerization***Ammonium nonoxynol-4 sulfate***emulsifier, styrene polymerization**

Abex® 18S; POLYSTEP® A-15  
**emulsifier, styrene-acrylates**  
 Disponil® AES 21 IS; Disponil® AES 60 IS  
**emulsifier, styrene-acrylic emulsion polymerization**  
 Aerosol® NPES 3030; POLYSTEP® F-5  
**emulsifier, styrene-acrylic latexes**  
 Abex® 2020  
**emulsifier, styrene-acrylic polymerization**  
*Ammonium laureth-30 sulfate; Nonoxynol-8*  
**emulsifier, styrene-acrylics**  
 Abex® 2515; Abex® 2525; Abex® 2535; Abex® 2545; Aviro® SL 2010; *Nonoxynol-12*  
**emulsifier, surface coatings**  
*Guanidine stearate; Oleic acid*  
**emulsifier, surface treatment**  
 Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389  
**emulsifier, suspension polymerization**  
 Aerosol® OT-100%; DeWET SDTD-70; Monawet MO-70  
**emulsifier, syn. elastomer emulsion polymerization**  
 Lomar® PWA  
**emulsifier, syn. elastomers**  
 Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Arizona DRS-44  
**emulsifier, syn. latex**  
*Trideceth-15*  
**emulsifier, tissues**  
 Igepal® RC-520  
**emulsifier, vinyl acetate**  
*Sodium p-styrenesulfonate*  
**emulsifier, vinyl acetate emulsion polymerization**  
 Aerosol® NPES 930; Aerosol® NPES 3030; *Ammonium nonoxynol-4 sulfate*  
**emulsifier, vinyl acetate emulsions**  
 Abex® VA 50  
**emulsifier, vinyl acetate homopolymers**  
 Disponil® AES 21 IS; Disponil® AES 60 IS  
**emulsifier, vinyl acetate polymerization**  
 Abex® 18S; Abex® 22S; Igepal® CA-880  
**emulsifier, vinyl acetate specialty copolymers**  
*Sodium octoxynol-3 sulfate*  
**emulsifier, vinyl acetates**  
 Aviro® SL 2010; Disponil® AES 21 IS; Disponil® AES 60 IS; Emulgator E 30; *Nonoxynol-30; Nonoxynol-34; Spinomar NaSS*  
**emulsifier, vinyl acrylic emulsion polymerization**  
 POLYSTEP® F-5  
**emulsifier, vinyl acrylic polymerization**  
*Ammonium laureth-30 sulfate; Nonoxynol-8*  
**emulsifier, vinyl acrylics**  
 Abex® 2515; Abex® 2525; Abex® 2535; Abex® 2545; *Nonoxynol-12*  
**emulsifier, w/o**  
 Crill 4; Crill 45; DeMULS SMO; *Glyceryl caprylate/caprinate; Lipotin SB; PEG-2 laurate SE; Pentaerythrityl trioleate; Synthetic beeswax; Tallowamide DEA*  
**emulsifier, w/o emulsions**  
 Aerosol® 22; DeWET SDTD-70; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS  
**emulsifier, w/o: coatings**  
 Imbentim-N/7 A; Imbentim-N/020 I; Imbentim-OAM/020; Imbentim-POA/020 5055; Imbentim-POA/024 5055; Imbentim-TAM/020  
**emulsifier, w/o: emulsion polymerization**  
*C16-18 parath-2; Imbentim-N/7 A; Imbentim-N/020 I; Imbentim-POA/020 5055; Imbentim-POA/024 5055; PEG-4 castor oil; PEG-2 laurate; Surfonic® DNP-70; Surfonic® DNP-80; Surfonic® DNP-100*  
**emulsifier, w/o: industrial detergents**  
*C16-18 parath-2*  
**emulsifier, w/o: lubricants**  
*C16-18 parath-2*

**emulsifier, w/o: paper**  
*Dodoxynol-4; Schercozoline O; Surfonic® DDP-40; Surfonic® DDP-50*  
**emulsifier, w/o: paper defoamer formulations**  
 Pegospers® 100 L  
**emulsifier, w/o: paper towels**  
 Surfonic® DDP-40; Surfonic® DDP-50  
**emulsifier, w/o: papermaking**  
 Cithrol A; Cithrol DGML N/E; Cithrol DGMS N/E; Cithrol EGDS N/E; Cithrol EGMS N/E; Cithrol EGMS S/E; *C16-18 parath-2; Glyceryl dilaurate SE; Imbentim-N/7 A; Imbentim-N/020 I; Imbentim-OAM/020; Imbentim-POA/020 5055; Imbentim-POA/024 5055; Imbentim-TAM/020; PEG-2 dilaurate; PEG-2 dilaurate SE; PEG-2 dioleate; PEG-2 dioleate SE; PEG-2 distearate; PEG-2 distearate SE; PEG-2 laurate; PPG-2 laurate; PPG-2 laurate SE; PPG-2 oleate; PPG-2 oleate SE; PPG-2 stearate; PPG-2 stearate SE*  
**emulsifier, w/o: pigment grinding**  
*Propylene glycol myristate*  
**emulsifier, w/o: polymerization**  
*Sorbitan sesquioleate*  
**emulsifier, w/o: pulp/paper**  
 Surfonic® DA-4; Teric™ N6  
**emulsifier, w/o: silicone emulsions**  
*PEG-4 castor oil*  
**emulsifier, w/o: solvent coatings**  
 Pegospers® 100 L  
**emulsifier, w/o: solventless coatings**  
 Pegospers® 100 L  
**emulsifier, w/o: tissues**  
 Surfonic® DDP-40; Surfonic® DDP-50  
**emulsifier, w/o: wax emulsification**  
 Surfonic® DNP-100  
**emulsifier, w/o: wax emulsions**  
*C16-18 parath-2; Imbentim-N/7 A; Imbentim-N/020 I; Imbentim-POA/020 5055; Imbentim-POA/024 5055; PEG-4 castor oil; TEA-oleate*  
**emulsifier, w/o: waxes**  
*Propylene glycol myristate*  
**emulsifier, water treatment**  
 Ancowet A-70; Ancowet S-60; Ancowet S-70PG; Burcomul DFE-45; *C12-14 parath-17; C12-14 parath-22; C16-18 parath-16; C16-18 parath-22; C16-18 parath-29; Dioctyl ammonium sulfosuccinate; Monawet MB-45; Monawet MO-70; Monawet MO-70R; Monawet MO-70S; PEG-4 dilaurate; PEG-8 dioleate; PEG-6 distearate; Pegospers® 400 DOT; Pegospers® 600 DOT; PEG-12 tallate; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poloxamer 217; Sodium hexametaphosphate; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Tergitol® 15-S-3; Tergitol® 15-S-5; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Tergitol® TMN-10; Teric™ 12A3; Teric™ 12A9; Teric™ 12A23; Teric™ 16A16; Teric™ 16A22; Teric™ 16A29; Teric™ 17A2; Teric™ 17A3; Teric™ 17A6; Teric™ 17A8; Teric™ 17A10; Teric™ 17A13; Teric™ 17A25; Teric™ BL8; Teric™ G9A2; Teric™ G9A10; Teric™ G12A6; Teric™ G12A12; Triton® XL-80N*  
**emulsifier, water-soluble: waxes**  
 DePEG 40-CO  
**emulsifier, wax**  
*Sodium tetraborate pentahydrate*  
**emulsifier, wax emulsions**  
 Lignosite® 458; Lignosite® 823; Marasperse 52 CP; *Nonyl nonoxynol-8*  
**emulsifier, wax removers**  
 Wayfos® D-10X  
**emulsifier, wax/oil emulsions**

DeMULS SMS  
**emulsifier, waxes**  
 Aerosol® OT-100%; *Aminomethyl propanol; Cetareth; Cetareth-15; Cetoleth; DeIONIC OPE-30; DeIONIC OPE-40; DePEG 30-CO; DeTHOX TDA-8.5; Dihexyl sodium sulfosuccinate; Glyceryl laurate; Glyceryl stearate; Granular Gum Ghatti #1; Gum ghatti; Hydrogenated coconut acid; Hydrogenated menhaden acid; Igepal® CA-887; Igepal® CA-897; Isodeceth-6; MIPA-dodecylbenzenesulfonate; Neobor®; Nonoxynol; PEG cocamine; PEG-15 soyamine; PEG stearamine; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Sodium lignosulfonate; Staform P; Surfonic® N-200; Synperonic 13/9; TEA-stearate; Tergitol® NP-7; Tergitol® NP-8; Tergitol® NP-9; Tergitol® NP-9.5; Tergitol® NP-10; Tergitol® NP-11; Tergitol® NP-12; Tergitol® NP-13; Tergitol® NP-15; Teric™ 16M2; Teric™ 16M10; Teric™ 16M15; Teric™ N20; Trideceth; Wax Emulsifier 4106*  
**emulsifier, waxes: paper**  
 Serdiox® NKL 6  
**emulsifier, waxy: oils/fats, industrial lubricants**  
*PEG-6 stearate*  
**emulsifier, wood pulp/paper**  
*PEG-6 isolauryl thioether; PEG-10 isolauryl thioether*  
**emulsifier, xylene**  
 DeIONIC OPE-7.5; DeIONIC OPE-10; DeIONIC OPE-12  
**emulsifiers**  
*Alkenyl succinic anhydride*  
**emulsion breaker, papermaking water treatment**  
 Agefloc B4508P  
**emulsion breaker, water treatment: paper**  
 Agefloc A4506; Agefloc A4510  
**emulsion cleaning**  
*Dodoxynol-7*  
**emulsion polymerization**  
 Aerosol® 22; Aerosol® MA-80; Ageflex EGDMA; Airvol® 805; Airvol® 823; Airvol® 840; *Ammonium naphthalene sulfonate; Antarox® L-64; Aquatreat® DNM-9; Aquatreat® DNM-30; Aquatreat® KM; Aquatreat® SDM; Cetareth-10; Cetareth-14; Cetareth-20; Cetareth-50; Cetoleth-10; Cetoleth-13; Cetoleth-25; Cetrimonium chloride; Cetyl alcohol; Daxad® 15; Deceth-4 phosphate; Decyl alcohol; DeIONIC OPE-7.5; DeIONIC OPE-10; DeIONIC OPE-12; DePHOS HP-739; DeTHOX LA-23; DeWET SDO-75E; Disodium oleamido MIPA-sulfosuccinate; Drewplus® T-4202; 2-Ethylhexyl phosphate; Geropon® 99; Geropon® SDS; Igepal® CO-850; Igepal® CO-880; Igepal® CO-887; Isopropylamine dodecylbenzenesulfonate; Laureth-3; Laureth-9; Laureth-12; Lomar® PL; Merpol® HCS; Monafax 1293; Monawet MO-70E; Monawet SNO-35; Myristyl alcohol; *Nonoxynol-1; Nonoxynol-3; Nonoxynol-5; Nonoxynol-13; Nonoxynol-20; Nonoxynol-25; Nonoxynol-40; Nonoxynol-50; Nonoxynol-55; Nonoxynol-70; Nonoxynol-100; Nonoxynol-9 phosphate; Nonyl nonoxynol-100; Nopalcol 4-O; Octoxynol-1; Octoxynol-3; Octoxynol-9; Octoxynol-10; Octoxynol-16; Octoxynol-30; Octoxynol-40; Octoxynol-70; Oleth-9; Poloxamer 182; Poloxamer 184; POLYSTEP® A-15-30K; POLYSTEP® A-17; POLYSTEP® F-2; Polyvinyl alcohol; Potassium sulfopropyl methacrylate; PPG-7-buteth-10; PPG-28-buteth-35; Rewopal® HV 9; Rewopal® HV 25; Servoxy® VPTZ 003/100; SMA® 1000; SMA® 2000; SMA® 3000; Sodium allyloxy hydroxypropyl sulfonate; Sodium laureth-12 sulfate; Sodium persulfate; Sodium polynaphthalene sulfonate; Styrene/MA copolymer; Teric™ N6;**

- Teric™ N11; Teric™ N20; *Tetrasodium dicarboxyethyl stearyl sulfosuccinamate*; Texapon® EHS; *Trideceth-6 phosphate*; Triton® X-305-70%; Triton® X-405-70%; Trycol® 6970; Tryfac® 5556
- emulsion polymerization agent**  
Rhodapon® L-22
- emulsion polymerization, paper**  
*Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate*
- emulsion polymerization, SBR**  
*Disodium stearyl sulfosuccinamate*
- emulsion polymerization, styrene, butadiene, and copolymers**  
*Diisobutyl sodium sulfosuccinate*
- emulsion polymerization, vinyl chloride**  
*Disodium stearyl sulfosuccinamate*
- emulsions, film finishing**  
Luwax® LG
- emulsions, industrial wax: paper**  
Hoechst Wax LP; Hoechst Wax S; Hoechst Wax UL
- emulsions, paper**  
Hoechst Wax PED 521; Hoechst Wax PED 522; Luwax® OA; Luwax® OA 3
- emulsions, paper finishing**  
Luwax® LG
- emulsions, polymerization**  
*Nonoxynol-9*
- enzyme immobilization**  
*Tannic acid*
- enzyme, paper**  
HT-Proteolytic® 200
- enzyme, paper coatings**  
Tenase® 1200
- enzyme, paper sizes**  
Tenase® 1200
- enzyme, protein breakdown**  
*Protease*
- enzyme, specialized: papermaking by-product degradation**  
Microcat® XP
- enzyme, specialized: pulping by-product degradation**  
Microcat® XP
- enzyme, starch liquefying: paper coatings**  
Amizyme DTX-11; Amizyme TX-8
- enzyme, starch liquefying: paper sizes**  
Amizyme DTX-11; Amizyme TX-8
- enzyme, starch-converting: papermaking**  
Vanzyme® 191; Vanzyme® Powd.
- enzyme, starch-converting: wastewater treatment**  
Vanzyme® 191
- enzyme, waste treatment**  
HT-Proteolytic® 200
- EP agent**  
*t-Butylphenyl phosphate*; *Octyl stearate*; *PEG-8 ditallate*; *PEG-12 ditallate*; *Triaryl phosphate*
- EP agent, aerospace**  
*Chlorotrifluoroethylene polymer*
- EP agent, chemicals**  
*Chlorotrifluoroethylene polymer*
- EP agent, greases**  
*2-Mercaptobenzothiazole*
- EP agent, lubricants**  
*Paraffin, chlorinated*; *Triphenyl phosphate*
- EP agent, paper machine oils**  
Durad® 110B; Durad® 150B; Durad® 220B; Durad® 620B
- EP agent, pulp/paper**  
*Chlorotrifluoroethylene polymer*
- epoxidation, epoxy resin precursors**  
*Peracetic acid*
- epoxidation, fatty acid esters**  
*Peracetic acid*
- epoxides prod.**  
*Decene-1*
- epoxy curing agent, hardener**  
*Diethylenetriamine*
- epoxy curing agent/flexibilizer**  
*Trilinoleic acid*
- epoxy ester resin prod.**  
*Linseed acid*
- epoxy laminates**  
*Methoxyisopropanol*; *PPG-2 methyl ether*
- epoxy resin diluent**  
*Trimethylolpropane triglycidyl ether*
- epoxy resin modifier**  
*Trimethylolpropane triglycidyl ether*
- extender**  
*Gelatin*; *Mica*; *Mineral oil*; *Polyvinyl chloride*
- extender oil, carbon paper**  
Alcaid 10; Alcaid 13; Alcaid 19; Alcaid 32; Alcaid 46; Alcaid 60; Alcaid 100
- extender pigment**  
*Barium sulfate*
- extender pigment, flame retardant coatings**  
*Magnesium hydroxide*
- extender vehicle, coatings**  
*Styrene/acrylates copolymer*
- extender, binder systems**  
*Calcium lignosulfonate*
- extender, catalyst**  
*Diallyl phthalate*
- extender, coatings**  
*Calcium carbonate*; *Dolomite*; Hubercarb® Optifil; Hubercarb® Optifil T; Hubercarb® W 3N; Morcryn® 535; Path® 9; *Strontium sulfate*
- extender, color**  
Hubercarb® Q 1; Hubercarb® Q 3; Hubercarb® Q 4; Hubercarb® Q 6; Hubercarb® Q 325
- extender, colored pigments**  
Calwhite®
- extender, dyes**  
*Hexyldecanol*
- extender, EPDM**  
ASP® 072
- extender, fiber: linerboard**  
Fiberex®
- extender, fluorinated resin: oilproofing props., paper**  
Synthro®-Pel XF
- extender, fluorochems.**  
Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22
- extender, friction paper**  
DiaFil® 210; DiaFil® 215; DiaFil® 230; DiaFil® 270; DiaFil® 290; DiaFil® 295
- extender, friction prods.**  
*Wollastonite*
- extender, functional: coatings**  
G-White; H-White
- extender, functional: paper**  
G-White; H-White
- extender, greases**  
Microthene® FA 700-00; Microthene® FA 709-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Microthene® MN 701-00; Microthene® MN 710-20
- extender, high polymeric systems**  
*Dilinoleic acid*
- extender, lubricants**  
Microthene® FA 700-00; Microthene® FA 709-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Microthene® MN 701-00; Microthene® MN 710-20
- extender, paper**  
*Calcium sulfate dihydrate*; Dualite® M6050AE; Dualite® MS7000; Dualite® MS7020; Hubercarb® Optifil; Hubercarb® Optifil T; Hubercarb® Q 1; Hubercarb® Q 1T; Hubercarb® Q 2; Hubercarb® Q 2T; Hubercarb® Q 3; Hubercarb® Q 3T; Hubercarb® Q 4; Hubercarb® Q 6; Hubercarb® Q 6-20; Hubercarb® Q 20-60; Hubercarb® Q 40-200; Hubercarb® Q 60; Hubercarb® Q 100; Hubercarb® Q 200; Hubercarb® Q 200T; Hubercarb® Q 325; Hubercarb® W 2; Hubercarb® W 2T; Hubercarb® W 3; Hubercarb® W 3N; Hubercarb® W 3T; Hubercarb® W 4; Morcryn® 535; Morez® 500; Q-Cel® 6019
- extender, paper coatings**  
HB-40®; Hydral® PGA; Jarcol™ I-16; *Wollastonite*
- extender, paper sizes**  
*Kaolin*
- extender, paperboard**  
*Wood flour*
- extender, papermaking**  
Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP
- extender, pigment: paper/paperboard, aq./fatty food-contact**  
*Zeolite synthetic*
- extender, polymers**  
ASP® 072
- extender, reinforcing: dielectric paper**  
Translink® 77
- extender, SBR**  
ASP® 072
- extender, shellac: coatings**  
*Pentaerythrityl rosinate*
- extender, shellac: paper coatings**  
*Pentaerythrityl rosinate*
- extender, shellac: wax emulsions**  
*Pentaerythrityl rosinate*
- extender, silica gels**  
*Wollastonite*
- extender, titanium dioxide**  
Alphatex HP; *Aluminum silicate*
- extender, titanium dioxide, paper**  
*Kaolin, calcined*
- extender, titanium dioxide: coatings**  
Bilt-Plates® 156
- extender, titanium dioxide: paper**  
Sampaque® 5002; Ultrapaque® PCC
- extender, titanium dioxide: paper coatings**  
Iccap® K
- extender, titanium dioxide: paper wet-end systems**  
Astra-Fil
- extender, titanium dioxide: paperboard**  
Sampaque® 5002
- extender, titanium dioxide: papermaking**  
HP-95™
- extender, titanium dioxide: wet-end: coated paper base sheets**  
Vantalc® 6H
- extender, titanium dioxide: wet-end: paper-making**  
Vantalc® 6H
- extender, titanium dioxide: wet-end: uncoated bond paper**  
Vantalc® 6H
- extender, white pigments**  
*Borosilicate glass*; Calwhite®
- extending resin, high gloss: coatings**  
Esi-Rez™ 53; Esi-Rez™ 60; Esi-Rez™ 65
- extrusion aid, polyolefins: food pkg.**  
*Polysiloxane polyether copolymer*
- extrusion coating resin**  
*Polyethylene, linear low density*; *Polyethylene, medium density*
- extrusion coating resin, board trays**  
Petrothene® NA 217-000
- extrusion coating resin, corrugated boxes**  
Petrothene® NA 217-000
- extrusion coating resin, fiber drums**  
Petrothene® NA 217-000
- extrusion coating resin, fiberboard containers**  
Petrothene® NA 217-000
- extrusion coating resin, flexible pkg.**  
Petrothene® NA 216-000; Petrothene® NA 217-000

**extrusion coating resin, food boards**

Petrothene® NA 216-000

**extrusion coating resin, milk cartons**  
Petrothene® NA 216-000; Petrothene® NA 217-000

**extrusion coating resin, paper: food-contact**  
Petrothene® NA 216-000; Petrothene® NA 217-000

**extrusion coating resin, pouch bags**  
Petrothene® NA 217-000

**extrusion coating resin, set-up cartons**  
Petrothene® NA 216-000

**extrusion coating resin, single-ply bags**  
Petrothene® NA 217-000

**extrusion coatings**  
*Erucamide; Melamine-formaldehyde resin, methylated-butylated; Polyethylene, low-density*

**extrusion coatings, paper**  
*Nylon 12*

**extrusion resin, flexible food pkg.**  
Novapol® LC-0717-A; Novapol® LF-0717-A

**extrusion resin, food pkg.**  
Sclair® 61C

**extrusion resin, heavy-duty bags**  
Novapol® LC-0522-A

**extrusion resin, high-speed/low coating wt. paper coatings**  
Novapol® LF-0717-A

**extrusion resin, milk cartons**  
Sclair® 61C

**extrusion resin, multiwall bags**  
Novapol® LC-0717-A; Novapol® LF-0717-A

**extrusion resin, nonporous substrate coatings**  
Novapol® LF-0717-A

**extrusion resin, paper coatings**  
Novapol® LC-0717-A

**extrusion resin, paperboard containers**  
Novapol® LC-0522-A; Sclair® 61C

**extrusion resin, popsicle wraps**  
Novapol® LC-0717-A; Novapol® LF-0717-A

**extrusion resin, snack food pkg.**  
Novapol® LC-0717-A; Novapol® LF-0717-A

**extrusion resin, sugar pouch stock**  
Novapol® LC-0717-A; Novapol® LF-0717-A

**extrusion, blister packs**  
*Styrene/butadiene polymer*

**fabric passivator, wet felts: acid papermaking**  
Eldorado PA-742

**fabric passivator, wet felts: alkaline papermaking**  
Eldorado PA-742

**fatty acids prod.**  
*Decene-1*

**fax paper**  
*Pyrocatechol*

**Fe/Mn removal, water treatment**  
*Diatomaceous earth*

**Fe/Mn remover, water treatment**  
*Calcium oxide*

**felt cleaner, alkaline**  
Felt Cleaner P-70155

**felt saturation emulsion**  
Everflex® GT

**felt washing, paper**  
T-Det® N-8; T-Det® N-9.5

**fiber**  
*Polyethylene, ultrahigh m.w.; Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate*

**fiber bonding agent, paper prod.**  
*Locust bean (Ceratonia siliqua) gum*

**fiber finishing, resin-bonded filters: food-contact**  
*Hydrogenated polybutene; Isobutyl palmitate; Isobutyl stearate; Rice (Oryza sativa) bran oil*

**fiber modifier**  
Blemmer BMA; Blemmer CMA; Blemmer EHMA; Blemmer GLM; Blemmer IBMA; Blemmer IDMA; Blemmer PMA; Blemmer SLMA; Blemmer SMA; Blemmer VMA; Epiol NPG-100;

Epiol TMP-100

**fiber paper modifier**  
Blemmer E; Blemmer P

**fiber processing**  
*Melamine-formaldehyde resin*

**fiber retention agent, dry food-contact**  
*Hydrolyzed soy protein*

**fiber retention agent, paper/paperboard**  
*Hydrolyzed soy protein*

**fiber suspensions**  
*Carbomer*

**fibers, industrial**  
*Polytetrafluoroethylene; Vinyl chloride/vinyl acetate copolymer*

**fibers, monofilament**  
*Vinylidene chloride/methyl acrylate copolymer*

**fibers, syn.**  
*Behenyl alcohol; Polyacrylonitrile*

**filler**  
*Aluminum hydroxide; Calcium carbonate; Calcium hydroxide; Calcium oxide; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Hanwet HCD-31; Jute; Martinal® OL-104; Mica; Paradene® No. 2; Rhodoviol® 4/125*

**filler clay, low-cost basecoats**  
DB-Kote-2

**filler clay, paper coatings**  
DB-Kote-2

**filler clay, pigmented size presses**  
DB-Kote-2

**filler, aq. coatings**  
Camel-CAL®; Camel-CAL® Slurry; Camel-CAL® ST

**filler, base stock coatings**  
Albacar® PCC

**filler, coatings**  
Alcoa® Grade C-231; Alcoa® Grade C-333; *Antimony trioxide; Atomite®; Calcium carbonate; Calcium silicate; Dolomite; Hubercarb® Optifil; Hubercarb® Optifil T; Hubercarb® W 3N; Micro-White® 10 Slurry; Montmorillonite; SB-332; SB-805; Silica, amorphous hydrated; Strontium sulfate*

**filler, color concs.**  
Camel-CAL®; Camel-CAL® ST

**filler, construction prods.**  
*Wollastonite*

**filler, dull coatings**  
Carbital® 35

**filler, elastomers**  
*Calcium silicate*

**filler, films**  
*Aluminum silicate dihydrate; Camel-CAL®; Camel-CAL® ST*

**filler, fine printing paper**  
Hydral® 710; Hydral® 716

**filler, fire retardant/smoke suppressant: paper coatings**  
Alcan Superfine SF 2; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 9; Alcan Superfine SF 11

**filler, fire retardant/smoke suppressant: paper filling**  
Alcan Superfine SF 2; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 9; Alcan Superfine SF 11

**filler, flame retardant**  
Alcoa® KB30; UFH16

**filler, flame retardant/smoke suppressant: paper coatings**  
Alcan Ultrafine UF15; Alcan Ultrafine UF25; Alcan Ultrafine UF35

**filler, flame retardant: coatings**  
Micral® 916; Micral® 932

**filler, flame retardant: paper**  
*Magnesium carbonate hydroxide; Micral® 916; Micral® 932*

**filler, flame retardant: paper coatings**  
Micral® 916; Micral® 932

**filler, flame retardant: polymer systems**  
UFH16

**filler, friction prods.**  
*Wollastonite*

**filler, functional: coatings**  
G-White; H-White

**filler, functional: paper**  
Albacar® 5970; Celkate® T-21; G-White; H-White; Micro-Cel® T-49

**filler, functional: specialty paper**  
Celite® 263; Celite® 321; Celite® 388

**filler, functional: wet-laid prods.**  
Celite® 263; Celite® 321; Celite® 388

**filler, furnish: paper brightness**  
USG® Paper Filler #1

**filler, glossing: glossy cover stock coatings**  
DB-SHEEN™

**filler, glossing: label stock coatings**  
DB-SHEEN™

**filler, glossing: merchant grade paper coatings**  
DB-SHEEN™

**filler, glossing: paper coatings**  
DB-SHEEN™

**filler, high-loading: paper**  
Micral® 532

**filler, low-pressure laminates: paper**  
*Diallyl phthalate*

**filler, matte coatings**  
Carbital® 35

**filler, nonimpact printing paper coatings**  
Jetcoat™ PCC

**filler, paper**  
Albafil® PCC; Alcoa® Grade C-231; Alcoa® Grade C-333; Aluminasol 100; Aluminasol 200; *Aluminum silicate; Aminotrimethylene phosphonic acid; Atomite®; Barium hydroxide lime; Calcium sulfate; Calcium sulfate dihydrate; Camel-CAL®; Camel-CAL® Slurry; Camel-CAL® ST; Camel-FINE; Camel-WITE®; Camel-WITE® Slurry; Camel-WITE® ST; Carbital® 35; Carbital® 75; Carbital® 90; CC™-103; Cellulose; Clarcel®; DiaFil® 110; DiaFil® 190; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Diatomaceous earth; Diatomaceous earth, amorphous; Fibrox 030-E; Fibrox 030-ES; Fibrox 300; Hubercarb® Optifil; Hubercarb® Optifil T; Hubercarb® Q 1; Hubercarb® Q 1T; Hubercarb® Q 2; Hubercarb® Q 2T; Hubercarb® Q 3; Hubercarb® Q 3T; Hubercarb® Q 4; Hubercarb® Q 6; Hubercarb® Q 6-20; Hubercarb® Q 20-60; Hubercarb® Q 40-200; Hubercarb® Q 60; Hubercarb® Q 100; Hubercarb® Q 200; Hubercarb® Q 200T; Hubercarb® Q 325; Hubercarb® W 2; Hubercarb® W 2T; Hubercarb® W 3; Hubercarb® W 3N; Hubercarb® W 3T; Hubercarb® W 4; Huberfil® 96; Hydrafil®; Hydrafil® 90; Kotamite®; *Magnesium carbonate; Megafil® PCC; Micro-Cel® T-26; Micro-White® 10 Slurry; Mistrofil®; Peerless® No. 1; Peerless® No. 2; Peerless® No. 3; Q-Cel® 6019; RO-40; SB-332; SB-805; Sipernat® 300DS; Sipernat® 310; Sipernat® 320DS; Snowcal 75E (Export); Sodium polyacrylate; Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325; Talc; Titanium dioxide; WW Filler™; Zeolex® 23P**

**filler, paper coatings**  
*Aluminum silicate dihydrate; Bentonite; Calcitem S; Calcium metasilicate; Camel-CAL®; Camel-CAL® Slurry; Camel-CAL® ST; Camel-WITE®; Camel-WITE® Slurry; Camel-WITE® ST; Gamaco®; Gama-Sperse® 80; Gama-Sperse® 255; Hydral® PGA; Microtem 95; Opacarb® PCC; Opacimite™; Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325; Whiting; Wollastonite*

**filler, paper sizes**  
*Kaolin*

**extrusion coating resin, food boards**

**extrusion coating resin, food boards**

Petrothene® NA 216-000  
**extrusion coating resin, milk cartons**  
 Petrothene® NA 216-000; Petrothene® NA 217-000  
**extrusion coating resin, paper: food-contact**  
 Petrothene® NA 216-000; Petrothene® NA 217-000  
**extrusion coating resin, pouch bags**  
 Petrothene® NA 217-000  
**extrusion coating resin, set-up cartons**  
 Petrothene® NA 216-000  
**extrusion coating resin, single-ply bags**  
 Petrothene® NA 217-000  
**extrusion coatings**  
*Erucamide; Melamine-formaldehyde resin, methylated-butylated; Polyethylene, low-density*  
**extrusion coatings, paper**  
*Nylon 12*  
**extrusion resin, flexible food pkg.**  
 Novapol® LC-0717-A; Novapol® LF-0717-A  
**extrusion resin, food pkg.**  
 Sclair® 61C  
**extrusion resin, heavy-duty bags**  
 Novapol® LC-0522-A  
**extrusion resin, high-speed/low coating wt. paper coatings**  
 Novapol® LF-0717-A  
**extrusion resin, milk cartons**  
 Sclair® 61C  
**extrusion resin, multiwall bags**  
 Novapol® LC-0717-A; Novapol® LF-0717-A  
**extrusion resin, nonporous substrate coatings**  
 Novapol® LF-0717-A  
**extrusion resin, paper coatings**  
 Novapol® LC-0717-A  
**extrusion resin, paperboard containers**  
 Novapol® LC-0522-A; Sclair® 61C  
**extrusion resin, popsicle wraps**  
 Novapol® LC-0717-A; Novapol® LF-0717-A  
**extrusion resin, snack food pkg.**  
 Novapol® LC-0717-A; Novapol® LF-0717-A  
**extrusion resin, sugar pouch stock**  
 Novapol® LC-0717-A; Novapol® LF-0717-A  
**extrusion, blister packs**  
*Styrene/butadiene polymer*  
**fabric passivator, wet felts: acid papermaking**  
 Eldorado PA-742  
**fabric passivator, wet felts: alkaline papermaking**  
 Eldorado PA-742  
**fatty acids prod.**  
*Decene-1*  
**fax paper**  
*Pyrocatechol*  
**Fe/Mn removal, water treatment**  
*Diatomaceous earth*  
**Fe/Mn remover, water treatment**  
*Calcium oxide*  
**felt cleaner, alkaline**  
 Felt Cleaner P-70155  
**felt saturation emulsion**  
 Everflex® GT  
**felt washing, paper**  
 T-Det® N-8; T-Det® N-9.5  
**fiber**  
*Polyethylene, ultrahigh m.w.; Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate*  
**fiber bonding agent, paper prod.**  
*Locust bean (Ceratonia siliqua) gum*  
**fiber finishing, resin-bonded filters: food-contact**  
*Hydrogenated polybutene; Isobutyl palmitate; Isobutyl stearate; Rice (Oryza sativa) bran oil*  
**fiber modifier**  
 Blemmer BMA; Blemmer CMA; Blemmer EHMA; Blemmer GLM; Blemmer IBMA; Blemmer IDMA; Blemmer PMA; Blemmer SLMA; Blemmer SMA; Blemmer VMA; Epiol NPG-100;

Epiol TMP-100  
**fiber paper modifier**  
 Blemmer E; Blemmer P  
**fiber processing**  
*Melamine-formaldehyde resin*  
**fiber retention agent, dry food-contact**  
*Hydrolyzed soy protein*  
**fiber retention agent, paper/paperboard**  
*Hydrolyzed soy protein*  
**fiber suspensions**  
*Carbomer*  
**fibers, industrial**  
*Polytetrafluoroethylene; Vinyl chloride/vinyl acetate copolymer*  
**fibers, monofilament**  
*Vinylidene chloride/methyl acrylate copolymer*  
**fibers, syn.**  
*Behenyl alcohol; Polyacrylonitrile*  
**filler**  
*Aluminum hydroxide; Calcium carbonate; Calcium hydroxide; Calcium oxide; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Hanwet HCD-31; Jute; Martinal® OL-104; Mica; Paradene® No. 2; Rhodoviol® 4/125*  
**filler clay, low-cost basecoats**  
 DB-Kote-2  
**filler clay, paper coatings**  
 DB-Kote-2  
**filler clay, pigmented size presses**  
 DB-Kote-2  
**filler, aq. coatings**  
 Camel-CAL®; Camel-CAL® Slurry; Camel-CAL® ST  
**filler, base stock coatings**  
 Albacar® PCC  
**filler, coatings**  
 Alcoa® Grade C-231; Alcoa® Grade C-333; *Antimony trioxide; Atomite®; Calcium carbonate; Calcium silicate; Dolomite; Hubercarb® Optifil; Hubercarb® Optifil T; Hubercarb® W 3N; Micro-White® 10 Slurry; Montmorillonite; SB-332; SB-805; Silica, amorphous hydrated; Strontium sulfate*  
**filler, color concs.**  
 Camel-CAL®; Camel-CAL® ST  
**filler, construction prods.**  
*Wollastonite*  
**filler, dull coatings**  
 Carbital® 35  
**filler, elastomers**  
*Calcium silicate*  
**filler, films**  
*Aluminum silicate dihydrate; Camel-CAL®; Camel-CAL® ST*  
**filler, fine printing paper**  
 Hydral® 710; Hydral® 716  
**filler, fire retardant/smoke suppressant: paper coatings**  
 Alcan Superfine SF 2; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 9; Alcan Superfine SF 11  
**filler, fire retardant/smoke suppressant: paper filling**  
 Alcan Superfine SF 2; Alcan Superfine SF 4; Alcan Superfine SF 7; Alcan Superfine SF 9; Alcan Superfine SF 11  
**filler, flame retardant**  
 Alcoa® KB30; UFH16  
**filler, flame retardant/smoke suppressant: paper coatings**  
 Alcan Ultrafine UF15; Alcan Ultrafine UF25; Alcan Ultrafine UF35  
**filler, flame retardant: coatings**  
 Micral® 916; Micral® 932  
**filler, flame retardant: paper**  
*Magnesium carbonate hydroxide; Micral® 916; Micral® 932*  
**filler, flame retardant: paper coatings**  
 Micral® 916; Micral® 932

**filler, flame retardant: polymer systems**  
 UFH16  
**filler, friction prods.**  
*Wollastonite*  
**filler, functional: coatings**  
 G-White; H-White  
**filler, functional: paper**  
 Albacar® 5970; Celkate® T-21; G-White; H-White; Micro-Cel® T-49  
**filler, functional: specialty paper**  
 Celite® 263; Celite® 321; Celite® 388  
**filler, functional: wet-laid prods.**  
 Celite® 263; Celite® 321; Celite® 388  
**filler, furnish: paper brightness**  
 USG® Paper Filler #1  
**filler, glossing: glossy cover stock coatings**  
 DB-SHEEN™  
**filler, glossing: label stock coatings**  
 DB-SHEEN™  
**filler, glossing: merchant grade paper coatings**  
 DB-SHEEN™  
**filler, glossing: paper coatings**  
 DB-SHEEN™  
**filler, high-loading: paper**  
 Micral® 532  
**filler, low-pressure laminates: paper**  
*Diallyl phthalate*  
**filler, matte coatings**  
 Carbital® 35  
**filler, nonimpact printing paper coatings**  
 Jetcoat™ PCC  
**filler, paper**  
 Albafil® PCC; Alcoa® Grade C-231; Alcoa® Grade C-333; Aluminasol 100; Aluminasol 200; *Aluminum silicate; Aminotrimethylene phosphonic acid; Atomite®; Barium hydroxide lime; Calcium sulfate; Calcium sulfate dihydrate; Camel-CAL®; Camel-CAL® Slurry; Camel-CAL® ST; Camel-FINE; Camel-WITE®; Camel-WITE® Slurry; Camel-WITE® ST; Carbital® 35; Carbital® 75; Carbital® 90; CC™-103; Cellulose; Clarcel®; DiaFil® 110; DiaFil® 190; DiaFil® 520; DiaFil® 525; DiaFil® 530; DiaFil® 570; DiaFil® 590; Diatomaceous earth; Diatomaceous earth, amorphous; Fibrox 030-E; Fibrox 030-ES; Fibrox 300; Hubercarb® Optifil; Hubercarb® Optifil T; Hubercarb® Q 1; Hubercarb® Q 1T; Hubercarb® Q 2; Hubercarb® Q 2T; Hubercarb® Q 3; Hubercarb® Q 3T; Hubercarb® Q 4; Hubercarb® Q 6; Hubercarb® Q 6-20; Hubercarb® Q 20-60; Hubercarb® Q 40-200; Hubercarb® Q 60; Hubercarb® Q 100; Hubercarb® Q 200; Hubercarb® Q 200T; Hubercarb® Q 325; Hubercarb® W 2; Hubercarb® W 2T; Hubercarb® W 3; Hubercarb® W 3N; Hubercarb® W 3T; Hubercarb® W 4; Huberfil® 96; Hydrafil®; Hydrafil® 90; Kotamite®; *Magnesium carbonate; Megafil® PCC; Micro-Cel® T-26; Micro-White® 10 Slurry; Mistrofil®; Peerless® No. 1; Peerless® No. 2; Peerless® No. 3; Q-Cel® 6019; RO-40; SB-332; SB-805; Sipernat® 300DS; Sipernat® 310; Sipernat® 320DS; Snowcal 75E (Export); Sodium polyacrylate; Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325; Talc; Titanium dioxide; WW Filler™; Zeolex® 23P*  
**filler, paper coatings**  
*Aluminum silicate dihydrate; Bentonite; Calcitem S; Calcium metasilicate; Camel-CAL®; Camel-CAL® Slurry; Camel-CAL® ST; Camel-WITE®; Camel-WITE® Slurry; Camel-WITE® ST; Gamaco®; Gama-Sperse® 80; Gama-Sperse® 255; Hydral® PGA; Microtem 95; Opacarb® PCC; Opacimite™; Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325; Whiting; Wollastonite*  
**filler, paper sizes**  
*Kaolin**

- filler, paper wet-end systems  
Astra-Fil
- filler, paperboard  
Hydrafil®; Hydrafil® 90; Micro-Cel® T-26; Wood flour
- filler, photographic paper  
Barium carbonate
- filler, polyolefins  
Camel-FINE
- filler, porous conductive: conductor insulation paper  
Printex® XE 2
- filler, PVC  
Camel-FINE
- filler, reactive: paper  
Tetrabromophthalic anhydride
- filler, reinforcing  
Polytetrafluoroethylene; Silica, amorphous; Silica, hydrated; Sodium silicoaluminate
- filler, reinforcing: paper coatings  
Calwhite®
- filler, smoke suppressant: coatings  
KC-350; KC-500; KC-750; KC-900
- filler, smoke suppressant: paper  
KC-350; KC-500; KC-750; KC-900
- filler, thin films  
Gama-Sperse® 80
- filler, unbleached kraft liner board  
Bill-Plates® 145
- filler, uncoated fine paper  
Albacar® PCC
- filler, waste treatment  
Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325
- filler, water treatment  
Suspengel 200; Suspengel 325; Suspengel Plus 200; Suspengel Plus 325
- filling inhibitor, paper mill felts  
FeltECel™ 905
- film builder, clear water resistance: corrugated board  
Plyamul® 97897-00
- film builder, clear water resistance: uncoated paper  
Plyamul® 97897-00
- film improver, paper coatings  
Sipomer® COPS 1
- film resin, bakery films  
Chevron HiD 9660
- film resin, barrier pkg.  
Chevron HiD 9660
- film resin, bread bags  
Novapol® PF-Y821-BP
- film resin, cereal box liners  
Chevron HiD 9660
- film resin, general purpose pkg.  
Novapol® PF-Y821-BP
- film resin, heavy duty sacks  
Novapol® PF-Y821-CP; Novapol® TF-Y822-CP
- film resin, high strength liners  
Novapol® TF-Y822-BP
- film resin, high strength pkg.  
Novapol® TF-Y822-CP
- film resin, industrial pkg.  
Novapol® PF-Y821-CP
- film resin, lamination  
Sclair® 10C
- film resin, liner: food containers  
Petrothene® NA 957
- film resin, liner: general pkg.  
Petrothene® NA 957
- film resin, liner: industrial liners  
Petrothene® NA 957
- film resin, liner: multiwall paper bag liners  
Petrothene® NA 957
- film resin, liner: trash bags  
Petrothene® NA 957
- film resin, moderate clarity bags  
Novapol® PF-Y821-BP
- film resin, overwrap  
Novapol® TF-Y534-IP
- film resin, specialty blending  
Sclair® 10C
- film resin, specialty lamination  
Sclair® 11B4; Sclair® 11P2; Sclair® 11P3; Sclair® 11P4
- film resin, tissue paper substitute  
Chevron HiD 9660
- film substrates, cellulose acetate  
Airflex® 300; Airflex® 320
- film substrates, paper  
Airflex® 300
- film, blown: diaper backings  
Lumitac®; Nipolon®-Z
- film, blown: general purpose pkg.  
Lumitac®; Nipolon®-Z
- film, blown: heavy duty bags  
Lumitac®; Nipolon®-Z
- film, blown: shrink films  
Lumitac®; Nipolon®-Z
- film, blown: stretch films  
Lumitac®; Nipolon®-Z
- film, carrier bags  
Polyethylene, linear low density; Polyethylene, low-density
- film, cellulose regenerated  
Direct green 1
- film, display pkg.  
Polypropylene
- film, food pkg.  
Polyethylene, low-density; Polypropylene; Polystyrene; Silica, fumed; Sorbitan laurate; Vinylidene chloride/methyl acrylate copolymer
- film, food wrap  
Polyethylene, linear low density
- film, paper  
Bovlon
- film, pkg.  
Polyethylene, low-density
- film, PP: food-contact  
Terpene resin
- film, sacks  
Polyethylene, linear low density
- film, tobacco pkg.  
Polypropylene
- film, wrapping: fabricated articles  
Cellophane
- film, wrapping: food  
Cellophane
- film, wrapping: industrial  
Cellophane
- film, wrapping: tobacco  
Cellophane
- film-former  
A-C® 6; A-C® 6A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 15; A-C® 16; A-C® 316; A-C® 316A; A-C® 400; A-C® 400A; A-C® 405(T); A-C® 430; A-C® 540; A-C® 540A; A-C® 580; A-C® 617; A-C® 617A; A-C® 629; A-C® 629A; A-C® 1702; A-C® 6702; Acrylamides copolymer; Acrylates/VA copolymer; Acusol® 842; Alginate; C40-60 pareth-3; Dimethyl hydantoin-formaldehyde polymer; Elemi gum; Elvanol® 85-30; Elvanol® 85-82; Ethylene/acrylic acid copolymer; Ethylene/VA copolymer; Ethyl toluenesulfonamide; Hydrolyzed collagen; Hydrolyzed soy protein; Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl guar; Melamine-formaldehyde resin; Methyl hydrogenated rosinate; Methyl rosinate; Nitrocellulose; NovaCote™ 1905; PEG-115M; Photomer® 4155; Polyacrylic acid; Propylene glycol alginate; PVP; Rohamere® 8662; Scogin™ LV; Scogin™ QH; Scogin™ QL; Scogin™ QM; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; VA/crotonates copolymer; VA/crotonates/vinyl propionate copolymer
- film-former, aqr. systems  
Polyox® WSR Coagulant
- film-former, coatings  
Acetyl tributyl citrate; Acetyl triethyl citrate; Citroflex® 2; Citroflex® A-4; Klucel® E; Klucel® L; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90
- film-former, emulsion polymerization  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; PVM/MA copolymer
- film-former, food pkg. coatings  
Citroflex® A-2
- film-former, food pkg. paper  
Citroflex® A-2
- film-former, food pkg. paperboard  
Citroflex® A-2
- film-former, laminates  
Pliolite® VT
- film-former, overprint varnishes: paper/paperboard  
Photomer® 4028
- film-former, paper  
Aqualon® CMC-T; Klucel® E; Klucel® L; Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K80; Luviskol® K90; Photomer® 4025; Photomer® 4160; Photomer® 6010; PVM/MA copolymer; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120; Rohamere® 84124; TIC Pretested® Guar Gum TICOLV
- film-former, paper coatings  
CAP-482-0.5; CAP-482-20; Cleer-Cote® 625; Colloid 488T; Colloid 602; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; Photomer® 4155; Pliolite® VT; Vinyl-toluene/butadiene copolymer
- film-former, paper impregnation  
Rohamere® 1960-D; Rohamere® 8478
- film-former, paper lacquers  
CAB 500-1; CAB-500-5
- film-former, paper surface treatment  
Scogin™ F; Scogin™ HV; Scogin™ MV
- film-former, paperboard  
Photomer® 4025; Photomer® 4160
- film-former, paperboard coatings  
Photomer® 4155
- film-former, paperboard substrates  
Rohamere® 3045
- film-former, papermaking size presses  
Cleer-Cote® 625; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095
- film-former, pigmented size presses  
Cleer-Cote® 625
- film-former, polymer  
Aluminasol 100; Aluminasol 200
- film-former, stock  
Eldorado PA-780; Eldorado Lube-20
- film-former, suspension polymerization  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90
- film-forming resin, thermoplastic: paper  
Carboset® 514A; Carboset® 514H; Carboset® 515; Carboset® 525
- film-forming resin, thermoset: paper  
Carboset® 531
- films  
Aerosil® 200; AL 4190; Alkanol® 189-S; CAB-171-15; CAB-321-0.1; CAB-381-0.1; CAB-381-0.5; CAB-381-2; CAB-381-2BP; CAB-381-20; CAB 500-1; CAB-500-5; CAB-531-1; CAB-551-0.01; CAB-551-0.2; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® LM-150D; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Cab-O-Sil® PTG; Camel-CAL® Slurry; Darex® 550L; Eastek 1200; Flexbond® 165; Flexbond® 185; GP-223; Loxiol® HOB 7169;



Melthene®-M5001; Melthene®-M5002D;  
 Melthene®-M5311; Melthene®-M5321;  
 Modacure® Resin; MT 1970-D; NeoCryl® BT-175; Nipolon; Nipolon-L; Nucrel® 0407;  
 Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214; Nucrel® 3990; Pluriol® E 6000; *Polyethylene, oxidized*; *Polyvinyl butyral*; Sclair® 10A; Sipernat® 22LS; Sipernat® 300DS; Sipernat® 320DS; Teric™ PEG 200; Teric™ PEG 300; Teric™ PEG 400; Teric™ PEG 600; Teric™ PEG 1500; Teric™ PEG 4000; TL 4190; Upaco® 5430

**films, food-contact**  
*Polyvinyl alcohol*

**films, water-sol.: pkg.**  
 Elvanol® 85-30; Elvanol® 85-82

**films, water-sol.: release applics**  
 Elvanol® 85-30; Elvanol® 85-82

**filter aid**  
*Acrylic acid/acrylamide copolymer*; DeWET SDO-70PG; DeWET SDO-75E; *Diatomaceous earth*; *Talc*

**filter aid, air treatment**  
*Carbon, activated*

**filter aid, coatings**  
*Polyacrylamide*

**filter aid, wastewater treatment**  
*Carbon, activated*

**filter aid, water treatment**  
*Carbon, activated*; *Polyacrylamide*

**filter medium**  
*Alumina*; *Aluminum hydroxide*; *Bone black*; *Magnesium carbonate*

**filter, resin-bonded: food-contact**  
*Aluminum myristates/palmitates*; *Aluminum stearates*; *Ammonium oleate*; *Ammonium stearate*; *Ammonium tallate*; *Capramide DEA*; *Cellulose*; *CNC Antifoam 10-FG*; *CNC Antifoam 30-FG*; *Dur-O-Set® E-623*; *Dur-O-Set® E-646*; *Hexamethoxymethylmelamine*; *Hycar® 1577*; *L-45 Series*; *Magnesium myristate*; *Magnesium palmitate*; *Melamine-formaldehyde resin*; *Methyl laurate*; *Methyl myristate*; *Methyl stearate*; *Myristamide DEA*; *Myristic acid*; *Oleamide DEA*; *Palmitamide DEA*; *PEG-8 cocoate*; *PEG-15 cocoate*; *PEG-8 dicocoate*; *PEG-8 dilaurate*; *PEG-12 dilaurate*; *PEG-20 dilaurate*; *PEG-32 dilaurate*; *PEG-12 dioleate*; *PEG-20 dioleate*; *PEG-32 dioleate*; *PEG-8 distearate*; *PEG-12 distearate*; *PEG-20 distearate*; *PEG-32 distearate*; *PEG-20 laurate*; *PEG-32 laurate*; *PEG-8 myristate*; *PEG-20 myristate*; *PEG-9 oleate*; *PEG-10 oleate*; *PEG-14 oleate*; *PEG-20 oleate*; *PEG-32 oleate*; *PEG-36 oleate*; *PEG-20 palmitate*; *PEG-8 sesquiolaurate*; *PEG-8 sesquiolaurate*; *PEG-20 stearate*; *PEG-32 stearate*; *PEG-40 stearate*; *Phenolic resin*; *Phosphoric acid*; *Polyethylacrylate*; *Potassium cornate*; *Potassium laurate*; *Potassium myristate*; *Potassium palmitate*; *Potassium tallowate*; *Resyn® 1090*; *Sodium cocoate*; *Sodium laurate*; *Sodium myristate*; *Soygold® 1000*; *Soygold® 2000*; *Stearamide DEA*; *Tallow acid*; *TEA cocoate*; *TEA-oleate*; *TEA-stearate*

**filtrate, water/wastewater treatment**  
 Aquagel Gold Seal™ 200; Aquagel Gold Seal™ 325

**filtration, water treatment**  
*Diatomaceous earth*

**finer collector, anionic: pulp/paper**  
 Hydrail® 7607

**finishes**  
*Butyl acid phosphate*

**finishes, functional: paper**  
 QS 1162

**finishes, functional: paperboard**  
 QS 1162

**finishes, paper**  
*Beeswax*; *Ceteareth-10*; *Ceteareth-14*;

*Dimethylol urea*; *Ross Beeswax*; *Ross Beeswax Substitute No. 11*; *Ross Beeswax Substitute No. 30*; *Ross Beeswax Substitute No. 145*; *Ross Beeswax Substitute No. 628/5*; *Ross Beeswax Substitute No. 662*; *Ross Beeswax Substitute No. 776*; *Ross Beeswax Substitute No. 909*; *Ross Beeswax Substitute No. 1595*; *Ross Beeswax Substitute No. 1623*; *Ross Beeswax Substitute No. 1892*; *Synthetic beeswax*; *Teric™ OF4*; *Teric™ OF6*

**finishes, waterproof: paper**  
 Picconol® A100

**finishing agent**  
 Ajidew A-100; Ajidew N-50; Ajidew SP-100; *Carnauba (Copernica cerifera) wax*; *DeTHOX ACID O-9*; *PCA*; *Rohamere® 1410*; *Sodium PCA*; *Synthetic wax*

**finishing agent, fiber**  
 Aluminasol 100; Aluminasol 200

**finishing agent, food pkg. resins: poly (phenyleneterephthalamide)**  
*4,4-Butylidenebis (6-t-butyl-m-cresol)*

**finishing agent, paper**  
 Avitone® A; Rohamere® 8662; *Ross Wax #160*

**finishing, paper**  
 Polysol®; Tivar®-1000

**finishing, surface: superlight-coated paper**  
 Printosil®

**fire retardant, fiber**  
*Antimony pentoxide*

**fire retardant, Japanese paper screens**  
*Guanidine sulfamate*

**fire retardant, paper**  
*Guanidine phosphate, dibasic*; *Necco Fire Retardant 2750*; *Necco Fire Retardant 2758*; *Necco Fire Retardant 2762*; *Necco Fire Retardant K-6*

**fireproofing**  
*Bentonite*; *Magnesium carbonate hydroxide*

**fireproofing agent**  
*Ammonium alum*; *Magnesium carbonate*; *Magnesium sulfate anhydrous*; *Sodium stannate*

**fireproofing agent, coatings**  
 Synthro®-Nyl NS 1920 P; Synthro®-Nyl PN 912 S

**fireproofing agent, paper**  
*Ammonium sulfate*; *Sodium phosphate dibasic anhydrous*

**fireproofing agent, paper sticking**  
 Synthro®-Nyl NS 1920 P; Synthro®-Nyl PN 912 S

**fireproofing agent, wood**  
*Sodium phosphate dibasic anhydrous*

**fireproofing compds.**  
*Dicyandiamide*

**fixation agent, starch**  
 Eldorado PA-755

**fixing agent**  
 Cartafix® F Liq.; Catiofast® GM; Catiofast® PL; *Polymin® PL*

**fixing agent, acid dyes: papermaking**  
 MPD-7

**fixing agent, acid-free paper**  
 Altriform®

**fixing agent, anionic colloids**  
*Polymin® 978 L*

**fixing agent, anionic colloids: papermaking**  
 Catiofast® NB-PD

**fixing agent, anionic direct dyestuffs: paper**  
 Levogen® E-1062; Levogen® E-1063; Levogen® F; Levogen® G; Mesityl®; Mesityl® NBS

**fixing agent, anionic dyestuffs**  
 Levogen® PM; Levogen® PM-N

**fixing agent, anionic pigments**  
 Levogen® PM; Levogen® PM-N

**fixing agent, calcium carbonate containing paper**  
 Aquacoll 30 CC; Aquacoll 30 PA

**fixing agent, cardboard**

Aquacoll 30 CC; Aquacoll 30 PA

**fixing agent, colloidal substances: paper fiber**  
*Polymin® SO*

**fixing agent, color: paper**  
 Tinofix® ECO-N; Tinofix® WSP

**fixing agent, color: paper coloration**  
 Tinofix® AP

**fixing agent, color: paper, food-contact**  
 Tinofix® AP

**fixing agent, direct dyes**  
*Polymin® 978 L*

**fixing agent, direct dyes: papermaking**  
 Catiofast® NB-PD

**fixing agent, dye**  
*Hexamethylenetetramine*; *Polymin® PR 971 L*

**fixing agent, dye: colored paper**  
 Synthro®-Fix WF

**fixing agent, dye: paper**  
 Taurine-DFX

**fixing agent, dye: temporary, nondurable**  
 Ecco Aluminum Formate

**fixing agent, dye: wet-end papermaking**  
 Catiofast® NB-DF

**fixing agent, dyes: acidic papermaking**  
 Hanwel HF-59

**fixing agent, dyes: neutral papermaking**  
 Hanwel HF-59

**fixing agent, fillers**  
*Polymin® 978 L*

**fixing agent, fillers: acidic papermaking**  
 Hanwel HF-59

**fixing agent, fillers: neutral papermaking**  
 Hanwel HF-59

**fixing agent, fillers: papermaking**  
 Catiofast® NB-PD

**fixing agent, fines**  
*Polymin® 978 L*

**fixing agent, fines: paper fiber**  
*Polymin® SO*

**fixing agent, fines: papermaking**  
 Catiofast® NB-PD

**fixing agent, food pkg. paper**  
 Aquacoll 30 CC; Aquacoll 30 PA

**fixing agent, neutral sizing cardboard**  
*Polyaluminum hydroxide chloride sulfate*

**fixing agent, neutral sizing papermaking**  
*Polyaluminum hydroxide chloride sulfate*

**fixing agent, neutral sizing process: paper/cardboard**  
 Paper-PAC-N®

**fixing agent, nonionic colloids**  
*Polymin® 978 L*

**fixing agent, nonionic colloids: papermaking**  
 Catiofast® NB-PD

**fixing agent, paper**  
 Aquacoll 30 CC; Aquacoll 30 PA; Gilufloc®; Intrafix®

**fixing agent, papermaking**  
 Catiofast® PL

**fixing agent, pigment dyes**  
*Polymin® 978 L*

**fixing agent, pigment dyes: papermaking**  
 Catiofast® NB-PD

**fixing agent, pigments: paper fiber**  
*Polymin® SO*

**fixing agent, pitch**  
*Polymin® 978 L*

**fixing agent, pitch: paper**  
 Alcofix®

**fixing agent, pitch: paperboard**  
 Alcofix®

**fixing agent, pitch: papermaking**  
 Catiofast® GM; Catiofast® NB-PD

**fixing agent, pitch: pulp**  
 Alcofix®

**fixing agent, recycled paper**  
 Aquacoll 30 CC; Aquacoll 30 PA

**fixing agent, resin treatments**  
 Aluminasol 100; Aluminasol 200

**fixing agent, rosin size: papermaking**

- MPD-7  
**fixing agent, rosin size: wet-end papermaking**  
 FX-704; FX-706  
**fixing agent, sizes: acidic papermaking**  
 Hanwet HF-59  
**fixing agent, sizes: neutral papermaking**  
 Hanwet HF-59  
**fixing agent, slimy colloids: paper fiber**  
 Polymin® SO  
**fixing agent, starch: acidic papermaking**  
 Hanwet HF-59  
**fixing agent, starch: neutral papermaking**  
 Hanwet HF-59  
**fixing agent, starch: papermaking**  
 MPD-7  
**fixing agent, stickies: papermaking**  
 Catiofast® GM  
**fixing agent, strength agents: acidic papermaking**  
 Hanwet HF-59  
**fixing agent, strength agents: neutral papermaking**  
 Hanwet HF-59  
**fixing agent, trash: pitch control: wet-end papermaking**  
 Aquaprox® MFC 1490; Aquaprox® MFC 3320; Synthro®-Fix WF  
**fixing agent, trash: stickies control: wet-end papermaking**  
 Aquaprox® MFC 1490; Aquaprox® MFC 3320; Synthro®-Fix WF  
**fixing agent, trash: wet-end paper**  
 Synthro®-Sol DC 819 L  
**fixing agent, trash: wet-end papermaking**  
 Synthro®-Pac 812 L  
**flame resist.**  
*Terephthaloyl chloride*  
**flame retardant**  
 Airflex® 4500; Airflex® 4514; *Alumina; Epoxy, bisphenol A; EZA®; Isopropyl phosphate; Paraffin, chlorinated; Path® 9; Servoxy® VPIZ 100; Servoxy® VPNZ 7/100; Servoxy® VPPZ 100; Tetrakis (hydroxymethyl) phosphonium sulfate; Zeolite; Zinc oxide*  
**flame retardant, ABS**  
 Chlorez® 700  
**flame retardant, ABS-PC**  
*Triphenyl phosphate*  
**flame retardant, aq. coatings**  
 Doversperse 3; Doversperse A-1  
**flame retardant, aq. systems**  
 Fyrol® 51  
**flame retardant, cellulose**  
*Sodium borate decahydrate*  
**flame retardant, cellulosic insulation**  
*Boric acid*  
**flame retardant, cellulose**  
*Ammonium phosphate, dibasic; Ammonium pyrophosphate; Antimony trioxide; Borax; t-Butylphenyl diphenyl phosphate; FRCROS 334; FRCROS 349; FRCROS 481; Neobor®; Phosflex® 61B; Phosflex® TBEP; Sodium tetraborate pentahydrate; TBP; Tributyl phosphate; Triphenyl phosphate*  
**flame retardant, coatings**  
*Aluminum hydroxide; Busan® 11-M2; Chlorez® 700; Chlorez® 700-SS; Chlorez® 700-SSNP; Chlorez® 725-S; Chlorez® 760; Hydrax™ H-312; Hydrax™ H-470; Hydrax™ H-490; Hydrax™ H-550; Hydrax™ H-636; Hydrax™ H-910; KC-350; KC-500; KC-750; KC-900; SB-332; SB-805; Tributyl phosphate; Triphenyl phosphate*  
**flame retardant, decorative crepe**  
 Necco Fire Retardant 3000DM  
**flame retardant, decorative tissue**  
 Necco Fire Retardant 3000DM  
**flame retardant, fiber**  
*Antimony pentoxide*  
**flame retardant, ground paper**  
 Spartan FR-48  
**flame retardant, HIPS**  
*Triphenyl phosphate*  
**flame retardant, intumescent coatings**  
*Ammonium polyphosphate; Dimelamine phosphate; Melapur® MPH*  
**flame retardant, intumescent coatings: corrugated sheet**  
 PyroCide™ II  
**flame retardant, intumescent coatings: paper**  
 PyroCide™ II  
**flame retardant, intumescent coatings: paperboard**  
 PyroCide™ II  
**flame retardant, latex intumescent coatings**  
*Melamine phosphate*  
**flame retardant, LDPE**  
 Chlorez® 700  
**flame retardant, NC coatings/lacquers**  
*Triaryl phosphate*  
**flame retardant, paper**  
*Aluminum hydroxide; Ammonium bromide; Ammonium phosphate, dibasic; Ammonium polyphosphate; Ammonium pyrophosphate; Antiblaze® 100; Antiblaze® CL; Antiblaze® TR; Antiblaze® V6; Antimony trioxide; Barium metaborate; Boric acid; Chlorez® 700; Chlorez® 700-DF; Chlorez® 700-SS; Chlorez® 700-SSNP; Chlorez® 725-S; Chlorez® 760; Dimelamine phosphate; FR-11; FRCROS 334; FRCROS 349; FRCROS 481; FRCROS 484; Hydrad™ 10; Hydrad™ 10W; Hydrad™ 15; Hydrad™ 15W; Hydrad™ 20; Hydrax™ H-312; Hydrax™ H-470; Hydrax™ H-490; Hydrax™ H-550; Hydrax™ H-636; Hydrax™ H-910; KC-350; KC-500; KC-750; KC-900; Melamine phosphate; Melapur® MPH; Melapur® WP; Micral® 532; Necco Fire Retardant 3000DM; Necco FR 682; Necco FR 7065D; Nyacol® A-1530; Nyacol® A-1550; Paraffin, chlorinated; Perchloropentacyclodecane; Pyrex AMN; Pyrex FA; Sachtolith® HD-S; Sachtolith® L; SB-332; SB-805; Spartan CM; Spartan FR-48; Spartan X-12; Thermoguard® S; Thermoguard® UF; Zinc sulfide*  
**flame retardant, paper coatings**  
 Doversperse 3; Doversperse A-1; Phosflex® 61B  
**flame retardant, paperboard**  
 Spartan CM; Spartan FR-48; Spartan X-12  
**flame retardant, pigmented coatings**  
 FRCROS 484  
**flame retardant, plastisols**  
 Phosflex® TBEP  
**flame retardant, PP homopolymers**  
*Polypropylene*  
**flame retardant, PPO**  
*Triphenyl phosphate*  
**flame retardant, PS**  
 TBP  
**flame retardant, PU foams**  
*Ammonium polyphosphate*  
**flame retardant, PVAc**  
 Phosflex® TBEP; TBP  
**flame retardant, PVAc emulsions**  
*t-Butylphenyl diphenyl phosphate*  
**flame retardant, PVAc polymers**  
 Phosflex® 61B  
**flame retardant, PVC**  
*Antimony trioxide; t-Butylphenyl diphenyl phosphate; Phosflex® 61B; TBP; Thermoguard® S; Triaryl phosphate*  
**flame retardant, reactive: paper**  
*Bis (β-chloroethyl) vinyl phosphonate; Tetrabromophthalic anhydride*  
**flame retardant, resins**  
*Antimony pentoxide*  
**flame retardant, SBR**  
 Chlorez® 700  
**flame retardant, stabilized polymers**  
*Perchloropentacyclodecane*  
**flame retardant, triacetate film/sheet**  
*Triphenyl phosphate*  
**flameproofing agent, paper**  
*Ammonium phosphate; Ammonium sulfamate; Ammonium sulfate; Calcium sulfamate*  
**flash agent, dyes/pigments**  
 Rapisol B-30, B-80, B-90, C-70  
**flattening agent, paper**  
 Rohamere® 61  
**flattening agent**  
*Aluminum stearate; Aluminum tristearate; Diatomaceous earth; Silica, fumed*  
**flattening agent, coatings**  
*Ethylene/VA copolymer*  
**flattening agent, emulsions**  
*Calcium stearate*  
**flattening agent, lacquers**  
*Zinc stearate*  
**flattening agent, paper**  
*Diatomaceous earth, amorphous; Sylysia 250; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Sylysia 430; Sylysia 435; Sylysia 440; Sylysia 445; Sylysia 450*  
**flattening agent, paper coatings**  
 Acemat™ TS100  
**flexibility modifier**  
*Octyl acrylate*  
**flexibilizer, films**  
*Mica*  
**flexibilizer, hot-melt coatings**  
 Ultrathene® UE 631-04; Ultrathene® UE 634-04; Ultrathene® UE 639-67; Ultrathene® UE 649-04; Ultrathene® UE 653-67; Ultrathene® UE 654-67  
**flexibilizer, paper coatings**  
 Cecavon® CA 350 P; CN 104 B80; CN 111; Photomer® 4015  
**flexibilizer, wet-strength paper applics.**  
 BHMT-HP  
**floculant**  
*Acrylic acid/acrylamide copolymer; Ageflex FA-2; Aluminum sulfate; Amerfloc® 285; BHMT Amine; BHMT-HP; Bis-hexamethylenetriamine; Diethylaminoethyl acrylate; Gluconal® GA-50; Gluconal® NG-C; 2-Hydroxy 3-methacryl oxypropyl trimoniumchloride; Magnesium chloride; Methacrylamidopropyltrimethylammonium chloride; Methacrylic acid copolymer; Mhoromer® BM 613; PEG-2M; PEG-90M; PEG-115M; Polyox® WSR 301; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; Qemifloc CEPG 164; Sodium p-styrenesulfonate; Spinomar NaSS; SPM*  
**floculant, acid dye receptive fiber**  
 Blemmer QA  
**floculant, anionic**  
*2-Acrylamido-2-methylpropanesulfonic acid*  
**floculant, anionic stable suspensions**  
 Floclair® HKL; Floclair® LP 15; Floclair® LP 25  
**floculant, belt presses**  
 Floclair® DK-40; Floclair® DK-65; Floclair® DK-65 H; Floclair® DK-65 L; Floclair® DK-65 S; Floclair® DK-90; Floclair® VP 3678  
**floculant, calcium carbonate-starch fine paper furnishes**  
 Densifloc 30  
**floculant, chamber filter presses**  
 Floclair® DK-40; Floclair® DK-65; Floclair® DK-65 H; Floclair® DK-65 L; Floclair® DK-65 S; Floclair® DK-90; Floclair® VP 3678  
**floculant, clarification**  
 Tramfloc™ 290  
**floculant, coatings**  
*Polyacrylamide*  
**floculant, colloidal substances: paper fiber**  
 Polymin® SO  
**floculant, cooling treatment**  
*Sodium nitrite*  
**floculant, decolorizing**

Floclair® LP 25  
**floculant, dewatering industrial slurries**  
 Drewfloc® 2270  
**floculant, dewatering of sludges**  
 Floclair® DK-90  
**floculant, effluent sludge dewatering: paper**  
 Zetag®  
**floculant, effluent treatment: aq. systems**  
 Bubreak® 401D; Bubreak® 403  
**floculant, effluent treatment: paper**  
 Magnafloc®  
**floculant, emulsion breaking**  
 Clar+lon™ A405P; Clar+lon™ A410P; Clar+lon™ A415P; Clar+lon™ A420P; Hyper+lon™ 1050; Hyper+lon™ 1050A; Hyper+lon™ 2050A  
**floculant, emulsion decolorizing**  
 Floclair® HKL  
**floculant, emulsion splitting**  
 Floclair® HKL; Floclair® LP 15; Floclair® LP 25  
**floculant, emulsions**  
 KELZAN®; KELZAN® XC Polymer  
**floculant, fiber**  
*Isostearyl ethylimidonium ethosulfate*;  
 Schercoquat IAS; Schercoquat IIS  
**floculant, fibrous material recovery**  
 Floclair® DMR; Floclair® PAR  
**floculant, filter press**  
 Qemifloc 8086  
**floculant, filtration: paper fiber reclamation**  
 Polymin® KE 78 PF; Polymin® KE 84  
**floculant, fine paper**  
 Han-Floc 45®  
**floculant, fines: paper fiber**  
 Polymin® SO  
**floculant, flotation**  
 Floclair® DK-90  
**floculant, flotation enhancement**  
*Polyquaternium-6*  
**floculant, flotation: paper fiber reclamation**  
 Polymin® KE 78 PF; Polymin® KE 84  
**floculant, industrial process water treatment**  
 Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC;  
 Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC;  
 Ageflex FM-1Q80DMS  
**floculant, industrial processing**  
*Polyamide/epichlorohydrin polymer*  
**floculant, industrial wastewater treatment**  
 Clar+lon™ 603; Clar+lon™ 605; Clar+lon™ 610;  
 Clar+lon™ 610M; Clar+lon™ A405P; Clar+lon™ A410P;  
 Clar+lon™ A415P; Clar+lon™ A420P;  
 Floclair® HKL; Hyper+lon™ 1050; Hyper+lon™ 1050A; Hyper+lon™ 2050A  
**floculant, industrial water**  
 Powdered Guar Gum Type A; Powdered Guar  
 Gum Type AA; Powdered Guar Gum Type B;  
 Powdered Guar Gum Type BB  
**floculant, industrial water treatment**  
 Clar+lon™ A405P; Clar+lon™ A410P; Clar+lon™ A415P; Clar+lon™ A420P; Hyper+lon™ 1050;  
 Hyper+lon™ 1050A; Hyper+lon™ 2050A;  
*Polyaluminum chloride*  
**floculant, inorg. sludge filtration**  
 Drewfloc® 2270  
**floculant, kraft paper**  
 Han-Floc 45®  
**floculant, lagoon treatment**  
 Clar+lon™ A405P; Clar+lon™ A410P; Clar+lon™ A415P; Clar+lon™ A420P; Hyper+lon™ 1050;  
 Hyper+lon™ 1050A; Hyper+lon™ 2050A  
**floculant, neutral sizing cardboard**  
*Polyaluminum hydroxide chloride sulfate*  
**floculant, neutral sizing papermaking**  
*Polyaluminum hydroxide chloride sulfate*  
**floculant, neutral sizing process: paper/**  
**cardboard**  
 Paper-PAC-N®  
**floculant, newsprint**  
 Han-Floc 45®  
**floculant, paper**  
 Chromium *potassium sulfate*; Clar+lon™ 603;

Clar+lon™ 605; Clar+lon™ 610; Clar+lon™ 610M;  
 Clar+lon™ A405P; Clar+lon™ A410P;  
 Clar+lon™ A415P; Clar+lon™ A420P; Delfloc®  
 763; Gilufloc®; Hyper+lon™ 1050; Hyper+lon™  
 1050A; Hyper+lon™ 2050A; KELZAN®;  
 KELZAN® XC Polymer; PEG-5M; PEG-7M;  
 PEG-9M; PEG-14M; PEG-23M; PEG-45M;  
*Polyquaternium-5*; Qemifloc AH 1000; Qemifloc  
 AH 1054; Sumaclear 2000; Sumaclear P10,  
 P20; Sumaclear P30, P35; Sumalchlor 100, 200  
**floculant, paper mill wastewater treatment**  
 Harifloc  
**floculant, paper mill/air scrubber water**  
**clarification**  
 Drewfloc® 2270  
**floculant, paper/paperboard**  
 Amerfloc® 275  
**floculant, paper/paperboard: aq./fatty food-**  
**contact**  
*N-Methylallylamine hydrochloride polymer with*  
*epichlorohydrin; Polyamide/epichlorohydrin*  
*polymer; Polyquaternium-6*  
**floculant, papermaking**  
*Dimethylamine/epichlorohydrin copolymer*; Han-  
 Floc 45®; Papermaker's Alum; *Polyaluminum*  
*chloride*; Polyox® WSR 205; Polyox® WSR  
 303; Polyox® WSR Coagulant; Polyox® WSR  
 N-750; Tramfloc™ 290; Ultimer™ 1460  
**floculant, papermaking water treatment**  
 Agefloc B4508P  
**floculant, pigments**  
 KELZAN®; KELZAN® XC Polymer  
**floculant, pigments: paper fiber**  
 Polymin® SO  
**floculant, primary: papermaking**  
 Sachtoklar® 37; Sachtoklar® 39  
**floculant, primary: wastewater treatment**  
 Sachtoklar® 37; Sachtoklar® 39  
**floculant, process water treatment**  
 Floclair® DA-7; Floclair® DA-15; Floclair® DA-30  
**floculant, pulp**  
 Eldorado WT-50; *Polyquaternium-5*  
**floculant, pulp/paper**  
*Isostearamidopropyl ethyldimonium ethosulfate*;  
*Isostearyl ethylimidonium ethosulfate*; Micro  
 Floc™; Polyquat 2 C; Polyquat 188; Polyquat  
 PR; Polysynth RRE; Schercoquat IAS;  
 Schercoquat IIS; Sumaclear 800B; Sumaclear  
 801B; Sumaclear 802B; Sumaclear 803B;  
 Sumaclear 804B; Sumaclear 805B; Sumaclear  
 820B; Sumaclear 1000; Sumalchlor 50  
**floculant, pulp/paper mill water treatment**  
 Hartfloc® 210; Hartfloc® Anionic Series  
**floculant, pulp/paper mills**  
 Alcan Aluminum Sulphate Solid; Alcan Aluminum  
 Sulphate Sol'n.  
**floculant, raw water clarification**  
 Qemifloc FL 61  
**floculant, raw water: paper**  
 Magnafloc®  
**floculant, save-all: paper**  
 Magnafloc®  
**floculant, sedimentation: paper fiber**  
**reclamation**  
 Polymin® KE 78 PF; Polymin® KE 84  
**floculant, sewage/plant effluent treatment**  
*Polyaluminum chloride*  
**floculant, slimy colloids: paper fiber**  
 Polymin® SO  
**floculant, sludge conditioning**  
 Drewfloc® 2270; Han-Floc 45®; Tramfloc™ 290  
**floculant, sludge draining**  
 Floclair® DA-7; Floclair® DA-15; Floclair® DA-30;  
 Floclair® DK-20  
**floculant, sludge treatment**  
 Floclair® DK-40; Floclair® DK-65; Floclair® DK-  
 65 H; Floclair® DK-65 L; Floclair® DK-65 S;  
 Floclair® VP 3678  
**floculant, solid-liq. separation systems: pulp/**  
**paper**

Sufloc Flocculants  
**floculant, waste minimization programs: aq.**  
**systems**  
 Bubreak® 401D; Bubreak® 403  
**floculant, waste sludges**  
 Agefloc A50HV-P; Agefloc A50LV-P; Agefloc A50-  
 P; Agefloc B50-P  
**floculant, waste treatment**  
 Eldorado WT-50  
**floculant, wastewater**  
*Polyaluminum chloride; Polyamide/epichlorohy-*  
*drin polymer*  
**floculant, wastewater clarification: pulp/paper**  
 PolyFloc™  
**floculant, wastewater treatment**  
*Acrylates/acrylamide copolymer*; Ageflex FM-1;  
*Dimethylaminoethyl methacrylate*; Floclair®  
 DA-7; Floclair® DA-15; Floclair® DA-30;  
 Floclair® DK-20; Floclair® DK-40; Floclair® DK-  
 65; Floclair® DK-65 H; Floclair® DK-65 L;  
 Floclair® DK-65 S; Floclair® DK-90; Floclair®  
 LP 15; Floclair® LP 25; Floclair® VP 3678;  
 Han-Floc 45®; PEG-5M; PEG-9M; PEG-23M;  
 PEG-45M; *Poly (2-hydroxypropyl-N,N-dimethyl*  
*ammonium chloride)*; *Polyquaternium-6*;  
 Qemifloc FL 61; Sumaclear 800B; Sumaclear  
 801B; Sumaclear 802B; Sumaclear 803B;  
 Sumaclear 804B; Sumaclear 805B; Sumaclear  
 820B; Sumaclear 1000; Sumaclear 2000;  
 Sumaclear P10, P20; Sumaclear P30, P35;  
 Sumalchlor 50; Sumalchlor 100, 200  
**floculant, wastewater treatment: paper mills**  
 Densifloc 30  
**floculant, wastewater: paper**  
 Sachtofloc® 46.3; Sachtofloc® 46.6; Sachtofloc®  
 46.12; Sachtofloc® 46.18; Sachtofloc® 46.24;  
 Sachtofloc® 46.60  
**floculant, wastewater: pulp/paper**  
 PAC-300  
**floculant, water clarification**  
*Polyquaternium-6*  
**floculant, water clarification: pulp/paper**  
 PolyFloc™  
**floculant, water processing treatment**  
 Floclair® HKL  
**floculant, water treatment**  
*Acrylates/acrylamide copolymer*; Alcan Aluminum  
 Sulphate Solid; Alcan Aluminum Sulphate Sol'n.;  
*Calcium monocarbonate*; *Diethylaminoethyl*  
*acrylate dimethyl sulfate quat.*; *Dimethylamine/*  
*epichlorohydrin copolymer*; *Dimethylaminoethyl*  
*acrylate dimethyl sulfate*; *Dimethylaminoethyl*  
*acrylate methyl chloride quat.*; *Dimethylamino-*  
*ethyl methacrylate dimethyl sulfate quat.*;  
*Dimethylaminoethyl methacrylate methyl*  
*chloride quat.*; *Dimethyl diallyl ammonium*  
*chloride*; Floclair® DA-7; Floclair® DA-15;  
 Floclair® DA-30; Floclair® DK-20; Floclair® DK-  
 40; Floclair® DK-65; Floclair® DK-65 H;  
 Floclair® DK-65 L; Floclair® DK-65 S; Floclair®  
 DK-90; Floclair® VP 3678; Han-Floc 45®; N®  
 Sodium Silicate; Particol®; *Polyacrylamide*;  
*Polyethylenimine*; *Polysilicic acid*; *Potassium*  
*alum anhydrous*; *Sodium aluminate*  
**floculant, water treatment: pulp/paper**  
 Fiberfloc™  
**flocculation**  
 Imidazoline 180H; Imidazoline SOH  
**flotation**  
*Coccolonium chloride*  
**flotation agent**  
 Armeen® 2C; Burco® Imidazoline O; Burco®  
 Imidazoline T; *C10 alcohols*; *C20-24 alcohols*;  
*2,6-Dimethyl heptanol-4*; *Hydrogenated*  
*ditallowamine*; *Lignin sulfonate*; Novus™;  
 Servoxy® VPNZ 71/100; *Tall oil*  
**flotation agent, coatings**  
 Silwet® L-77  
**flotation agent, coters**  
 Qemidinc 8002

**flotation agent, flocculation**

Stearamine acetate

**flotation agent, flotation frothing agent:**

minerals

Stearamine acetate

**flotation agent, ground wood, hydropulpers**

Qemidink 8002

**flotation agent, iron processing**

Sodium bisulfide

**flotation agent, mineral**

Citric acid; Kerosene

**flotation agent, paper**

Silwet® L-77

**flotation agent, pigment flushing**

Stearamine acetate

**flotation agent, pulp/paper**

Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24

**flotation agent, recycled fiber systems**

ReChem®

**flotation agent, secondary: waste treatment**

Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24

**flotation agent, starch systems**

Qemidink 8002

**flotation agent, wastewater**

Qemidink 8002

**flotation agent, water treatment**

Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24

**flotation agent, white paper white water loops**

Qemidink 8002

**flotation agent, wood-containing fiber**

Berocell® 8000 Series

**flotation agent, wood-free fiber**

Berocell® 8000 Series

**flotation collector**

BHMT Amine; Bis-hexamethylenetriamine; Hartaflo™ FA-5164; Hartaflo™ P-621; Hartaflo™ SE-6600; Hartaflo™ SE-6620; 2-Mercaptobenzothiazole; Radiaflo™; Sodium lauryl sulfate; Sodium 2-mercaptobenzothiazole; Sodium petroleum sulfonate; Stearyl hydroxyethyl imidazoline; Sulfated castor oil;

Tall oil acid; Tetrasodium dicarboxyethyl stearyl sulfosuccinamate

**flotation collector, deinking**

Surfonic® POA-25R2; Surfonic® POA-L42; Surfonic® POA-L44; Surfonic® POA-L61; Surfonic® POA-L62; Surfonic® POA-L62LF; Surfonic® POA-L64; Surfonic® POA-L81; Surfonic® POA-L101; Surfonic® POA-LF1; Surfonic® POA-LF2; Surfonic® POA-LF5; Surfonic® POA-S38; Teric™ PE 61; Teric™ PE 62; Teric™ PE 64; Teric™ PE 68; Teric™ PE 75; Teric™ PE 87

**flotation collector, waste paper recycling**

Surfonic® POA-25R2; Surfonic® POA-L42; Surfonic® POA-L44; Surfonic® POA-L61; Surfonic® POA-L62; Surfonic® POA-L62LF; Surfonic® POA-L64; Surfonic® POA-L81; Surfonic® POA-L101; Surfonic® POA-LF1; Surfonic® POA-LF2; Surfonic® POA-LF5; Surfonic® POA-S38; Teric™ PE 61; Teric™ PE 62; Teric™ PE 64; Teric™ PE 68; Teric™ PE 75; Teric™ PE 87

**flotation processing**

Oleyl hydroxyethyl imidazoline

**flotation systems**

Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882

**flow aid**

Benaqua® 1000; Isopar® G; Isopar® H; Isopar® K; Isopar® L; Isopar® M; Lithopone; Lucidene® 602; Pruliorl® E 200; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Silicone glycol copolymer

**flow aid, coatings**

Van Gel® B

**flow aid, fine powds.**

Ouso® G35, G38, WR55, WR83

**flow aid, gran. powds.**

TEGOPREN® 5863

**flow aid, hot-melt coatings**

Acrawax® C

**flow aid, lacquers**

Butyl stearate; Isooctyl stearate

**flow aid, paper coatings**

Calsan™ 55; Calsan™ 65; Lubracal® 48; Lubracal® 53; Lubracal® 60

**flow control agent**

CAB 500-1; CAB-500-5; Cab-O-Sil® M-5P; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; C13-14 isoparaffin; Dimethicone copolyol; Foamkill® MS-1; Methyl polysiloxane; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Polyethylene; Silwet® L-7200; Silwet® L-7210; Silwet® L-7230; Sipernat® 22; Sipernat® 22S; Sipernat® 50; Sipernat® 50S; TEGO® Glide 100

**flow control agent, ABS**

Hercolite® 240; Hercolite® 290

**flow control agent, coatings**

Cab-O-Sil® EH-5; Cab-O-Sil® M-5; Cab-O-Sil® PTG; Lodyne®; Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7220; Silwet® L-7500; Silwet® L-7608

**flow control agent, fiber**

Silwet® L-722; Silwet® L-7220; Silwet® L-7608

**flow control agent, paper**

Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7087; Silwet® L-7220; Silwet® L-7500; Silwet® L-7608

**flow control agent, paper clear coatings**

Ebecryl® 1360; Ebecryl® 3702

**flow control agent, paper coatings**

Silicone hexaacrylate; Surfynol® 502; TEGO® Glide 403; TEGO® Glide 404

**flow control agent, paper/board coatings**

TEGO® Flow 354

**flow control agent, pigmented paper coatings**

Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free

**flow control agent, pigments**

Silwet® L-7220; Wacker HDK® N20

**flow control agent, preprint applcs.**

TEGO® Glide 403

**flow control agent, PVC**

Hercolite® 240; Hercolite® 290

**fluidizing agent, emulsions**

Lauryl hydroxyethyl imidazoline

**fluidizing agent, pigments**

Lauryl hydroxyethyl imidazoline

**fluidizing agent, protein paper/paperboard coatings: food-contact**

Dicyandiamide

**fluidizing agent, starch paper/paperboard coatings: food-contact**

Dicyandiamide

**fluorescence quencher, backwater**

Nofluor

**fluorescence quencher, fluorescent whitener-containing paper**

Quenchphor™ AK 01 Liq.; Quenchphor™ E1006 Liq.; Quenchphor™ E1025 Liq.

**fluorescence quencher, nonbrightened paper stock**

DF-40

**fluorescence quencher, recycled paper**

Nofluor; Nofluor CA; Nofluor N

**fluorescence quencher, size-press sol'ns.**

Nofluor

**fluorescence quencher, sizes**

Nofluor CA; Nofluor N

**fluorescence quencher, stock prep. equipment: paper**

Cartarex® 2L Liq.; Cartarex® NT Liq.

**fluorescence quencher, wastewater**

DF-40

**fluorescence quencher, water circulation equipment: paper**

Cartarex® 2L Liq.; Cartarex® NT Liq.

**fluoride removal, water treatment**

Magnesium hydroxide; Magnesium oxide

**fluoridizer, paper**

Zonyl® NF; Zonyl® RP

**fluoridizer, paperboard**

Zonyl® NF; Zonyl® RP

**fluorochemicals, grease-resistant paper**

Bersize® 6409

**fluorochemicals, oil-resistant paper**

Bersize® 6409

**fluorochemicals, water-resistant paper**

Bersize® 6409

**flushing agent**

Aerosol® C-61

**foam booster/stabilizer, paper coatings**

Laurylamine oxide

**foam builder**

Aerosol® C-61; Alkanol® 189-S; Coco-betaine; C10-12 pareth-5; C12-14 pareth-7; Deceth-4 phosphate; DeMOX CAPO; DeMOX LAO; Geropon® T-77; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; PEG-80 sorbitan laurate; Rhodacal® 3594; Rhodacal® DS/4-E25; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Sodium methyl oleoyl taurate; Sodium oleyl sulfosuccinamate; Sulfotex OA; Texapon® K-12 Needles; Texapon® VHC Needles; Trideceth-8; Trideceth-15

**foam builder, alkaline cleaners**

Aerosol® 18

**foam builder, coatings**

Ammonium lauryl sulfate

**foam builder, dyes**

Ammonium lauryl sulfate

**foam builder, emulsion polymerization**

Ammonium lauryl sulfate; NACCONOL® 40G; NACCONOL® 90G; Stanfax 238; Texapon® ZHC Powder

**foam builder, emulsion polymerization: SBRs**

Aerosol® 18

**foam builder, emulsion polymerization: vinyl chloride**

foam builder

## foam builder, filler coatings

Aerosol® 18  
**foam builder, filler coatings**  
Stanfax 320; Stanfax 388  
**foam builder, filter media saturants**  
Stanfax 320  
**foam builder, foam**  
Capramide DEA; Cocamide DEA; Cocamidopropylamine oxide; Lauramide DEA; Myristamide DEA  
**foam builder, paper**  
Aromox® C/12; Aromox® C/12-W; Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Isodeceth-6; NACCONOL® 40G; NACCO-NOL® 90G; Trideceth-10  
**foam builder, paper coatings**  
Rhodomox® CAPO  
**foam builder, paper felt washing**  
Surmax® CS-504; Surmax® CS-515  
**foam builder, paper softening**  
Arquad® 2HT-75; Arquad® 2HT-75PG  
**foam builder, pigment dispersions**  
Texapon® VHC Needles  
**foam builder, polymer dispersions**  
Texapon® K-12 C Powd.; Texapon® K-12 Granules; Texapon® K-12 PA 15; Texapon® K-1296 C Needles; Texapon® VHC Needles  
**foam builder, pulp making process**  
Deatron WB  
**foam builder, pulp/paper**  
DeSonic™ 6T; Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PSLS; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; Paxnol TLS  
**foam builder, pulp/paper processing**  
Alfonic® 1012-5.5; Alfonic® 1412-9  
**foam builder, resins**  
Isodeceth-6  
**foam builder, water washing: post digestion of pulp**  
Disfoam BF-75  
**foam builder, waxes**  
Isodeceth-6  
**foam control agent**  
Behenyl alcohol; Ceteareth-50; Ditridecyl sodium sulfosuccinate; Isostearyl alcohol; Nonyl nonoxynol-8; Petroleum distillates; Radiaflot®  
**foam control agent, amine scrubbing units**  
Oakite® Defoamant  
**foam control agent, aq. systems**  
CNC Antifoam 495, 495-M; Colloid™ 1010  
**foam control agent, casein**  
Foam Blast 433C  
**foam control agent, casein coatings**  
Foam Blast 433FW  
**foam control agent, coatings**  
Dow Corning® 1430 Emulsion; Dow Corning® Antifoam H-10; Drewplus® T-4202  
**foam control agent, coatings: food-contact**  
Colloid™ 1010  
**foam control agent, dyes**  
Dow Corning® Antifoam Y-30  
**foam control agent, emulsion coatings**  
Drewplus® L-496  
**foam control agent, industrial**  
Oakite® Defoamant  
**foam control agent, industrial: food-contact coatings**  
Polysiloxane  
**foam control agent, industrial: high-solids coatings**  
Polysiloxane  
**foam control agent, industrial: varnishes**  
Polysiloxane  
**foam control agent, industrial: water-reducible coatings**  
Polysiloxane  
**foam control agent, low toxicity: water treatment**  
Poly-Tergent® E-20B

**foam control agent, paper**  
CNC Antifoam 495, 495-M; Dow Corning® Antifoam A Compd.; Dow Corning® Antifoam H-10; Dow Corning® Antifoam Y-30; Sag 770; Simethicone; Teric™ 127  
**foam control agent, paper coatings**  
Dow Corning® 1430 Emulsion; Dow Corning® Antifoam C Emulsion; Dow Corning® Antifoam FG-10; Surfynol® SE; Surfynol® SE-F  
**foam control agent, paper mill stocks**  
Oakite® Defoamant  
**foam control agent, paper/printing: resin sizes**  
Dow Corning® Antifoam Y-30  
**foam control agent, paper: food-contact**  
Colloid™ 1010  
**foam control agent, paperboard**  
Sag 770  
**foam control agent, paperboard: food-contact**  
Colloid™ 1010  
**foam control agent, papermaking**  
Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B  
**foam control agent, pulp/paper**  
Antarox® EGE 25-2; Oakite® Defoamant RC; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123  
**foam control agent, pulp/paper chems.**  
Teric™ T5; Teric™ T10  
**foam control agent, resin sizes**  
Dow Corning® Antifoam H-10  
**foam control agent, sizing**  
Dow Corning® 1430 Emulsion  
**foam control agent, starch coatings**  
Foam Blast 433FW  
**foam control agent, starches**  
Dow Corning® 1430 Emulsion; Foam Blast 433C  
**foam control agent, wastewater treatment**  
Dow Corning® 1430 Emulsion; Dow Corning® Antifoam 1520-US; Dow Corning® Antifoam FG-10; Dow Corning® Antifoam H-10  
**foam control agent, water treatment**  
Dow Corning® 1430 Emulsion; Dow Corning® Antifoam 1520-US; Dow Corning® Antifoam FG-10; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B  
**foam control agent, water-reducible coatings**  
Drewplus® L-496  
**foam control agent, wax coatings**  
Foam Blast 433FW  
**foam control agent, waxes**  
Foam Blast 433C  
**foam depressant, paper deinking**  
Tergitol® Min-Foam 1X  
**foaming agent, ABS polymerization**  
Potassium rosinate  
**foaming agent, emulsion polymerization**  
TEA-lauryl sulfate  
**foaming agent, paper**  
Carsonon® TD-10; Stafoam F  
**foaming agent, pulp processing**  
C12-16 pareth-1; C12-16 pareth-2; C12-16 pareth-3; C12-16 pareth-5; C12-16 pareth-6; C12-16 pareth-7; C12-16 pareth-8; C12-16 pareth-11  
**foaming agent, SBR polymerization**  
Potassium rosinate  
**fold endurance improver, paper saturation:**

**label stock**  
Nacrylic X 4280; X-Link 2833  
**fold endurance improver, paper saturation: tag stock**  
Nacrylic X 4280; X-Link 2833  
**food additive, indirect: paper/paperboard**  
Trans-278  
**food pkg. materials**  
Abscents® 3000; Dimethyl siloxane; Drakeol® 9; Ethylene dioleamide; Formasil® 45; Lipowax C; Mineral oil; Penreco Amber; Zeolite  
**food pkg. paper/paperboard**  
Formic acid; Shamrock Hydrocer EEP 16  
**food-contact applics.**  
Acrawax® C; Atlac® 382-05; Atlac® 382-05A; Atlac® 382-05AC; Indopol® H-100; Indopol® H-1500; Indopol® L-10; Koster Keunen Microcristalline Waxes; MP-22; MP-22VF; MP-22XF; Multiwax® ML-445; PD-23; PD-25; PD-28; Penreco 2251 Oil; Penreco 2257 Oil; Penreco 2259 Oil; Penreco 2260 Oil; Penreco 2263 Oil; Penreco Blond; Penreco Cream; Penreco Lily; Penreco Regent; Penreco Royal; Penreco Snow; Penreco Super; Pentalyne® 856; Sachtoklar® 37; Sachtoklar® 39  
**formation aid**  
Eldorado PA-755  
**formation aid, paper/paperboard: aq./fatty food-contact**  
Hydroxypropyl guar; Sodium carboxymethyl guar gum  
**formation aid, papermaking**  
Jaguar® 418; Lycoid® 260  
**formation aid, specialty paper**  
Jaguar® 2100®  
**free radical initiator, UV curable systems: paper coatings**  
Esacure® KIP100F  
**free radical initiator, UV curing: paper**  
BPO; Esacure® EDB; Esacure® KT37; Esacure® TZT  
**free-flow agent**  
Silica, hydrated  
**free-flow agent, paper**  
Aerosil® 200  
**friction material, clutch paper**  
Celite® 263; Celite® 321; Celite® 388  
**frictionizing agent, corrugated boxes**  
Ludox® CL-X  
**frictionizing agent, fine paper**  
Printplus 500  
**frictionizing agent, multiwall paper bags**  
Ludox® CL-X  
**frictionizing agent, specialty paper**  
Printplus 500  
**froth flotation**  
Deodorized kerosene  
**frothing agent, flotation**  
Disodium oleamide MIPA-sulfosuccinate; 2-Ethylhexanol; Oleic acid; Pine (Pinus palustris) oil; Polypropylene glycol; PPG-3 methyl ether  
**fulling assistant**  
Ceteareth-10; Ceteareth-14  
**fumigant, paper/paperboard sizing: dry food-contact**  
Ethylene oxide  
**functional additive, paper**  
Megafil® PCC  
**functional monomer, paper coatings**  
Itaconic acid-bis-(3-sulfopropyl)-ester, dipotassium salt; Potassium (3-sulfopropyl) acrylate  
**fungicidal formulations**  
Cyclohexane  
**fungicide**  
Acticide® DW; Ammonium thiosulfate; Barquat® MB-50; Basic yellow 2;  $\beta$ -Bromo- $\beta$ -nitrostyrene; Calcium oxide; Cocoaalkonium chloride; Cocotrimonium chloride; Cocoyl hydroxyethyl imidazoline; Copper hydroxide (ic); Copper nitrate (ic); Copper 8-quinolinolate;

- Cupric sulfate anhydrous; Dichlorophene; Dodine; Ethylenediamine; Ethylene oxide; Hexamethylenetetramine; Maleic anhydride; 2-Mercaptobenzothiazole; Methylenebis (thiocyanate); Myristalkonium chloride; Nipabenzyl; Nipacide® BKX; Nipacide® FC; Nipacide® XRP; Nonylphenol; Oleyl hydroxyethyl imidazoline; Paraformaldehyde; Potassium N-methyldithiocarbamate; Proxel® DL; Proxel® XL2; Sodium MBT; Sodium benzoate; Sodium chlorite; Sodium dimethylthiocarbamate; Sodium hypochlorite; Sodium pentachlorophenate; Sulfur; Sulfur dioxide; Thiabendazole; Thiabendazole hypophosphite salt; Zinc sulfide*
- fungicide, alkaline pulps**  
Taurine-913
- fungicide, aq. coatings**  
Busan® 1223
- fungicide, aq. systems**  
Nipacide® BIT 20
- fungicide, broad-spectrum**  
Busan® 1105; Busan® 1118
- fungicide, casein dispersions**  
Nipacide® BIT 20
- fungicide, coatings: food-contact**  
*Captan*
- fungicide, cooling tower systems**  
Dantobrom® RW Briquette
- fungicide, cooling water systems**  
Sanibrom™ 40; Sanibrom™ 45; *Tributyltin oxide*
- fungicide, evaporative condensers**  
Aquatreat® KM; Aquatreat® SDM; Dantobrom® RW Briquette
- fungicide, fillers**  
Taurine-KWT
- fungicide, finish coating materials: food pkg.**  
*o-Phenylphenol*
- fungicide, glue casein**  
*3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione*
- fungicide, industrial**  
*Sodium-2,4,5-trichlorophenate*
- fungicide, industrial recirculating water cooling towers**  
Aquatreat® KM; Aquatreat® SDM; Qemicide DTC-1050
- fungicide, industrial water systems**  
Paxgard MB 10; Paxgard MBT
- fungicide, industrial wet scrubber systems**  
Dantobrom® RW Briquette
- fungicide, industrial: aq. prods.**  
Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® Cl; Nipacide® Cl 15
- fungicide, influent systems**  
Dantobrom® RW Briquette
- fungicide, latex paste**  
Vancide® 51
- fungicide, mill water treatment**  
Taurine-913
- fungicide, mineral slurries**  
Nipacide® BIT 20
- fungicide, o/w emulsions**  
Nipacide® BIT 20
- fungicide, once-thru cooling water systems**  
Stabrom® 909
- fungicide, paper**  
Aquatreat® DNM-9; *Copper 8-quinolinolate; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Laurtrimonium chloride; Metasol® TK-100 Disp. W; Potassium dimethyldithiocarbamate; Tributyltin oxide; Vancide® 51*
- fungicide, paper coatings**  
Amical® 48; *Iodopropynyl butylcarbamate; Ipex™-400; Ipex™-1000; Troysan® Polyphase® AF1; Troysan® Polyphase® AF3; Troysan® Polyphase® CST; Troysan® Polyphase® EC17; Troysan® Polyphase® P-100; Troysan® Polyphase® P-20T*
- fungicide, paper glues**  
*Dimethylol urea; Protectol® DMU*
- fungicide, paper mills**  
Acticide® WT; Aquatreat® KM; Aquatreat® SDM; Metasol® RB-20; Paxgard WT; Qemicide DTC-35; Qemicide DTC-1050; Taurine-DBNPA; Tolcicide® MW10
- fungicide, paper stocks**  
Taurine-KWT
- fungicide, paper/paperboard**  
*Thiabendazole hypophosphite salt*
- fungicide, paper: food pkg.**  
Troysan® 142
- fungicide, paperboard**  
Metasol® TK-100 Disp. W; Vancide® 51
- fungicide, papermaking**  
Busan® 1210
- fungicide, pigment dispersions**  
Nipacide® BIT 20
- fungicide, pigment slurries**  
*Dimethylol urea; Protectol® DMU*
- fungicide, polymer emulsions**  
Nipacide® BIT 20
- fungicide, pulp mills**  
Qemicide DTC-35; Qemicide DTC-1050
- fungicide, pulp/paper**  
Acticide® DW; Acticide® HF; Acticide® SPX; Acticide® WTC; Dantobrom® RW Briquette; Paxgard BD 20; Paxgard BD 88; Paxgard BK 20; Paxgard BKC; Paxgard BSL; Paxgard BU 30; Paxgard BU 30 L; Paxgard BU 60; Paxgard DB 10; Paxgard DB 20; Paxgard DB 99; Paxgard EM; Paxgard MB 10; Paxgard MBT; Paxgard PDC; Paxgard SDC; Paxgard ST; Paxgard TC; Polyquat 2 C
- fungicide, pulp/paper mill wet-end systems**  
*Sodium-2,4,5-trichlorophenate*
- fungicide, pulp/paper mills**  
Aquatreat® DNM-30; Sanibrom™ 40; Sanibrom™ 45; Stabrom® 909
- fungicide, PVC**  
*Barium metaborate*
- fungicide, recirculating cooling towers**  
Tolcicide® MW10; Vancide® 51
- fungicide, recirculating cooling water systems**  
Stabrom® 909
- fungicide, recirculating water systems**  
Dantobrom® RW Briquette
- fungicide, rosin dispersions**  
Nipacide® BIT 20
- fungicide, soap wrappers**  
Metasol® TK-100 Disp. W; *Thiabendazole hypophosphite salt*
- fungicide, solvent-based coatings**  
Busan® 1223; *Captan*
- fungicide, starch**  
*3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione*
- fungicide, starch/casein coatings**  
*Sodium 2-mercaptobenzothiazole*
- fungicide, wastewater**  
Stabrom® 909
- fungicide, wastewater systems**  
Sanibrom™ 40; Sanibrom™ 45
- fungicide, water treatment**  
Acticide® WT; Aquatreat® DNM-9; Aquatreat® KM; Aquatreat® SDM; *1-Bromo-3-chloro-5,5-dimethyl hydantoin; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Nipacide® BIT 20; Paxgard WT; Potassium dimethyldithiocarbamate; Sodium dimethyldithiocarbamate*
- fungicide, wet-state protection: aq. formulations**  
Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Paxgard ST
- fungistat, paper treatment**  
Dilurit 876
- furnish, bond paper**  
St. Croix Hardwood
- furnish, carbonless paper**  
St. Croix Hardwood
- furnish, coated paper**  
St. Croix Hardwood
- furnish, copy paper**  
St. Croix Hardwood
- furnish, machine glazed paper**  
St. Croix Hardwood
- furnish, photographic paper**  
St. Croix Hardwood
- gellant**  
Cecavon® CA 31; *C12-15 parath-5; C12-15 parath-10; EO/PO block polymer or copolymer; KELACID®; KELCOLOID® DH; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; KELCOSOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Oleth-15; Pluronic® 17R2; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; Polyacrylic acid; Propylene glycol alginate; Scogin™ HVF; Scogin™ LV; Scogin™ OH; Scogin™ QL; Scogin™ QM; Sodium cocoate; Stearamide MEA; Sylysia 250; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Synthetic beeswax; Trideceth-3; Trideceth-10; Trideceth-20*
- gellant, aq. systems**  
Laponite® JS
- gellant, emulsions**  
KELZAN®; KELZAN® XC Polymer
- gellant, hydroalcoholic systems**  
Carbopol® 1342; Carbopol® 1382; Carbopol® ETD 2020
- gellant, oil: paper finishes**  
Koster Keunen Beeswax
- gellant, paper**  
A-C® 715; Cecavon® NA 61; Cecavon® ZN 70; Cecavon® ZN 735; KELZAN®; KELZAN® XC Polymer; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Pluronic® L10
- gellant, paper coatings**  
Colloid 488T; Colloid 602
- gellant, paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV
- gellant, paper treatment**  
Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex N; Snowtex O; Snowtex OL; Snowtex ST-UP; Snowtex ST-ZL
- gellant, papermaking**  
Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15
- gellant, pigments**  
KELZAN®; KELZAN® XC Polymer
- gellant, pulp/paper**  
Nonionic 1035-L; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123
- gellant, starch: industrial processes**  
*Glycerol stearate lactate*
- gellant, water**  
Carbopol® 1342; Carbopol® 1382; Carbopol®

*Cupric sulfate anhydrous; Dichlorophene; Dodine; Ethylenediamine; Ethylene oxide; Hexamethylenetetramine; Maleic anhydride; 2-Mercaptobenzothiazole; Methylenebis (thiocyanate); Myristalkonium chloride; Nipabenzyl; Nipacide® BKK; Nipacide® FC; Nipacide® XRP; Nonylphenol; Oleyl hydroxyethyl imidazoline; Paraformaldehyde; Potassium N-methyldithiocarbamate; Proxel® DL; Proxel® XL2; Sodium MBT; Sodium benzoate; Sodium chlorite; Sodium dimethyldithiocarbamate; Sodium hypochlorite; Sodium pentachlorophenate; Sulfur; Sulfur dioxide; Thiabendazole; Thiabendazole hypophosphite salt; Zinc sulfide*

**fungicide, alkaline pulps**  
Taurine-913

**fungicide, aq. coatings**  
Busan® 1223

**fungicide, aq. systems**  
Nipacide® BIT 20

**fungicide, broad-spectrum**  
Busan® 1105; Busan® 1118

**fungicide, casein dispersions**  
Nipacide® BIT 20

**fungicide, coatings: food-contact**  
*Captan*

**fungicide, cooling tower systems**  
Dantobrom® RW Briquette

**fungicide, cooling water systems**  
Sanibrom™ 40; Sanibrom™ 45; *Tributyltin oxide*

**fungicide, evaporative condensers**  
Aquatreat® KM; Aquatreat® SDM; Dantobrom® RW Briquette

**fungicide, fillers**  
Taurine-KWT

**fungicide, finish coating materials: food pkg.**  
*o-Phenylphenol*

**fungicide, glue casein**  
*3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione*

**fungicide, industrial**  
*Sodium-2,4,5-trichlorophenate*

**fungicide, industrial recirculating water cooling towers**  
Aquatreat® KM; Aquatreat® SDM; Qemicide DTC-1050

**fungicide, industrial water systems**  
Paxgard MB 10; Paxgard MBT

**fungicide, industrial wet scrubber systems**  
Dantobrom® RW Briquette

**fungicide, industrial: aq. prods.**  
Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® Cl; Nipacide® Cl 15

**fungicide, influent systems**  
Dantobrom® RW Briquette

**fungicide, latex paste**  
Vancide® 51

**fungicide, mill water treatment**  
Taurine-913

**fungicide, mineral slurries**  
Nipacide® BIT 20

**fungicide, o/w emulsions**  
Nipacide® BIT 20

**fungicide, once-thru cooling water systems**  
Stabrom® 909

**fungicide, paper**  
Aquatreat® DNM-9; *Copper 8-quinolinolate; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Laurtrimonium chloride; Metasol® TK-100 Disp. W; Potassium dimethyldithiocarbamate; Tributyltin oxide; Vancide® 51*

**fungicide, paper coatings**  
Amical® 48; *Iodopropynyl butylcarbamate; Ipex™-400; Ipex™-1000; Troysan® Polyphase® AF1; Troysan® Polyphase® AF3; Troysan® Polyphase® CST; Troysan® Polyphase® EC17; Troysan® Polyphase® P-*

*100; Troysan® Polyphase® P-20T*

**fungicide, paper glues**  
*Dimethylol urea; Protectol® DMU*

**fungicide, paper mills**  
Acticide® WT; Aquatreat® KM; Aquatreat® SDM; Metasol® RB-20; Paxgard WT; Qemicide DTC-35; Qemicide DTC-1050; Taurine-DBNPA; Tolcide® MW10

**fungicide, paper stocks**  
Taurine-KWT

**fungicide, paper/paperboard**  
*Thiabendazole hypophosphite salt*

**fungicide, paper: food pkg.**  
Troysan® 142

**fungicide, paperboard**  
Metasol® TK-100 Disp. W; Vancide® 51

**fungicide, papermaking**  
Busan® 1210

**fungicide, pigment dispersions**  
Nipacide® BIT 20

**fungicide, pigment slurries**  
*Dimethylol urea; Protectol® DMU*

**fungicide, polymer emulsions**  
Nipacide® BIT 20

**fungicide, pulp mills**  
Qemicide DTC-35; Qemicide DTC-1050

**fungicide, pulp/paper**  
Acticide® DW; Acticide® HF; Acticide® SPX; Acticide® WTC; Dantobrom® RW Briquette; Paxgard BD 20; Paxgard BD 88; Paxgard BK 20; Paxgard BKC; Paxgard BSL; Paxgard BU 30; Paxgard BU 30 L; Paxgard BU 60; Paxgard DB 10; Paxgard DB 20; Paxgard DB 99; Paxgard EM; Paxgard MB 10; Paxgard MBT; Paxgard PDC; Paxgard SDC; Paxgard ST; Paxgard TC; Polyquat 2 C

**fungicide, pulp/paper mill wet-end systems**  
*Sodium-2,4,5-trichlorophenate*

**fungicide, pulp/paper mills**  
Aquatreat® DNM-30; Sanibrom™ 40; Sanibrom™ 45; Stabrom® 909

**fungicide, PVC**  
*Barium metaborate*

**fungicide, recirculating cooling towers**  
Tolcide® MW10; Vancide® 51

**fungicide, recirculating cooling water systems**  
Stabrom® 909

**fungicide, recirculating water systems**  
Dantobrom® RW Briquette

**fungicide, rosin dispersions**  
Nipacide® BIT 20

**fungicide, soap wrappers**  
Metasol® TK-100 Disp. W; *Thiabendazole hypophosphite salt*

**fungicide, solvent-based coatings**  
Busan® 1223; *Captan*

**fungicide, starch**  
*3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione*

**fungicide, starch/casein coatings**  
*Sodium 2-mercaptopbenzothiazole*

**fungicide, wastewater**  
Stabrom® 909

**fungicide, wastewater systems**  
Sanibrom™ 40; Sanibrom™ 45

**fungicide, water treatment**  
Acticide® WT; Aquatreat® DNM-9; Aquatreat® KM; Aquatreat® SDM; *1-Bromo-3-chloro-5,5-dimethyl hydantoin; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Nipacide® BIT 20; Paxgard WT; Potassium dimethyldithiocarbamate; Sodium dimethyldithiocarbamate*

**fungicide, wet-state protection: aq. formulations**  
Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Paxgard ST

**fungistat, paper treatment**  
Dilurit 876

**furnish, bond paper**  
St. Croix Hardwood

**furnish, carbonless paper**  
St. Croix Hardwood

**furnish, coated paper**  
St. Croix Hardwood

**furnish, copy paper**  
St. Croix Hardwood

**furnish, machine glazed paper**  
St. Croix Hardwood

**furnish, photographic paper**  
St. Croix Hardwood

**gellant**  
Cecavon® CA 31; *C12-15 parath-5; C12-15 parath-10; EO/PO block polymer or copolymer; KELACID®; KELCOLOID® DH; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; KELCOSOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Oleth-15; Pluronic® 17R2; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; Polyacrylic acid; Propylene glycol alginate; Scogin™ HVF; Scogin™ LV; Scogin™ OH; Scogin™ QL; Scogin™ QM; Sodium cocoate; Stearamide MEA; Sylysia 250; Sylysia 250N; Sylysia 310; Sylysia 320; Sylysia 350; Synthetic beeswax; Trideceth-3; Trideceth-10; Trideceth-20*

**gellant, aq. systems**  
Laponite® JS

**gellant, emulsions**  
KELZAN®; KELZAN® XC Polymer

**gellant, hydroalcoholic systems**  
Carbopol® 1342; Carbopol® 1382; Carbopol® ETD 2020

**gellant, oil: paper finishes**  
Koster Keunen Beeswax

**gellant, paper**  
A-C® 715; Cecavon® NA 61; Cecavon® ZN 70; Cecavon® ZN 735; KELZAN®; KELZAN® XC Polymer; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Pluronic® L10

**gellant, paper coatings**  
Colloid 488T; Colloid 602

**gellant, paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**gellant, paper treatment**  
Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex N; Snowtex O; Snowtex OL; Snowtex ST-UP; Snowtex ST-ZL

**gellant, papermaking**  
Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15

**gellant, pigments**  
KELZAN®; KELZAN® XC Polymer

**gellant, pulp/paper**  
Nonionic 1035-L; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123

**gellant, starch: industrial processes**  
*Glycerol stearate lactate*

**gellant, water**  
Carbopol® 1342; Carbopol® 1382; Carbopol®



ETD 2020  
**gellant, water treatment**  
 Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; *Poloxamer 217*

**germicide**  
 Aerosol® MA-80; Barquat® MB-50; *Calcium hydrogen sulfite; Cupric sulfate anhydrous; Cyclohexanol; Dioctyl sodium sulfosuccinate; Hyamine® 3500 50%; Myristalkonium chloride; Potassium castorate; Silver nitrate; Sodium hypochlorite; Stearamine*

**germicide, duckweed killer: paper**  
*Cocoalkonium chloride; Nissan Cation AB*

**germicide, duckweed killer: water treatment**  
*Behentrimonium chloride; Cetrimonium chloride; Cocoalkonium chloride; Coco alkyl isoquinolinium bromide; Cocotrimonium chloride; Firet Q; Laurrimonium chloride; Myristamine acetate; Nissan Cation AB; Nissan Cation BB; Nissan Cation F2-20R; Nissan Cation F2-40E; Nissan Cation F2-50; Nissan Cation F2-50E; Nissan Cation F2-CONC.; Nissan Cation FB; Nissan Cation M2-100; Nissan Cation PB-40; Nissan Cation PB-300; Nissan Cation VB; Stearalkonium chloride; Stearamine acetate*

**germicide, external**  
*p-Chloro-m-cresol*

**germicide, paper**  
*Laurrimonium chloride; Nissan Cation F2-20R; Nissan Cation F2-40E; Nissan Cation F2-50; Nissan Cation F2-50E; Nissan Cation F2-CONC.; Nissan Cation M2-100; Stearrimonium chloride*

**germicide, pulp/paper**  
*Behentrimonium chloride; Coco alkyl isoquinolinium bromide; Firet Q; Nissan Cation MA; Nissan Cation PB-40; Nissan Cation PB-300; Nissan Cation SA; Nissan Cation VB*

**germicide, water treatment**  
*Nissan Cation MA; Nissan Cation SA; Stearrimonium chloride*

**glaze, paper**  
*Calcium sulfate dihydrate*

**glazing, paper**  
*Koster Keunen Carnauba*

**gloss aid**  
 Amgard® TBEP; *Lithopone; Ombrelub® CD; Silwet® L-7200; Silwet® L-7210; Silwet® L-7230; Zonyl® FSP*

**gloss aid, clear coatings: paper**  
 Uniplex 280 CG

**gloss aid, coated paper surface finish**  
 Sunkem® 301; Sunkem® 329

**gloss aid, coated paperboard**  
 GenFlo® 557

**gloss aid, coated paperboard surface finish**  
 Sunkem® 301; Sunkem® 329

**gloss aid, coating systems**  
 Carboset® 514H

**gloss aid, coatings**  
 Micro-White® Superamide; Morcryl® 535; Silwet® L-7220; Silwet® L-7608; *Styrene/allyl alcohol copolymer; Zonyl® FSN*

**gloss aid, fiber**  
 Silwet® L-7220; Silwet® L-7608

**gloss aid, hot-melt coatings**  
 Ultrathene® UE 631-04; Ultrathene® UE 634-04; Ultrathene® UE 639-67; Ultrathene® UE 649-04; Ultrathene® UE 653-67; Ultrathene® UE 654-67

**gloss aid, lacquers: cellulose nitrate**  
 Dammar

**gloss aid, LWC paper formulations**

SNAP 2054  
**gloss aid, paper**  
*Aluminum palmitate; Micro-White® Superamide; Morcryl® 535; Morez® 500; Nopcote® 3560; Ropaque® BC-643; Silwet® L-7087; Silwet® L-7220; Silwet® L-7608*

**gloss aid, paper coatings**  
 Cecavon® CA 350 P; Lubracal® 48; Lubracal® 53; Lubracal® 60; Pentalyne® 856; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Petrac® GMS; Ropaque® HP-1055; Ropaque® HP-543P; Santolink® AM-129; Styrofan® BN 4901 X; Styronal™ ND 810; Styronal™ ND 834

**gloss aid, paper varnishes**  
 CA

**gloss aid, paper wet-strength resins**  
 Lumulse™ PEG 1000

**gloss aid, paperboard**  
 Ropaque® BC-643

**gloss aid, paperboard coatings**  
 Ropaque® HP-1055; Ropaque® HP-543P; Styrofan® BN 4901 X; Styronal™ ND 810

**gloss aid, papermaking**  
 Mirafilm™

**gloss aid, pigmented paper coatings**  
 Berbond® 8980

**gloss aid, pigments**  
 Silwet® L-7220

**gloss aid, publication paper**  
 GenFlo® 557

**gloss aid, sheet: paper coatings**  
 Rovene® 4106

**gloss aid, sheffed offset paper**  
 SNAP 2042; SNAP 2048

**gloss aid, synthetically bound paper coatings**  
 SNAP 2042; SNAP 2048

**gloss aid, wax emulsions**  
 Pentalyne® 856

**gloss aid, web grades: glossy finishes**  
 Tylac® 820; Tylac® 936

**gloss aid, web grades: matte finishes**  
 Tylac® 820; Tylac® 936

**gloss aid, web grades: offset formulations**  
 Tylac® 820; Tylac® 936

**gloss aid, web grades: offset printing**  
 Tylac® 820; Tylac® 936

**gloss aid, web grades: roto formulations**  
 Tylac® 820; Tylac® 936

**gloss aid, web offset applics.**  
 SNAP 2054

**gloss aid, web offset paper**  
 SNAP 2042; SNAP 2048

**gloss control agent, coatings**  
 Vantac® 6H

**gloss finish, adhesive props.: paper**  
 Consoplast NY

**gloss polymer, coatings**  
*Acrylic/styrene*

**gloss polymer, paper/paperboard**  
*Acrylic/styrene*

**gluability improver, coated paperboards**  
 Acrosol™ PR 8720 X

**glue, animal: food-contact**  
*Chromium potassium sulfate*

**graphic arts polymer, aq.: high gloss coatings**  
 Vancryl® 600; Vancryl® 605; Vancryl® 610

**graphic arts polymer, press-applied paper coatings**  
 Vancryl® 650

**grease holdout improver, paper at calender**  
 Aqualon® CMC-T

**grease holdout improver, paper at size presses**  
 Aqualon® CMC-T

**grease repellent, paper**  
 Zonyl® NF; Zonyl® RP

**grease repellent, paperboard**  
 Zonyl® NF; Zonyl® RP

**grease resistance aid, paper**

Lodyne®  
**grease resistance aid, paperboard**  
 Lodyne®

**greaseproofing agent, specialty paper**  
 Aquafilm

**greaseproofing prods.**  
 Hycar® 1572

**greaseproofing, paper**  
*Methylcellulose*

**grinding aid**  
 Daxad® 15; Daxad® 17; *Palmitic acid; Sodium dodecylbenzenesulfonate; Tallow acid; Triethanolamine*

**grinding aid, aq. systems**  
*Nonoxynol-30; Surfynol® TG*

**grinding aid, paper coatings**  
 Surfynol® TG

**grinding aid, pigment**  
*Ethyl hydroxymethyl oleyl oxazoline; Sulfopolyester*

**grinding aid, pigment slurries: papermaking**  
 Polystabil®

**grinding aid, pigment/resin wet milling**  
*PEG-5 tallate; Teric™ T5; Teric™ T10*

**grinding aid, pigment: coatings**  
 Alkaterge®-E

**grinding aid, pigment: nonaq. systems**  
 Alkaterge®-E

**grinding aid, pulp**  
 Synthro®-Sol DC 856 L

**grinding aid, wet**  
 Zohar ZDB

**grinding media, paper**  
 A-Series Glass Beads

**grinding resin, high gloss: coatings**  
 Esi-Rez™ 60

**grinding, org. pigments**  
 Esi-Rez™ 50

**groundwood control agent**  
 Qemidink 8001

**hand modifier, paper coatings**  
 Rovene® 4106

**hardener**  
*Glutaral; Glyoxal; Maleic resin; PEG-3 dimethacrylate; Polyamide; Polyester acrylate resin; Sodium alum; Zinc rosinate*

**hardener, fiber sizing**  
*Epoxy cresol novolac*

**hardener, gelatin/protein glues**  
*Potassium alum anhydrous*

**hardener, high solids coatings: paper mill concrete pulp tanks**  
 Hardener HY 3100

**hardener, paper coatings**  
 Polyset® 2015; Santolink® AM-129

**hardener, paper treatment**  
 Araldite® 93-100; Araldite® 94-105; Araldite® HZ 340; *Epoxy cresol novolac*

**hardener, paper varnishes**  
 CA

**hardener, paraffin**  
 Vybar® 103

**hardener, stocks**  
 Kotamite®

**hardener, wax compds.**  
 Luwax® OA; Luwax® OA 3; Luwax® OA 5

**hardener, waxes**  
*Candelilla (Euphorbia cerifera) wax; Polyethylene, high-density*

**heat transfer agent**  
*Dimethicone; Glycol*

**heat transfer agent, papermaking**  
 Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP

**heat-seal additive**  
*Ceresin; Microcrystalline wax*

**heat-seal coatings**  
*Rubber, chlorinated; Vinyl acetate/butyl acrylate copolymer*

**heat-treatment agent**

**gellant, water treatment**

ETD 2020  
**gellant, water treatment**  
 Pluronic® F38; Pluronic® F68; Pluronic® F68LF;  
 Pluronic® F77; Pluronic® F87; Pluronic® F88;  
 Pluronic® F98; Pluronic® F108; Pluronic®  
 F127; Pluronic® L31; Pluronic® L35; Pluronic®  
 L43; Pluronic® L44; Pluronic® L64; Pluronic®  
 P84; Pluronic® P85; Pluronic® P103; Pluronic®  
 P104; Pluronic® P105; Pluronic® P123;  
*Poloxamer 217*  
**germicide**  
 Aerosol® MA-80; Barquat® MB-50; *Calcium*  
*hydrogen sulfite*; *Cupric sulfate anhydrous*;  
*Cyclohexanol*; *Diocetyl sodium sulfosuccinate*;  
 Hyamine® 3500 50%; *Myristalkonium chloride*;  
*Potassium castorate*; *Silver nitrate*; *Sodium*  
*hypochlorite*; *Stearamine*  
**germicide, duckweed killer: paper**  
*Cocoalkonium chloride*; Nissan Cation AB  
**germicide, duckweed killer: water treatment**  
*Behentrimonium chloride*; *Cetrimonium chloride*;  
*Cocoalkonium chloride*; *Coco alkyl*  
*isoquinolinium bromide*; *Cocotrimonium*  
*chloride*; Firet Q; *Laurrimonium chloride*;  
*Myristamine acetate*; Nissan Cation AB;  
 Nissan Cation BB; Nissan Cation F2-20R;  
 Nissan Cation F2-40E; Nissan Cation F2-50;  
 Nissan Cation F2-50E; Nissan Cation F2-  
 CONC.; Nissan Cation FB; Nissan Cation M2-  
 100; Nissan Cation PB-40; Nissan Cation PB-  
 300; Nissan Cation VB; *Stearalkonium chloride*;  
*Stearamine acetate*  
**germicide, external**  
*p-Chloro-m-cresol*  
**germicide, paper**  
*Laurrimonium chloride*; Nissan Cation F2-20R;  
 Nissan Cation F2-40E; Nissan Cation F2-50;  
 Nissan Cation F2-50E; Nissan Cation F2-  
 CONC.; Nissan Cation M2-100; *Stearrimonium*  
*chloride*  
**germicide, pulp/paper**  
*Behentrimonium chloride*; *Coco alkyl*  
*isoquinolinium bromide*; Firet Q; Nissan Cation  
 MA; Nissan Cation PB-40; Nissan Cation PB-  
 300; Nissan Cation SA; Nissan Cation VB  
**germicide, water treatment**  
 Nissan Cation MA; Nissan Cation SA; *Steartrimo-*  
*nium chloride*  
**glaze, paper**  
*Calcium sulfate dihydrate*  
**glazing, paper**  
 Koster Keunen Carnauba  
**gloss aid**  
 Amgard® TBEP; *Lithopone*; Ombrelub® CD;  
 Silwet® L-7200; Silwet® L-7210; Silwet® L-  
 7230; Zonyl® FSP  
**gloss aid, clear coatings: paper**  
 Uniplex 280 CG  
**gloss aid, coated paper surface finish**  
 Sunkem® 301; Sunkem® 329  
**gloss aid, coated paperboard**  
 GenFlo® 557  
**gloss aid, coated paperboard surface finish**  
 Sunkem® 301; Sunkem® 329  
**gloss aid, coating systems**  
 Carboset® 514H  
**gloss aid, coatings**  
 Micro-White® Superamide; Morcryl® 535;  
 Silwet® L-7220; Silwet® L-7608; *Styrene/allyl*  
*alcohol copolymer*; Zonyl® FSN  
**gloss aid, fiber**  
 Silwet® L-7220; Silwet® L-7608  
**gloss aid, hot-melt coatings**  
 Ultrathene® UE 631-04; Ultrathene® UE 634-04;  
 Ultrathene® UE 639-67; Ultrathene® UE 649-  
 04; Ultrathene® UE 653-67; Ultrathene® UE  
 654-67  
**gloss aid, lacquers: cellulose nitrate**  
 Dammar  
**gloss aid, LWC paper formulations**

SNAP 2054  
**gloss aid, paper**  
*Aluminum palmitate*; Micro-White® Superamide;  
 Morcryl® 535; Morez® 500; Nopcote® 3560;  
 Ropaque® BC-643; Silwet® L-7087; Silwet® L-  
 7220; Silwet® L-7608  
**gloss aid, paper coatings**  
 Cecavon® CA 350 P; Lubracal® 48; Lubracal®  
 53; Lubracal® 60; Pentalyne® 856; Petrac®  
 Calcium Stearate CP-11; Petrac® Calcium  
 Stearate CP-11 LS; Petrac® GMS; Ropaque®  
 HP-1055; Ropaque® HP-543P; Santolink® AM-  
 129; Styrofan® BN 4901 X; Styronal™ ND 810;  
 Styronal™ ND 834  
**gloss aid, paper varnishes**  
 CA  
**gloss aid, paper wet-strength resins**  
 Lumulse™ PEG 1000  
**gloss aid, paperboard**  
 Ropaque® BC-643  
**gloss aid, paperboard coatings**  
 Ropaque® HP-1055; Ropaque® HP-543P;  
 Styrofan® BN 4901 X; Styronal™ ND 810  
**gloss aid, papermaking**  
 Mirafilm™  
**gloss aid, pigmented paper coatings**  
 Berbond® 8980  
**gloss aid, pigments**  
 Silwet® L-7220  
**gloss aid, publication paper**  
 GenFlo® 557  
**gloss aid, sheet: paper coatings**  
 Rovene® 4106  
**gloss aid, sheetfed offset paper**  
 SNAP 2042; SNAP 2048  
**gloss aid, synthetically bound paper coatings**  
 SNAP 2042; SNAP 2048  
**gloss aid, wax emulsions**  
 Pentalyne® 856  
**gloss aid, web grades: glossy finishes**  
 Tylac® 820; Tylac® 936  
**gloss aid, web grades: matte finishes**  
 Tylac® 820; Tylac® 936  
**gloss aid, web grades: offset formulations**  
 Tylac® 820; Tylac® 936  
**gloss aid, web grades: offset printing**  
 Tylac® 820; Tylac® 936  
**gloss aid, web grades: roto formulations**  
 Tylac® 820; Tylac® 936  
**gloss aid, web offset applics.**  
 SNAP 2054  
**gloss aid, web offset paper**  
 SNAP 2042; SNAP 2048  
**gloss control agent, coatings**  
 Vantac® 6H  
**gloss finish, adhesive props.: paper**  
 Consoplast NY  
**gloss polymer, coatings**  
*Acrylic/styrene*  
**gloss polymer, paper/paperboard**  
*Acrylic/styrene*  
**gluability improver, coated paperboards**  
 Acrosol™ PR 8720 X  
**glue, animal: food-contact**  
*Chromium potassium sulfate*  
**graphic arts polymer, aq.: high gloss coatings**  
 Vancryl® 600; Vancryl® 605; Vancryl® 610  
**graphic arts polymer, press-applied paper**  
**coatings**  
 Vancryl® 650  
**grease holdout improver, paper at calender**  
 Aqualon® CMC-T  
**grease holdout improver, paper at size**  
**presses**  
 Aqualon® CMC-T  
**grease repellent, paper**  
 Zonyl® NF; Zonyl® RP  
**grease repellent, paperboard**  
 Zonyl® NF; Zonyl® RP  
**grease resistance aid, paper**

Lodyne®  
**grease resistance aid, paperboard**  
 Lodyne®  
**greaseproofing agent, specialty paper**  
 Aquafilm  
**greaseproofing prods.**  
 Hycar® 1572  
**greaseproofing, paper**  
*Methylcellulose*  
**grinding aid**  
 Daxad® 15; Daxad® 17; *Palmitic acid*; *Sodium*  
*dodecylbenzenesulfonate*; *Tallow acid*;  
*Triethanolamine*  
**grinding aid, aq. systems**  
*Nonoxynol-30*; Surfynol® TG  
**grinding aid, paper coatings**  
 Surfynol® TG  
**grinding aid, pigment**  
*Ethyl hydroxymethyl oleyl oxazoline*; *Sulfopolyes-*  
*ter*  
**grinding aid, pigment slurries: papermaking**  
 Polystabil®  
**grinding aid, pigment/resin wet milling**  
*PEG-5 tallate*; Teric™ T5; Teric™ T10  
**grinding aid, pigment: coatings**  
 Alkaterge®-E  
**grinding aid, pigment: nonaq. systems**  
 Alkaterge®-E  
**grinding aid, pulp**  
 Synthro®-Sol DC 856 L  
**grinding aid, wet**  
 Zohar ZDB  
**grinding media, paper**  
 A-Series Glass Beads  
**grinding resin, high gloss: coatings**  
 Esi-Rez™ 60  
**grinding, org. pigments**  
 Esi-Rez™ 50  
**groundwood control agent**  
 Qemidink 8001  
**hand modifier, paper coatings**  
 Rovene® 4106  
**hardener**  
*Glutaral*; *Glyoxal*; *Maleic resin*; *PEG-3 dimethac-*  
*rylate*; *Polyamide*; *Polyester acrylate resin*;  
*Sodium alum*; *Zinc rosinate*  
**hardener, fiber sizing**  
*Epoxy cresol novolac*  
**hardener, gelatin/protein glues**  
*Potassium alum anhydrous*  
**hardener, high solids coatings: paper mill**  
**concrete pulp tanks**  
 Hardener HY 3100  
**hardener, paper coatings**  
 Polyset® 2015; Santolink® AM-129  
**hardener, paper treatment**  
 Araldite® 93-100; Araldite® 94-105; Araldite® HZ  
 340; *Epoxy cresol novolac*  
**hardener, paper varnishes**  
 CA  
**hardener, paraffin**  
 Vybar® 103  
**hardener, stocks**  
 Kotamite®  
**hardener, wax compds.**  
 Luwax® OA; Luwax® OA 3; Luwax® OA 5  
**hardener, waxes**  
*Candelilla (Euphorbia cerifera) wax*; *Polyethylene,*  
*high-density*  
**heat transfer agent**  
*Dimethicone*; *Glycol*  
**heat transfer agent, papermaking**  
 Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol®  
 20USP; Britol® 35USP; Britol® 50USP  
**heat-seal additive**  
*Ceresin*; *Microcrystalline wax*  
**heat-seal coatings**  
*Rubber, chlorinated*; *Vinyl acetate/butyl acrylate*  
*copolymer*  
**heat-treatment agent**

- Sodium nitrite*  
**heavy metal scavenger**  
*Sodium ferrocyanide*  
**heavy metals removal, wastewater**  
*Magnesium hydroxide*  
**hemostatic agent**  
 KELACID®  
**high charge polymer, water clarification**  
 Hartfloc® 425  
**holdout improver, aq. coatings**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.;  
 Cartacol® SI Liq.; Cartacol® XP Liq.  
**homogenizer**  
*Trideceth-3; Trideceth-4; Trideceth-7; Trideceth-8;  
 Trideceth-9; Trideceth-10*  
**hot melt flow additive**  
*Ceresin; Microcrystalline wax*  
**hot-melt coating modifier**  
*Poly- $\alpha$ -methylstyrene*  
**hot-melts modifier**  
 Hoechst Wax PED 821; Hoechst Wax PED 822  
**humectant**  
*Diethanolamine; Ethoxydiglycol; Hydrolyzed  
 collagen; Pluriol® E 200; Polyethylene glycol;  
 Potassium phosphate dibasic; Sorbitol Sol'n.  
 Noncrystallizing*  
**humectant, cellulose films**  
 Ajidew A-100; Ajidew N-50; Ajidew SP-100;  
 PCA; Sodium PCA  
**humectant, dyestuff pastes**  
 Maracarb N-1  
**humectant, fiber**  
 Ajidew N-50; Ajidew SP-100  
**humectant, fiber prods.**  
 Ajidew A-100  
**humectant, paper**  
 Ajidew A-100; Ajidew N-50; Ajidew SP-100;  
 Carbowax® PEG 300; PCA; Sodium PCA  
**humectant, paper coatings**  
 Liponic 70-NC; Liponic 76-NC  
**humectant, pulp/paper**  
 Glypax 200; Glypax 400; Glypax 600; Glypax  
 1000; Glypax 3000; Glypax 4000; Glypax  
 6000; Polyquat 188  
**hydrolysis resist.**  
*Melamine-formaldehyde resin, methylated-  
 butylated*  
**hydrophobing agent**  
*Hydrogenated tallow; Polysiloxane*  
**hydrophobing agent, fillers**  
 Masil® SF-MH; Methicone  
**hydrophobing agent, internal treatment: paper**  
 Basophob®  
**hydrophobing agent, paper surface strength**  
 Nopcote® 1675  
**hydrophobing agent, paper surfaces**  
 Starcote®  
**hydrophobing agent, silica treatment**  
 Masil® SFR 50,000  
**hydrophobing agent, surface treatment: paper**  
 Basophob®  
**hydrophobing agent, w/o emulsion stabiliza-  
 tion**  
 Etopol 31-L; Etopol 61-L; Etopol 101-L  
**hydrotrope**  
*Octoxynol-13; Servoxyl® VPBZ 5/100;  
 Servoxyl® VPDZ 3/100; Servoxyl® VPDZ 6/  
 100; Servoxyl® VPFZ 7/100; Servoxyl®  
 VPGZ 6/100; Servoxyl® VPIZ 100; Servoxyl®  
 VPNZ 7/100; Servoxyl® VPPZ 100;  
 Servoxyl® VPRZ 006/100; Servoxyl® VPRZ  
 0011/100; Servoxyl® VPTZ 003/100;  
 Servoxyl® VPTZ 100; Servoxyl® VPVZ 12/  
 100; Talloweth-11 phosphate; p-Toluene sulfonic  
 acid*  
**hydrotrope, acid cleaners**  
*Methyl acid phosphate*  
**hydrotrope, alkalines**  
 Monafax 1214  
**hydrotrope, bleaching**  
 Rhodafac® BG-510  
**hydrotrope, emulsion polymerization**  
*PEG-20 hydrogenated castor oil*  
**hydrotrope, emulsions**  
*PEG-20 hydrogenated castor oil*  
**hydrotrope, industrial cleaning**  
*Methyl acid phosphate*  
**hydrotrope, paper**  
*PEG-20 hydrogenated castor oil*  
**hydrotrope, paper desination**  
 Rhodafac® BG-510  
**hydrotrope, pulping**  
 Pilot® SXS-40; Rhodafac® BG-510  
**hydrotrope, water treatment**  
*Methyl acid phosphate*  
**hygroscopic agent**  
*Propylene glycol*  
**impregnating agent**  
 Koster Keunen Ceresine; Luwax® LG; Phenolic  
 resin; Pluriol® E 200  
**impregnating agent, paper**  
*Acrylates/VA copolymer; Hexachlorobenzene;  
 Hydrogenated castor oil; Masil® SF-MH;  
 Methicone; Polidene® 33-031; Terpene resin;  
 Vinylidene chloride copolymer*  
**impregnating agent, resin systems**  
*Neopentyl glycol diglycidyl ether*  
**impregnating agent, roofing paper**  
*Triphenyl phosphate*  
**impregnating paper**  
 SR 379  
**impregnating resin, decorative paper**  
 Kauramin®; Kaurit®  
**impregnating resin, overlay paper**  
 Kauramin®  
**impregnation**  
 Rohamere® 132  
**impregnation, paper**  
 Butofan®; Rohamere® 977  
**inert carrier, paper**  
 Micro-Cel® T-26  
**inert carrier, paperboard**  
 Micro-Cel® T-26  
**inhibitor, ink transfer: paper/paperboard,  
 food-contact**  
*Methicone; Stannous oleate; Zinc 2-ethylhexan-  
 oate*  
**inhibitor, polymerization**  
*Cumene hydroperoxide*  
**initiator, curing unsaturated polyester resins**  
*2,2'-Azobisisobutyronitrile*  
**initiator, fire-retardant: polymethyl methacry-  
 late polymerization**  
*Benzoyl peroxide*  
**initiator, fire-retardant: PVC polymerization**  
*Benzoyl peroxide*  
**initiator, latex**  
*t-Butyl hydroperoxide*  
**initiator, polymerization**  
*t-Butyl hydroperoxide; Cumene hydroperoxide;  
 Potassium persulfate; Sodium persulfate*  
**initiator, polymerization of unsaturated  
 monomers**  
*Diisopropyl perdicarbonate*  
**initiator, polymerization: PVC**  
*Diisopropyl perdicarbonate*  
**initiator, pulp/paper: binders**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: coagulants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: drainage aids**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: dry-strength agents**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: filler retention aids**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: flocculants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: paper coatings**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, resins**  
*Acetyl peroxide*  
**initiator, super absorbent polymers: diapers**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, super absorbent polymers: feminine  
 hygiene pads**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, super absorbent polymers: inconti-  
 nence pads**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, vinyl polymerization**  
*2,2'-Azobisisobutyronitrile*  
**initiator, water treatment: coagulants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, water treatment: flocculants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**inj. molding, blister packs**  
*Styrene/butadiene polymer*  
**ink migration inhibitor, paper coatings**  
*Silica, hydrated; Sipernat® 500LS*  
**ink retention aid, paper**  
*Silica, amorphous hydrated*  
**inks**  
 Crill 4  
**insolubilizer**  
*Glyoxal*  
**insolubilizer, amyloids: paper coatings**  
 Prox®-Coat FF  
**insolubilizer, amyloids: paper sticking**  
 Prox®-Coat FF  
**insolubilizer, binder: coatings, board**  
 Cartabond® TSI Liq.  
**insolubilizer, binder: coatings, paper**  
 Cartabond® TSI Liq.  
**insolubilizer, binder: film press, paper**  
 Cartabond® TSI Liq.  
**insolubilizer, binder: size press, paper**  
 Cartabond® TSI Liq.  
**insolubilizer, binders: board coatings**  
*Ammonium zirconium carbonate; Bacote™ 20;  
 Protec ZAT*  
**insolubilizer, binders: paper coatings**  
*Ammonium zirconium carbonate; Bacote™ 20;  
 Protec ZAT*  
**insolubilizer, board coatings**  
 Synthro®-Stab Z  
**insolubilizer, board sticking applics.**  
 Synthro®-Stab Z  
**insolubilizer, brightness: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, casein**  
*Ammonium zirconyl carbonate*  
**insolubilizer, coating: pigmented paper  
 coatings**  
 Nopcote® 1675; Nopcote® 1680  
**insolubilizer, coating: size presses**  
 Nopcote® 1675; Nopcote® 1680  
**insolubilizer, coatings: food-contact**  
*Glyoxal*  
**insolubilizer, finishing agents: paper**  
*Zirconium butoxide*  
**insolubilizer, gloss: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, high-solids pigmented coatings**  
 Eldorado PA-500  
**insolubilizer, high-solids/pigmented paper  
 coatings**  
 Curesan™ 199; Curesan™ 200  
**insolubilizer, high-solids/pigmented  
 paperboard coatings**  
 Curesan™ 200  
**insolubilizer, ink: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, opacity: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, org. binders: paper coatings**  
 Prox®-Coat FF  
**insolubilizer, org. binders: paper sticking  
 applics.**  
 Prox®-Coat FF

*Sodium nitrite*  
**heavy metal scavenger**  
*Sodium ferrocyanide*  
**heavy metals removal, wastewater**  
*Magnesium hydroxide*  
**hemostatic agent**  
 KELACID®  
**high charge polymer, water clarification**  
 Hartfloc® 425  
**holdout improver, aq. coatings**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.;  
 Cartacol® SI Liq.; Cartacol® XP Liq.  
**homogenizer**  
*Trideceth-3; Trideceth-4; Trideceth-7; Trideceth-8;  
 Trideceth-9; Trideceth-10*  
**hot melt flow additive**  
*Ceresin; Microcrystalline wax*  
**hot-melt coating modifier**  
*Poly- $\alpha$ -methylstyrene*  
**hot-melts modifier**  
 Hoechst Wax PED 821; Hoechst Wax PED 822  
**humectant**  
*Diethanolamine; Ethoxydiglycol; Hydrolyzed  
 collagen; Pluriol® E 200; Polyethylene glycol;  
 Potassium phosphate dibasic; Sorbitol Sol'n.  
 Noncrystallizing*  
**humectant, cellulose films**  
 Ajidew A-100; Ajidew N-50; Ajidew SP-100;  
 PCA; Sodium PCA  
**humectant, dyestuff pastes**  
 Maracarb N-1  
**humectant, fiber**  
 Ajidew N-50; Ajidew SP-100  
**humectant, fiber prods.**  
 Ajidew A-100  
**humectant, paper**  
 Ajidew A-100; Ajidew N-50; Ajidew SP-100;  
 Carbowax® PEG 300; PCA; Sodium PCA  
**humectant, paper coatings**  
 Liponic 70-NC; Liponic 76-NC  
**humectant, pulp/paper**  
 Glypax 200; Glypax 400; Glypax 600; Glypax  
 1000; Glypax 3000; Glypax 4000; Glypax  
 6000; Polyquat 188  
**hydrolysis resist.**  
*Melamine-formaldehyde resin, methylated-  
 butylated*  
**hydrophobing agent**  
*Hydrogenated tallow; Polysiloxane*  
**hydrophobing agent, fillers**  
 Masil® SF-MH; Methicone  
**hydrophobing agent, internal treatment: paper**  
 Basophob®  
**hydrophobing agent, paper surface strength**  
 Nopcote® 1675  
**hydrophobing agent, paper surfaces**  
 Starcote®  
**hydrophobing agent, silica treatment**  
 Masil® SFR 50,000  
**hydrophobing agent, surface treatment: paper**  
 Basophob®  
**hydrophobing agent, w/o emulsion stabiliza-  
 tion**  
 Etopol 31-L; Etopol 61-L; Etopol 101-L  
**hydrotrope**  
*Octoxynol-13; Servoxyl® VPBZ 5/100;  
 Servoxyl® VPDZ 3/100; Servoxyl® VPDZ 6/  
 100; Servoxyl® VPFZ 7/100; Servoxyl®  
 VPGZ 6/100; Servoxyl® VPIZ 100; Servoxyl®  
 VPNZ 7/100; Servoxyl® VPPZ 100;  
 Servoxyl® VPRZ 006/100; Servoxyl® VPRZ  
 0011/100; Servoxyl® VPTZ 003/100;  
 Servoxyl® VPTZ 100; Servoxyl® VPVZ 12/  
 100; Talloweth-11 phosphate; p-Toluene sulfonic  
 acid*  
**hydrotrope, acid cleaners**  
*Methyl acid phosphate*  
**hydrotrope, alkalines**  
 Monafax 1214  
**hydrotrope, bleaching**

Rhodafac® BG-510  
**hydrotrope, emulsion polymerization**  
*PEG-20 hydrogenated castor oil*  
**hydrotrope, emulsions**  
*PEG-20 hydrogenated castor oil*  
**hydrotrope, industrial cleaning**  
*Methyl acid phosphate*  
**hydrotrope, paper**  
*PEG-20 hydrogenated castor oil*  
**hydrotrope, paper desination**  
 Rhodafac® BG-510  
**hydrotrope, pulping**  
 Pilot® SXS-40; Rhodafac® BG-510  
**hydrotrope, water treatment**  
*Methyl acid phosphate*  
**hygroscopic agent**  
*Propylene glycol*  
**impregnating agent**  
 Koster Keunen Ceresine; Luwax® LG; Phenolic  
 resin; Pluriol® E 200  
**impregnating agent, paper**  
*Acrylates/VA copolymer; Hexachlorobenzene;  
 Hydrogenated castor oil; Masil® SF-MH;  
 Methicone; Polidene® 33-031; Terpene resin;  
 Vinylidene chloride copolymer*  
**impregnating agent, resin systems**  
*Neopentyl glycol diglycidyl ether*  
**impregnating agent, roofing paper**  
*Triphenyl phosphate*  
**impregnating paper**  
 SR 379  
**impregnating resin, decorative paper**  
 Kauramin®; Kaurit®  
**impregnating resin, overlay paper**  
 Kauramin®  
**impregnation**  
 Rohamere® 132  
**impregnation, paper**  
 Butofan®; Rohamere® 977  
**inert carrier, paper**  
 Micro-Cel® T-26  
**inert carrier, paperboard**  
 Micro-Cel® T-26  
**inhibitor, ink transfer: paper/paperboard,  
 food-contact**  
*Methicone; Stannous oleate; Zinc 2-ethylhexan-  
 oate*  
**inhibitor, polymerization**  
*Cumene hydroperoxide*  
**initiator, curing unsaturated polyester resins**  
*2,2'-Azobisisobutyronitrile*  
**initiator, fire-retardant: polymethyl methacry-  
 late polymerization**  
*Benzoyl peroxide*  
**initiator, fire-retardant: PVC polymerization**  
*Benzoyl peroxide*  
**initiator, latex**  
*t-Butyl hydroperoxide*  
**initiator, polymerization**  
*t-Butyl hydroperoxide; Cumene hydroperoxide;  
 Potassium persulfate; Sodium persulfate*  
**initiator, polymerization of unsaturated  
 monomers**  
*Diisopropyl perdicarbonate*  
**initiator, polymerization: PVC**  
*Diisopropyl perdicarbonate*  
**initiator, pulp/paper: binders**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: coagulants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: drainage aids**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: dry-strength agents**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: filler retention aids**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: flocculants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, pulp/paper: paper coatings**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP

**initiator, resins**  
*Acetyl peroxide*  
**initiator, super absorbent polymers: diapers**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, super absorbent polymers: feminine  
 hygiene pads**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, super absorbent polymers: inconti-  
 nence pads**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, vinyl polymerization**  
*2,2'-Azobisisobutyronitrile*  
**initiator, water treatment: coagulants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**initiator, water treatment: flocculants**  
 Vazo® 56 WSP; Vazo® 56 WSW; Vazo® 68 WSP  
**inj. molding, blister packs**  
*Styrene/butadiene polymer*  
**ink migration inhibitor, paper coatings**  
*Silica, hydrated; Sipernat® 500LS*  
**ink retention aid, paper**  
*Silica, amorphous hydrated*  
**inks**  
 Crill 4  
**insolubilizer**  
*Glyoxal*  
**insolubilizer, amyloids: paper coatings**  
 Prox®-Coat FF  
**insolubilizer, amyloids: paper sticking**  
 Prox®-Coat FF  
**insolubilizer, binder: coatings, board**  
 Cartabond® TSI Liq.  
**insolubilizer, binder: coatings, paper**  
 Cartabond® TSI Liq.  
**insolubilizer, binder: film press, paper**  
 Cartabond® TSI Liq.  
**insolubilizer, binder: size press, paper**  
 Cartabond® TSI Liq.  
**insolubilizer, binders: board coatings**  
*Ammonium zirconium carbonate; Bacote™ 20;  
 Protec ZAT*  
**insolubilizer, binders: paper coatings**  
*Ammonium zirconium carbonate; Bacote™ 20;  
 Protec ZAT*  
**insolubilizer, board coatings**  
 Synthro®-Stab Z  
**insolubilizer, board sticking applics.**  
 Synthro®-Stab Z  
**insolubilizer, brightness: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, casein**  
*Ammonium zirconyl carbonate*  
**insolubilizer, coating: pigmented paper  
 coatings**  
 Nopcote® 1675; Nopcote® 1680  
**insolubilizer, coating: size presses**  
 Nopcote® 1675; Nopcote® 1680  
**insolubilizer, coatings: food-contact**  
*Glyoxal*  
**insolubilizer, finishing agents: paper**  
*Zirconium butoxide*  
**insolubilizer, gloss: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, high-solids pigmented coatings**  
 Eldorado PA-500  
**insolubilizer, high-solids/pigmented paper  
 coatings**  
 Curesan™ 199; Curesan™ 200  
**insolubilizer, high-solids/pigmented  
 paperboard coatings**  
 Curesan™ 200  
**insolubilizer, ink: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, opacity: paper coatings**  
 Super Wet 102R; Super Wet EXP-1  
**insolubilizer, org. binders: paper coatings**  
 Prox®-Coat FF  
**insolubilizer, org. binders: paper sticking  
 applics.**  
 Prox®-Coat FF

**insolubilizer, paper coatings**

Eldorado PA-500; Quilon® C; Sequarez 82; Sequarez 755; Sunrez® 700C; Sunrez® 700M; Sunrez® 747; Synthro®-Stab Z

**insolubilizer, paper coatings: food-contact**

Sequarez 82; Sequarez 755; Sunrez® 700C; Sunrez® 700M; Sunrez® 747

**insolubilizer, paper sticking**

Synthro®-Stab Z

**insolubilizer, paperboard coatings**

Eldorado PA-500

**insolubilizer, pigmented size presses**

Eldorado PA-500

**insolubilizer, printability: paper coatings**

Super Wet 102R; Super Wet EXP-1

**insolubilizer, protein binders**

Quilon® H; Quilon® S

**insolubilizer, reactivity: paper coatings**

Super Wet 102R; Super Wet EXP-1

**insolubilizer, size presses**

Curesan™ 199; Curesan™ 200

**insolubilizer, specialty calender stack water**

box treatments

Eldorado PA-500

**insolubilizer, starch**

Ammonium zirconyl carbonate

**insolubilizer, starch: paper/paperboard, dry**

food-contact

Glyoxal/urea/formaldehyde condensate; Glyoxal/urea polymer; Methylated poly (N-1,2-dihydroxyethylene-1,3-imidazolidin-2-one)

**insolubilizer, starch-based binders: paper coatings**

Prox® DLF Double Conc.

**insolubilizer, starch-based binders: paper sticking**

Prox® DLF Double Conc.

**insolubilizer, vinyl polymer**

Methacrylateochromic chloride

**insulating agent**

Polybutene

**intermediate**

1-Butene; Butyl myristate; Butyl phosphate; C8-10 alcohols; C20-40 alcohols; Carbon dioxide; Cetyl alcohol; C9-11 pareth-6; C9-11 pareth-8; C10-12 pareth-5; C12-14 pareth-1; C12-15 pareth-6; Cyclohexane; Diallyl phthalate; Dianisidine; Di-t-butyl peroxide; Dicocamine; DL-Diepoxybutane; Dimethyl adipate; Dimethyl glutarate; Dimethyl hydantoin-formaldehyde polymer; Dimethyl isophthalate; Dimethyl succinate; Dioctyl maleate; Diphenyldimethoxysilane; Ethanolamine; Ethylenediamine; Ethyl methacrylate; Glutaral; Glycol distearate; Hydrochloric acid; Hydrogenated coconut acid; Hydrogenated ditalowamine; Hydrogenated menhaden acid; Hydroxystearic acid; Isobutyl alcohol; Isostearyl alcohol; Methyl acid phosphate; Methyl acrylate; Methyl ethyl ketone; N-Methyl-2-pyrrolidone; Nonyl nonoxynol-8; PEG-12 dilaurate; PEG-6 oleate; Pentaerythrityl tetraoleate; Phenylethylethanolamine; Phenyltrimethoxysilane; Polyethylene glycol; PPG-9; PPG-12; PPG-17; PPG-20; PPG-26; PPG-30; PPG-3 methyl ether; Propyl alcohol; Sodium hypochlorite; Sodium 2-mercaptobenzothiazole; Sodium PCA; Stearamine; Stearyl alcohol; Sulfur dioxide; Tall oil; Tallow acid; Tetrahydrofuran; Triaryl phosphate; Tributyltin oxide; Trideceth-18; Vinyl isobutyl ether

**intermediate, acrylic latex: paper coatings**

Itaconic acid

**intermediate, aramid fiber**

Terephthaloyl chloride

**intermediate, carbonless paper**

Terephthaloyl chloride

**intermediate, conductive paper coatings**

Ageflex FA-1; Ageflex FA-2

**intermediate, detergent: papermaking**

Genapol® 26-L-5; Genapol® 26-L-23; Genapol® 26-L-45; Genapol® 26-L-50; Genapol® 26-L-60; Genapol® 26-L-80

**intermediate, dyes**

Cetareth-15; N-Ethyl-N-hydroxyethyl-m-toluidine; Hydroquinone; Morpholine; Phenylethylethanolamine

**intermediate, emulsifiers**

Alfol® 20+

**intermediate, fibers: no-tear envelopes**

Morflex® 1129

**intermediate, flocculant: paper**

N-(3-Aminopropyl) diethanolamine

**intermediate, flocculant: wastewater treatment**

N-(3-Aminopropyl) diethanolamine

**intermediate, monomers: paper sizes**

Perfluorooctanesulfonyl fluoride

**intermediate, oils**

Cetareth-15

**intermediate, paper**

Meroxapal 108; Meroxapal 171; Meroxapal 172; Meroxapal 174; Meroxapal 178; Meroxapal 251; Meroxapal 252; Meroxapal 254; Meroxapal 255; Meroxapal 258; Meroxapal 311; Meroxapal 312; Meroxapal 314; Pluracol® E1450; Pluronic® L10; Poly-G® 200; Poly-G® B1530; Propetal 241

**intermediate, paper auxiliaries**

Amine 2 VT

**intermediate, paper defoamers**

C10 alcohols; C20-24 alcohols; Nafol® 10 D; Nafol® 20+; Nafol® 810 D; Nafol® 1014; Nafol® 1218

**intermediate, paper sizes**

Fluorad® FX-8; Neodene® 15/18; Octadecene-1; Tetradecene-1

**intermediate, paper treating resins**

Bis(aminopropyl) piperazine

**intermediate, paper treatment chemicals**

Jeffamine® EDR-148; Jeffamine® T-3000; Jeffamine® T-5000

**intermediate, papermaking**

Meroxapal 105

**intermediate, polymer: paper coatings**

Propyleneimine

**intermediate, polymer: polyester polyols, wet-strength paper resins**

DBE; DBE-2, -2SPG; DBE-3; DBE-4; DBE-5; DBE-6; DBE-9; Dimethyl adipate; Dimethyl glutarate; Dimethyl succinate

**intermediate, polymers**

Octadecene-1; Tetradecene-1

**intermediate, pulp processing**

C12-16 pareth-1; C12-16 pareth-2; C12-16 pareth-3; C12-16 pareth-5; C12-16 pareth-6; C12-16 pareth-7; C12-16 pareth-8; C12-16 pareth-11

**intermediate, pulp/paper**

Pluronic® 10R5

**intermediate, pulp/paper deinking**

Tergitol® 15-S-3; Tergitol® 15-S-5

**intermediate, PVC lubricants**

Octadecene-1; Tetradecene-1

**intermediate, S/B latex: paper coatings**

Itaconic acid

**intermediate, silicone emulsification**

Cetareth-15

**intermediate, sizing agents**

Morpholine

**intermediate, sulfation**

Neodene® 16/18; Neodene® 20/22/24

**intermediate, surfactants: paper sizes**

Perfluorooctanesulfonyl fluoride

**intermediate, water treatment**

Ageflex FA-1; Ageflex FA-2

**iron oxide removal**

Citric acid

**iron/manganese removal, water treatment**

Calcium hydroxide

**knife coating formation modifier**

Rovene® 4100

**kraft paper prod.**

Sodium sulfate

**kraft paper prod. raw material**

Hydrogen sulfide; Sodium sulfide

**lacquer resin**

Cellulose acetate propionate; Nitrocellulose

**lacquers**

Acid red 37; s-Amyl acetate; 2-Butanol; s-Butyl acetate; Cellulose acetate; Dipropylene glycol dibenzoate; Elemi gum; Ethyl crotonate; Isopropyl alcohol; Pigment violet 19; Pigment violet 23; Polyvinyl butyral; Shellac; Sodium diisooctyl sulfosuccinate; Trimethyl-1,3-pentanediol, 2,2,4-diisobutylate; Triphenyl phosphate; Vinyl isobutyl ether; Zinc stearate

**lacquers, paper**

CAB-381-2; CAB-381-20

**lacquers, top: paper**

Lucidene® 600

**lacquers, top: paperboard**

Lucidene® 600

**lactic acid resistance aid, milk cartons**

Paracol® 404G

**laminating**

Melamine-formaldehyde resin; Phenolic resin

**laminating agent, films**

Multiwax® ML-445

**laminating agent, paper**

Multiwax® ML-445

**laminating box liners**

Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

**laminating extrusion**

Escor® AT-310

**laminating kraft paper**

Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

**laminating milk carton stock**

Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

**laminating paper**

Baypren Latex 4 R; Baypren Latex B; Baypren Latex GK; Baypren Latex MKB; Baypren Latex SK; Baypren Latex T; Ethylene/butyl acrylate copolymer; Koster Keunen Microcrystalline Waxes; Staybelite® Ester 10

**laminating polymeric films**

Lumitac®; Nipolon®-Z

**laminating resin, carton stock coating paper**

Chevron PE 4517

**laminating resin, critical specialty coatings**

Rexene® PE 5000 Series

**laminating resin, photographic paper**

Chevron PE 4517; Rexene® PE 5000 Series

**latex, film-forming: clay-coated paper**

Lucidene® 602

**latex, paper coatings**

Isobutylene/isoprene copolymer

**latex, paperboard**

AcryPrint™ 2115; AcryPrint™ 2129

**latex, papermaking**

Carboxylated styrene-butadiene-acrylonitrile

**latex, self-crosslinking: paper coatings**

Hycar® 26138

**latex, self-crosslinking: paper saturation**

Hycar® 26138

**leveling agent**

Amgard® TBEP; AntaroX® L-64; Beetle® 216-8; Benaqua® 1000; Carboset® 514A; Carboset® 514H; Carboset® 515; Carboset® 525; Carboset® 531; Cetareth-5; Ceteth-10; Crillet 3; DePEG 600; DeTHOX TDA-6; Dimethicone copolyol; Dow Corning® 26 Additive; Harol RG-71L; Isolaureth-3; Isolaureth-6; Isolaureth-10; Lucidene® 602; Modaflow® Resin; Oleth-40; PEG-12 dioleate; PEG-4 laurate; PEG-8 laurate; PEG-12 laurate; PEG-16 oleate; PEG-4 stearate; PEG-8 stearate; PEG-12 stearate; Polysorbate 60; Rheolate® 2001; Silicone glycol copolymer; Silwet® L-7210; Silwet® L-7230; Sodium butyl oleate sulfonate; Sodium butyl tallate sulfate; Sodium laureth sulfate;

## insolubilizer, paper coatings

## insolubilizer, paper coatings

Eldorado PA-500; Quilon® C; Sequarez 82; Sequarez 755; Sunrez® 700C; Sunrez® 700M; Sunrez® 747; Synthro®-Stab Z

## insolubilizer, paper coatings: food-contact

Sequarez 82; Sequarez 755; Sunrez® 700C; Sunrez® 700M; Sunrez® 747

## insolubilizer, paper sticking

Synthro®-Stab Z

## insolubilizer, paperboard coatings

Eldorado PA-500

## insolubilizer, pigmented size presses

Eldorado PA-500

## insolubilizer, printability: paper coatings

Super Wet 102R; Super Wet EXP-1

## insolubilizer, protein binders

Quilon® H; Quilon® S

## insolubilizer, receptivity: paper coatings

Super Wet 102R; Super Wet EXP-1

## insolubilizer, size presses

Curesan™ 199; Curesan™ 200

## insolubilizer, specialty calender stack water

box treatments

Eldorado PA-500

## insolubilizer, starch

Ammonium zirconyl carbonate

## insolubilizer, starch: paper/paperboard, dry

food-contact

Glyoxal/urea/formaldehyde condensate; Glyoxal/urea polymer; Methylated poly (N-1,2-dihydroxyethylene-1,3-imidazolidin-2-one)

## insolubilizer, starch-based binders: paper

coatings

Prox® DLF Double Conc.

## insolubilizer, starch-based binders: paper

sticking

Prox® DLF Double Conc.

## insolubilizer, vinyl polymer

Methacrylatochromic chloride

## insulating agent

Polybutene

## intermediate

1-Butene; Butyl myristate; Butyl phosphate; C8-10 alcohols; C20-40 alcohols; Carbon dioxide; Cetyl alcohol; C9-11 parath-6; C9-11 parath-8; C10-12 parath-5; C12-14 parath-1; C12-15 parath-6; Cyclohexane; Diallyl phthalate; Dianisidine; Di-t-butyl peroxide; Dicumamine; DL-Diepoxybutane; Dimethyl adipate; Dimethyl glutarate; Dimethyl hydantoin-formaldehyde polymer; Dimethyl isophthalate; Dimethyl succinate; Dioctyl maleate; Diphenyldimethoxysilane; Ethanolamine; Ethylenediamine; Ethyl methacrylate; Glutaral; Glycol distearate; Hydrochloric acid; Hydrogenated coconut acid; Hydrogenated ditalowamine; Hydrogenated menhaden acid; Hydroxystearic acid; Isobutyl alcohol; Isostearyl alcohol; Methyl acid phosphate; Methyl acrylate; Methyl ethyl ketone; N-Methyl-2-pyrrolidone; Nonyl nonoxynol-8; PEG-12 dilaurate; PEG-6 oleate; Pentaerythrityl tetraoleate; Phenylethylethanolamine; Phenyltrimethoxysilane; Polyethylene glycol; PPG-9; PPG-12; PPG-17; PPG-20; PPG-26; PPG-30; PPG-3 methyl ether; Propyl alcohol; Sodium hypochlorite; Sodium 2-mercaptobenzothiazole; Sodium PCA; Stearamine; Stearyl alcohol; Sulfur dioxide; Tall oil; Tallow acid; Tetrahydrofuran; Triaryl phosphate; Tributyltin oxide; Trideceth-18; Vinyl isobutyl ether

## intermediate, acrylic latex: paper coatings

Itaconic acid

## intermediate, aramid fiber

Terephthaloyl chloride

## intermediate, carbonless paper

Terephthaloyl chloride

## intermediate, conductive paper coatings

Ageflex FA-1; Ageflex FA-2

## intermediate, detergent: papermaking

Genapol® 26-L-5; Genapol® 26-L-23; Genapol® 26-L-45; Genapol® 26-L-50; Genapol® 26-L-60; Genapol® 26-L-80

## intermediate, dyes

Ceteareth-15; N-Ethyl-N-hydroxyethyl-m-toluidine; Hydroquinone; Morpholine; Phenylethylethanolamine

## intermediate, emulsifiers

Alfol® 20+

## intermediate, fibers: no-tear envelopes

Morflex® 1129

## intermediate, flocculant: paper

N-(3-Aminopropyl) diethanolamine

## intermediate, flocculant: wastewater treatment

N-(3-Aminopropyl) diethanolamine

## intermediate, monomers: paper sizes

Perfluorooctanesulfonyl fluoride

## intermediate, oils

Ceteareth-15

## intermediate, paper

Meroxapal 108; Meroxapal 171; Meroxapal 172; Meroxapal 174; Meroxapal 178; Meroxapal 251; Meroxapal 252; Meroxapal 254; Meroxapal 255; Meroxapal 258; Meroxapal 311; Meroxapal 312; Meroxapal 314; Pluracol® E1450; Pluronic® L10; Poly-G® 200; Poly-G® B1530; Propetal 241

## intermediate, paper auxiliaries

Amine 2 VT

## intermediate, paper defoamers

C10 alcohols; C20-24 alcohols; Nafol® 10 D; Nafol® 20+; Nafol® 810 D; Nafol® 1014; Nafol® 1218

## intermediate, paper sizes

Fluorad® FX-8; Neodene® 15/18; Octadecene-1; Tetradecene-1

## intermediate, paper treating resins

Bis(aminopropyl) piperazine

## intermediate, paper treatment chemicals

Jeffamine® EDR-148; Jeffamine® T-3000; Jeffamine® T-5000

## intermediate, papermaking

Meroxapal 105

## intermediate, polymer: paper coatings

Propyleneimine

## intermediate, polymer: polyester polyols, wet-strength paper resins

DBE; DBE-2, -2SPG; DBE-3; DBE-4; DBE-5; DBE-6; DBE-9; Dimethyl adipate; Dimethyl glutarate; Dimethyl succinate

## intermediate, polymers

Octadecene-1; Tetradecene-1

## intermediate, pulp processing

C12-16 parath-1; C12-16 parath-2; C12-16 parath-3; C12-16 parath-5; C12-16 parath-6; C12-16 parath-7; C12-16 parath-8; C12-16 parath-11

## intermediate, pulp/paper

Pluronic® 10R5

## intermediate, pulp/paper deinking

Tergitol® 15-S-3; Tergitol® 15-S-5

## intermediate, PVC lubricants

Octadecene-1; Tetradecene-1

## intermediate, S/B latex: paper coatings

Itaconic acid

## intermediate, silicone emulsification

Ceteareth-15

## intermediate, sizing agents

Morpholine

## intermediate, sulfation

Neodene® 16/18; Neodene® 20/22/24

## intermediate, surfactants: paper sizes

Perfluorooctanesulfonyl fluoride

## intermediate, water treatment

Ageflex FA-1; Ageflex FA-2

## iron oxide removal

Citric acid

## iron/manganese removal, water treatment

Calcium hydroxide

## knife coating formation modifier

Rovene® 4100

## kraft paper prod.

Sodium sulfate

## kraft paper prod. raw material

Hydrogen sulfide; Sodium sulfide

## lacquer resin

Cellulose acetate propionate; Nitrocellulose

## lacquers

Acid red 37; s-Amyl acetate; 2-Butanol; s-Butyl acetate; Cellulose acetate; Dipropylene glycol dibenzoate; Elemi gum; Ethyl crotonate; Isopropyl alcohol; Pigment violet 19; Pigment violet 23; Polyvinyl butyral; Shellac; Sodium diisooctyl sulfosuccinate; Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate; Triphenyl phosphate; Vinyl isobutyl ether; Zinc stearate

## lacquers, paper

CAB-381-2; CAB-381-20

## lacquers, top: paper

Lucidene® 600

## lacquers, top: paperboard

Lucidene® 600

## lactic acid resistance aid, milk cartons

Paracol® 404G

## laminating

Melamine-formaldehyde resin; Phenolic resin

## laminating agent, films

Multiwax® ML-445

## laminating agent, paper

Multiwax® ML-445

## laminating box liners

Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

## laminating extrusion

Escor® AT-310

## laminating kraft paper

Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

## laminating milk carton stock

Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

## laminating paper

Baypren Latex 4 R; Baypren Latex B; Baypren Latex GK; Baypren Latex MKB; Baypren Latex SK; Baypren Latex T; Ethylene/butyl acrylate copolymer; Koster Keunen Microcrystalline Waxes; Staybelite® Ester 10

## laminating polymeric films

Lumitac®; Nipolon®-Z

## laminating resin, carton stock coating paper

Chevron PE 4517

## laminating resin, critical specialty coatings

Rexene® PE 5000 Series

## laminating resin, photographic paper

Chevron PE 4517; Rexene® PE 5000 Series

## latex, film-forming: clay-coated paper

Lucidene® 602

## latex, paper coatings

Isobutylene/isoprene copolymer

## latex, paperboard

AcryPrint™ 2115; AcryPrint™ 2129

## latex, papermaking

Carboxylated styrene-butadiene-acrylonitrile

## latex, self-crosslinking: paper coatings

Hycar® 26138

## latex, self-crosslinking: paper saturation

Hycar® 26138

## leveling agent

Amgard® TBEP; AntaroX® L-64; Beetle® 216-8; Benaqua® 1000; Carboset® 514A; Carboset® 514H; Carboset® 515; Carboset® 525; Carboset® 531; Ceteareth-5; Ceteth-10; Crillet 3; DePEG 600; DeTHOX TDA-6; Dimethicone copolyol; Dow Corning® 26 Additive; Harol RG-71L; Isolaureth-3; Isolaureth-6; Isolaureth-10; Lucidene® 602; Modaflow® Resin; Oleth-40; PEG-12 dioleate; PEG-4 laurate; PEG-8 laurate; PEG-12 laurate; PEG-6 oleate; PEG-4 stearate; PEG-8 stearate; PEG-12 stearate; Polysorbate 60; Rheolate® 2001; Silicone glycol copolymer; Silwet® L-7210; Silwet® L-7230; Sodium butyl oleate sulfonate; Sodium butyl tallate sulfate; Sodium laureth sulfate;

insolubilizer, paper coatings

**insolubilizer, paper coatings**  
 Eldorado PA-500; Quilon® C; Sequarez 82;  
 Sequarez 755; Sunrez® 700C; Sunrez® 700M;  
 Sunrez® 747; Synthro®-Stab Z

**insolubilizer, paper coatings: food-contact**  
 Sequarez 82; Sequarez 755; Sunrez® 700C;  
 Sunrez® 700M; Sunrez® 747

**insolubilizer, paper sticking**  
 Synthro®-Stab Z

**insolubilizer, paperboard coatings**  
 Eldorado PA-500

**insolubilizer, pigmented size presses**  
 Eldorado PA-500

**insolubilizer, printability: paper coatings**  
 Super Wet 102R; Super Wet EXP-1

**insolubilizer, protein binders**  
 Quilon® H; Quilon® S

**insolubilizer, receptivity: paper coatings**  
 Super Wet 102R; Super Wet EXP-1

**insolubilizer, size presses**  
 Curesan™ 199; Curesan™ 200

**insolubilizer, specialty calender stack water  
 box treatments**  
 Eldorado PA-500

**insolubilizer, starch**  
 Ammonium zirconyl carbonate

**insolubilizer, starch: paper/paperboard, dry  
 food-contact**  
 Glyoxal/urea/formaldehyde condensate; Glyoxal/  
 urea polymer; Methylated poly (N-1,2-  
 dihydroxyethylene-1,3-imidazolidin-2-one)

**insolubilizer, starch-based binders: paper  
 coatings**  
 Prox® DLF Double Conc.

**insolubilizer, starch-based binders: paper  
 sticking**  
 Prox® DLF Double Conc.

**insolubilizer, vinyl polymer**  
 Methacrylatochromic chloride

**insulating agent**  
 Polybutene

**intermediate**  
 1-Butene; Butyl myristate; Butyl phosphate; C8-  
 10 alcohols; C20-40 alcohols; Carbon dioxide;  
 Cetyl alcohol; C9-11 pareth-6; C9-11 pareth-8;  
 C10-12 pareth-5; C12-14 pareth-1; C12-15  
 pareth-6; Cyclohexane; Diallyl phthalate;  
 Dianisidine; Di-t-butyl peroxide; D cocamine;  
 DL-Diepoxybutane; Dimethyl adipate; Dimethyl  
 glutarate; Dimethyl hydantoin-formaldehyde  
 polymer; Dimethyl isophthalate; Dimethyl  
 succinate; Dioctyl maleate; Diphenyldimethox-  
 ysilane; Ethanalamine; Ethylenediamine; Ethyl  
 methacrylate; Glutaral; Glycol distearate;  
 Hydrochloric acid; Hydrogenated coconut acid;  
 Hydrogenated ditallowamine; Hydrogenated  
 menhaden acid; Hydroxystearic acid; Isobutyl  
 alcohol; Isostearyl alcohol; Methyl acid  
 phosphate; Methyl acrylate; Methyl ethyl  
 ketone; N-Methyl-2-pyrrolidone; Nonyl  
 nonoxynol-8; PEG-12 dilaurate; PEG-6 oleate;  
 Pentaerythrityl tetraoleate; Phenylethylethanol-  
 amine; Phenyltrimethoxysilane; Polyethylene  
 glycol; PPG-9; PPG-12; PPG-17; PPG-20;  
 PPG-26; PPG-30; PPG-3 methyl ether; Propyl  
 alcohol; Sodium hypochlorite; Sodium 2-  
 mercaptobenzothiazole; Sodium PCA;  
 Stearamine; Stearyl alcohol; Sulfur dioxide; Tall  
 oil; Tallow acid; Tetrahydrofuran; Triaryl  
 phosphate; Tributyltin oxide; Trideceth-18; Vinyl  
 isobutyl ether

**intermediate, acrylic latex: paper coatings**  
 Itaconic acid

**intermediate, aramid fiber**  
 Terephthaloyl chloride

**intermediate, carbonless paper**  
 Terephthaloyl chloride

**intermediate, conductive paper coatings**  
 Ageflex FA-1; Ageflex FA-2

**intermediate, detergent: papermaking**

Genapol® 26-L-5; Genapol® 26-L-23; Genapol®  
 26-L-45; Genapol® 26-L-50; Genapol® 26-L-60;  
 Genapol® 26-L-80

**intermediate, dyes**  
 Cetareth-15; N-Ethyl-N-hydroxyethyl-m-  
 toluidine; Hydroquinone; Morpholine;  
 Phenylethylethanolamine

**intermediate, emulsifiers**  
 Alfol® 20+

**intermediate, fibers: no-tear envelopes**  
 Morflex® 1129

**intermediate, flocculant: paper**  
 N-(3-Aminopropyl) diethanolamine

**intermediate, flocculant: wastewater treatment**  
 N-(3-Aminopropyl) diethanolamine

**intermediate, monomers: paper sizes**  
 Perfluorooctanesulfonyl fluoride

**intermediate, oils**  
 Cetareth-15

**intermediate, paper**  
 Meroxapal 108; Meroxapal 171; Meroxapal 172;  
 Meroxapal 174; Meroxapal 178; Meroxapal 251;  
 Meroxapal 252; Meroxapal 254; Meroxapal 255;  
 Meroxapal 258; Meroxapal 311; Meroxapal 312;  
 Meroxapal 314; Pluracol® E1450; Pluronic®  
 L10; Poly-G® 200; Poly-G® B1530; Propetal  
 241

**intermediate, paper auxiliaries**  
 Amine 2 VT

**intermediate, paper defoamers**  
 C10 alcohols; C20-24 alcohols; Nafol® 10 D;  
 Nafol® 20+; Nafol® 810 D; Nafol® 1014; Nafol®  
 1218

**intermediate, paper sizes**  
 Fluorad® FX-8; Neodene® 15/18; Octadecene-1;  
 Tetradecene-1

**intermediate, paper treating resins**  
 Bis(aminopropyl) piperazine

**intermediate, paper treatment chemicals**  
 Jeffamine® EDR-148; Jeffamine® T-3000;  
 Jeffamine® T-5000

**intermediate, papermaking**  
 Meroxapal 105

**intermediate, polymer: paper coatings**  
 Propyleneimine

**intermediate, polymer: polyester polyols, wet-  
 strength paper resins**  
 DBE; DBE-2; -2SPG; DBE-3; DBE-4; DBE-5; DBE-  
 6; DBE-9; Dimethyl adipate; Dimethyl glutarate;  
 Dimethyl succinate

**intermediate, polymers**  
 Octadecene-1; Tetradecene-1

**intermediate, pulp processing**  
 C12-16 pareth-1; C12-16 pareth-2; C12-16  
 pareth-3; C12-16 pareth-5; C12-16 pareth-6;  
 C12-16 pareth-7; C12-16 pareth-8; C12-16  
 pareth-11

**intermediate, pulp/paper**  
 Pluronic® 10R5

**intermediate, pulp/paper deinking**  
 Tergitol® 15-S-3; Tergitol® 15-S-5

**intermediate, PVC lubricants**  
 Octadecene-1; Tetradecene-1

**intermediate, S/B latex: paper coatings**  
 Itaconic acid

**intermediate, silicone emulsification**  
 Cetareth-15

**intermediate, sizing agents**  
 Morpholine

**intermediate, sulfation**  
 Neodene® 16/18; Neodene® 20/22/24

**intermediate, surfactants: paper sizes**  
 Perfluorooctanesulfonyl fluoride

**intermediate, water treatment**  
 Ageflex FA-1; Ageflex FA-2

**iron oxide removal**  
 Citric acid

**iron/manganese removal, water treatment**  
 Calcium hydroxide

**knife coating formation modifier**

Rovene® 4100

**kraft paper prod.**  
 Sodium sulfate

**kraft paper prod. raw material**  
 Hydrogen sulfide; Sodium sulfide

**lacquer resin**  
 Cellulose acetate propionate; Nitrocellulose

**lacquers**  
 Acid red 37; s-Amyl acetate; 2-Butanol; s-Butyl  
 acetate; Cellulose acetate; Dipropylene glycol  
 dibenzoate; Elemi gum; Ethyl crotonate;  
 Isopropyl alcohol; Pigment violet 19; Pigment  
 violet 23; Polyvinyl butyral; Shellac; Sodium  
 diisooctyl sulfosuccinate; Trimethyl-1,3-  
 pentanediol, 2,2,4-diisobutyrate; Triphenyl  
 phosphate; Vinyl isobutyl ether; Zinc stearate

**lacquers, paper**  
 CAB-381-2; CAB-381-20

**lacquers, top: paper**  
 Lucidene® 600

**lacquers, top: paperboard**  
 Lucidene® 600

**lactic acid resistance aid, milk cartons**  
 Paracol® 404G

**laminating**  
 Melamine-formaldehyde resin; Phenolic resin

**laminating agent, films**  
 Multiwax® ML-445

**laminating agent, paper**  
 Multiwax® ML-445

**laminating box liners**  
 Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

**laminating extrusion**  
 Escor® AT-310

**laminating kraft paper**  
 Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

**laminating milk carton stock**  
 Lumitac®; Nipolon; Nipolon-L; Nipolon®-Z

**laminating paper**  
 Baypren Latex 4 R; Baypren Latex B; Baypren  
 Latex GK; Baypren Latex MKB; Baypren Latex  
 SK; Baypren Latex T; Ethylene/butyl acrylate  
 copolymer; Koster Keunen Microcrystalline  
 Waxes; Staybelite® Ester 10

**laminating polymeric films**  
 Lumitac®; Nipolon®-Z

**laminating resin, carton stock coating paper**  
 Chevron PE 4517

**laminating resin, critical specialty coatings**  
 Rexene® PE 5000 Series

**laminating resin, photographic paper**  
 Chevron PE 4517; Rexene® PE 5000 Series

**latex, film-forming: clay-coated paper**  
 Lucidene® 602

**latex, paper coatings**  
 Isobutylene/isoprene copolymer

**latex, paperboard**  
 AcryPrint™ 2115; AcryPrint™ 2129

**latex, papermaking**  
 Carboxylated styrene-butadiene-acrylonitrile

**latex, self-crosslinking: paper coatings**  
 Hycar® 26138

**latex, self-crosslinking: paper saturation**  
 Hycar® 26138

**leveling agent**  
 Amgard® TBEP; Antarox® L-64; Beetle® 216-8;  
 Benaqua® 1000; Carboset® 514A; Carboset®  
 514H; Carboset® 515; Carboset® 525;  
 Carboset® 531; Cetareth-5; Ceteth-10; Crillet  
 3; DePEG 600; DeTHOX TDA-6; Dimethicone  
 copolyol; Dow Corning® 26 Additive; Harol RG-  
 71L; Isolaureth-3; Isolaureth-6; Isolaureth-10;  
 Lucidene® 602; Modaflow® Resin; Oleth-40;  
 PEG-12 dioleate; PEG-4 laurate; PEG-8 laurate;  
 PEG-12 laurate; PEG-6 oleate; PEG-4  
 stearate; PEG-8 stearate; PEG-12 stearate;  
 Polysorbate 60; Rheolate® 2001; Silicone  
 glycol copolymer; Silwet® L-7210; Silwet® L-  
 7230; Sodium butyl oleate sulfonate; Sodium  
 butyl tallate sulfate; Sodium laureth sulfate;



*Sodium methyl oleoyl taurate*; *Styrene/MA copolymer*; *Sulfated butyl oleate*; T-Det® C-40; TEGO® Glide B 1484; Tergitol® TMN-3; *Trideceth-6*; *Trideceth-15*; *Trideceth-18*; Zonyl® FSA; Zonyl® FSP

**leveling agent, acid dyes**  
Alkanol® 189-S; Alkanol® 1009C; Alkanol® 6112; Alkanol® ND; Alkanol® SB; Freedom SBO-65; Freedom SBT-65

**leveling agent, coated paperboard surface finish: calendaring process**  
Sunkote® 450; Sunkote® 452; Sunkote® 455

**leveling agent, coatings**  
Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7220; Silwet® L-7500; Silwet® L-7608; Van Gel® B; Zonyl® FSN

**leveling agent, dust control**  
Volpo C2; Volpo C20; Volpo CS50; Volpo L3

**leveling agent, dye**  
Antarox® EGE 25-2; Arquad® 18-50; *Ceteareth-15*; *Cetoleth-13*; *C11-15 pareth-7*; *C11-15 pareth-9*; *C11-15 pareth-12*; *C13-15 pareth-7*; *C13-15 pareth-9*; *C13-15 pareth-11*; Crisotan NN; DeSonic™ 6C; DeSonic™ 30C; DeSonic™ 36C; DeSonic™ 40C; DeSonic™ 54C; DeTHOX ACID O-16; Empilan® KA3; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; *Isodeceth-7*; *Isotrideceth-9*; Paxonic CO 40; Paxonic CO 60; Paxorbate 20; Paxorbate 60; Paxorbate 80; *PEG-12 oleate*; *PEG-14 oleate*; *PEG-5 stearamine*; *PEG-2 tallowamine*; *PEG-5 tallowamine*; *PEG-20 tallowamine*; Pluronic® 17R2; *Poloxamer 101*; *Poloxamer 105*; *Poloxamer 108*; *Poloxamer 122*; *Poloxamer 123*; *Poloxamer 124*; *Poloxamer 181*; *Poloxamer 182*; *Poloxamer 183*; *Poloxamer 184*; *Poloxamer 185*; *Poloxamer 188*; *Poloxamer 212*; *Poloxamer 215*; *Poloxamer 231*; *Poloxamer 234*; *Poloxamer 235*; *Poloxamer 237*; *Poloxamer 238*; *Poloxamer 282*; *Poloxamer 284*; *Poloxamer 288*; *Poloxamer 331*; *Poloxamer 333*; *Poloxamer 334*; *Poloxamer 335*; *Poloxamer 338*; *Poloxamer 401*; *Poloxamer 402*; *Poloxamer 403*; *Poloxamer 407*; *Polysorbate 21*; Rhodacal® N; *Sodium dodecylbenzenesulfonate*; *Sodium octoxynol-2 ethane sulfonate*; *Sodium oleate*; *Stearalkonium chloride*; Synperonic 10/7-100%; Synperonic 13/9; Synperonic 13/10; Synperonic A7; Teric™ 13A9; *Trideceth-8*; *Trideceth-10*; *Trideceth-12*; *Trideceth-23*

**leveling agent, dye: fiber**  
Lomar® LS-1

**leveling agent, dye: fiber lubricants**  
Tergitol® 15-S-12

**leveling agent, dye: paper**  
*PEG-36 castor oil*; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Varonic® K-210

**leveling agent, dye: paper reclamation**  
Synperonic A9; Synperonic A11

**leveling agent, dye: water treatment**  
*Poloxamer 217*

**leveling agent, effluent treating plants**  
Agitan® 633

**leveling agent, fiber**  
Silwet® L-722; Silwet® L-7220; Silwet® L-7608

**leveling agent, impregnations**  
Agitan® 633

**leveling agent, paper**  
*Cetyl betaine*; Merpol® HCS; Product BCO; Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7087; Silwet® L-7220; Silwet® L-7500; Silwet® L-7608; T-Det® N-8; T-Det® N-9.5; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP

**leveling agent, paper clear coatings**  
Ebecryl® 3702

**leveling agent, paper coating waxes**

Wax Emulsifier 4106

**leveling agent, paper coatings**  
Calsan™ 55; Calsan™ 65; Lubracal® 48; Lubracal® 53; Lubracal® 60; Nopalcol 4-O; Norfox® Sulfated Castor Oil #75; Pluronic® 25R2; Surfynol® 502; TEGO® Glide 403

**leveling agent, paper deinking**  
Tergitol® TMN-10; Triton® XL-80N

**leveling agent, paper pigment coatings**  
Zonyl® A

**leveling agent, paper/board**  
Agitan® 633

**leveling agent, paper/board coatings**  
TEGO® Flow 354

**leveling agent, paperboard coatings**  
*PEG-3.5 tetramethyl decynediol*; Surfynol® 440

**leveling agent, papermaking**  
Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; Volpo C2; Volpo C20; Volpo CS50; Volpo L3

**leveling agent, pigment grinding**  
Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP

**leveling agent, pigmented paper coatings**  
Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free

**leveling agent, pigments**  
Silwet® L-7220

**leveling agent, preprint applics.**  
TEGO® Glide 403

**leveling agent, pulp**  
Agitan® 633

**leveling agent, pulp/paper**  
Paxsolv PC; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Polyquac IC; Polyquat 188; Surfonic® CO-15; Surfonic® CO-20; Surfonic® CO-25; Surfonic® CO-30; Surfonic® CO-42

**leveling agent, silicone emulsification**  
*Ceteareth-15*; *Ceteth-2*

**leveling agent, transfer paper printing**  
CHT Rapidoprint M-4

**leveling agent, water treatment**  
Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Tergitol® TMN-10; Triton® XL-80N

**leveling agent, waxes**  
*Ceteareth-15*; Wax Emulsifier 4106

**lightener, lacquers**  
*7-Diethylamino-4-methylcoumarin*

**lightener, resins**  
*7-Diethylamino-4-methylcoumarin*

**lightener, varnishes**  
*7-Diethylamino-4-methylcoumarin*

**lightfastness improver, paper saturation: label stock**  
Nacrylic X 4280; X-Link 2833

**lightfastness improver, paper saturation: tag stock**  
Nacrylic X 4280; X-Link 2833

**light-sensitive paper**  
*Copper nitrate (ic)*

**liner, preprint**  
Lucidene® 600

**liq./solids separator, water treatment: paper**  
Agefloc A4506; Agefloc A4510

**liquor, spent cooling**  
Poly-Tergent® E-20B

**lube oil additives**

Agefloc FA-2; *Butyl methacrylate*; *C8-10 alcohols*; *Diethylaminoethyl acrylate*; *Dimethylaminoethyl methacrylate*; *Hydroxypropyl methacrylate*; *Isobutyl methacrylate*; *Itaconic acid*; *Nonylphenol*; *Stearyl methacrylate*

**lubricant**  
*Acrylic acid/acrylamide copolymer*; Alfol® 22+; Alkenyl Succinic Anhydride C1618 (ASA); *Aluminum orthophosphate*; *Ammonium oleic sulfate*; Aqua Superslip 6550; *Arachidyl alcohol*; *Behenyl alcohol*; *Calcium hydroxide*; *Calcium stearate*; *Caprylic acid*; *Ceteareth-10*; *Ceteareth-14*; *Ceteth-20*; Chevron Clarity® Synthetic Paper Machine Oil ISO 100; Chevron Clarity® Synthetic Paper Machine Oil ISO 150; Chevron Clarity® Synthetic Paper Machine Oil ISO 220; Chevron Clarity® Synthetic Paper Machine Oil ISO 320; Chevron Clarity® Synthetic Paper Machine Oil ISO 460; *Cottonseed (Gossypium) oil*; Crill 1; Crill 2; Crill 3; Crillet 3; *Decene-1*; *Deceth-4 phosphate*; DeMIDE RCN-276; DeMIDE RCN-MCY-100; DeMIDE RCN-ME-100; DeMULS PSMS-60; DeTHOX TDA-6; *Dimethicone copolyol*; *Diphenyldimethoxysilane*; DymSol® B; *2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate*; EXP-61 Amine Functional Silicone Wax; *Glyceryl cocoate*; *Glyceryl distearate*; *Hydrogenated cottonseed oil*; Indopol® H-100; Indopol® H-1500; Indopol® L-10; *Isostearyl hydroxyethyl imidazoline*; Koster Keunen Candelilla; Koster Keunen Ceresine; Koster Keunen Microcrystalline Waxes; Koster Keunen Ozokerite; Koster Keunen Synthetic Candelilla; *Menhaden oil*; Mica; Neodene® 12/14; Neodene® 14/16; *Nonoxynol-9 phosphate*; *2-Octyl dodecanoic acid*; *Oleamide DEA*; *Oleic amidoethylimidazoline*; Paxonic CO 40; Paxonic CO 60; *PEG-15 castor oil*; *PEG-20 castor oil*; *PEG-60 castor oil*; *PEG-80 castor oil*; *PEG-4 dicocotate*; *PEG-8 dilaurate*; *PEG-8 ditallate*; *PEG-12 ditallate*; *PEG-2 laurate SE*; *PEG-4 laurate*; *PEG-8 laurate*; *PEG-12 laurate*; *PEG-2M*; *PEG-90M*; *PEG-160M*; *PEG-14 oleate*; *PEG-16 oleate*; *PEG-40 sorbitan hexaoleate*; *PEG-2 soyamine*; *PEG-8 stearate*; *Phenyltrimethoxysilane*; *Polybutene*; *Polyethylene wax*; Polyox® WSR 301; Polyox® WSR 3333; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; *Polysorbate 81*; *Polysorbate 85*; *Polytetrafluoroethylene*; *PPG-12-buteth-16*; *PPG-33-buteth-45*; *Propylene glycol oleate*; *Sodium lauryl sulfate*; *Sodium oleic sulfate*; *Sorbitan stearate*; *Sorbitan tristearate*; *Talc*; *Tallowamide DEA*; Teric™ N4; Teric™ N5; *Triaryl phosphate*; *Tributoxyethyl phosphate*; *Tributyl phosphate*; *Trilinoleic acid*; Vybar® 103; *Yelkin® DS*; *Yelkin® SS*; *Yelkin® T*; *Yelkin® TS*; *Zinc laurate*; Zonyl® A

**lubricant additives**  
*Alkenyl succinic anhydride*; *Behenyl methacrylate*; *2,6-Dimethyl heptanol-4*; *PEG-16 castor oil*; *PEG-25 castor oil*; *PEG-30 castor oil*; *PEG-36 castor oil*; *PEG-40 castor oil*; *PEG-200 castor oil*; *PEG-5 hydrogenated castor oil*; *PEG-16 hydrogenated castor oil*; *PEG-25 hydrogenated castor oil*; *PEG-200 hydrogenated castor oil*; *Phenol*; *Stearyl hydroxyethyl imidazoline*; *Triaryl phosphate*

**lubricant base, paper coatings**  
Norfox® 92 Granules

**lubricant oil additive**  
Surfonic® DNP-140

**lubricant wax**  
*Pentaerythryl tetraesterate*

**lubricant, abrasive paper**  
Liquazinc AQ-90

**lubricant, ABS**

**lubricant, calender box**

*Ethylene distearamide*  
**lubricant, calender box**  
Nopcote® 3560

**lubricant, calender stacks**  
Chevron Clarity® Paper Machine Oils ISO 100;  
Chevron Clarity® Paper Machine Oils ISO 150;  
Chevron Clarity® Paper Machine Oils ISO 220;  
Chevron Clarity® Paper Machine Oils ISO 320;  
Chevron Clarity® Paper Machine Oils ISO 460;  
Nopcote® DC-1153

**lubricant, calendaring**  
Alkamide® STEDA

**lubricant, calendaring process: paper**  
Sunkote® 460

**lubricant, calendaring process: paperboard**  
Sunkote® 460

**lubricant, carbon paper**  
Alcaid 10; Alcaid 13; Alcaid 19; Alcaid 32; Alcaid 46; Alcaid 60; Alcaid 100

**lubricant, clay coatings: paper**  
Epolene® E-10; Epolene® E-15; Epolene® E-20

**lubricant, coated paper surface finish**  
Sunkem® 301; Sunkem® 329

**lubricant, coated paper surface finish: calendaring process**  
Sequaflow® 502

**lubricant, coated paper surface finishes: calendaring process**  
Sequaflow® 566; Sunkote® 450; Sunkote® 452; Sunkote® 455

**lubricant, coated paperboard surface finishes**  
Sunkem® 301; Sunkem® 329

**lubricant, coated paperboard surface finishes: calendaring process**  
Sequaflow® 502; Sequaflow® 566

**lubricant, coating s**  
Prox®-Lube SC 5060

**lubricant, coating: high-speed papermaking machines**  
Eldorado PA-300

**lubricant, coatings**  
*Butyl stearate; PEG-8 oleate; Polyacrylamide;*  
Silwet® L-722; Silwet® L-7001; Silwet® L-7500; Silwet® L-7608; Silwet® L-7657;  
Surfynol® SM-745

**lubricant, colorants**  
Tristearin

**lubricant, continuous films**  
*Rapeseed (Brassica campestris) oil*

**lubricant, coolants**  
Tallamide DEA

**lubricant, corrugator**  
Jetslide

**lubricant, dry**  
Polysel® 2015; Sachtolith® HD-S; Sachtolith® L

**lubricant, dry: paper**  
MS-122DF

**lubricant, dryer bearings**  
Chevron Clarity® Paper Machine Oils ISO 100;  
Chevron Clarity® Paper Machine Oils ISO 150;  
Chevron Clarity® Paper Machine Oils ISO 220;  
Chevron Clarity® Paper Machine Oils ISO 320;  
Chevron Clarity® Paper Machine Oils ISO 460

**lubricant, emulsion cleaners**  
Tallamide DEA

**lubricant, emulsion polymerization**  
Aerosol® OT-100%; Nopalcol 1-L; Nopalcol 4-C;  
Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S;  
Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L;  
Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH;  
Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO;  
Nopalcol 30-TWH; Nopalcol 200;  
Nopalcol 400; Nopalcol 600; *PEG hydrogenated castor oil; PEG-20 hydrogenated castor oil; Polysorbate 61; Rhodasurf® L-25*

**lubricant, emulsions**  
KELZAN®; KELZAN® XC Polymer; Rhodasurf® L-25; *Xanthan gum*

**lubricant, external**  
Petrolite® E-2020

**lubricant, external: color concs.**  
A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F

**lubricant, external: polyolefin flow modifiers**  
A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F

**lubricant, external: PVC**  
A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F

**lubricant, extrusion**  
Alkamide® STEDA

**lubricant, fiber**  
Alkamul® PSMS-20; Alkamul® S-8; Avitex® 6311; Avitex® DN-100; Avitex® E; Avitex® R; DeTHOX ACID S-8

**lubricant, fiber**  
*Isolaureth-10*

**lubricant, fiber**  
*Isolaureth-10; PEG-12 dilaurate; PEG-2 soyamine*

**lubricant, fiber**  
*PEG-10 soyamine*

**lubricant, fiber**  
*PEG-10 soyamine; Polysorbate 61*

**lubricant, fiber**  
*PPG-5-buteth-7*

**lubricant, fiber**  
*PPG-5-buteth-7*

**lubricant, fiber**  
*PPG-12-buteth-16*

**lubricant, fiber**  
*PPG-12-buteth-16*

**lubricant, fiber**  
*PPG-33-buteth-45*

**lubricant, fiber**  
*PPG-33-buteth-45; Silwet® L-722; Silwet® L-7608; Sulfated castor oil*

**lubricant, fiber**  
Teric™ 16M10

**lubricant, fiber**  
Teric™ 16M10

**lubricant, fiber**  
Teric™ 16M15

**lubricant, fiber**  
Teric™ 16M15; *Trideceth-6 phosphate*

**lubricant, fiber treatment**  
Rhodafac® RS-610

**lubricant, food-contact**  
*Mineral oil*

**lubricant, hydrophobic fiber**  
*Ceteareth*

**lubricant, incidental food-contact**  
Amoco® H-15; Amoco® L-14; Amoco® L-50; Polywax® 2000; Polywax® 3000; Struktol® PE H-100; Ucon® 75-H-1400; Ucon® 75-H-9500; Ucon® 75-H-90000

**lubricant, industrial**  
*PEG-10 cocamine; PEG-8 ditallate; PEG-12 ditallate; PEG-10 tallate; PPG-36 oleate; Sulfated butyl oleate; Sulfated butyl tallate*

**lubricant, inert: pulp/paper**  
Halocarbon Grease 19; Halocarbon Grease 25-5S; Halocarbon Grease 25-10M; Halocarbon Grease 25-20M; Halocarbon Grease 28; Halocarbon Grease 28LT; Halocarbon Grease 32; Halocarbon Grease X90-10M; Halocarbon Oil 0.8; Halocarbon Oil 1.8; Halocarbon Oil 4.2; Halocarbon Oil 6.3; Halocarbon Oil 27; Halocarbon Oil 56; Halocarbon Oil 95; Halocarbon Oil 200; Halocarbon Oil 400; Halocarbon Oil 700; Halocarbon Oil 1000N; Halocarbon Wax 40; Halocarbon Wax 600; Halocarbon Wax 1200; Halocarbon Wax 1500

**lubricant, internal**  
Petrolite® E-2020

**lubricant, internal processing: PVC**  
*Glyceryl dioleate; Montan wax*

**lubricant, internal/external: ABS**  
Kemamide® W-20

**lubricant, internal/external: cellulose acetate**  
Kemamide® W-20

**lubricant, internal/external: PE**  
Kemamide® W-20

**lubricant, internal/external: PP**  
Kemamide® W-20

**lubricant, internal/external: PS**  
Kemamide® W-20

**lubricant, internal/external: PVAc**  
Kemamide® W-20

**lubricant, internal/external: PVC**  
Kemamide® W-20

**lubricant, internal/surface: ABS**  
Acrawax® C

**lubricant, internal/surface: acetal**  
Acrawax® C

**lubricant, internal/surface: PE**  
Acrawax® C

**lubricant, internal/surface: PP**  
Acrawax® C

**lubricant, internal/surface: PS**  
Acrawax® C

**lubricant, internal/surface: PU**  
Acrawax® C

**lubricant, internal/surface: PVC**  
Acrawax® C

**lubricant, internal: ABS**  
Struktol® TR 016

**lubricant, internal: coatings**  
Armid® 18; Armid® O; *Cocamide; Oleamide; Stearamide*

**lubricant, internal: films**  
Armid® 18; Armid® O; *Cocamide; Oleamide; Stearamide*

**lubricant, internal: polyolefins**  
Struktol® TR 016

**lubricant, internal: PS**  
Struktol® TR 016

**lubricant, internal: PVC**  
A-C® 540; A-C® 540A; Loxiol® G 10; Loxiol® G 11; Struktol® TR 016

**lubricant, internal: PVC films**  
*Sorbitan stearate*

**lubricant, lamination**  
*Butyl myristate; Methyl palmitate*

**lubricant, melamine**  
Ross Carnauba Wax

**lubricant, nonpigmented surface applics.: calender box**  
Nopcote® 3560

**lubricant, nonpigmented surface applics.: size presses**  
Nopcote® 3560

**lubricant, nuclear**  
*Chlorotrifluoroethylene polymer*

**lubricant, PA**  
Hoechst Wax PED 521

**lubricant, paper**  
Adeka PEG-200; Adeka PEG-300; Adeka PEG-400; Adeka PEG-600; Adeka PEG-1000; Adeka PEG-1500; Adeka PEG-4000; Adeka PEG-6000; Adeka PEG-20,000; Alkamul® EL-620; Avitone® A; Bersize® 6200; Carbowax® PEG 300; Cecavon® NA 61; Cecavon® ZN 70; Cecavon® ZN 735; Chemax HCO-5; Chemax HCO-16; Chemax HCO-25; Chemax HCO-200/50; Drakeol® 9; Drakeol® 19; Freedom SBO-65; Freedom SBT-65; Hartosoft™ 1500-78; Hartosoft™ 1540B1; *Isodecyl oleate; Isooctyl stearate*; KELZAN®; KELZAN® XC Polymer; Kemester® 5500; Kemester® 6000SE; Lumulose™ DGS; Lumulose™ DGS-C; Lumulose™ DGS-N; Mackester™ EGDS; Mackester™ EGMS; Mackester™ IP; Mackester™ SP; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; *PEG-36 castor oil; PEG-3 dioctoate; PEG hydrogenated castor oil; PEG-*

- 5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; Penreco Amber; Penreco Blond; Penreco Cream; Penreco Lily; Penreco Regent; Penreco Royal; Penreco Snow; Penreco Super; Penreco Ultima; Petrolatum RPB; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; RITA PEO-1; RITA PEO-2; RITA PEO-3; RITA PEO-8; RITA PEO-18; RITA PEO-27; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Silwet® L-722; Silwet® L-7001; Silwet® L-7087; Silwet® L-7500; Silwet® L-7608; Silwet® L-7657
- lubricant, paper**  
Sodium butyl oleate sulfonate
- lubricant, paper**  
Sodium butyl tallate sulfate; Stearyl/aminopropyl methicone copolymer; Sulfated butyl tallate; T-Del® C-40; Tech Pet F™; Trylox® 5906; Xanthan gum
- lubricant, paper coatings**  
Calcium stearate; Calsan™ 50; Calsan™ 55; Calsan™ 65; Jarcol™ I-20; Liponic 70-NC; Liponic 76-NC; Lubracal® 48; Lubracal® 53; Lubracal® 60; Petrac® GMS; Pluronic® 25R2; Pogol® 600; Prox®-Lube SN 5070
- lubricant, paper deinking**  
Igepal® CO-610
- lubricant, paper emulsions**  
PEG-20 hydrogenated castor oil
- lubricant, paper finishes**  
Rhodasurf® L-4; Rhodasurf® L-25
- lubricant, paper sizes**  
Fluorad® FX-13; Lumulse™ 8000; Lumulse™ PEG 540; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF
- lubricant, paper sticking**  
Prox®-Lube SC 5060; Prox®-Lube SN 5070
- lubricant, paperboard**  
Bersize® 6200
- lubricant, papermaking**  
Actrasol 6092; Actrasol OY-75; Actrasol PSR; Actrasol SBO; Actrasol SP; Actrasol SP 175K; Actrasol SR 75; Actrasol SRK 75; Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Meroxapol 105; Meroxapol 108; Meroxapol 171; Meroxapol 172; Meroxapol 174; Meroxapol 178; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 255; Meroxapol 258; Meroxapol 311; Meroxapol 312; Meroxapol 314; PEG-2 stearate; Polyox® WSR 205; Polyox® WSR 303; Polyox® WSR N-750; Potassium oleic sulfate; Potassium ricinoleic sulfate; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB; Sodium butyl oleate sulfate; Sodium butyl oleate sulfonate; Sodium glyceryl trioleate sulfate; Sodium soybean oil sulfate; Sulfated rapeseed oil; Sulfated tall oil, potassium salt; Sulfated tall oil, sodium salt
- lubricant, paper-mill felt washing**  
Rhodafac® RS-610
- lubricant, pigment flushing**  
Actrasol 6092; Actrasol OY-75; Actrasol PSR; Actrasol SBO; Actrasol SP; Actrasol SP 175K; Actrasol SR 75; Actrasol SRK 75; Potassium oleic sulfate; Potassium ricinoleic sulfate; Sodium butyl oleate sulfate; Sodium butyl oleate sulfonate; Sodium glyceryl trioleate sulfate; Sodium soybean oil sulfate; Sulfated rapeseed oil; Sulfated tall oil, potassium salt; Sulfated tall oil, sodium salt
- lubricant, pigment grinding**  
Propylene glycol myristate
- lubricant, pigmented paper coatings**  
Microlube™ C; Nopcote® 3560; Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free
- lubricant, pigmented paper: size presses**  
Prox®-Amine AP
- lubricant, pkg.**  
Petrolatum RPB; Tech Pet F™
- lubricant, polyolefins**  
Hoechst Wax E; Hoechst Wax OP; Hoechst Wax S; Hydrogenated palm glyceride; Petrac® GMS
- lubricant, polyurethane foams**  
PEG-36 castor oil
- lubricant, processing**  
A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 629; A-C® 629A; Advawax® 240; Advawax® 280; Advawax® 290; Aluminum distearate; Ethylene dioleamide; Glyceryl oleate; Hydrogenated tallow; Lauric acid; Magnesium stearate; Polyethylene, oxidized; Polypropylene glycol; Zinc stearate
- lubricant, processing: PVC**  
Synthetic wax
- lubricant, protective coatings**  
Dilinoic acid
- lubricant, PS**  
Drakeol® 35; Ethylene distearamide; Hoechst Wax E; Hoechst Wax OP; Hoechst Wax S; Hydrogenated palm glyceride; Isobutyl stearate; Vestowax® AO 1535; Vestowax® AO 1539; Vestowax® AO 2733; Vestowax® C 60
- lubricant, pulp processing**  
C12-16 pareth-1; C12-16 pareth-2; C12-16 pareth-3; C12-16 pareth-5; C12-16 pareth-6; C12-16 pareth-7; C12-16 pareth-8; C12-16 pareth-11
- lubricant, pulp/paper**  
Adekanol 25R-1; Adekanol 25R-2; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; Chlorotrifluoroethylene polymer; Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Igepal® CO-610; Lumulse™ DGO; Paxonic CO 40; Paxonic CO 60; Paxsol PC; Paxorbate 20; Paxorbate 60; Paxorbate 80; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poloxamer 182; Poloxamer 185; Poloxamer 188; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 238; Poloxamer 282; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Polypax EGDS; Polypax EGMS; Polypax IC; Polypax SMS; Polyquat PR; Propylene glycol laurate
- lubricant, pulp/paper machines**  
Chevron Clarity® Paper Machine Oils ISO 100; Chevron Clarity® Paper Machine Oils ISO 150; Chevron Clarity® Paper Machine Oils ISO 220; Chevron Clarity® Paper Machine Oils ISO 320; Chevron Clarity® Paper Machine Oils ISO 460; Lumulse™ PEG 3350
- lubricant, PVC**  
1-Butene; Calcium montanate; Calcium stearoyl lactylate; C20-24 alpha olefin; C24-28 alpha olefin; C30 alpha olefin; Dodecene-1; Drakeol® 35; Ethylene distearamide; Hoechst Wax E; Hoechst Wax OP; Hoechst Wax PED 521; Hoechst Wax S; Hydrogenated palm glyceride; Hydroxystearic acid; Isobutyl stearate; Luwax® E; Octyl stearate; Penreco Amber; Penreco Snow; Polyethylene, oxidized; Polyethylene wax; Sorbitan laurate; Stearic acid; Tristearin; Vestowax® AO 1535; Vestowax® AO 1539; Vestowax® AO 2733; Vestowax® C 60
- lubricant, PVC extrusion**  
Petrolite® C-3500
- lubricant, PVC films**  
Glyceryl oleate
- lubricant, PVC food pkg.**  
Hydrogenated castor oil
- lubricant, PVC: plasticized**  
Glycol stearate
- lubricant, size presses**  
Nopcote® 3560; Nopcote® DC-1153
- lubricant, solid: corrugated board**  
Epolene® N-11
- lubricant, solvent emulsions**  
PEG hydrogenated castor oil
- lubricant, surface: food-contact coatings**  
Cottonseed (Gossypium) oil; Dibutyl sebacate; Glyceryl stearate; Lanolin; Mineral oil; Palm (Elaeis guineensis) oil; Paraffin; Petrolatum; Stearic acid
- lubricant, surface: paperboard**  
Lubrol 90
- lubricant, surface: tabulator card stock**  
Lubrol 90
- lubricant, suspension polymerization**  
Aerosol® OT-100%
- lubricant, syn.**  
1-Butene; C20-24 alpha olefin; C24-28 alpha olefin; C30 alpha olefin; Decyl alcohol; Dodecene-1; Gultfene® 4; Gultfene® 6; Gultfene® 8; Gultfene® 10; Gultfene® 12; Gultfene® 14; Gultfene® 16; Gultfene® 18; Gultfene® 20-24; Gultfene® 24-28; Gultfene® 30+; Hydrogenated tallow acid
- lubricant, syn. fiber**  
Cocotrimonium chloride
- lubricant, syn. materials**  
Glyceryl caprylate/caprate
- lubricant, thickening**  
Aluminum tristearate
- lubricant, waxes**  
Hydrogenated menhaden acid; Propylene glycol myristate
- lubricant, wet-end systems**  
Chevron Clarity® Paper Machine Oils ISO 100; Chevron Clarity® Paper Machine Oils ISO 150; Chevron Clarity® Paper Machine Oils ISO 220; Chevron Clarity® Paper Machine Oils ISO 320; Chevron Clarity® Paper Machine Oils ISO 460
- m.p. booster, fats**  
Witcamide® MAS
- m.p. booster, waxes**  
Witcamide® MAS
- m.p. modifier, resin blends**  
Advawax® 290
- m.p. modifier, waxes**  
Advawax® 240; Advawax® 280; Advawax® 290; Ethylene dioleamide
- machine-coated paper**  
Starch
- mar resistance aid**  
MP-22; MP-22C; MP-22VF; MP-22XF; Vybar® 103
- mar resistance aid, coatings**  
Silwet® L-722; Silwet® L-7002; Surfynol® SM-745
- mar resistance aid, fiber**  
Silwet® L-722
- mar resistance aid, low pH polymers**  
Shamrock Hydrocer EC 98
- mar resistance aid, paper**  
Silwet® L-722; Silwet® L-7002; Silwet® L-7087
- mar resistance aid, PVAc**  
Shamrock Hydrocer EC 98
- mar resistance aid, PVC**  
Shamrock Hydrocer EC 98
- mar resistance aid, PVdC**

5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; Penreco Amber; Penreco Blond; Penreco Cream; Penreco Lily; Penreco Regent; Penreco Royal; Penreco Snow; Penreco Super; Penreco Ultima; Petrolatum RPB; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; RITA PEO-1; RITA PEO-2; RITA PEO-3; RITA PEO-8; RITA PEO-18; RITA PEO-27; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Silwet® L-722; Silwet® L-7001; Silwet® L-7087; Silwet® L-7500; Silwet® L-7608; Silwet® L-7657

**lubricant, paper**  
*Sodium butyl oleate sulfonate*

**lubricant, paper**  
*Sodium butyl tallate sulfate; Stearyl/aminopropyl methicone copolymer; Sulfated butyl tallate; T-Del® C-40; Tech Pet F™; Trylox® 5906; Xanthan gum*

**lubricant, paper coatings**  
*Calcium stearate; Calsan™ 50; Calsan™ 55; Calsan™ 65; Jarcol™ I-20; Liponic 70-NC; Liponic 76-NC; Lubracal® 48; Lubracal® 53; Lubracal® 60; Petrac® GMS; Pluronic® 25R2; Pogol® 600; Prox®-Lube SN 5070*

**lubricant, paper deinking**  
*Igepal® CO-610*

**lubricant, paper emulsions**  
*PEG-20 hydrogenated castor oil*

**lubricant, paper finishes**  
*Rhodasurf® L-4; Rhodasurf® L-25*

**lubricant, paper sizes**  
*Fluorad® FX-13; Lumulse™ 8000; Lumulse™ PEG 540; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF*

**lubricant, paper sticking**  
*Prox®-Lube SC 5060; Prox®-Lube SN 5070*

**lubricant, paperboard**  
*Bersize® 6200*

**lubricant, papermaking**  
*Actrasol 6092; Actrasol OY-75; Actrasol PSR; Actrasol SBO; Actrasol SP; Actrasol SP 175K; Actrasol SR 75; Actrasol SRK 75; Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Meroxapol 105; Meroxapol 108; Meroxapol 171; Meroxapol 172; Meroxapol 174; Meroxapol 178; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 255; Meroxapol 258; Meroxapol 311; Meroxapol 312; Meroxapol 314; PEG-2 stearate; Polyox® WSR 205; Polyox® WSR 303; Polyox® WSR N-750; Potassium oleic sulfate; Potassium ricinoleic sulfate; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB; Sodium butyl oleate sulfate; Sodium butyl oleate sulfonate; Sodium glyceryl trioleate sulfate; Sodium soybean oil sulfate; Sulfated rapeseed oil; Sulfated tall oil, potassium salt; Sulfated tall oil, sodium salt*

**lubricant, paper-mill felt washing**  
*Rhodafac® RS-610*

**lubricant, pigment flushing**  
*Actrasol 6092; Actrasol OY-75; Actrasol PSR; Actrasol SBO; Actrasol SP; Actrasol SP 175K; Actrasol SR 75; Actrasol SRK 75; Potassium oleic sulfate; Potassium ricinoleic sulfate; Sodium butyl oleate sulfate; Sodium butyl oleate sulfonate; Sodium glyceryl trioleate sulfate; Sodium soybean oil sulfate; Sulfated rapeseed oil; Sulfated tall oil, potassium salt; Sulfated tall oil, sodium salt*

**lubricant, pigment grinding**  
*Propylene glycol myristate*

**lubricant, pigmented paper coatings**  
*Microlube™ C; Nopcote® 3560; Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free*

**lubricant, pigmented paper: size presses**  
*Prox®-Amine AP*

**lubricant, pkg.**  
*Petrolatum RPB; Tech Pet F™*

**lubricant, polyolefins**  
*Hoechst Wax E; Hoechst Wax OP; Hoechst Wax S; Hydrogenated palm glyceride; Petrac® GMS*

**lubricant, polyurethane foams**  
*PEG-36 castor oil*

**lubricant, processing**  
*A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 629; A-C® 629A; Advawax® 240; Advawax® 280; Advawax® 290; Aluminum distearate; Ethylene dioleamide; Glyceryl oleate; Hydrogenated tallow; Lauric acid; Magnesium stearate; Polyethylene, oxidized; Polypropylene glycol; Zinc stearate*

**lubricant, processing: PVC**  
*Synthetic wax*

**lubricant, protective coatings**  
*Dilinoleic acid*

**lubricant, PS**  
*Drakeol® 35; Ethylene distearamide; Hoechst Wax E; Hoechst Wax OP; Hoechst Wax S; Hydrogenated palm glyceride; Isobutyl stearate; Vestowax® AO 1535; Vestowax® AO 1539; Vestowax® AO 2733; Vestowax® C 60*

**lubricant, pulp processing**  
*C12-16 parath-1; C12-16 parath-2; C12-16 parath-3; C12-16 parath-5; C12-16 parath-6; C12-16 parath-7; C12-16 parath-8; C12-16 parath-11*

**lubricant, pulp/paper**  
*Adekanol 25R-1; Adekanol 25R-2; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; Chlorotrifluoroethylene polymer; Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Igepal® CO-610; Lumulse™ DGO; Paxonic CO 40; Paxonic CO 60; Paxsolv PC; Paxorbate 20; Paxorbate 60; Paxorbate 80; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; Poloxamer 182; Poloxamer 185; Poloxamer 188; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 238; Poloxamer 282; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Polypax EGDS; Polypax EGMS; Polypax IC; Polypax SMS; Polyquat PR; Propylene glycol laurate*

**lubricant, pulp/paper machines**  
*Chevron Clarity® Paper Machine Oils ISO 100; Chevron Clarity® Paper Machine Oils ISO 150; Chevron Clarity® Paper Machine Oils ISO 220; Chevron Clarity® Paper Machine Oils ISO 320; Chevron Clarity® Paper Machine Oils ISO 460; Lumulse™ PEG 3550*

**lubricant, PVC**  
*1-Butene; Calcium montanate; Calcium stearoyl lactylate; C20-24 alpha olefin; C24-28 alpha olefin; C30 alpha olefin; Dodecene-1; Drakeol® 35; Ethylene distearamide; Hoechst Wax E; Hoechst Wax OP; Hoechst Wax PED 521; Hoechst Wax S; Hydrogenated palm glyceride; Hydroxystearic acid; Isobutyl stearate; Luwax® E; Octyl stearate; Penreco Amber; Penreco Snow; Polyethylene, oxidized;*

*Polyethylene wax; Sorbitan laurate; Stearic acid; Tristearin; Vestowax® AO 1535; Vestowax® AO 1539; Vestowax® AO 2733; Vestowax® C 60*

**lubricant, PVC extrusion**  
*Petrolite® C-3500*

**lubricant, PVC films**  
*Glyceryl oleate*

**lubricant, PVC food pkg.**  
*Hydrogenated castor oil*

**lubricant, PVC: plasticized**  
*Glycol stearate*

**lubricant, size presses**  
*Nopcote® 3560; Nopcote® DC-1153*

**lubricant, solid: corrugated board**  
*Epolene® N-11*

**lubricant, solvent emulsions**  
*PEG hydrogenated castor oil*

**lubricant, surface: food-contact coatings**  
*Cottonseed (Gossypium) oil; Dibutyl sebacate; Glyceryl stearate; Lanolin; Mineral oil; Palm (Elaeis guineensis) oil; Paraffin; Petrolatum; Stearic acid*

**lubricant, surface: paperboard**  
*Lubrol 90*

**lubricant, surface: tabulator card stock**  
*Lubrol 90*

**lubricant, suspension polymerization**  
*Aerosol® OT-100%*

**lubricant, syn.**  
*1-Butene; C20-24 alpha olefin; C24-28 alpha olefin; C30 alpha olefin; Decyl alcohol; Dodecene-1; Gultene® 4; Gultene® 6; Gultene® 8; Gultene® 10; Gultene® 12; Gultene® 14; Gultene® 16; Gultene® 18; Gultene® 20-24; Gultene® 24-28; Gultene® 30+; Hydrogenated tallow acid*

**lubricant, syn. fiber**  
*Cocotrimonium chloride*

**lubricant, syn. materials**  
*Glyceryl caprylate/caprates*

**lubricant, thickening**  
*Aluminum tristearate*

**lubricant, waxes**  
*Hydrogenated menhaden acid; Propylene glycol myristate*

**lubricant, wet-end systems**  
*Chevron Clarity® Paper Machine Oils ISO 100; Chevron Clarity® Paper Machine Oils ISO 150; Chevron Clarity® Paper Machine Oils ISO 220; Chevron Clarity® Paper Machine Oils ISO 320; Chevron Clarity® Paper Machine Oils ISO 460*

**m.p. booster, fats**  
*Witcamide® MAS*

**m.p. booster, waxes**  
*Witcamide® MAS*

**m.p. modifier, resin blends**  
*Advawax® 290*

**m.p. modifier, waxes**  
*Advawax® 240; Advawax® 280; Advawax® 290; Ethylene dioleamide*

**machine-coated paper**  
*Starch*

**mar resistance aid**  
*MP-22; MP-22C; MP-22VF; MP-22XF; Vybar® 103*

**mar resistance aid, coatings**  
*Silwet® L-722; Silwet® L-7002; Surfynol® SM-745*

**mar resistance aid, fiber**  
*Silwet® L-722*

**mar resistance aid, low pH polymers**  
*Shamrock Hydrocer EC 98*

**mar resistance aid, paper**  
*Silwet® L-722; Silwet® L-7002; Silwet® L-7087*

**mar resistance aid, PVAc**  
*Shamrock Hydrocer EC 98*

**mar resistance aid, PVC**  
*Shamrock Hydrocer EC 98*

**mar resistance aid, PVdC**

**marking agent, fluorescent: coating slips, stamp/security paper**

Shamrock Hydrocer EC 98  
**marking agent, fluorescent: coating slips, stamp/security paper**  
Cartax® DP Liq.  
**marking agent, fluorescent: size press, stamp/security paper**  
Cartax® DP Liq.  
**marking agent, fluorescent: stock, stamp/security paper**  
Cartax® DP Liq.  
**matting agent, copy paper**  
Sylsya 310; Sylsya 320; Sylsya 350; Sylsya 430; Sylsya 440; Sylsya 445; Sylsya 450; Sylsya 470; Sylsya 530; Sylsya 540; Sylsya 550; Sylsya 730; Sylsya 740; Sylsya 770  
**matting agent, thermal paper**  
Sylsya 310; Sylsya 320; Sylsya 350; Sylsya 430; Sylsya 440; Sylsya 445; Sylsya 450; Sylsya 470; Sylsya 530; Sylsya 540; Sylsya 550; Sylsya 730; Sylsya 740; Sylsya 770  
**matting agent, thermal/copy paper**  
Sylsya 250; Sylsya 250N; Sylsya 435  
**mechanical action resistance improver, paper surface**  
Basoplast® 335 D  
**melt flow aid, coatings**  
Distearyl pentaerythryl diphosphate  
**melt index modifier**  
A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F  
**metal deactivator, pulp bleaching**  
Magnabrite™; N® Sodium Silicate  
**metal ion control, water treatment**  
Potassium hexamethylene diamine tetra (methylene phosphonate)  
**microbe, specialized: papermaking by-product degradation**  
Microcat® XP  
**microbe, specialized: pulping by-product degradation**  
Microcat® XP  
**microbial spoilage inhibitor**  
DL-Diepoxybutane  
**microbicide**  
Behenyl hydroxyethyl imidazoline; 2,2-Dibromo-3-nitropropionamide  
**microbicide, cooling towers**  
Aquatreat® DNM-360  
**microbicide, industrial waters**  
Amerstat® 272  
**microbicide, mineral slurries**  
Bis (trichloromethyl) sulfone  
**microbicide, paper**  
3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione  
**microbicide, paper machine wet-end**  
Busan® 1223  
**microbicide, paper mill**  
Paxgard TC  
**microbicide, papermaking**  
Busan® 1210; Metasol® 550; Tolcide® MW10  
**microbicide, pulp/paper mills**  
Aquatreat® DNM-360; Metasol® 940  
**microbicide, starch**  
3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione  
**microbicide, wastewater treatment systems**  
Metasol® 940  
**microbicide, water treatment**  
Acticide® WTC; Bis (trichloromethyl) sulfone; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Paxgard TC; Pentetic acid; Tolcide® MW10  
**microbicide, wet-state protection: aq. formulations**  
Acticide® WTC  
**microcapsule, bill paper**  
Hancap MC-40

**microcapsule, carbonless copying paper**  
Baymicron® 2107; Baymicron® 2109; Baymicron® Black C 200; Baymicron® Black R 200; Baymicron® Blue R 200; Baymicron® Defoamer 50; Baymicron® OXA WM 22; Baymicron® OXA WM 33  
**microcapsule, carbonless paper**  
Hancap MC-40  
**microcapsule, pressure-sensitive paper**  
Hancap MC-40  
**microencapsulation, dyes: carbonless duplicating paper**  
2,2',4,4',5,5'-Hexachlorobiphenyl  
**microsphere, wet, unexpanded: paper**  
Expancel® 091 WU; Expancel® 551 WU; Expancel® 642 WU  
**microspheres, board**  
Expancel® 820 DU  
**microspheres, paper**  
Expancel® 820 DU  
**microspheres, unexpanded: blowing agent, paper**  
Expancel® 091 DE; Expancel® 091 DE 80; Expancel® 461 DE; Expancel® 461 DE 20; Expancel® 551 DE 20; Expancel® 551 WE 20  
**mildew inhibitor**  
Sodium benzoate  
**mildewicide, coatings: food-contact**  
Captan  
**mildewicide, cooling water**  
Tributyltin oxide  
**mildewicide, nonfood uses**  
Thiabendazole hypophosphite salt  
**mildewicide, paper**  
Sodium 2-mercaptobenzothiazole; Tributyltin oxide  
**mildewicide, paper coatings**  
Amical® 48; Iodopropynyl butylcarbamate; Troysan® Polyphase® EC17; Troysan® Polyphase® P-20T  
**mildewicide, paper/paperboard**  
Thiabendazole hypophosphite salt  
**mildewicide, soap wrappers**  
Thiabendazole hypophosphite salt  
**mildewicide, solvent-based coatings**  
Captan  
**mildewicide, water treatment**  
2-n-Octyl-4-isothiazolin-3-one  
**mildewproofing**  
Laurtrimonium chloride  
**mildewproofing agent**  
Dichlorophene  
**mildewproofing agent, paper**  
Copper 8-quinolinolate  
**mildness additive, protective coatings**  
Dilinoic acid  
**mill scale removal**  
Citric acid  
**milling agent, dyes**  
Sodium polynaphthalene sulfonate  
**milling agent, paper**  
Freedom SCO-50; Freedom SCO-70; Freedom SCO-75; Freedom SCO-75K  
**milling agent, pigments**  
Sodium polynaphthalene sulfonate  
**mineral slurries**  
2,2-Dibromo-3-nitropropionamide  
**modifier**  
Polyamidoamine; Styrene/butadiene polymer  
**modifier resin, coatings**  
Terpene resin  
**modifier resin, laminations**  
Terpene resin  
**modifier resin, waxes**  
Terpene resin  
**modifier, ABS**  
Ethylene glycol dimethacrylate  
**modifier, alkyd resins**  
Fumaric acid  
**modifier, amino resin: paper/paperboard, aq./**

**fatty food-contact**  
Tetraethylenepentamine  
**modifier, amino resins: paper/paperboard, aq./fatty food-contact**  
Triethylenetetramine  
**modifier, amino resins: paper/paperboard, food-contact**  
Diethylenetriamine  
**modifier, coatings**  
A-C® 580; A-C® 5120; Glyceryl rosinate  
**modifier, coatings: heat-sealable**  
Hydrogenated rosin  
**modifier, coatings: hot-melt-applied decorative**  
Hydrogenated rosin  
**modifier, coatings: pressure-sensitive**  
Hydrogenated rosin  
**modifier, dyestuff pastes**  
Maracarb N-1  
**modifier, fiber**  
Behenyl methacrylate; Butyl methacrylate; Cetyl methacrylate; 2-Ethylhexyl methacrylate; Glyceryl methacrylate; Glycidyl methacrylate; Isobutyl methacrylate; Pentadecyl methacrylate; Stearyl methacrylate  
**modifier, hand builders**  
Avitex® R  
**modifier, imidazoline: corrosion inhibitors**  
Acintol® R Type S  
**modifier, lacquers**  
Glyceryl tribenzoate  
**modifier, latex surface coating resins**  
Propyleneimine  
**modifier, LDPE**  
Isobutylene/isoprene copolymer  
**modifier, paper**  
Glyceryl methacrylate; Hydroxypropyl methacrylate  
**modifier, paraffin**  
Vybar® 103  
**modifier, paraffin waxes**  
Carnauba (Copernicia cerifera) wax; Multiwax® ML-445; Vybar® 260  
**modifier, paraffin waxes: paper coatings**  
Epolene® C-13; Epolene® C-14; Epolene® C-17  
**modifier, resins: film-formers, protective coatings**  
Glyceryl hydrogenated rosinate  
**modifier, resins: waxes, protective coatings**  
Glyceryl hydrogenated rosinate  
**modifier, S/B latexes**  
Polystyrene  
**modifier, starches**  
Dicyandiamide; Potassium persulfate  
**modifier, UV-cured coatings**  
CAB-551-0.01; CAB-551-0.2  
**modifying resin, surface coatings**  
Polyvinyl butyral  
**moisture barrier**  
Airflex® 4500; Airflex® 4514; Airflex® 4530; Paracol® 802A; Sclair® 69A  
**moisture barrier films**  
Ethylene glycol dimethacrylate  
**moisture barrier, coatings**  
Paracol® 404G  
**moisture barrier, paper**  
Paracol® 2370; Penreco Amber; Penreco Blond; Penreco Regent; Petrolatum RPB; Tech Pet F™  
**moisture barrier, paperboard**  
Paracol® 2370  
**moisture barrier, papermaking**  
Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP  
**moisture barrier, pkg.**  
Petrolatum RPB; Tech Pet F™  
**moisture control agent, paper sizing**  
Ticaxan® Regular  
**moisture repellent**  
Shark liver oil  
**moisture retention aid, aq. pigment coatings**

- Carboxymethyl corn starch; Sodium carboxymethyl corn starch*
- moisture retention aid, cardboard**  
Rhodoviol® 4/125
- moisture retention aid, coating colors**  
Acrosol™ C 50 L; Sterocoll® FS
- moisture retention aid, paper**  
Aqualon® CMC-T; Rhodoviol® 4/125
- moisture retention aid, paper coatings**  
*Carboxymethyl corn starch; Prox® A 899 E; Rheovis®; Sodium carboxymethyl corn starch; Vandrox® 185F; Vandrox® 186*
- moisture retention aid, papermaking**  
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB
- moisture retention aid, size presses**  
Pen-cote® Starch
- moisture retention aid, specialty paper coatings**  
Pen-cote® Starch
- moisturizer**  
*Acrylates/C10-30 alkyl acrylate crosspolymer; 1,2,6-Hexanetriol; Hydrolyzed soy protein*
- moisturizer, cellulose films**  
*Sodium PCA*
- moisturizer, paper**  
*Sodium PCA*
- mold inhibitor**  
*Thiourea*
- mold inhibitor, paper**  
*Barium metaborate*
- mold inhibitor, paperboard**  
Vancide® MZ-96 Disp.
- mold inhibitor, soap wraps**  
Vancide® MZ-96 Disp.
- mold release agent**  
A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 629; A-C® 629A; Acrawax® C; Actrasol SR 75; Actrasol SRK 75; Ammonium oleic sulfate; C20-40 parath-10; DeTHOX ACID S-8; Dioctyl sodium sulfosuccinate; Epolene® C-13; Epolene® C-14; Epolene® C-17; Epolene® E-10; Epolene® E-15; Epolene® E-20; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; Ethylene distearamide; EXP-58 Silicone Wax; Glyceryl oleate; GP-223; Halocarbon Grease 19; Halocarbon Grease 25-5S; Halocarbon Grease 25-10M; Halocarbon Grease 25-20M; Halocarbon Grease 28; Halocarbon Grease 28LT; Halocarbon Grease 32; Halocarbon Grease X90-10M; Halocarbon Oil 0.8; Halocarbon Oil 1.8; Halocarbon Oil 4.2; Halocarbon Oil 6.3; Halocarbon Oil 27; Halocarbon Oil 56; Halocarbon Oil 95; Halocarbon Oil 200; Halocarbon Oil 400; Halocarbon Oil 700; Halocarbon Oil 1000N; Halocarbon Wax 40; Halocarbon Wax 600; Halocarbon Wax 1200; Halocarbon Wax 1500; Hubercarb® Q 200T; Hydrogenated menhaden oil; Hydrogenated soybean oil; Igepal® CO-850; Kemamide® W-20; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Kerosene; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; Lipowax C; Lumulse™ GMO; Luwax® LGE; Mica; Microthene® FN 502-18; Microthene® FN 517-00; Microthene® FN 519-00; Palm (*Elaeis guineensis*) oil; PEG-2M; PEG-13 oleate; PEG-23 oleate; PEG-8 sesquioleate; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Petrolite® E-2020; Pluriol® E 200; Polyethylene, oxidized; Polysset® 2015; Potassium oleic sulfate; PPG-28-buteth-35; Silicone emulsions; Sodium diisooctyl sulfosuccinate; Stearamide MEA; Stearamide MEA-stearate; Stearamine; Tristearin; Unithox® 450; Vestowax® C 60; Witcamide® MAS; Zinc laurate; Zinc stearate
- mold release agent, calendering**  
Alkamide® STEDA
- mold release agent, coatings**  
*Stearamide*
- mold release agent, extrusion**  
Alkamide® STEDA
- mold release agent, films**  
*Stearamide*
- mold release agent, food-contact molded articles**  
No Stik 806
- mold release agent, paper**  
No Stik 806; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000
- molluscicide, cooling water systems**  
Sanibrom™ 40; Sanibrom™ 45
- molluscicide, pulp/paper mills**  
Sanibrom™ 40; Sanibrom™ 45
- molluscicide, wastewater systems**  
Sanibrom™ 40; Sanibrom™ 45
- monomer inhibitor, paper/paperboard: aq./fatty food-contact**  
*Hydroquinone; Hydroquinone ethyl ether; Hydroquinone monomethyl ether*
- monomer, paper coatings**  
Ageflex FM-68; Cyclohexane dimethanol diacrylate; Cyclohexane dimethanol dimethacrylate; PEG-3 trimethylolpropane triacrylate
- monomer, paper treatment**  
*Octyl acrylate*
- monomer, polymerizable: solvent coatings for nonwoven fiber**  
*Lauryl methacrylate*
- monomer, protective coatings**  
*Octyl acrylate*
- mordant**  
*Antimony trioxide; Copper hydroxide (ic); Ferric chloride; Ferric oxide; Sodium aluminate; Sodium thiosulfate anhydrous*
- mordant, dye**  
*Aluminum formate; Aluminum hydroxide; Aluminum sulfate; Ammonium alum; Copper nitrate (ic); Ecco Aluminum Formate; Fumaric acid; Potassium alum anhydrous; Sodium phosphate dibasic anhydrous; Sodium stannate; Tannic acid*
- mordant, thickening**  
*Dextrin*
- neutralization, alkaline prods.**  
*Hydrochloric acid*
- neutralization, waste materials**  
*Hydrochloric acid*
- neutralizer**  
*Ammonia; Calcium carbonate; Calcium monocarbonate; Hexamethylenetetramine; Isopropanolamine; Morpholine; Potassium acetate; Varonic® K-210*
- neutralizer, acid: flame retardants**  
*Calcium stearoyl lactylate*
- neutralizer, acid: pigments**  
*Calcium stearoyl lactylate*
- neutralizer, anionic surfaces: stock**  
Eldorado PA-780; Eldorado Lube-20
- neutralizer, cardboard**  
EkaZeolite BMH
- neutralizer, pitch: papermaking**  
Catiofast® GM
- neutralizer, pulp**  
EkaZeolite BMH
- neutralizer, stickies: papermaking**  
Catiofast® GM
- noncook additive, paper coating color formulations**  
Airvol® 165SF
- nonmigratory, paper coatings**  
*Polyester adipate*
- nonstick agent, paper coatings: box covering**  
Prox®-Ad WA 138 E
- nonstick agent, paper coatings: flat board covering**  
Prox®-Ad WA 138 E
- nonstick agent, paper coatings: food pkg.**  
Prox®-Ad WA 138 E
- nonstick agent, paper sticking: box covering**  
Prox®-Ad WA 138 E
- nonstick agent, paper sticking: flat board covering**  
Prox®-Ad WA 138 E
- nonstick agent, paper sticking: food pkg.**  
Prox®-Ad WA 138 E
- odor adsorbent, adult incontinence prods.**  
Abscents® 1000
- odor adsorbent, baby diapers**  
Abscents® 1000
- odor adsorbent, feminine protection prods.**  
Abscents® 1000
- odor adsorbent, nonwoven wipes**  
Abscents® 1000
- odor adsorbent, ostomy prods.**  
Abscents® 1000
- odor control agent, hydrogen sulfide: pulp/paper mills**  
ProSweet™
- odor control agent, mercaptan: pulp/paper mills**  
ProSweet™
- odor control agent, sewage treatment**  
*Ammonium alum*
- odor control agent, water purification**  
*Ammonium alum*
- odor control agent, water treatment**  
*Ammonia; Ammonium hydroxide; Ammonium sulfite; Ozone*
- odor control agent, water treatment/purification**  
*Chlorine dioxide*
- odor control, water treatment**  
*Diatomaceous earth*
- odor inhibitor**  
*Calcium hypochlorite; Ferric chloride; Sodium hypochlorite*
- odor neutralizer, pulp/paper mills**  
Liquid Water (WS) & Oil Soluble
- oil additive, pulp/paper**  
Lumisorb™ SML; Lumisorb™ SMO; Lumisorb™ SMP
- oil holdout improver, paper at calender**  
Aqualon® CMC-T
- oil holdout improver, paper at size presses**  
Aqualon® CMC-T
- oil repellent**  
*2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate*
- oil repellent, paper**  
Zonyl® NF; Zonyl® RP
- oil repellent, paper sizes**  
Fluorad® FX-13
- oil repellent, paper: aq./fatty food-contact**  
*Perfluoroalkyl acrylate copolymer*
- oil repellent, paper: food pkg.**  
Foraperle® 321
- oil repellent, paperboard**  
Zonyl® NF; Zonyl® RP
- oil repellent, paperboard: aq./fatty food-contact**  
*Perfluoroalkyl acrylate copolymer*
- oil repellent, paperboard: food pkg.**  
Foraperle® 321
- oil resistance aid, paper**  
Lodyne®
- oil resistance aid, paperboard**  
Lodyne®
- oilproofing agent, food pkg. paper**  
Synthro®-Pel FOX 505
- oilproofing agent, greaseproof paper**  
Synthro®-Pel FOX; Synthro®-Pel FOX 505
- oilproofing agent, paper**

*Carboxymethyl corn starch; Sodium carboxymethyl corn starch*  
**moisture retention aid, cardboard**  
 Rhodoviol® 4/125  
**moisture retention aid, coating colors**  
 Acrosol™ C 50 L; Sterocoll® FS  
**moisture retention aid, paper**  
 Aqualon® CMC-T; Rhodoviol® 4/125  
**moisture retention aid, paper coatings**  
*Carboxymethyl corn starch; Prox® A 899 E; Rheovis®; Sodium carboxymethyl corn starch; Vandrox® 185F; Vandrox® 186*  
**moisture retention aid, papermaking**  
 Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB  
**moisture retention aid, size presses**  
 Pen-cote® Starch  
**moisture retention aid, specialty paper coatings**  
 Pen-cote® Starch  
**moisturizer**  
*Acrylates/C10-30 alkyl acrylate crosspolymer; 1,2,6-Hexanetriol; Hydrolyzed soy protein*  
**moisturizer, cellulose films**  
*Sodium PCA*  
**moisturizer, paper**  
*Sodium PCA*  
**mold inhibitor**  
*Thiourea*  
**mold inhibitor, paper**  
*Barium metaborate*  
**mold inhibitor, paperboard**  
 Vancide® MZ-96 Disp.  
**mold inhibitor, soap wraps**  
 Vancide® MZ-96 Disp.  
**mold release agent**  
 A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 629; A-C® 629A; Acrawax® C; Actrasol SR 75; Actrasol SRK 75; Ammonium oleic sulfate; C20-40 parath-10; DeTHOX ACID S-8; Dioctyl sodium sulfosuccinate; Epolene® C-13; Epolene® C-14; Epolene® C-17; Epolene® E-10; Epolene® E-15; Epolene® E-20; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; Ethylene distearamide; EXP-58 Silicone Wax; Glyceryl oleate; GP-223; Halocarbon Grease 19; Halocarbon Grease 25-5S; Halocarbon Grease 25-10M; Halocarbon Grease 25-20M; Halocarbon Grease 28; Halocarbon Grease 28LT; Halocarbon Grease 32; Halocarbon Grease X90-10M; Halocarbon Oil 0.8; Halocarbon Oil 1.8; Halocarbon Oil 4.2; Halocarbon Oil 6.3; Halocarbon Oil 27; Halocarbon Oil 56; Halocarbon Oil 95; Halocarbon Oil 200; Halocarbon Oil 400; Halocarbon Oil 700; Halocarbon Oil 1000N; Halocarbon Wax 40; Halocarbon Wax 600; Halocarbon Wax 1200; Halocarbon Wax 1500; Hubercarb® Q 200T; Hydrogenated menhaden oil; Hydrogenated soybean oil; Igepal® CO-850; Kemamide® W-20; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Kerosene; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; Lipowax C; Lumulse™ GMO; Luwax® LGE; Mica; Microthene® FN 502-18; Microthene® FN 517-00; Microthene® FN 519-00; Palm (Elaeis guineensis) oil; PEG-2M; PEG-13 oleate; PEG-23 oleate; PEG-8 sesquioleate; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Petrolite® E-2020; Pluriol® E 200; Polyethylene, oxidized; Polysset® 2015; Potassium oleic sulfate; PPG-28-buteth-35; Silicone emulsions; Sodium diisooctyl sulfosuccinate; Stearamide MEA; Stearamide MEA-stearate; Stearamine; Tristearin;

Unithox® 450; Vestowax® C 60; Witcamide® MAS; Zinc laurate; Zinc stearate  
**mold release agent, calendering**  
 Alkamide® STEDA  
**mold release agent, coatings**  
*Stearamide*  
**mold release agent, extrusion**  
 Alkamide® STEDA  
**mold release agent, films**  
*Stearamide*  
**mold release agent, food-contact molded articles**  
 No Stik 806  
**mold release agent, paper**  
 No Stik 806; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000  
**molluscicide, cooling water systems**  
 Sanibrom™ 40; Sanibrom™ 45  
**molluscicide, pulp/paper mills**  
 Sanibrom™ 40; Sanibrom™ 45  
**molluscicide, wastewater systems**  
 Sanibrom™ 40; Sanibrom™ 45  
**monomer inhibitor, paper/paperboard: aq./fatty food-contact**  
*Hydroquinone; Hydroquinone ethyl ether; Hydroquinone monomethyl ether*  
**monomer, paper coatings**  
 Ageflex FM-68; Cyclohexane dimethanol diacrylate; Cyclohexane dimethanol dimethacrylate; PEG-3 trimethylolpropane triacrylate  
**monomer, paper treatment**  
*Octyl acrylate*  
**monomer, polymerizable: solvent coatings for nonwoven fiber**  
*Lauryl methacrylate*  
**monomer, protective coatings**  
*Octyl acrylate*  
**mordant**  
*Antimony trioxide; Copper hydroxide (ic); Ferric chloride; Ferric oxide; Sodium aluminate; Sodium thiosulfate anhydrous*  
**mordant, dye**  
*Aluminum formate; Aluminum hydroxide; Aluminum sulfate; Ammonium alum; Copper nitrate (ic); Ecco Aluminum Formate; Fumaric acid; Potassium alum anhydrous; Sodium phosphate dibasic anhydrous; Sodium stannate; Tannic acid*  
**mordant, thickening**  
*Dextrin*  
**neutralization, alkaline prods.**  
*Hydrochloric acid*  
**neutralization, waste materials**  
*Hydrochloric acid*  
**neutralizer**  
*Ammonia; Calcium carbonate; Calcium monocarbonate; Hexamethylenetetramine; Isopropanolamine; Morpholine; Potassium acetate; Varonic® K-210*  
**neutralizer, acid: flame retardants**  
*Calcium stearoyl lactylate*  
**neutralizer, acid: pigments**  
*Calcium stearoyl lactylate*  
**neutralizer, anionic surfaces: stock**  
 Eldorado PA-780; Eldorado Lube-20  
**neutralizer, cardboard**  
 EkaZeolite BMH  
**neutralizer, pitch: papermaking**  
 Catiofast® GM  
**neutralizer, pulp**  
 EkaZeolite BMH  
**neutralizer, stickies: papermaking**  
 Catiofast® GM  
**noncook additive, paper coating color formulations**  
 Airvol® 165SF  
**nonmigratory, paper coatings**  
*Polyester adipate*  
**nonstick agent, paper coatings: box covering**

Prox®-Ad WA 138 E  
**nonstick agent, paper coatings: flat board covering**  
 Prox®-Ad WA 138 E  
**nonstick agent, paper coatings: food pkg.**  
 Prox®-Ad WA 138 E  
**nonstick agent, paper sticking: box covering**  
 Prox®-Ad WA 138 E  
**nonstick agent, paper sticking: flat board covering**  
 Prox®-Ad WA 138 E  
**nonstick agent, paper sticking: food pkg.**  
 Prox®-Ad WA 138 E  
**odor adsorbent, adult incontinence prods.**  
 Abscents® 1000  
**odor adsorbent, baby diapers**  
 Abscents® 1000  
**odor adsorbent, feminine protection prods.**  
 Abscents® 1000  
**odor adsorbent, nonwoven wipes**  
 Abscents® 1000  
**odor adsorbent, ostomy prods.**  
 Abscents® 1000  
**odor control agent, hydrogen sulfide: pulp/paper mills**  
 ProSweet™  
**odor control agent, mercaptan: pulp/paper mills**  
 ProSweet™  
**odor control agent, sewage treatment**  
*Ammonium alum*  
**odor control agent, water purification**  
*Ammonium alum*  
**odor control agent, water treatment**  
*Ammonia; Ammonium hydroxide; Ammonium sulfate; Ozone*  
**odor control agent, water treatment/purification**  
*Chlorine dioxide*  
**odor control, water treatment**  
*Diatomaceous earth*  
**odor inhibitor**  
*Calcium hypochlorite; Ferric chloride; Sodium hypochlorite*  
**odor neutralizer, pulp/paper mills**  
 Liquid Water (WS) & Oil Soluble  
**oil additive, pulp/paper**  
 Lumisorb™ SML; Lumisorb™ SMO; Lumisorb™ SMP  
**oil holdout improver, paper at calender**  
 Aqualon® CMC-T  
**oil holdout improver, paper at size presses**  
 Aqualon® CMC-T  
**oil repellent**  
*2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate*  
**oil repellent, paper**  
 Zonyl® NF; Zonyl® RP  
**oil repellent, paper sizes**  
 Fluorad® FX-13  
**oil repellent, paper: aq./fatty food-contact**  
*Perfluoroalkyl acrylate copolymer*  
**oil repellent, paper: food pkg.**  
 Foraperle® 321  
**oil repellent, paperboard**  
 Zonyl® NF; Zonyl® RP  
**oil repellent, paperboard: aq./fatty food-contact**  
*Perfluoroalkyl acrylate copolymer*  
**oil repellent, paperboard: food pkg.**  
 Foraperle® 321  
**oil resistance aid, paper**  
 Lodyne®  
**oil resistance aid, paperboard**  
 Lodyne®  
**oilproofing agent, food pkg. paper**  
 Synthro®-Pel FOX 505  
**oilproofing agent, greaseproof paper**  
 Synthro®-Pel FOX; Synthro®-Pel FOX 505  
**oilproofing agent, paper**



- Carboxymethyl corn starch; Sodium carboxymethyl corn starch*
- moisture retention aid, cardboard**  
 Rhodoviol® 4/125
- moisture retention aid, coating colors**  
 Acrosol™ C 50 L; Sterocoll® FS
- moisture retention aid, paper**  
 Aqualon® CMC-T; Rhodoviol® 4/125
- moisture retention aid, paper coatings**  
*Carboxymethyl corn starch; Prox® A 899 E; Rheovis®; Sodium carboxymethyl corn starch; Vandrox® 185F; Vandrox® 186*
- moisture retention aid, papermaking**  
 Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB
- moisture retention aid, size presses**  
 Pen-cote® Starch
- moisture retention aid, specialty paper coatings**  
 Pen-cote® Starch
- moisturizer**  
*Acrylates/C10-30 alkyl acrylate crosspolymer; 1,2,6-Hexanetriol; Hydrolyzed soy protein*
- moisturizer, cellulose films**  
 Sodium PCA
- moisturizer, paper**  
 Sodium PCA
- mold inhibitor**  
 Thiourea
- mold inhibitor, paper**  
 Barium metaborate
- mold inhibitor, paperboard**  
 Vancide® MZ-96 Disp.
- mold inhibitor, soap wraps**  
 Vancide® MZ-96 Disp.
- mold release agent**  
 A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 629; A-C® 629A; Acraxwax® C; Actrasol SR 75; Actrasol SRK 75; Ammonium oleic sulfate; C20-40 parath-10; DeTHOX ACID S-8; Dioctyl sodium sulfosuccinate; Epolene® C-13; Epolene® C-14; Epolene® C-17; Epolene® E-10; Epolene® E-15; Epolene® E-20; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; Ethylene distearamide; EXP-58 Silicone Wax; Glyceryl oleate; GP-223; Halocarbon Grease 19; Halocarbon Grease 25-5S; Halocarbon Grease 25-10M; Halocarbon Grease 25-20M; Halocarbon Grease 28; Halocarbon Grease 28LT; Halocarbon Grease 32; Halocarbon Grease X90-10M; Halocarbon Oil 0.8; Halocarbon Oil 1.8; Halocarbon Oil 4.2; Halocarbon Oil 6.3; Halocarbon Oil 27; Halocarbon Oil 56; Halocarbon Oil 95; Halocarbon Oil 200; Halocarbon Oil 400; Halocarbon Oil 700; Halocarbon Oil 1000N; Halocarbon Wax 40; Halocarbon Wax 600; Halocarbon Wax 1200; Halocarbon Wax 1500; Hubercarb® Q 200T; Hydrogenated menhaden oil; Hydrogenated soybean oil; Igepal® CO-850; Kemamide® W-20; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Kerosene; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; Lipowax C; Lumulse™ GMO; Luwax® LGE; Mica; Microthene® FN 502-18; Microthene® FN 517-00; Microthene® FN 519-00; Palm (Elaeis guineensis) oil; PEG-2M; PEG-13 oleate; PEG-23 oleate; PEG-8 sesquioleate; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Petrolite® E-2020; Pluriol® E 200; Polyethylene, oxidized; Polysset® 2015; Potassium oleic sulfate; PPG-28-buteth-35; Silicone emulsions; Sodium diisooctyl sulfosuccinate; Stearamide MEA; Stearamide MEA-stearate; Stearamine; Tristearin;
- Unithox® 450; Vestowax® C 60; Witcamide® MAS; Zinc laurate; Zinc stearate
- mold release agent, calendering**  
 Alkamide® STEDA
- mold release agent, coatings**  
 Stearamide
- mold release agent, extrusion**  
 Alkamide® STEDA
- mold release agent, films**  
 Stearamide
- mold release agent, food-contact molded articles**  
 No Stik 806
- mold release agent, paper**  
 No Stik 806; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000
- molluscicide, cooling water systems**  
 Sanibrom™ 40; Sanibrom™ 45
- molluscicide, pulp/paper mills**  
 Sanibrom™ 40; Sanibrom™ 45
- molluscicide, wastewater systems**  
 Sanibrom™ 40; Sanibrom™ 45
- monomer inhibitor, paper/paperboard: aq./fatty food-contact**  
 Hydroquinone; Hydroquinone ethyl ether; Hydroquinone monomethyl ether
- monomer, paper coatings**  
 Ageflex FM-68; Cyclohexane dimethanol diacrylate; Cyclohexane dimethanol dimethacrylate; PEG-3 trimethylolpropane triacrylate
- monomer, paper treatment**  
 Octyl acrylate
- monomer, polymerizable: solvent coatings for nonwoven fiber**  
 Lauryl methacrylate
- monomer, protective coatings**  
 Octyl acrylate
- mordant**  
 Antimony trioxide; Copper hydroxide (ic); Ferric chloride; Ferric oxide; Sodium aluminate; Sodium thiosulfate anhydrous
- mordant, dye**  
 Aluminum formate; Aluminum hydroxide; Aluminum sulfate; Ammonium alum; Copper nitrate (ic); Ecco Aluminum Formate; Fumaric acid; Potassium alum anhydrous; Sodium phosphate dibasic anhydrous; Sodium stannate; Tannic acid
- mordant, thickening**  
 Dextrin
- neutralization, alkaline prods.**  
 Hydrochloric acid
- neutralization, waste materials**  
 Hydrochloric acid
- neutralizer**  
 Ammonia; Calcium carbonate; Calcium monocarbonate; Hexamethylenetetramine; Isopropanolamine; Morpholine; Potassium acetate; Varonic® K-210
- neutralizer, acid: flame retardants**  
 Calcium stearoyl lactylate
- neutralizer, acid: pigments**  
 Calcium stearoyl lactylate
- neutralizer, anionic surfaces: stock**  
 Eldorado PA-780; Eldorado Lube-20
- neutralizer, cardboard**  
 EkaZeolite BMH
- neutralizer, pitch: papermaking**  
 Catiofast® GM
- neutralizer, pulp**  
 EkaZeolite BMH
- neutralizer, stickies: papermaking**  
 Catiofast® GM
- noncook additive, paper coating color formulations**  
 Airvol® 165SF
- nonmigratory, paper coatings**  
 Polyester adipate
- nonstick agent, paper coatings: box covering**  
 Prox®-Ad WA 138 E
- nonstick agent, paper coatings: flat board covering**  
 Prox®-Ad WA 138 E
- nonstick agent, paper coatings: food pkg.**  
 Prox®-Ad WA 138 E
- nonstick agent, paper sticking: box covering**  
 Prox®-Ad WA 138 E
- nonstick agent, paper sticking: flat board covering**  
 Prox®-Ad WA 138 E
- nonstick agent, paper sticking: food pkg.**  
 Prox®-Ad WA 138 E
- odor adsorbent, adult incontinence prods.**  
 Abscents® 1000
- odor adsorbent, baby diapers**  
 Abscents® 1000
- odor adsorbent, feminine protection prods.**  
 Abscents® 1000
- odor adsorbent, nonwoven wipes**  
 Abscents® 1000
- odor adsorbent, ostomy prods.**  
 Abscents® 1000
- odor control agent, hydrogen sulfide: pulp/paper mills**  
 ProSweet™
- odor control agent, mercaptan: pulp/paper mills**  
 ProSweet™
- odor control agent, sewage treatment**  
 Ammonium alum
- odor control agent, water purification**  
 Ammonium alum
- odor control agent, water treatment**  
 Ammonia; Ammonium hydroxide; Ammonium sulfite; Ozone
- odor control agent, water treatment/purification**  
 Chlorine dioxide
- odor control, water treatment**  
 Diatomaceous earth
- odor inhibitor**  
 Calcium hypochlorite; Ferric chloride; Sodium hypochlorite
- odor neutralizer, pulp/paper mills**  
 Liquid Water (WS) & Oil Soluble
- oil additive, pulp/paper**  
 Lumisorb™ SML; Lumisorb™ SMO; Lumisorb™ SMP
- oil holdout improver, paper at calender**  
 Aqualon® CMC-T
- oil holdout improver, paper at size presses**  
 Aqualon® CMC-T
- oil repellent**  
 2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate
- oil repellent, paper**  
 Zonyl® NF; Zonyl® RP
- oil repellent, paper sizes**  
 Fluorad® FX-13
- oil repellent, paper: aq./fatty food-contact**  
 Perfluoroalkyl acrylate copolymer
- oil repellent, paper: food pkg.**  
 Foraperle® 321
- oil repellent, paperboard**  
 Zonyl® NF; Zonyl® RP
- oil repellent, paperboard: aq./fatty food-contact**  
 Perfluoroalkyl acrylate copolymer
- oil repellent, paperboard: food pkg.**  
 Foraperle® 321
- oil resistance aid, paper**  
 Lodyne®
- oil resistance aid, paperboard**  
 Lodyne®
- oilproofing agent, food pkg. paper**  
 Synthro®-Pel FOX 505
- oilproofing agent, greaseproof paper**  
 Synthro®-Pel FOX; Synthro®-Pel FOX 505
- oilproofing agent, paper**

## oil-proofing prods.

Synthro®-Pel FOX; Synthro®-Pel FOX 505

## oil-proofing prods.

Hycar® 1572

## opacifier

*Carbon black; Cetyl alcohol; Erucamide; Magnesium oxide; Methyl soyate; Mica; Montan wax; PEG-6 dilaurate; PEG-12 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-8 ditallate; PEG-12 ditallate; PEG-2 laurate SE; PEG-32 laurate; PEG-20 oleate; PEG-32 oleate; PEG-75 oleate; PEG-32 stearate; Polystyrene; Propylene glycol distearate; Sachtolith® HD-S; Sachtolith® L; Sillica, hydrated; Styrene/PVP copolymer; Synthetic beeswax*

## opacifier, base stock coatings

Albacar® PCC

## opacifier, clutch paper

Celite® 263; Celite® 321; Celite® 388

## opacifier, coated free sheets

Reactopaque® 100; Reactopaque® 150; Reactopaque® 175

## opacifier, coated printing paper

Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®

## opacifier, coated writing paper

Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®

## opacifier, coatings

Micro-White® Superamide; Pegosperse® 600 DOT; Ti-Pure® RPD Vantage®

## opacifier, fine printing paper

Hydral® 710; Hydral® 716

## opacifier, groundwood specialties

Opacitex

## opacifier, industrial emulsions

PEG-8 distearate

## opacifier, LWC

Reactopaque® 100; Reactopaque® 150; Reactopaque® 175

## opacifier, newsprint

Reactopaque® 100; Reactopaque® 150; Reactopaque® 175

## opacifier, newsprint filling

Opacitex

## opacifier, paper

*Calcium carbonate; Calcium monocarbonate; Cecavon® NA 61; Cecavon® ZN 70; Cecavon® ZN 735; Lumulse™ DGS; Lumulse™ DGS-C; Lumulse™ DGS-N; Micro-White® Superamide; Pegosperse® 400 DOT; Pegosperse® 600 DOT; Reactopaque 100; Ropaque® BC-643; Titanium dioxide; Ultrapaque® PCC; WW Filler™*

## opacifier, paper coatings

Albaglos® PCC; Alphetex HP; Microblanc 1; Opacarb® PCC; Opacitex; Ropaque® HP-1055; Ropaque® HP-543P; Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®

## opacifier, paper filling

Alphetex HP

## opacifier, paper finishes

Koster Keunen Beeswax

## opacifier, paper: food-contact

*Styrene/acrylic copolymer ammonium salt*

## opacifier, paperboard

Ropaque® BC-643

## opacifier, paperboard

Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®

## opacifier, paperboard coatings

Ropaque® HP-1055; Ropaque® HP-543P

## opacifier, papermaking

PEG-2 stearate

## opacifier, papermaking: acid/alkaline

*Styrene/acrylic copolymer ammonium salt*

## opacifier, paraffin

Vybar® 103

## opacifier, pigment grinding

*Propylene glycol myristate*

## opacifier, pulp/paper

Polypax EGDS; Polypax EGMS

## opacifier, saturating paper

Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®

## opacifier, surfactant systems

*Methyl hydroxystearate*

## opacifier, tissue grades

Reactopaque® 100; Reactopaque® 150; Reactopaque® 175

## opacifier, uncoated fine paper

Albacar® PCC

## opacifier, uncoated free sheets

Reactopaque® 100; Reactopaque® 150; Reactopaque® 175

## opacifier, uncoated printing paper

Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®

## opacifier, water treatment

PEG-6 distearate; Pegosperse® 400 DOT; Pegosperse® 600 DOT

## opacifier, waxes

*Propylene glycol myristate*

## opacifier, wet-end papermaking

Ti-Pure® RPD Vantage®

## opacifier, wet-end: coated paper base sheets

Vantalc® 6H

## opacifier, wet-end: papermaking

Vantalc® 6H

## opacifier, wet-end: uncoated bond paper

Vantalc® 6H

## opacifier, white fine paper

Pontamine™ Black SP Liq.

## optical brightener

*4,4'-Diaminostilbene-2,2'-disulfonic acid; Disodium 2,2'-(1,2-ethenediyl) bis [5-[[4-(bis (2-hydroxyethyl) amino)-6-(phenylamino)-1,3,5-triazin-2-yl] amino] benzenesulfonate; Morpholine*

## optical brightener, alkaline paper stock conditions

Optiblanc® NL; Optiblanc® NL 70

## optical brightener, calcium carbonate-filled paper

Leucophor® AP Liq.

## optical brightener, casein-based paper coatings

Leucophor® AP Liq.

## optical brightener, coatings

Optiblanc® RL 140

## optical brightener, neutrally sized paper

Leucophor® AP Liq.

## optical brightener, paper

Leucophor® NS Liq.; Optiblanc® HL 400; Optiblanc® KLN; Optiblanc® PLC; Optiblanc® RL 120; Optiblanc® RL 140; Optiblanc® RL 140T; Optiblanc® RL 200; Optiblanc® XL 30; Optiblanc® XLN

## optical brightener, paper coating colors

Optiblanc® CL 300

## optical brightener, paper coatings

*7-Diethylamino-4-methylcoumarin; Leucophor® U Liq.; Leucophor® UKO Liq.; Leucophor® UO Liq.; Optiblanc® NL; Optiblanc® NL 70; Optiblanc® RL 200; Optiblanc® SL 250*

## optical brightener, paper mills

Optiblanc® NF 120

## optical brightener, paper stock

Leucophor® U Liq.; Leucophor® UKO Liq.; Leucophor® UO Liq.; Optiblanc® NF 120; Optiblanc® NF 140; Optiblanc® NF 200

## optical brightener, paper stock

Optiblanc® RL 200

## optical brightener, paper surface treatment

Leucophor® SHR Liq.

## optical brightener, paper surfaces

Optiblanc® BRC; Optiblanc® BRC 70; Optiblanc® NF 120; Optiblanc® NF 140; Optiblanc® NF 200

## optical brightener, paper/paperboard: food-contact

*Benzenesulfonic acid, 2,2'-(1,2-ethenediyl) bis [5-[[4-(bis (2-hydroxyethyl) amino)-6-[[4-(sulfophenyl) amino]-1,3,5-triazin-2-yl] amino]-, tetrasodium salt*

## optical brightener, paper: dry food

Leucophor® U Liq.

## optical brightener, paper: fatty food

Leucophor® U Liq.

## optical brightener, paperboard: dry food

Leucophor® U Liq.

## optical brightener, paperboard: fatty food

Leucophor® U Liq.

## optical brightener, photographic paper

Leucophor® BCF Ultra Powd.; Tinopal® SFP

## optical brightener, photographic paper: coating formulation

Leucophor® CN Liq.

## optical brightener, photographic paper: size presses

Leucophor® CN Liq.

## optical brightener, photographic paper: stock

Leucophor® CN Liq.

## optical brightener, photographic prints

Tinopal® SFP

## optical brightener, size press coatings

Leucophor® NS Liq.

## optical brightener, size presses

Leucophor® U Liq.; Leucophor® UKO Liq.; Leucophor® UO Liq.; Optiblanc® RL 140; Optiblanc® RL 200

## optical brightener, sized paper stock

Leucophor® AP Liq.

## optical brightener, unsized paper stock

Leucophor® AP Liq.

## optical brightener, water-borne coatings

Tinopal® SFP

## optical polymers

*Ethylene glycol dimethacrylate*

## oxidizing agent

*t-Butyl hydroperoxide; Calcium hypochlorite; Chlorine dioxide; Sodium peroxide; T-Hydro® Sol'n.*

## oxidizing agent, bleaching fats

*Benzoyl peroxide*

## oxidizing agent, bleaching flours

*Benzoyl peroxide*

## oxidizing agent, bleaching oils

*Benzoyl peroxide*

## oxidizing agent, bleaching waxes

*Benzoyl peroxide*

## oxidizing agent, dyes

*Ferric chloride*

## oxidizing agent, dyestuffs

*Ammonium persulfate; Sodium chlorate*

## oxidizing agent, industrial/municipal water/wastewater

*Hydrogen peroxide*

## oxidizing agent, paper pulp

*Sodium chlorite*

## oxidizing agent, pulp bleaching

*Sodium chlorate*

## oxidizing agent, pulp/paper

Albone® 35; Albone® 50; Albone® 70; Albone® 70 DG; Tysul® WW 35; Tysul® WW 50; Tysul® WW 70 DG

## oxidizing agent, wastewater

Adox 8125

## oxidizing agent, wastewater treatment

Tysul® WW 35; Tysul® WW 50; Tysul® WW 70 DG

## oxidizing agent, wood pulp

*Hydrogen peroxide*

## oxo alcohols prod.

*Decene-1*

## oxygen control agent, pulp/paper mill boiler systems

OptiGuard™

## oxygen scavenger

*Sodium hydrosulfite; Sulfur dioxide*  
**oxygen scavenger, utility boiler feedwater systems: pulp/paper**  
 CorTrol™

**oxygen scavenger, water treatment**  
*Hydroquinone; Sodium bisulfite*  
**oxygen source, pulp/paper bleaching**  
*t-Butyl hydroperoxide; T-Hydro® Sol'n*

**paper**

Acrawax® C; Aerosol® C-61; Airflex® 320; Airflex® 323; Airflex® 426; Airflex® 4500; Airvol® 125; Airvol® 203; Airvol® 425; Airvol® 502; Airvol® MH-82; Airvol® MM-14; Airvol® MM-51; Airvol® MM-81; AL 1701; AL 4190; AL 4781; AL 6919; *Alumina; Aluminum hydroxide; Aluminum oleate; Aluminum palmitate; Ammonium caseinate; Ammonium nonoxynol-9 sulfate; Antarox® 25-R-2; Antarox® 31-R-1; Aquaquest 2130; Asbestos; ASP® 072; Bafixan® Dyes; Basoplast® 265 D; Bayprint™ Blue Tint Base E-1031; Bayprint™ Red Tint Base E-1032; Bayprint™ Yellow Tint Base E-1033; Belsperse® 164; Bersize® 6205; Bersoft® 4600; Busan® 1223; *Butyl acid phosphate; Bynel® CXA; Calcium oxide; Calcium sulfate hemihydrate; Calcium sulfite; Caprolactone acrylate monomer; Carbowax® PEG 540 Blend; Casein; Catioplast® PL; Cellulose acetate; Charlab™ CHT Rapidoprint MS 30; Chromium sulfate, basic; CN 383; CN 384; Continex® LH-10; Continex® N351; C11-15 pareth-7; C11-15 pareth-9; C11-15 pareth-12; C12-15 pareth-7; Crill 1; Crillet 4; CS-10; Daratak® 61L; Daratak® 89L; Darex® 550L; n-Decane; Digitex™; Dihydroxyethyl cocamine oxide; Diphenyldimethoxysilane; Dispercel-A; Dispercel-AS; Eastek 2140; Eastman® TXIB; Ebecryl® 585; Ebecryl® 586; Ebecryl® 588; Ebecryl® 2047; Eccobond Adhesive 201 (Joyco Adhesive M1616); Eccopuff; Eldorado ALK-6000; Eldorado ALK-6031; Eldorado DEF-1795; Eldorado DIC-107; Eldorado FCD-142; Eldorado FCD-5050; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 85-30; Elvanol® 85-82; Elvanol® HV; Empilan® KA3; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Epotuf® 3000; Epotuf® 3020-20 HDDA; Epotuf® 3020-25 TPGDA; Epotuf® 3210; Epotuf® 3230; Estalol®; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; *2-Ethylhexanol; Flexbond® 149; Flexbond® 150; Flexbond® 153; Flexbond® 165; Flexbond® 185; Flexcryl® 1625; Flexcryl® 1685; Foamkill® 830; Gallic acid; Gelatin; Geropon® T-33; Geropon® T-43; Geropon® T-51; Geropon® T-77; Glycerol hydroxystearate; Hexyl methacrylate; Hi Selon; Hoechst Wax PED 821; Hoechst Wax PED 822; Imidazoline 18 DA; Imidazoline 18OH; Imidazoline SOH; Interbond® C; *Isostearyl alcohol; Jaguar® CB-11; Jarcol™ I-12; Jarcol™ I-14T; Jarcol™ I-18E; Jarcol™ I-18T; Jarcol™ I-24; Jarcol™ I-28; Jarcol™ I-32; Jarcol™ I-34T; Jarcol™ I-36; Jaric I-12; Jaric I-14T; Jaric I-16; Jaric I-18T; Jaric I-20; Jaric I-24; Kevlar® 29, 49; Korad Klear; Koster Keunen Paraffin Wax; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; LamChem C-100-L; LamChem C-100-O; LamChem C-100-S; LamChem C-100-T; Leaf River 90 Softwood; Leucophor® BCF Ultra Powd.; Levacell® Blue 6GLL Liq.; Levacell® Fast Yellow KS-R Liq.; Levacell® Red KS-4BE Conc.; *Linoleyl alcohol; Magnesium chloride; Magnesium oxide;*****

Martinal® OL-104; Masil® EM 501; Mazu® DF 230SX; *N-(2-Methacryloyloxyethyl) ethylene urea; Mhoromer® AM 103H; Mhoromer® AM 105H; Mhoromer® BM 711; Mhoromer® BM 713; Mhoromer® BM 731; Mhoromer® BM 903; Mhoromer® MMA; Microblanc 3; Mineral oil; MT 1971-D; Nafol® 1822; Nafol® 1822 B; Nafol® 1822 C; NeoCryl® B-728; NeoCryl® BT-175; Norfox® 90; ODSA; *Oleic amidoethyl-imidazoline; Optiblanc® NF 140; Optiblanc® NF 200; PAPHEN® PKHC; PAPHEN® PKHJ; PEG-5 castor oil; PEG-17 castor oil; PEG-8 ditallate; PEG-12 ditallate; PEG-8 isolauryl thioether; PEG-90M; PEG-115M; PEG-160M; Pergopak M2; Petroleum distillates; Photomer® 3016-20T; Photomer® 3016-40T; Photomer® 5018; Photomer® 6140; Photomer® 8061; Poloxamer 124; Poloxamer 181; Polyamidoamine; Polyurethane methacrylate; Polyvinyl acetate; Polyvinyl alcohol (partially hydrolyzed); Pontamine™ Black LFS Liq.; Pontamine™ Brilliant Orange 2R Liq.; Potassium alum dodecahydrate; Potassium silicate; Proxel® XL2; QEMI DSR 8117A; Rad-Cure 106A; Rad-Cure 106B; Rad-Cure 106S; Raven® H2O; Rohamere® 6844-0; Rohamere® 6852-0; Rohamere® 8437; Rosin; Ross Carnuba Wax; Servirox® OEG 45; Shellac; Silicone Antifoam Emulsion SRE; Sodium alum; Sodium aluminate; Sodium bisulfate; Sodium caseinate; Sodium hydrosulfite; Sodium metasilicate pentahydrate; Sodium phosphoaluminate; Sodium sorbate; Sodium sulfite; SR 238; Starch, pregelatinized; Stearyl hydroxyethyl imidazoline; Strontium sulfate; Sulfotex OA; Sulfurous acid; Syncol®; Synthemul® 40554-00; Synthetic wax; T-1133A; Tallowtrimonium chloride; TEGO® Wet 260; Teric™ PEG 200; Teric™ PEG 300; Teric™ PEG 400; Teric™ PEG 600; Teric™ PEG 1500; Teric™ PEG 4000; Tiona® A-3000; Tiona® RCS-P; TL 4190; Triacetin; Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate; Tris [1-(2-methyl-aziridinyl) phosphine oxide]; Tylac® 68321-00; Tylac® 68327-00; 1900 UHMW Polymers; Uniplex 250; Unisize® HA-26; Valtac 56; Valtac F-66; Vinac® 828; Vinac® 884; Vinac® H 60; Vinyl acetate/ethylene/vinyl chloride terpolymer; Volan®; Volan® L; Zelec® ECP-1410-M; Zelec® ECP-1410-T; Zelec® ECP-1610-S; Zelec® ECP-1703-S; Zelec® ECP-2610-S; Zelec® ECP-2703-S; Zelec® ECP-3005-XC; Zelec® ECP-3010-XC; Zelec® ECP-3410-T; Zelec® ECP-3610-S; Zinc hydrosulfite**

**paper additive**

A-C® 16; A-C® 712; A-C® 725; A-C® 735; A-C® 1702; A-C® 6702; *Formic acid; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; PEG-135; PEG-180; Pluronic® 17R2; Sodium oleate; TEBAC; Triethylenetetramine*

**paper additive, calender stack**

Penford® Gum

**paper additive, coatings**

Penford® Gum

**paper additive, erasable bond paper**

Astrocoate™ 75 Starch

**paper additive, parchment paper**

Astrocoate™ 75 Starch

**paper additive, size press: clear sizes**

Penford® Gum

**paper additive, size press: pigmented formulas**

Penford® Gum

**paper additive, specialty paper**

Astrocoate™ 75 Starch

**paper additives**

Lipotin SB

**paper aq. dispersion**

Norsocryl® 2EHA; Norsocryl® BA; Norsocryl® MA

**paper aq. process additive**

Dequest® 2006

**paper auxiliary**

*Diethylaminoethanol; Dimethylethanolamine; Genapol® X Grades; Praestaret®; Servoxy® VPBZ 5/100; Servoxy® VPDZ 3/100; Servoxy® VPGZ 6/100; Servoxy® VPIZ 100; Servoxy® VPNZ 7/100; Servoxy® VPPZ 100; Servoxy® VPRZ 006/100; Servoxy® VPRZ 0011/100; Servoxy® VPTZ 003/100; Servoxy® VPTZ 100; Servoxy® VPVZ 12/100; Talloweth-11 phosphate; Teric™ OF8; Vestowax® AO 1535; Vestowax® AO 1539; Vestowax® AO 2733; Vestowax® C 60; Zusolat 1004*

**paper auxiliary raw material**

*Coceth-5; Coceth-8; Coceth-10; Coceth-15; Coceth-20; Nonyl nonoxynol-16; Nonyl nonoxynol-30; Oleth-8; Oleth-12; Oleth-15*

**paper auxiliary, acid papermaking**

Praestaret®

**paper auxiliary, cardboard**

Praestamin®

**paper auxiliary, carton**

Praestamin®

**paper auxiliary, copying paper**

Samstat-350

**paper auxiliary, heavily printed paper deinking**

Taurine-DEI

**paper auxiliary, paper**

Praestamin®

**paper auxiliary, paper coatings**

Pearl; Pearl AP, R

**paper auxiliary, pulp**

Praestafix®

**paper auxiliary, rosin consumption control: board sizing**

Suwx

**paper auxiliary, rosin consumption control: paper sizing**

Suwx

**paper auxiliary, size presses**

Pearl; Pearl AP, R

**paper auxiliary, tissue paper**

Samstat-350

**paper bag treatment, shipping cereals**

Pyrethrin I

**paper clear systems**

Photomer® 3015

**paper coating additive**

Eastone™ 147 Wax; *Guar (Cyanopsis tetragonoloba) gum; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W*

**paper coating component**

Staybelite®

**paper coating component, aq./fatty/dry food-contact**

Abex® 26S; Pulpsil® 160 C

**paper coating modifier**

K-Flex® UD-320W

**paper component, aq./fatty food-contact**

Qemiban; Qemireten 8015

**paper component, aq./fatty/dry food-contact**

AcryPrint™ 2115; AcryPrint™ 2129; AcryPrint™ 2163; Aquaquest 2130; Belclene® 283; Crisotan R-5; Crisotan R-5M; Dur-O-Set® E-623; Dur-O-Set® E-646; DynaCoat™ XA; DynaCoat™ XC; Esi-Rez™ 50; Esi-Rez™ 53; Esi-Rez™ 60; Esi-Rez™ 65; GenFlo® 557; GenFlo® 559; Jaguar® 2100®; Jaguar® 8707; Jaguar® CB-11; Jaguar® CB-123; Jaguar® CP-4; Jaguar® CP-13; Lycold® 260; NeuRoz® 426; NeuRoz® 540; NeuRoz® 700; NeuRoz® XC-7; Nopccote® 1680; Nopccote® 3560; Nopccote® 6510 Free; Nopccote C-104; Nopccote® C-104-HS; Nopccote® C-104-HS Free; Plasmine KN-500; Plasmine® N-750-P; Plasmine® PLH-50; Plasmine® PLH-55; Prox®-Ad WA 138 E; Prox®-Size A 925 E; Pulpsil® 760 E; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8019;

*Sodium hydrosulfite; Sulfur dioxide*  
**oxygen scavenger, utility boiler feedwater systems: pulp/paper**  
 CorTrol™  
**oxygen scavenger, water treatment**  
*Hydroquinone; Sodium bisulfite*  
**oxygen source, pulp/paper bleaching**  
*t-Butyl hydroperoxide; T-Hydro® Sol'n*  
**paper**  
 Acrawax® C; Aerosol® C-61; Airflex® 320; Airflex® 323; Airflex® 426; Airflex® 4500; Airvol® 125; Airvol® 203; Airvol® 425; Airvol® 502; Airvol® MH-82; Airvol® MM-14; Airvol® MM-51; Airvol® MM-81; AL 1701; AL 4190; AL 4781; AL 6919; *Alumina; Aluminum hydroxide; Aluminum oleate; Aluminum palmitate; Ammonium caseinate; Ammonium nonoxynol-9 sulfate; Antarox® 25-R-2; Antarox® 31-R-1; Aquaquest 2130; Asbestos; ASP® 072; Bafixan® Dyes; Basoplast® 265 D; Bayprint™ Blue Tint Base E-1031; Bayprint™ Red Tint Base E-1032; Bayprint™ Yellow Tint Base E-1033; Belsperse® 164; Bersize® 6205; Bersoft® 4600; Busan® 1223; Butyl acid phosphate; Bynel® CXA; Calcium oxide; Calcium sulfate hemihydrate; Calcium sulfite; Caprolactone acrylate monomer; Carbowax® PEG 540 Blend; Casein; Catiolast® PL; Cellulose acetate; Charlab™ CHT Rapidoprint MS 30; Chromium sulfate, basic; CN 383; CN 384; Continex® LH-10; Continex® N351; C11-15 parath-7; C11-15 parath-9; C11-15 parath-12; C12-15 parath-7; Crill 1; Crillet 4; CS-10; Daratak® 61L; Daratak® 89L; Darex® 550L; n-Decane; Digitex™; Dihydroxyethyl cocamine oxide; Diphenyldimethoxysilane; Dispercel-A; Dispercel-AS; Eastek 2140; Eastman® TXIB; Ebecryl® 585; Ebecryl® 586; Ebecryl® 588; Ebecryl® 2047; Eccobond Adhesive 201 (Joyco Adhesive M1616); Eccopuff; Eldorado ALK-6000; Eldorado ALK-6031; Eldorado DEF-4795; Eldorado DIC-107; Eldorado FCD-142; Eldorado FCD-5050; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 85-30; Elvanol® 85-82; Elvanol® HV; Empilan® KA3; Empilan® KA5; Empilan® KA5/90; Empilan® KA8/80; Empilan® KA10/80; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Epotuf® 3000; Epotuf® 3020-20 HDDA; Epotuf® 3020-25 TPGDA; Epotuf® 3210; Epotuf® 3230; Estalol®; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; 2-Ethylhexanol; Flexbond® 149; Flexbond® 150; Flexbond® 153; Flexbond® 165; Flexbond® 185; Flexcryl® 1625; Flexcryl® 1685; Foamkill® 830; Gallic acid; Gelatin; Geropon® T-33; Geropon® T-43; Geropon® T-51; Geropon® T-77; *Glycerol hydroxystearate; Hexyl methacrylate; Hi Selon; Hoechst Wax PED 821; Hoechst Wax PED 822; Imidazoline 18 DA; Imidazoline 18OH; Imidazoline SOH; Interbond® C; Isostearyl alcohol; Jaguar® CB-11; Jarcol™ I-12; Jarcol™ I-14T; Jarcol™ I-18E; Jarcol™ I-18T; Jarcol™ I-24; Jarcol™ I-28; Jarcol™ I-32; Jarcol™ I-34T; Jarcol™ I-36; Jaric I-12; Jaric I-14T; Jaric I-16; Jaric I-18T; Jaric I-20; Jaric I-24; Kevlar® 29, 49; Korad Klear; Koster Keunen Paraffin Wax; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; LamChem C-100-L; LamChem C-100-O; LamChem C-100-S; LamChem C-100-T; Leaf River 90 Softwood; Leucophor® BCF Ultra Powd.; Levacell® Blue 6GLL Liq.; Levacell® Fast Yellow KS-R Liq.; Levacell® Red KS-4BE Conc.; *Linoleyl alcohol; Magnesium chloride; Magnesium oxide;***

Martinal® OL-104; Masil® EM 501; Mazu® DF 230SX; *N-(2-Methacryloyloxyethyl) ethylene urea; Mhoromer® AM 103H; Mhoromer® AM 105H; Mhoromer® BM 711; Mhoromer® BM 713; Mhoromer® BM 731; Mhoromer® BM 903; Mhoromer® MMA; Microblanc 3; Mineral oil; MT 1971-D; Nafol® 1822; Nafol® 1822 B; Nafol® 1822 C; NeoCryl® B-728; NeoCryl® BT-175; Norfox® 90; ODSA; *Oleic amidoethyl-imidazoline; Optiblanc® NF 140; Optiblanc® NF 200; PAPHEN® PKHC; PAPHEN® PKHJ; PEG-5 castor oil; PEG-17 castor oil; PEG-8 ditallate; PEG-12 ditallate; PEG-8 isolauryl thioether; PEG-90M; PEG-115M; PEG-160M; Pergopak M2; Petroleum distillates; Photomer® 3016-20T; Photomer® 3016-40T; Photomer® 5018; Photomer® 6140; Photomer® 8061; Poloxamer 124; Poloxamer 181; Polyamidoamine; Polyurethane methacrylate; Polyvinyl acetate; Polyvinyl alcohol (partially hydrolyzed); Pontamine™ Black LFS Liq.; Pontamine™ Brilliant Orange 2R Liq.; Potassium alum dodecahydrate; Potassium silicate; Proxel® XL2; QEMI DSR 8117A; Rad-Cure 106A; Rad-Cure 106B; Rad-Cure 106S; Raven® H2O; Rohamere® 6844-0; Rohamere® 6852-0; Rohamere® 8437; Rosin; Ross Carnuba Wax; Servirox® OEG 45; Shellac; Silicone Antifoam Emulsion SRE; Sodium alum; Sodium aluminate; Sodium bisulfate; Sodium caseinate; Sodium hydrosulfite; Sodium metasilicate pentahydrate; Sodium phosphoaluminate; Sodium sorbate; Sodium sulfite; SR 238; Starch, pregelatinized; Stearyl hydroxyethyl imidazoline; Strontium sulfate; Sulfotex OA; Sulfurous acid; Syncol®; Synthemul® 40554-00; Synthetic wax; T-1133A; Tallowtrimonium chloride; TEGO® Wet 260; Teric™ PEG 200; Teric™ PEG 300; Teric™ PEG 400; Teric™ PEG 600; Teric™ PEG 1500; Teric™ PEG 4000; Tiona® A-3000; Tiona® RCS-P; TL 4190; *Triacetin; Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate; Tris [1-(2-methyl-aziridinyl) phosphine oxide]; Tylac® 68321-00; Tylac® 68327-00; 1900 UHMW Polymers; Uniplex 250; Unisize® HA-26; Valtac 56; Valtac F-66; Vinac® 828; Vinac® 884; Vinac® H 60; Vinyl acetate/ethylene/vinyl chloride terpolymer; Volan®; Volan® L; Zelec® ECP-1410-M; Zelec® ECP-1410-T; Zelec® ECP-1610-S; Zelec® ECP-1703-S; Zelec® ECP-2610-S; Zelec® ECP-2703-S; Zelec® ECP-3005-XC; Zelec® ECP-3010-XC; Zelec® ECP-3410-T; Zelec® ECP-3610-S; Zinc hydrosulfite*  
**paper additive**  
 A-C® 16; A-C® 712; A-C® 725; A-C® 735; A-C® 1702; A-C® 6702; *Formic acid; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W; PEG-135; PEG-180; Pluronic® 17R2; Sodium oleate; TEBAC; Triethylenetetramine*  
**paper additive, calender stack**  
 Penford® Gum  
**paper additive, coatings**  
 Penford® Gum  
**paper additive, erasable bond paper**  
 Astrocote™ 75 Starch  
**paper additive, parchment paper**  
 Astrocote™ 75 Starch  
**paper additive, size press: clear sizes**  
 Penford® Gum  
**paper additive, size press: pigmented formulas**  
 Penford® Gum  
**paper additive, specialty paper**  
 Astrocote™ 75 Starch  
**paper additives**  
 Lipotin SB  
**paper aq. dispersion**  
 Norsocryl® 2EHA; Norsocryl® BA; Norsocryl® MA**

**paper aq. process additive**  
 Dequest® 2006  
**paper auxiliary**  
*Diethylaminoethanol; Dimethylethanolamine; Genapol® X Grades; Praestaret®; Servoxyll® VPBZ 5/100; Servoxyll® VPDZ 3/100; Servoxyll® VPGZ 6/100; Servoxyll® VPIZ 100; Servoxyll® VPNZ 7/100; Servoxyll® VPPZ 100; Servoxyll® VPRZ 006/100; Servoxyll® VPRZ 0011/100; Servoxyll® VPTZ 003/100; Servoxyll® VPTZ 100; Servoxyll® VPVZ 12/100; Talloweth-11 phosphate; Teric™ OF8; Vestowax® AO 1535; Vestowax® AO 1539; Vestowax® AO 2733; Vestowax® C 60; Zusolat 1004*  
**paper auxiliary raw material**  
*Coceth-5; Coceth-8; Coceth-10; Coceth-15; Coceth-20; Nonyl nonoxynol-16; Nonyl nonoxynol-30; Oleth-8; Oleth-12; Oleth-15*  
**paper auxiliary, acid papermaking**  
 Praestaret®  
**paper auxiliary, cardboard**  
 Praestamin®  
**paper auxiliary, carton**  
 Praestamin®  
**paper auxiliary, copying paper**  
 Samstat-350  
**paper auxiliary, heavily printed paper deinking**  
 Taurine-DEI  
**paper auxiliary, paper**  
 Praestamin®  
**paper auxiliary, paper coatings**  
 Pearl; Pearl AP, R  
**paper auxiliary, pulp**  
 Praestafix®  
**paper auxiliary, rosin consumption control: board sizing**  
 Suwax  
**paper auxiliary, rosin consumption control: paper sizing**  
 Suwax  
**paper auxiliary, size presses**  
 Pearl; Pearl AP, R  
**paper auxiliary, tissue paper**  
 Samstat-350  
**paper bag treatment, shipping cereals**  
*Pyrethrin I*  
**paper clear systems**  
 Photomer® 3015  
**paper coating additive**  
 Eastone™ 147 Wax; *Guar (Cyanopsis tetragonoloba) gum; Krytox® DF; Krytox® DF250/IPA; Krytox® DF/IPA; Krytox® DF/W*  
**paper coating component**  
 Staybelite®  
**paper coating component, aq./fatty/dry food-contact**  
 Abex® 26S; Pulpsil® 160 C  
**paper coating modifier**  
 K-Flex® UD-320W  
**paper component, aq./fatty food-contact**  
 Qemiban; Qemireten 8015  
**paper component, aq./fatty/dry food-contact**  
 AcryPrint™ 2115; AcryPrint™ 2129; AcryPrint™ 2163; Aquaquest 2130; Belclene® 283; Crisotan R-5; Crisotan R-5M; Dur-O-Set® E-623; Dur-O-Set® E-646; DynaCoat™ XA; DynaCoat™ XC; Esi-Rez™ 50; Esi-Rez™ 53; Esi-Rez™ 60; Esi-Rez™ 65; GenFlo® 557; GenFlo® 559; Jaguar® 2100®; Jaguar® 8707; Jaguar® CB-11; Jaguar® CB-123; Jaguar® CP-4; Jaguar® CP-13; Lycold® 260; NeuRoz® 426; NeuRoz® 540; NeuRoz® 700; NeuRoz® XC-7; Nopcote® 1680; Nopcote® 3560; Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free; Plasmine KN-500; Plasmine® N-750-P; Plasmine® PLH-50; Plasmine® PLH-55; Prox®-Ad WA 138 E; Prox®-Size A 925 E; Pulpsil® 760 E; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8019;

QEMI MDF 8021; QEMI MDF 8023; QEMI SSDF 8013; Qemidink 8001; Qemidink 8002; Resyn® 25-1103; Resyn® 25-1114; Resyn® 25-1120; Resyn® 25-1140; Resyn® 25-1151; Resyn® 25-1152; Resyn® 25-1190; Resyn® 1090; Sequabond® 7880; Sequabond® TR 7830; Starcote®; Synthro®-Pel WA 491; Ti-Pure® RPD Vantage®; Ti-Pure® RPS Vantage®

**paper component, dry food-contact**

Abex® EP-110; Geropon® T/36DF; Geropon® TA/72/S; Nacrylic X 4280; Nopcote® 1675; Nopcote® DC-1153

**paper component, food-contact**

Indopol® H-100; Indopol® H-1500; Indopol® L-10; Rhodorsil® Emulsion 865A; Rhodorsil® Emulsion 878; Stanfax 238; Stanfax 560; Stanfax 968

**paper defoamer component**

PEG-12 dioleate

**paper deinking**

Methyl lardate

**paper dispersions**

Hoechst Wax PED 153

**paper dye prod.**

5-Nitroacenaphthene

**paper films, heat sealable**

Epolene® C-16; Epolene® C-18

**paper finishes**

Acrylates copolymer

**paper finishing**

Dimethyl hydantoin-formaldehyde polymer

**paper finishing emulsions**

Butyl methacrylate; Hexyl methacrylate; Lauryl methacrylate; Stearyl methacrylate

**paper gaskets**

Animal glue

**paper impregnants/sizes**

Ross Ceresine Wax

**paper impregnating hydrogel**

Glycidyl methacrylate

**paper machine retention**

Opazil®

**paper mill boilers, paper/paperboard: aq./fatty food-contact**

Sodium poly (isopropenylphosphonate)

**paper modifier**

Blemmer GLM; Epiol NPG-100; Epiol TMP-100; K-Flex® XM-2304

**paper pigmented systems**

Photomer® 3015

**paper plates**

Parvan® 154

**paper pulp**

Calcium hydroxide

**paper pulping**

Sodium bisulfide

**paper saturation emulsion**

Everflex® GT

**paper sizing additive**

Guar (Cyanopsis tetragonoloba) gum

**paper sizing resins**

Fumaric acid

**paper sizing, internal**

Starch, pregelatinized

**paper suspensions**

Carbomer

**paper treatment**

Amoco® H-15; Amoco® L-14; Amoco® L-50; Araldite® 95-101; Araldite® ECN 1400; Araldite® PY 323; Araldite® PZ 3901; Araldite® PZ 3917; Araldite® XU 3900; Araldite® XU 3903; DL-Diepoxybutane; Diphenyldimethoxysilane; Snowtex S; Snowtex ST-20L; Snowtex ST-40; Snowtex ST-50; Snowtex ST-C; Snowtex ST-N; Snowtex ST-O; Snowtex ST-O-30; Snowtex ST-O-40; Snowtex ST-OL; Snowtex ST-OL-40; Snowtex ST-OS; Snowtex ST-S; Snowtex ST-XS; Snowtex XS

**paper upgrading**

Ebecryl® 600

**paper, aq./fatty food-contact**

Eldorado WT-30

**paper, blueprint**

Stannic chloride

**paper, carbon**

Butyl stearate; Carnauba (Copernicia cerifera) wax; Hoechst Wax E; Hoechst Wax OP; Koster Keunen Oxidized Microcrystalline Wax; Penreco Red

**paper, carbonless**

s-Butylbiphenyl; Di/tri-isopropylbiphenyl; Sure Sol®-290; Sure Sol®-300; Sure Sol®-330; Sure Sol®-333; Sure Sol®-450; Sure Sol®-480; 1,3,5-Trisopropylbenzene

**paper, carbonless copying**

Thermosil®

**paper, coarse**

Jute

**paper, coated**

Airflex® 400; s-Amyl acetate; HM-0814; Leaf River 90 Softwood; Metalure® L-53520; Metalure® L-54893; Metalure® L-54894; Metalure® L-54949; Metalure® L-55350; Metalure® L-55700; Metalure® L-56161; Metalure® L-56716; Shamrock Hydrocer 100; Shamrock Hydrocer 200; Thermosil®; Tylac® 68217-00; Tylac® 68219-00

**paper, coated: food-contact**

Busan® 1058

**paper, copying**

Bismuth subsalicylate

**paper, dry food-contact**

Eldorado WT-30

**paper, filtration**

Mica

**paper, food pkg.**

Abex® EP-120; Abex® JKB; Advawax® 240; Ammonium naphthalene sulfonate; Bevaloid 581B; Bevaloid 2512; Bevaloid 2514; Bevaloid 6624; Bevaloid 6683; Blankophor® P01; Blankophor® P167; BNX® 1010; Borax; Carboxylated styrene butadiene; Cetareth; Citroflex® A-4; Citroflex® A-4 Special; Colloid™ 685; C10-12 pareth-3; C10-12 pareth-6; C10-12 pareth-8; C12-14 pareth-1; C12-14 pareth-3; C12-14 pareth-4; C12-14 pareth-7; C12-14 pareth-8; C12-14 pareth-11; C14-16 pareth-7; Crill 1; Crill 4; Cumar® LX®-509; Cumar® R-3; Cumar® R-11; Cumar® R-12 (V-2, V-2½); Cumar® R-13; Cumar® R-17; DeIONIC OPE-5; DeIONIC OPE-7.5; DeIONIC OPE-10; DeIONIC OPE-12; DeIONIC OPE-30; DeIONIC OPE-40; DeMIDE LA-100; DeMIDE LLA-100; DeMIDE MFM-200; DeMIDE MFS-200; DeMIDE ML-100; DeMIDE MLY-100; DeMIDE RCN-100; DeMIDE RCN-100HV; DeMIDE RCN-200; DeMIDE RCN-276; DeMIDE RCN-MCY-100; DeMIDE RCN-ME-100; DeMULS PSML-20; DeMULS PSMO-80; DeMULS PSMS-60; DeMULS SMS; DePEG 40-CO; DeSULF SEH-40; DeSULF SLS-30LC; DeSULF SLS-30LS; DeTHOX ACID S-8; DeTHOX ACID TO-8.5; DeTHOX ACID TO-14; DeTHOX ACID TO-16.5; DeWET SDO-70PG; DeWET SDO-75E; DeWET SMA-80; Disponil® SUS IC 875; Drewplus® L-108; Drewplus® L-140; Drewplus® L-407; Drewplus® L-493; Drewplus® L-768; Drewplus® Y-250; Dymsol® B; Elvace® 40722-00; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Elvanol® 70-06; Elvanol® 90-50; Empol® 1004; Empol® 1007; Empol® 1008; Empol® 1016; Empol® 1018; Empol® 1020; Empol® 1022; Empol® 1024; Empol® 1026; Emulgator E 30; Epolene® C-10; Epolene® C-13; Epolene® C-14; Epolene® C-15; Epolene® C-17; Epolene® C-18; Epolene® N-10; Epolene® N-11; Epolene® N-14; Epolene® N-20; Epolene® N-21; Epolene® N-34; EPON® Resin 825; EPON® Resin 826; EPON® Resin 828; EPON® Resin 1001F; EPON® Resin 1004F; EPON® Resin

1007F; EPON® Resin 1009F; EPON® Resin 2002-FC-10; Exxsol® D 80; Exxsol® D 110; Exxsol® D 130; Foam Blast 106; Foam Blast 240; Geropon® BIS/SODICO-2; Geropon® CYA DEP; Geropon® DOS; Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-765 Polymer; Good-Rite® K-766 Polymer; Good-Rite® K-7028 Polymer; Good-Rite® K-7058N Polymer; Good-Rite® K-7600N Polymer; GPRITM 4000; GPRITM 7550; GPRITM 7590; GPRITM BKS-2600; GPRITM BKS-2900; GPRITM BKS-2901; Herculite® 240; Herculite® 290; Herculyn® D; Hycar® 26138; Hydro-sulfite® AWC; Igepal® CA-630; Igepal® CO-850; Igepal® CO-880; Igepal® CO-887; Igepal® CO-897; Igepal® CO-977; Irganox® 259; Irganox® 1035; Irganox® 1520 DL; Jayflex® DHP; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Koster Keunen Candelilla; Lignosite® 260; Lomar® LS-1; Lomar® LS Liq.; Lomar® PL; Lomar® PWA; Lomar® PWA Liq.; Loxiol® G 11; Loxiol® G 13; Loxiol® G 20; Loxiol® G 21; Loxiol® G 53; Lucidene® 5030; Lucidene® 5040; Maranil® A 25 IS; Maranil® Paste A 55; Methyl hydrogenated rosinate; Modaflow® 2100; Modaflow® Powder 2000; Modaflow® Powder III; Modaflow® Resin; Monawet MM-80; Monawet MO-70; Monawet MO-70E; Monawet MO-70R; Monawet MO-70S; Monawet MO-75E; Monawet MO-84R2W; Monawet MO-85P; Monawet SNO-35; Multiflow® Resin; Nevtac® 10°; Nevtac® 80; Nevtac® 100; Nevtac® 115; Nipacide® BIT 20; Nonyl nonoxynol-7; Nuosept® 95; Octoxynol; Ombrelub® CD; Pamolyn® 200; Pamolyn® 240; Patcote® 801; PEG/PPG-35/9 copolymer; PEG/PPG-125/30 copolymer; PEG-14 tallate; PEG-1.3 tetramethyl decynediol; PEG-3.5 tetramethyl decynediol; PEG-10 tetramethyl decynediol; PEG-30 tetramethyl decynediol; Pluronic® P-2000; Polydimethylsiloxane; POLYSTEP® B-3; POLYSTEP® B-5; POLYSTEP® B-7; POLYSTEP® B-24; POLYSTEP® F-1; POLYSTEP® F-2; POLYSTEP® F-3; POLYSTEP® F-4; POLYSTEP® F-5; POLYSTEP® F-6; POLYSTEP® F-9; POLYSTEP® F-9S; POLYSTEP® F-10; POLYSTEP® F-95B; POLYSTEP® OP-9; POLYSTEP® OP-3070; POLYSTEP® OP-4070; Polystix® 90 Resin; Polywax® 500; Polywax® 600; Polywax® 655; Polywax® 850; Polywax® 1000; Polywax® 2000; Polywax® 3000; Polywet® ND-35; Polywet® WTC 6512; Polywet® Z1766; Potassium N-methyldithiocarbamate; Protectol® GDA; Protectol® GL 40; Protectol® TOE; Protectol® TOE Granules; Proxel® BD 20; Proxel® DL; Proxel® XL2; Rheolate® 2001; Rhodacal® 3594; Rhodacal® DS/4-E25; Rhodacal® DS-10; Rhodafac® RE-610; Rhodafac® RS-610; Rhodafac® RS-710; Rhodapon® LCP; Rhodapon® LSB; Rhodapon® UB/E-30; Rhodapon® UB/E-N; Rosin, polymerized; Ross Candelilla Wax; Ross Japan Wax; Ross Wax #140; Shamrock Hydrocer 145; Shamrock Neptune 5038; Shamrock Neptune I N1; Shamrock Neptune I SP5; Shamrock S-232 MG; Shamrock S-232 N1; Shamrock S-232 N5; Shamrock S-236; Shamrock S-379 H; Shamrock S-379 N; Shamrock S-379 N3; Shamrock S-381 N1; Shamrock S-381 N5; Shamrock S-394 N1; Shamrock S-394 N5; Shamrock S-394 SP5; Shamrock S-395 N2; Shamrock S-395 N5; Shamrock S-395 SP5; Shamrock S-400 N1; Shamrock S-400 N5; Shamrock S-400 SP5;

Shamrock S-483; Shamrock S-Nauba 5021; Shamrock Taber Tiger 5512; Sipernat® 50S; Slip-Ayd® SL 555; Struktol® Calcium Stearate; Struktol® TR 044; Struktol® TR 121; Struktol® TR 131; Super Nevtac® 99; Surfonic® DNP-70; Surfonic® DNP-80; Surfonic® DNP-100; Surfonic® DNP-1500; Surfonic® L12-3; Surfonic® L12-6; Surfonic® L12-8; Surfonic® L24-1.3; Surfonic® L24-3; Surfonic® L24-4; Surfonic® L24-7; Surfonic® L24-9; Surfonic® L24-12; Surfonic® L46-7; Surfonic® L68-18; Surfonic® L610-3; Surfonic® L1270-2; Surfonic® L1285-2; Surfonic® N-10; Surfonic® N-31.5; Surfonic® N-40; Surfonic® N-60; Surfonic® N-85; Surfonic® N-95; Surfonic® N-100; Surfonic® N-102; Surfonic® N-120; Surfonic® N-150; Surfonic® N-200; Surfonic® N-300; Surfonic® N-400; Surfonic® NB-307; Surfonic® NB-407; Surfonic® NB-557; Surfonic® OP-15; Surfonic® OP-35; Surfonic® OP-50; Surfonic® OP-70; Surfonic® OP-100; Surfonic® OP-120; Surfonic® OPB-07; Surfynol® 420; Surfynol® 440; Surfynol® 465; Surfynol® 485; Surfynol® 504; Surfynol® DF-37; Surfynol® DF-70; Surfynol® DF-695; Surfynol® PSA-336; Surfynol® SE-F; Surfynol® SM-740; Surfynol® SM-745; Sylvaros® R; Sylvatrac® 40N; Sylvatrac® 80N; Sylvatrac® 100NS; Sylvatrac® 105NS; Sylvatrac® 295; Sylvatrac® 1085; Sylvatrac® 1100; Sylvatrac® 1103; Sylvatrac® 2110; Sylvatrac® R85; Sylvatrac® RX; *Tall oil glycerides*; Tamol® 850; Tamol® 960; T-Det® A126; T-Det® A243; T-Det® A247; T-Det® A249; T-Det® A467; T-Det® A2412; T-Det® EPO-61; T-Det® EPO-62L; T-Det® EPO-64L; T-Det® EPO-104; Tektamer® 38; Tektamer® 38 A.D.; Tektamer® 38 L.V.; Teric™ N2; Teric™ N4; Teric™ N5; Teric™ N6; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N20; Teric™ N30; Texapon® K-12 PA 15; Troysan® 586; Trycol® 6961; Trycol® 6962; Trycol® 6970; Trycol® 6974; Trycol® 6975; Trycol® 6984; Tryfac® 5556; Tylac® 68219-00; Ucarfloc® Polymer 300; Ucarfloc® Polymer 302; Ucarfloc® Polymer 304; Ucarfloc® Polymer 309; Ucon® 75-H-1400; Ucon® 75-H-9500; Ucon® 75-H-90000; Ultrathene® UE 631-04; Ultrathene® UE 634-04; Ultrathene® UE 634-67; Ultrathene® UE 639-67; Ultrathene® UE 649-04; Ultrathene® UE 653-67; Ultrathene® UE 654-67; Uniplex 84; Uniplex 108; Uniplex 150; Uniplex 155; Uniplex 250; Uniplex 260; Uniplex 600; Vinac® XX-211; Vinac® XX-241; Vista LPA; Vista LPA-142; Vista LPA-170; Vybar® 103; Vybar® 260; Zonarez® 7115; Zonarez® 7115 LT; Zonarez® 7125; Zonarez® 7125 LT; Zonarez® A-25; Zonarez® B-115; Zonarez® B-125; Zonarez® M-1115; Zonatac® 105; Zonatac® 105L; Zonatac® 115L; Zonester® 85; Zonester® 100

#### paper, food-contact

Abitol®-E; Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA; Acumer® 1110; Acumer® 2100; Acumer® 4161; Acumer® 9000; Acumer® 9141; Acumer® 9300; Acumer® 9400; Acumer® 9460; Acusol® 820; Acusol® 823; Acusol® 830; Acusol® 842; Aerosol® 18; Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC; Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC; Ageflex FM-1Q80DMS; Agefloc A50HV-P; Agefloc A50LV-P; Agefloc A50-P; Agefloc A4506; Agefloc A4510; Agefloc B50-P; Agefloc PC20HV; Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206; Agequat C505; Agestat 41T; Agitan® 650; Amerfloc® 275; Amerfloc® 285; Amerfloc® 485; AMPS® 2401 Monomer; AMPS® 2404 Monomer; Aviro® SL 2010; Aviro® SL 2020 G; B20F; B200; Bubreak®

401D; Bubreak® 403; Bufloc® 5551; Bufloc® 5554; Busan® 11-M2; Busan® 1059; Busan® 1059-W5; Busan® 1130; Busperse® 39; Busperse® 275; Busperse® 282; *Castor (Ricinus communis) oil*; Cat-Floc® 8151; Cat-Floc® 8959; Chargemaster® R415; Chargemaster® R462; Chargemaster® R515; Chargemaster® R615; Chargepac® 8; *C10-11 isoparaffin*; *C11-12 isoparaffin*; *C11-13 isoparaffin*; *C13-14 isoparaffin*; Citroflox® 2; Coatmaster® K50F; Coatmaster® K61F; Coatmaster® K500; Colloid™ 985; Cyasorb® UV-3529; Dapro® DF 1161; DeTHOX ACID L-9; DeTHOX ACID O-9; DeTHOX ACID O-14; DeTHOX ACID O-16; Disponil® O 250; Dow Corning® Antifoam 1520-US; Dymisol® 2031; Dyqex®, Emulsifier K 30 40%; Emulsifier K 30 68%; Emulsifier K 30 76%; Emulsifier K 30 95%; Esi-Cryl™ 316N; Exxsol® D 40; Exxsol® D 60; Fascat® 9100; Fascat® 9102; Fascat® 9201; Formasil® 45; Hercules® 2043; Hydraid® 7607; Hydraid® 7736 EZ; Hydraid® 7871; Hydraid® 8105; Hydraid® 8182 EZ; Hydrosulfite of Soda, 70%; Hydrosulfite of Soda Conc.; Isopar® G; Isopar® H; Isopar® K; Isopar® L; Isopar® M; Isopar® V; Jayflex® DINA; Jayflex® DINP; Jayflex® DIOP; L-45 Series; Leukonol LBA-2; Lignosite® 431; Lignosite® 458; Lignosite® 823; Lignosite® AC; Loxiol® G 10; Loxiol® G 15; Loxiol® G 23; Loxiol® HOB 7111; Loxiol® HOB 7169; Lustrabrite® S; LX-685,125; LX-685,135; LX-782, LX-973; LX-1035; LX-1082; LX-1082,280; LXR-1122; LX-1127; LX-1200; LX-1200,130; Mayo RA-120W; Mergal® K 7; Mergal® K 9N; Mergal® K 10N; Metasol® 350; Microlube™ C; Monawet MT-70; Monawet MT-80H2W; Nagellite® 3050; Naugard® 10; Neobor®; Neveex® 100; Nevpene® 9500; *Nonoxynol-55*; *Nonoxynol-70*; *Nonyl nonoxynol-8*; *Nonyl nonoxynol-10*; *Nonyl nonoxynol-150*; Norpar® 12; Norpar® 15; Novapol® HD-2100-A; Novapol® PD-2115-A; Novapol® PF-Y821-BP; Novapol® PF-Y821-CP; Novapol® TF-Y534-IP; Novapol® TF-Y822-BP; Novapol® TF-Y822-CP; Novapol® TR-0338-U; Novapol® TR-0338-UG; Novapol® TR-0535-U; Novapol® TR-0535-UG; Octoparse 662; Octowet 70D; Orlene® 1340; PAPHEN® PKFE; PAPHEN® PKHC®; PAPHEN® PKHH; PAPHEN® PKHJ; PAPHEN® PKHM-301; PAPHEN® PKHS-40; PAPHEN® PKHW-35; Paracol® 404C; Paradene® No. 2; Petrothene® NA 204-000; Petrothene® NA 214-000; *Phenoxy resin*; PM 3082; Polycup® 172; Polycup® 1884; *Polyethylene, medium density*; POLYSTEP® C-OP3S; *Polystyrene*; Polywet® ND-2; Proxel® GXL; Sag 730; Sclair® 10A; Sclair® 10B; Sclair® 10C; Sclair® 11B4; Sclair® 11P2; Sclair® 11P3; Sclair® 11P4; Sclair® 58G (High Gloss); Sclair® 61C; Sclair® 2607; Sclair® 2607-UV10; Sclair® 2908, 2908-UV8A; Sclair® 2909; Sclair® 8107; Sclair® 8107 UV8D, 8107G UV8D; Sclair® 8306 UV8D, 8306G UV8D; Sclair® 8405 UV8D, 8405G UV8D; Shamrock Hydrocer EC 98; Stanfax 320; Stanfax 388; Stanfax 1012; Stanfax 1066; STEPANOL® LCP; Struktol® PE H-100; Struktol® PE H-100 PL; Struktol® TR 016; Sulfofon® 101; Sulfofon® 101 Special; Sulfofon® 101 Special RHD; Surfonic® N-550; Surfonic® N-700; Surfonic® N-1000; Sylsya 256N; Sylsya 436; Sylsya 456; TEC; Texapon® 842; Texapon® EHS; Texapon® K-12 C Powd.; Texapon® K-12 Granules; Texapon® K-12 Needles; Texapon® K-1296 C; Texapon® K-1296 C Needles; Texapon® K-1296 C Powder; Texapon® LS Highly Conc. Needles; Texapon® OT Highly Conc. Needles; Texapon® T 42; Texapon® VHC Needles; Texapon® ZHC Needles; Texapon® ZHC

Powder; Tolcide® MBT; Troysperse W; Trycol® 5941; Ucar® VAGD; Ucar® VAGH; Ucar® VMCA; Ucar® VMCC; Ucar® VMCH; Vancryl® 600; Vancryl® 605; Vancryl® 610; Weston® 618; Xanthan Gum; XC-33

#### paper, impregnated

Neoprene Latex 654

#### paper, insulation

Mica

#### paper, light-sensitive

Copper nitrate (ic)

#### paper, machine-coated

Starch

#### paper, photocopy

Thiourea

#### paper, radiation-curable

Photomer® 3038

#### paper, reprographic

5-Sulfosalicylic acid; 5-Sulfosalicylic acid dihydrate

#### paper, saturated cellulose

Neoprene Latex 842A

#### paper, security

DPG

#### paper, silicone-treated

Disponil® SUS IC 875

#### paper, specialty

Tiona® RCS-P; Unisize® HA-25; Unisize® HA-70

#### paper, syn.

Polypropylene

#### paper, thermal

Gohsenol

#### paper, thermoreactive

Thermosil®

#### paper, waxed

Koster Keunen Ceresine; Koster Keunen Ozokerite; Parvan® 131; Parvan® 137; Pycal 94

#### paper, wet-strength

Catofast® PL; Polymin® PL

#### paper/paperboard, aq./fatty food-contact

Abex® 18S; Abex® 22S; Abex® 2515; Abex® 2525; Abex® 2535; Abex® 2545; Abex® VA 50; *Acrylates/VA copolymer*; *Adipic acid/dimethylaminohydroxypropyl diethylenetriamine copolymer*; *Adipic acid/epoxypropyl diethylenetriamine copolymer*; *Aluminum acetate*; *Aluminum myristates/palmitates*; *Ammonium isobutyl oleate sulfate*; *Ammonium lauryl sulfate*; *Ammonium oleate*; *Ammonium persulfate*; *Ammonium stearate*; *Ammonium tallow sulfate*; *Ammonium thiosulfate*; *Antraquinone*; *Butyl benzyl phthalate*; *n-Butyraldehyde*; *Calcium carrageenan*; *Calcium disodium EDTA*; *Calcium lignosulfonate*; *Calcium stearoyl lactylate*; *Carrageenan (Chondrus crispus)*; *Cellophane*; *Dibutyl phthalate*; *Dibutyl sebacate*; *Di (C7, C9-alkyl) adipate*; *Dicyclohexyl phthalate*; *Dihexyl sodium sulfosuccinate*; *Dimethicone*; *Diocetyl sodium sulfosuccinate*; *Dipropylene glycol*; *Edetic acid*; *EO/PO block polymer or copolymer*; *Ethylene/acrylic acid copolymer*; *Ethylene dioleamide*; *Ethylene distearamide*; *Ferric chloride*; *Ferrous ammonium sulfate*; *Furcellaran*; *Glyceryl butyl ricinoleate*; *Glyceryl hydroxystearate*; *Glyceryl ricinoleate*; *Glyceryl stearate lactate*; *Hoechst Wax PED 121*; *Hydrogenated castor oil*; *Hydrogenated fish oil*; *Hydrogenated fish oil, potassium salt*; *Hydrogenated polybutene*; *Hydrogenated tallow*; *Hydrogenated tallow acid*; *Hydrogenated tallow alcohol*; *Hydrolyzed collagen*; *Hydroxylated lecithin*; *Hydroxypropyl guar*; *Japan (Rhus succedanea) wax*; *Lanolin*; *Lignin sulfonate*; *Magnesium cocoate*; *Magnesium lauryl sulfate*; *Methylchloroisothiazolinone*; *Methylisothiazolinone*;  *$\alpha$ -Methyl styrene/acrylic acid copolymer*;  *$\alpha$ -Methyl styrene/butyl acrylate copolymer*;  *$\alpha$ -Methyl styrene/2-*



ethylhexylacrylate copolymer;  $\alpha$ -Methyl styrene/methacrylic acid copolymer;  $\alpha$ -Methyl styrene/methyl methacrylate copolymer; Methylstyrene/vinyltoluene copolymer; Microcrystalline wax; Mineral oil; Monoglyceride citrate; N-Oleoyl-N'-stearoyl ethylenediamine; Oleyl alcohol; Oxystearin; PEG-8 cocate; PEG-8 coconut oil esters; PEG-8 dioleate; PEG-8 laurate; PEG-12 laurate; PEG-8 oleate; PEG-12 oleate; PEG-8 stearate; PEG-12 stearate; PEG-12 tallate; PEI-1500; Pentaerythrityl tetrastearate; Petrolatum; Petroleum wax; Polyethylene, oxidized; Polysodium vinyl sulfonate; Polyvinyl acetate; Polyvinyl alcohol; Polyvinyl butyral; Polyvinyl formal; Polyvinylidene chloride; Polyvinyl stearate; Potassium carrageenan; Potassium isobutyl oleate sulfate; Potassium lauryl sulfate; Potassium lignosulfonate; Potassium oleic sulfate; Potassium persulfate; Potassium tallate; Potassium tallow sulfate; PPG-26; Propylene glycol alginate; Propylene glycol dicaprylate; Propylene glycol dicaprylate/dicaprate; Propylene glycol distearate; Propylene glycol myristate; Propylene glycol soyate; PVP; Rosin; Silica, hydrated; Sodium butyl oleate sulfate; Sodium carrageenan; Sodium decylbenzene sulfonate; Sodium 2-ethylhexyl sulfate; Sodium hypochlorite; Sodium isobutyl oleate sulfate; Sodium laurate; Sodium lauryl sulfate; Sodium lignosulfonate; Sodium methylphenathalenesulfonate; Sodium oleoyl isopropanolamide sulfosuccinate; Sodium persulfate; Sodium polyphenathalene sulfonate; Sodium tallow sulfate; Stannous oleate; Stearoyl lactic acid; Styrene/acrylic acid copolymer; Styrene/butadiene polymer; Styrene/butyl acrylate copolymer; Styrene/2-ethylhexyl acrylate copolymer; Styrene/methacrylic acid copolymer; Styrene/methyl methacrylate copolymer; Sulfated butyl oleate; Sulfated castor oil; Sulfated isobutyl oleate; Sulfated mustardseed oil; Sulfated oleic acid; Sulfated rapeseed oil; Sulfated ricebran oil; Sulfated sperm oil; Tallow; Tallow alcohol; Tosylamide/formaldehyde resin; VA/crotonates copolymer; Vinyl acetate/acrylamide copolymer; Vinyl acetate/acrylic acid copolymer; Vinyl acetate/acrylonitrile copolymer; Vinyl acetate/butyl acrylate copolymer; Vinyl acetate/crotonic acid copolymer; Vinyl acetate/decyl fumarate copolymer; Vinyl acetate/diallyl fumarate copolymer; Vinyl acetate/diallyl maleate copolymer; Vinyl acetate/diallyl phthalate copolymer; Vinyl acetate/dibutyl maleate copolymer; Vinyl acetate/divinylbenzene copolymer; Vinyl acetate/ethylacrylate copolymer; Vinyl acetate/fumaric acid copolymer; Vinyl acetate/maleic acid copolymer; Vinyl acetate/methacrylic acid copolymer; Vinyl acetate/methyl acrylate copolymer; Vinyl acetate/methyl methacrylate copolymer; Vinyl acetate/styrene copolymer; Vinyl acetate/vinyl butyrate copolymer; Vinyl acetate/vinyl crotonate copolymer; Vinyl acetate/vinylidene chloride copolymer; Vinyl acetate/vinyl propionate copolymer; Vinyl acetate/vinyl pyrrolidone copolymer; Vinyl acetate/vinyl stearate copolymer; Vinyl acetate/vinyl sulfonic acid copolymer; Vinyl chloride/acrylonitrile copolymer; Vinylidene chloride/acrylamide copolymer; Vinylidene chloride/acrylic acid copolymer; Vinylidene chloride/acrylonitrile copolymer; Vinylidene chloride/butyl acrylate copolymer; Vinylidene chloride/butyl methacrylate copolymer; Vinylidene chloride/ethyl acrylate copolymer; Vinylidene chloride/ethyl methacrylate copolymer; Vinylidene chloride/fumaric acid

copolymer; Vinylidene chloride/methacrylic acid copolymer; Vinylidene chloride/methyl acrylate copolymer; Vinylidene chloride/methyl methacrylate copolymer; Vinylidene chloride/propyl acrylate copolymer; Vinylidene chloride/propyl methacrylate copolymer; Vinylidene chloride/vinyl chloride copolymer; Vinylidene chloride/vinyl sulfonic acid copolymer; Zinc laurate

#### paper/paperboard, dry food-contact

Abex® 2020; Acrylamides copolymer; Acrylates copolymer; ACTer® 1450; Alkenyl succinic anhydride; Ammonium maleic anhydride/diisobutylene copolymer; Ammonium nitrate; Amylose; 2-Butanol; Butoxydiglycol; Candelilla (*Euphorbia cerifera*) wax; Crotonic acid homopolymer; N-Cyclohexyl-p-toluenesulfonamide; Decyl acrylate homopolymer; Diallyl fumarate homopolymer; Diallyl maleate homopolymer; Diallyl phthalate homopolymer; Dibutyl fumarate homopolymer; Di-*t*-butylhydroquinone; Dibutyl itaconate homopolymer; Dibutyl maleate homopolymer; Diethylenetriamine; Dioctyl fumarate homopolymer; Dioctyl maleate homopolymer; Diisodecyl sodium sulfosuccinate; Divinylbenzene homopolymer; Erucamide; Ethoxydiglycol; Ethylene/acrylic acid/vinyl acetate copolymer; 2-Ethylhexyl acrylate homopolymer; FD&C Blue No. 1 aluminum lake; Fumaric acid homopolymer; Glycerol caprate; Glycidyl methacrylate homopolymer; Hexylene glycol; Hydroabietyl alcohol; 2-Hydroxyethyl acrylate homopolymer; N-(Hydroxymethyl) acrylamide homopolymer; Isobutyl acrylate homopolymer; Isopropanolamine hydrochloride; Itaconic acid homopolymer; Lauramide DEA; Maleic anhydride homopolymer; Methacrylic acid homopolymer; Methyl alcohol; Nickel;  $\beta$ -Nitrostyrene; Nonoxynol-1; Nonoxynol-2; Nonoxynol-3; Nonoxynol-4; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-13; Nonoxynol-14; Nonoxynol-15; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-30; Nonoxynol-40; Nonoxynol-44; Nonoxynol-50; Nonoxynol-100; Nonoxynol-120; Octoxynol-1; Octoxynol-3; Octoxynol-5; Octoxynol-7; Octoxynol-8; Octoxynol-9; Octoxynol-10; Octoxynol-12; Octoxynol-13; Octoxynol-30; Octoxynol-33; Octoxynol-40; Octoxynol-70; Oleth-20; Oleth-23; Oleth-25; Oleth-40; Oleth-50; PEG-42 castor oil; PEG-16 tallate; Pine (*Pinus palustris*) oil; Poloxamer 181; Poloxamer 182; Poloxamer 217; Poloxamer 237; Poloxamer 338; Poloxamer 407; Polyacrylamide; Polyacrylic acid; Polyamide-ethyleneimine-epichlorohydrin resin; Poly [2-(diethylamino) ethyl methacrylate] phosphate; Polymethyl methacrylate; Polyvinyl butyrate; Polyvinyl chloride; Sodium borate; Sodium diisobutylphenoxy diethoxyethyl sulfonate; Sodium diisobutylphenoxy monoethoxyethyl sulfonate; Sodium laureth-50 sulfate; Sodium maleic anhydride/diisobutylene copolymer; Sodium methyl silicate; Sodium octoxynol-2 ethane sulfonate; Sodium polyacrylate; Sodium xylenesulfonate; Styrene/allyl alcohol copolymer; Styrene/methacrylic acid copolymer; potassium salt; Toluene; VA/crotonates/vinyl propionate copolymer; Vinyl crotonate homopolymer; Vinyl hexoate homopolymer; Vinyl pelargonate homopolymer; Vinyl sulfonic acid homopolymer; Xylene; Zinc stearate

#### paper/paperboard, food pkg.

A-C® 6; A-C® 6A; A-C® 7; A-C® 7A; A-C® 8; A-C® 8A; A-C® 9, 9A, 9F; A-C® 15; A-C® 16; A-C® 316; A-C® 316A; A-C® 325; A-C® 330; A-C® 392; A-C® 395, 395A; A-C® 400; A-C® 400A; A-C® 405(M); A-C® 405(S); A-C®

405(T); A-C® 430; A-C® 540; A-C® 540A; A-C® 580; A-C® 617; A-C® 617A; A-C® 629; A-C® 629A; A-C® 655; A-C® 5120; A-C® 5180; Acclaim® 2200; Acclaim® 3201; Acclaim® 4200; Acclaim® 6300; Acclaim® 8200; Acintol® R Type S; Acrylates/C10-30 alkyl acrylate crosspolymer; Acumer® 1000; Acumer® 1020; Acumer® 1100; Acumer® 1510; Acumer® 1850; ACumist® A-12; ACumist® A-18; ACumist® B-6; ACumist® B-9; ACumist® B-12; ACumist® B-18; ACumist® C-5; ACumist® C-9; ACumist® C-12; ACumist® C-18; ACumist® C-30; Acusol® 810; Advantage® 340F; Advantage® 357 Defoamer; Advawax® 280; Aerosol® 22; Aerosol® MA-80; Aerosol® NPES 930; Aerosol® NPES 3030; Aerosol® OT-70 PG; Aerosol® OT-75%; Aerosol® OT-100%; Aerosol® OT-B; Aerosol® OT-S; Aerosol® TR-70; Airflex® 426; Airvol® 805; Airvol® 823; Airvol® 840; Alcosperse® 149; Alkamuls® EL-620; Alkamuls® EL-719; Alkanox® P-24; Ancamide® 220; Ancamide® 220-IPA-73; Ancamide® 220-X-70; Ancamide® 260A; Ancamide® 260TN; Ancamide® 350A; Ancamide® 375A; Ancamide® 500; Ancamide® 501; Ancamide® 502; Ancamide® 503; Ancamide® 506; Ancamide® 507; Ancamide® 700-B-75; Ancamine® DETA; Ancamine® TEPA; Ancamine® TETA; Anox® PP18; Arcol® PPG-3025; Arizona DR-22; Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Arizona DRS-44; Arkon M-90; Arkon M-100; Arkon M-115; Arkon M-135; Arkon P-70; Arkon P-90; Arkon P-100; Arkon P-115; Arkon P-125; Arkon P-140; ATBC; ATEC; Benzoflex® 2-45; Benzoflex® 9-88; Benzoflex® 50; Busperse® 203; CAB-171-15; CAB-321-0.1; CAB-381-0.1; CAB-381-0.5; CAB-381-2; CAB-381-2BP; CAB-381-20; CAB 500-1; CAB-500-5; CAB-531-1; CAB-551-0.01; CAB-551-0.2; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® LM-150D; Cab-O-Sil® M-5; Cab-O-Sil® M-5P; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Cab-O-Sil® PTG; Candelilla Wax SP 24A; Candelilla Wax SP 50; Candelilla Wax SP 75; Candelilla Wax SP 76; Candelilla Wax SP 78 Prime Quality Crude; Candelilla Wax SP 99; Candelilla Wax SP 350; Candelilla Wax SP 803; Candelilla Wax Fine; CAP-482-0.5; CAP-482-20; CAP-504-0.2; Carbomer; Carbopol® 907; Carbopol® 910; Carbopol® 934; Carbopol® 934P; Carbopol® 940; Carbopol® 941; Carbopol® 971P; Carbopol® 974P; Carbopol® 980; Carbopol® 981; Carbopol® 1342; Carbopol® 1382; Carbopol® 2984; Carbopol® 5984; Carbopol® ETD 2001; Carbopol® ETD 2020; Carbopol® ETD 2050; C5 hydrocarbon resin; Colloid™ 60; Colloid™ 202; Colloid™ 681F; Dapro® DF 3163; Daratak® SP1012; DeWET SDDT-70; Disponil® AAP 43; Disponil® AAP 307; Disponil® AAP 436; Disponil® AES 21 IS; Disponil® AES 60 IS; Disponil® AES 72 IS; Disponil® MGS 65 IS; Disponil® NP 4; Disponil® NP 6; Disponil® NP 10; Disponil® NP 11; Disponil® NP 12; Disponil® NP 20; Disponil® NP 208; Disponil® NP 307; Dowicil® 75; Epolene® C-16; Escor® AT-310; Escor® AT-320; Escor® AT-325; Ethylene/methyl acrylate/acrylic acid terpolymer; EW-POL 7902 NaC 12; EW-POL 9110; Igepal® CA-880; Igepal® CA-887; Igepal® CA-890; Igepal® CA-897; Igepal® CO-630; Ionac Corcat® P-12; Ionac Corcat® P-600; Isobutylene/MA copolymer; Lucidene® 600; Lucidene® 602; Lumulse™ GMD; Melamine-formaldehyde resin; Metasol® CB-220; Metasol® CB-225 L.C.; Metasol® RB-20; Methyl acrylate polymer; Paracol® 404G; ParCell™ A; ParCell™ R; ParCell™ S;



Patcote® 806; Patcote® 814; Patcote® 8060; Piccotac® 95T; *Polyethylene imine*; Rexfoam 301-A; Rhodapon® SM; *Rosin, maleated*; Shamrock Hydrocer EEP 33; Shamrock Hydrocer EP 91; Shamrock Neptune 968; *Silica, fumed*; *Sodium polycarboxylate*; *Styrene/butadiene polymer*; Supragil RM/77 DL; Tacolyn® 3085; Tamol® 731A; Tamol® 808

**paper/paperboard, food-contact**

*Acrylamide/ethylene/vinyl chloride copolymer*; 2-Acrylamido-2-methylpropanesulfonic acid; *Acrylates/acrylamide copolymer*; *Aluminum stearates*; *Ammonium tallate*; *Capric acid*; *Caprylic acid*; *Captan*; *Ceteleth-25*; *Diethylaminoethyl acrylate dimethyl sulfate quat.*; *Dimethylaminoethyl acrylate dimethyl sulfate*; *Dimethylaminoethyl acrylate methyl chloride quat.*; *Dimethylaminoethyl methacrylate dimethyl sulfate quat.*; *Dimethylaminoethyl methacrylate methyl chloride quat.*; *N,N'-Diphenyl-p-phenylenediamine*; *Disodium cyanodithioimidocarbamate*; *Disodium oleamide MIPA-sulfosuccinate*; *Ethylene/vinyl chloride copolymer*; *Hydrogenated menhaden oil*; *Hydrogenated shark liver oil*; 1-(2-Hydroxyethyl)-1-(4-chlorobutyl)-2-alkyl (C6-17) imidazolium chloride; *Itaconic acid*; *Magnesium tallowate*; *Melamine*; *Melamine-formaldehyde resin*; *Melamine-formaldehyde resin, butylated*; *Melamine-formaldehyde resin, isobutylated*; *Nitrocellulose*; *Nonoxynol-5*; *Octoxynol-11*; *Octoxynol-16*; *Octoxynol-20*; *Octoxynol-25*; *PEG-3 sorbitan oleate*; *PEI-15*; *PEI-30*; *PEI-275*; *PEI-700*; *PEI-1000*; *PEI-1400*; *PEI-1750*; *PEI-2500*; *Phenol*; *Phenyl acid phosphate*; *Phosphinopolycarboxylic acid*; *Polyacrylonitrile*; *Polybond® 3002*; *Polybond® 3150*; *Polybutadiene*; *Polyethylacrylate*; *Polyethylene, very low-density*; *Poly (2-hydroxypropyl-N,N-dimethyl ammonium chloride)*; *Polyisoprene*; *Poly- $\alpha$ -methylstyrene*; *Polyox® WSR 205*; *Polyox® WSR 301*; *Polyox® WSR 303*; *Polyox® WSR 308*; *Polyox® WSR 3333*; *Polyox® WSR Coagulant*; *Polyox® WSR N-10*; *Polyox® WSR N-12K*; *Polyox® WSR N-60K*; *Polyox® WSR N-80*; *Polyox® WSR N-750*; *Polyox® WSR N-3000*; *Poly (vinyl propionate)*; *Potassium alum dodecahydrate*; *Rubber hydrochloride*; *Sodium octoxynol-3 sulfate*; *Sodium palmitate*; *Stearamide DEA*; *Tamarind (Tamarindus indica) seed kernel powder*; *TEA-lauryl sulfate*; *Trisodium EDTA*; *Urea/formaldehyde resin*; *Urea/formaldehyde resin, butylated*; *Urea/formaldehyde resin, isobutylated*; *Zirconyl ammonium carbonate*

**paperboard**

Daratak® 89L; Eastacoat 808P; Eccobond Adhesive Special #2; Epotuf® 3000; Epotuf® 3020-20 HDDA; Epotuf® 3020-25 TPGDA; Epotuf® 3210; Epotuf® 3230; Huber BC®; Photomer® 3016-20T; Photomer® 3016-40T; Photomer® 8061; Sulfotex OA; Tiona® RCS-P; Unisize® HA-26; Vinac® 828

**paperboard clear systems**

Photomer® 3015

**paperboard component, aq./fatty food-contact**

Qemiban; Qemireten 8015

**paperboard component, aq./fatty/dry food-contact**

AcryPrint™ 2115; AcryPrint™ 2129; AcryPrint™ 2163; Aquaquest 2130; Belclene® 283; Crisotan R-5; Crisotan R-5M; Dur-O-Set® E-623; Dur-O-Set® E-646; DynaCoat™ XA; DynaCoat™ XC; Esi-Rez™ 50; Esi-Rez™ 53; Esi-Rez™ 60; Esi-Rez™ 65; GenFlo® 557; GenFlo® 559; Jaguar® 2100®; Jaguar® 8707; Jaguar® CB-11; Jaguar® CB-123; Jaguar® CP-4; Jaguar® CP-13; Lycoid® 260; NeuRoz® 426; NeuRoz® 540; NeuRoz® 700; NeuRoz® XC-7; Nopcote®

1680; Nopcote® 3560; Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free; Plasmine KN-500; Plasmine® N-750-P; Plasmine® PLH-50; Plasmine® PLH-55; Prox®-Ad WA 138 E; Prox®-Size A 925 E; Pulpasil® 760 E; QEMI BSW 8131; QEMI BSW 8133; QEMI MDF 8019; QEMI MDF 8021; QEMI MDF 8023; QEMI SSDF 8013; Qemidink 8001; Qemidink 8002; Resyn® 25-1103; Resyn® 25-1114; Resyn® 25-1120; Resyn® 25-1140; Resyn® 25-1151; Resyn® 25-1152; Resyn® 25-1190; Resyn® 1090; Sequabond® 7880; Sequabond® TR 7830; Starcote®; Synthro®-Pel WA 491; Ti-Pure® RPD Vantage®; Ti-Pure® RPS Vantage®

**paperboard component, dry food-contact**

Abex® EP-110; Geropton® T/36DF; Geropton® TA/72/S; Nacrylic X 4280; Nopcote® 1675; Nopcote® DC-1153

**paperboard component, food-contact**

Rhodorsil® Emulsion 865A; Rhodorsil® Emulsion 878; Stanfax 238; Stanfax 560; Stanfax 968

**paperboard pigmented systems**

Photomer® 3015

**paperboard prod.**

Sodium sulfate

**paperboard, coated: food-contact**

Busan® 1058

**paperboard, corrugated**

Parvan® 127; Parvan® 131; Parvan® 137

**paperboard, food-contact**

Abitol®-E; Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA; Acumer® 1110; Acumer® 2100; Acumer® 4161; Acumer® 9000; Acumer® 9141; Acumer® 9300; Acumer® 9400; Acumer® 9460; Acusol® 820; Acusol® 823; Acusol® 830; Acusol® 842; Aerosol® 18; Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC; Ageflex FA-2Q50DMS; Ageflex FM-1Q75MC; Ageflex FM-1Q80DMS; Ageflex A50HV-P; Ageflex A50LV-P; Ageflex A50-P; Ageflex A4506; Ageflex A4510; Ageflex B50-P; Ageflex PC20HV; Ageflex PC20VHV; Ageflex PC40; Ageflex PC40HV; Ageflex PC2206; Agequat C505; Agestat 41T; Agitan® 650; Amerfloc® 275; Amerfloc® 285; Amerfloc® 485; AMPS® 2401 Monomer; AMPS® 2404 Monomer; Aviro® SL 2010; Aviro® SL 2020 G; B20F; B200; Bubreake® 401D; Bubreake® 403; Bufloc® 5551; Bufloc® 5554; Busan® 11-M2; Busan® 1059; Busan® 1059-WS; Busan® 1130; Busperse® 39; Busperse® 275; Busperse® 282; Cat-Floc® 8151; Cat-Floc® 8959; Chargemaster® R415; Chargemaster® R462; Chargemaster® R515; Chargemaster® R615; Chargepac® 8; Citroflex® 2; Coatmaster® K50F; Coatmaster® K61F; Coatmaster® K500; Colloid™ 985; Cyasorb® UV-3529; Daprol® DF 1161; Disponil® O 250; Dow Corning® Antifoam 1520-US; Dymisol® 2031; Dyqex®; Emulsifier K 30 40%; Emulsifier K 30 68%; Emulsifier K 30 76%; Emulsifier K 30 95%; Esi-Cryl™ 316N; Exxsol® D 40; Fascat® 9100; Fascat® 9102; Fascat® 9201; Formasil® 45; Hercules® 2043; Hydrad® 7607; Hydrad® 7736 EZ; Hydrad® 7871; Hydrad® 8105; Hydrad® 8182 EZ; Hydrosulfite of Soda, 70%; Hydrosulfite of Soda Conc.; L-45 Series; Lignosite® 431; Lignosite® 458; Lignosite® 823; Lignosite® AC; Lustabrite® S; Mayzo RA-120W; Mergal® K 7; Mergal® K 9N; Mergal® K 10N; Metasol® 350; Microtube™ C; Monawet MT-80H2W; Nagellite® 3050; Norpar® 12; Novapol® PF-Y821-BP; Novapol® PF-Y821-CP; Octospense 662; Orlene® 1340; Paracol® 404C; Paradene® No. 2; Petrothene® NA 204-000; Polycup® 172; Polycup® 1884; *Polyethylene, medium density*; POLYSTEP® C-OP3S; Polywet® ND-2; Proxel® GXL; Sag 730;

Sclair® 10A; Sclair® 10B; Sclair® 10C; Sclair® 11B4; Sclair® 11P2; Sclair® 11P3; Sclair® 11P4; Sclair® 58G (High Gloss); Sclair® 61C; Sclair® 2607; Sclair® 2607-UV10; Sclair® 2908, 2908-UV8A; Sclair® 2909; Sclair® 8107; Sclair® 8107 UV8D, 8107G UV8D; Sclair® 8306 UV8D, 8306G UV8D; Sclair® 8405 UV8D, 8405G UV8D; Shamrock Hydrocer EC 98; Stanfax 320; Stanfax 388; STEPANOL® LCP; Struktol® PE H-100; Sulfofon® 101; Sulfofon® 101 Special; Sulfofon® 101 Special RHD; Sylysia 256N; Sylysia 436; Sylysia 456; Texapon® 842; Texapon® EHS; Texapon® K-12 C Powd.; Texapon® K-12 Granules; Texapon® K-12 Needles; Texapon® K-1296 C Needles; Texapon® K-1296 Powd.; Texapon® LS Highly Conc. Needles; Texapon® OT Highly Conc. Needles; Texapon® T 42; Texapon® VHC Needles; Texapon® ZHC Needles; Texapon® ZHC Powder; Trycol® 5941; Ucar® VAGD; Ucar® VAGH; Ucar® VMCA; Ucar® VMCC; Ucar® VMCH; Vancryl® 600; Vancryl® 605; Vancryl® 610; Weston® 618; Xanthan Gum; XC-33

**paperboard, food-contact: aq./fatty foods**

Eldorado WT-30

**paperboard, food-contact: dry foods**

Eldorado WT-30

**paperboard, radiation-curable**

Photomer® 3038

**paperboard, uncoated: food-contact**

Busan® 1058

**papermaking**

Emsorb® 2505; Imbentin-AG/C/75; Imbentin-AGM 90%; Imbentin-AGM/050; Imbentin-AGM/128; Imbentin-AGM/136 G; *Lithium hydroxide monohydrate*; *Melamine-formaldehyde resin*; Nansa® HS80S; Nansa® HS85/S; *n-Nonane*; *Octoxynol-13*; *PEG-2 laurate SE*; *Poly-Tergent® E-20B*; Synperonic OP10

**papermaking, FDA approved**

OO® Tetrahydrofurfuryl Alcohol (THFA®)

**paraffin wax coatings**

Epolene® C-16; Epolene® C-18

**paraffin wax emulsion, paper coatings processing**

*Sorbitan stearate*

**paraffin wax modifier**

Staybelite® Ester 10

**paraffin-copolymer coatings**

Epolene® C-16; Epolene® C-18

**particle size reducer, calcium carbonate:**

paper

A-Series Glass Beads

particle size reducer, titanium dioxide: paper

A-Series Glass Beads

**paste processing, paper coatings**

*Vinyl chloride/vinyl acetate copolymer*

**pasting oil, dyestuffs**

*Sodium castorate*

**PE modifier**

Unilin® 425 Alcohol

**pearlescent, papermaking**

PEG-2 stearate

**pearlescent, surfactant systems**

*Methyl hydroxystearate*

**penetrant**

Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882; Aerosol® MA-80; Alkanol® 189-S; Avitex® R; Crillet 3; *Glyceryl cocoate*; Hyonic® OP-100; *Isolaureth-3*; *Isolaureth-6*; *Isolaureth-10*; *Laureth-3*; *Laureth-9*; Monawet MT-70; *Octoxynol*; *Octoxynol-10*; *Octoxynol-40*; *Oleyl hydroxyethyl imidazoline*; *Pine (Pinus palustris) oil*; *Sodium dodecylbenzenesulfonate*; *Sodium lauryl sulfate*; *Sodium oleic sulfate*; *Trideceth-3*; *Trideceth-6*; *Trideceth-9*; *Trideceth-12*; *Urea penetrant, alkaline detergents*  
*Isodeceth-6 phosphate*; Sipophos DA-6P

## penetrant, bleaching

### penetrant, bleaching

Atlas EMJ-C

### penetrant, carbon paper

*Octyl tallate*; Plasthall® 7041; Plasthall® 7049; Plasthall® R-9

### penetrant, chip: pulping

Fleetquest 8009

### penetrant, coatings

Octowet 60-I; Octowet 70; Octowet 70BC; Octowet 75

### penetrant, computer ribbons

*Octyl tallate*

### penetrant, dye

*Polysorbate 60*

### penetrant, dyeing

*Sodium dibutyl naphthalene sulfonate*

### penetrant, dyes

Rhodacal® BX-78

### penetrant, emulsion polymerization

DeWET SDTD-70; Geropon® WT-27; Igepal® CO-630; Igepal® CO-710; Monawet MB-45; Monawet MO-70; Surfonic® N-70; Surfonic® N-110; Surfonic® N-200; Surfonic® N-300; Surfonic® N-500; Surfonic® NB-1007; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N30; Teric™ N30L

### penetrant, fat liquors

*Sodium butyl oleate sulfonate*

### penetrant, fiber

*Trideceth-6 phosphate*

### penetrant, industrial cleaners

*Isodeceth-6*

### penetrant, industrial cleaning

*Sodium dibutyl naphthalene sulfonate*

### penetrant, latex polymerization

Rhodacal® BX-78; *Sodium dibutyl naphthalene sulfonate*

### penetrant, o/w emulsions

DeWET SDTD-70

### penetrant, paper

Armid® O; Atlas EMJ-C; Drewfax® 0007;

Freedom SBO-65; Freedom SBT-65; Geropon® WT-27; Igepal® CO-630; Igepal® CO-660; Igepal® CO-710; Igepal® CO-720; *Isodeceth-4*; *Isodeceth-6*; Merpol® HCS; Octowet 40; Octowet 55; Octowet 60; Octowet 60-I; Octowet 65; Octowet 70; Octowet 70A; Octowet 70BC; Octowet 70PG; Octowet 75; Octowet 75E; Penetron OT-30; Rhodacal® BX-78; *Sodium butyl oleate sulfonate*; *Sodium dibutyl naphthalene sulfonate*; Stafoam F; *Sulfated butyl tallate*; T-Det® C-40; Tetric® 90R4

### penetrant, paper bleaching

Alkanol® XC

### penetrant, paper coatings

Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; Monawet MB-45

### penetrant, paper deinking

Tergitol® TMN-10

### penetrant, paper dyeing

Alkanol® XC

### penetrant, paper machine felt cleaning

Eldorado ALK-6100; Eldorado ALK-6156

### penetrant, paper machine steam cleaning

Eldorado ALK-6100; Eldorado ALK-6156

### penetrant, paper strippers

*Sodium diisooctyl sulfosuccinate*

### penetrant, paper toweling

Hyonic® PE-100

### penetrant, papermaking size presses

Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095

### penetrant, pigment dispersion

DeWET SDTD-70

### penetrant, pigments

Rhodacal® BX-78

### penetrant, polymerization

Octowet 70BC

### penetrant, pulp/paper

*Isodeceth-6 phosphate*; Sipophos DA-6P;

Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Teric™ N6; Teric™ N11; Teric™ N30L

### penetrant, resins

*Isodeceth-6*

### penetrant, suspension polymerization

DeWET SDTD-70; Monawet MO-70

### penetrant, w/o emulsions

DeWET SDTD-70

### penetrant, water treatment

Monawet MB-45; Monawet MO-70; Monawet MO-70R; Tergitol® TMN-10

### penetrant, waxes

*Isodeceth-6*

### peptizing agent

Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; *Pentasodium triphosphate*; Plasthall® 7041; *Tetrapotassium pyrophosphate*; *1,2-Vinylpolybutadiene*

### performance enhancer, alkaline sizes

Catofast® NB-PD

### peroxide prod.

Ozone

### pH adjuster

Adi-pure®; *Ammonium hydroxide*; *Calcium sulfate*; *Carbon dioxide*; *Dimethylethanolamine*; *Magnesium carbonate hydroxide*; *Magnesium hydroxide*; Neobor®; *Potassium phosphate dibasic*; *Sodium hydroxide*; *Sodium phosphoaluminat*; *Sodium thiosulfate pentahydrate*

### pH adjuster, amino resins: paper/paperboard, aq./fatty/dry food-contact

*Triethanolamine*

### pH adjuster, cooling water treatment

*Sulfamic acid*; *Sulfuric acid*

### pH adjuster, dyeing

*Formic acid*

### pH adjuster, mildly alkaline solutions

*Sodium phosphate dibasic anhydrous*

### pH adjuster, paper

*Aluminum sulfate*

### pH adjuster, paper auxiliaries

Liquinal®

### pH adjuster, waste treatment

*Sodium carbonate*

### pH adjuster, water treatment

*Calcium hydroxide*; *Calcium oxide*; *Hydrochloric acid*; *Sodium bicarbonate*; *Sodium carbonate*

### pH stabilizer, alkaline: aq. systems

*Dimethyl oxazolidine*

### phenol prod.

*Cumene hydroperoxide*

### phosphate substitute, detergents

Dumasperse 540

### photoactivator, UV-cured coatings

*Ethyl 4-(dimethylamino) benzoate*

### photoactivator, UV-cured lacquers

*Ethyl 4-(dimethylamino) benzoate*

### photographic chemicals prod.

*Acetic acid*

### photographic paper prod.

*Balsam copaiba (Copaifera officinalis)*

### photoinitiator synergist, paper coatings

CN 381

### photoinitiator, paper

SR-1010; SR-1011; SR-1012

### photoinitiator, paper coatings

*Diaryl iodonium hexafluoroantimonate*

### photoinitiator, UV-cured coatings

*2,2-Dimethoxy-2-phenylacetophenone*; *Ethyl 4-(dimethylamino) benzoate*

### photoinitiator, UV-cured coatings: paper

Esacure® KB1; Photomer® 51

### photoinitiator, UV-cured lacquers

*Ethyl 4-(dimethylamino) benzoate*

### photosensitive emulsions

*Polyacrylic acid*

### photosensitive films

*Polyvinyl alcohol*

### pigment

Alcoa® Grade C-231; Alcoa® Grade C-333; *Aluminum silicate*; *Ammonium alum*; *Barium metaborate*; *Calcium carbonate*; *Calcium silicate*; *Copper hydroxide (lc)*; *Cupric sulfate anhydrous*; Digitex™; *Ferric chloride*; *Magnesium carbonate hydroxide*;  $\beta$ -Naphthol; *Nonoxynol-55*; *Pigment yellow 14*; *Potassium alum dodecahydrate*; Rheolate® 2001; *Sodium silicate*; *Sulfuric acid*; *Xanthan gum*; *Zinc carbonate*

### pigment control agent, paper coatings

CAB-381-0.1; CAB-381-0.5

### pigment dispersion, coatings

Solar®

### pigment dispersion, wood-free paper

Solar®

### pigment extender

*Calcium silicate*

### pigment flushing

Polysel® 2015; Rhodapon® SM

### pigment grinding

*Stearyl hydroxyethyl imidazoline*

### pigment grinding aid

*Stearamine*

### pigment, ABS

Kronos® 2230

### pigment, acid paper

Ponolith™ Blue PT Liq.; Ponolith™ Blue RDC Liq.; Ponolith™ Blue RT Liq.; Ponolith™ Fast Black P Liq.; Ponolith™ Fast Blue C Liq.; Ponolith™ Fast Violet 4RN Liq.; Ponolith™ Red BWSC Liq.; Ponolith™ Yellow 2GBW Liq.

### pigment, acid paper tinting

Ponolith™ Blue RDC Liq.; Ponolith™ Fast Black P Liq.; Ponolith™ Fast Blue C Liq.

### pigment, acid paperboard

Ponolith™ Fast Violet 4RN Liq.

### pigment, acid white paper tinting

Ponolith™ Blue RT Liq.

### pigment, alkaline paper

Ponolith™ Blue PT Liq.; Ponolith™ Blue RDC Liq.; Ponolith™ Blue RT Liq.; Ponolith™ Fast Black P Liq.; Ponolith™ Fast Blue C Liq.; Ponolith™ Fast Violet 4RN Liq.; Ponolith™ Red BWSC Liq.; Ponolith™ Yellow 2GBW Liq.

### pigment, alkaline paper tinting

Ponolith™ Blue RDC Liq.; Ponolith™ Fast Black P Liq.; Ponolith™ Fast Blue C Liq.

### pigment, alkaline paperboard

Ponolith™ Fast Violet 4RN Liq.

### pigment, alkaline white paper tinting

Ponolith™ Blue RT Liq.

### pigment, artists colors

Cosmic Black D-2

### pigment, beater applic.: acid-sized paper

Ponolith™ Supra Red CD Liq.

### pigment, beater applic.: alkaline-sized paper

Ponolith™ Supra Red CD Liq.

### pigment, beater applic.: neutral-sized paper

Ponolith™ Supra Red CD Liq.

### pigment, blue: beater applic., acid-sized paper

Ponolith™ Supra Blue HM Liq.; Ponolith™ Supra Blue RB Liq.

### pigment, blue: beater applic., alkaline-sized paper

Ponolith™ Supra Blue HM Liq.; Ponolith™ Supra Blue RB Liq.

### pigment, blue: beater applic., neutral-sized paper

Ponolith™ Supra Blue HM Liq.; Ponolith™ Supra Blue RB Liq.

### pigment, blue-shade violet: acid paper

Halopont™ Violet NM Liq.

### pigment, blue-shade violet: alkaline paper

Halopont™ Violet NM Liq.

### pigment, blue-shade violet: sized paper

- Halopont™ Violet NM Liq.  
**pigment, brilliant green-shade yellow: acid paper**  
 Ponolith™ Tinting Yellow 2GND Liq.; Ponolith™ Yellow 2GN-P Liq.
- pigment, brilliant green-shade yellow: alkaline paper**  
 Ponolith™ Tinting Yellow 2GND Liq.; Ponolith™ Yellow 2GN-P Liq.
- pigment, brilliant green-shade yellow: sized paper**  
 Ponolith™ Tinting Yellow 2GND Liq.; Ponolith™ Yellow 2GN-P Liq.
- pigment, brilliant green-shade yellow: tinting applics.**  
 Ponolith™ Tinting Yellow 2GND Liq.
- pigment, brilliant red-shade blue: acid paper**  
 Halopont™ Blue RNM Liq.; Halopont™ Tinting Blue RND Liq.
- pigment, brilliant red-shade blue: alkaline paper**  
 Halopont™ Blue RNM Liq.; Halopont™ Tinting Blue RND Liq.
- pigment, brilliant red-shade blue: sized paper**  
 Halopont™ Blue RNM Liq.; Halopont™ Tinting Blue RND Liq.
- pigment, brilliant scarlet: alkaline-sized paper**  
 Ponolith™ Supra Red MY Liq.
- pigment, brilliant scarlet: fine paper**  
 Ponolith™ Supra Red MY Liq.
- pigment, brilliant scarlet: sized paper**  
 Ponolith™ Supra Red MY Liq.
- pigment, brilliant: coatings**  
 Ponolith™ Blue NPEF Liq.; Ponolith™ Fast Black PLD Liq.; Ponolith™ Fast Blue PT Liq.; Ponolith™ Green BN Liq.; Ponolith™ Print Yellow FGRN-2 Liq.; Ponolith™ Red BRN Liq.; Ponolith™ Supra Yellow BG Liq.; Ponolith™ Violet FFR Liq.; Ponolith™ Yellow WY-7724
- pigment, brilliant: colored paper coatings**  
 Ponolith™ Supra Yellow BG Liq.
- pigment, brilliant: internal paper coloring**  
 Ponolith™ Blue NPEF Liq.; Ponolith™ Fast Black PLD Liq.; Ponolith™ Fast Blue PT Liq.; Ponolith™ Green BN Liq.; Ponolith™ Print Yellow FGRN-2 Liq.; Ponolith™ Red BRN Liq.; Ponolith™ Supra Yellow BG Liq.; Ponolith™ Violet FFR Liq.; Ponolith™ Yellow WY-7724
- pigment, brilliant: stock additions**  
 Ponolith™ Blue NPEF Liq.; Ponolith™ Fast Black PLD Liq.; Ponolith™ Fast Blue PT Liq.; Ponolith™ Green BN Liq.; Ponolith™ Print Yellow FGRN-2 Liq.; Ponolith™ Red BRN Liq.; Ponolith™ Supra Yellow BG Liq.; Ponolith™ Violet FFR Liq.; Ponolith™ Yellow WY-7724
- pigment, brilliant: tinting paper**  
 Ponolith™ Supra Yellow BG Liq.
- pigment, coated paper**  
 Cosmic Black D-2; Ponolith™ Red BWSC Liq.
- pigment, coated printing paper**  
 Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®
- pigment, coated writing paper**  
 Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®
- pigment, coating: coated paper**  
 Magnum Gloss
- pigment, coating: fine printing paper**  
 Hydral® 710; Hydral® 716
- pigment, coatings**  
 Atomite®; Bilt-Plates® 156; Busan® 11-M2; Cosmic Black 8-S; Cosmic Black AP; Cosmic Black D-2; Ferric oxide; Hycar® 26092; Kronos® 1000; Kronos® 1070; Kronos® 1072; Kronos® 1074; Kronos® 2160; Kronos® 2310; Micro-White® 10 Slurry; Micro-White® Superamide; Silica, amorphous hydrated; Sucrose Benzoate Regular and Coatings Grade; Synox HB-1094; Synox HG-5040; Synox HG-5050; Synox HG-5060; Synox HG-5080; Synox HR-1200; Synox HR-1201; Synox HR-1202; Synox HR-1203; Synox HR-1204; Synox HR-1205; Synox HY-600M; Synox HY-605M; Synox HY-610M; Synox HY-620M; Ti-Pure® RPD Vantage®; Uniplex 280 CG; Vantalc® 6H
- pigment, coatings: food-contact**  
 Kronos® 1000; Kronos® 1070; Kronos® 1072; Kronos® 1074; Kronos® 2020; Kronos® 2073; Kronos® 2081; Kronos® 2090; Kronos® 2101; Kronos® 2131; Kronos® 2160; Kronos® 2200; Kronos® 2210; Kronos® 2220; Kronos® 2230; Kronos® 2310
- pigment, coatings: paper, food-contact**  
 Kronos® 2101
- pigment, coatings: resinous/polymeric food-contact**  
 FD&C Yellow No. 5 Aluminum Lake
- pigment, copying paper**  
 Pigment red 81
- pigment, corrugated board**  
 Heucospense™ I
- pigment, decorative laminate paper**  
 Irgalite®
- pigment, decorative paper**  
 Hombitan® R 610 L
- pigment, dull coatings**  
 Carbital® 35
- pigment, envelope grade paper**  
 Ponolith™ Red BWSC Liq.
- pigment, extender: paper**  
 Iceberg®
- pigment, extender: paper bag seams**  
 ASP® 100
- pigment, extender: paper coatings**  
 Gamaco®
- pigment, extender: paper tubes**  
 ASP® 100
- pigment, fiber**  
 Kronos® 1000; Kronos® 1070; Kronos® 1072; Kronos® 1074
- pigment, filler: high-whiteness paper**  
 UFH16
- pigment, filler: paper**  
 Micro-White® 25 Slurry
- pigment, filler: paper coatings**  
 Hydral® Briter 100 Slurry
- pigment, filler: uncoated publication paper**  
 Spectrafil® LA
- pigment, finishes**  
 Copper phthalocyanine blue
- pigment, flame retardant**  
 Hydral® PGA
- pigment, fluorescent: coating slips, stamp/security paper**  
 Cartax® DP Liq.
- pigment, fluorescent: size press: stamp/security paper**  
 Cartax® DP Liq.
- pigment, fluorescent: stock, stamp/security paper**  
 Cartax® DP Liq.
- pigment, friction prods.**  
 Wollastonite
- pigment, groundwood specialties**  
 Opacitex
- pigment, high brightness: paper coatings**  
 Carbital® 90
- pigment, high hiding: paper coatings**  
 Tisyn®
- pigment, kraft paper**  
 Heucospense™ I
- pigment, label stock coatings**  
 DB-SHEEN™
- pigment, lacquers**  
 Basic red 1; Pigment red 81
- pigment, laminate-based paper**  
 Bayferrox® 56-AC; Bayferrox® 3950; Bayferrox® Black 318; Bayferrox® Black 318M; Bayferrox® Black 330; Bayferrox® Brown 686; Bayferrox® Red 110M; Bayferrox® Red 115M; Bayferrox® Red 120M; Bayferrox® Red 130M; Bayferrox® Red 180M; Bayferrox® Red 320; Bayferrox® Red 330; Bayferrox® Red 610; Bayferrox® Yellow 1410; Bayferrox® Yellow 1420M; Bayferrox® Yellow 3420; Bayferrox® Yellow 3910
- pigment, laminated paper coloring**  
 Sicomin®
- pigment, laundry tags**  
 Irgalite®
- pigment, liq. colors**  
 Kronos® 2220
- pigment, LLDPE**  
 Kronos® 2230
- pigment, luster: surface coatings**  
 Mearlín® Supersparks
- pigment, matte coatings**  
 Carbital® 35
- pigment, merchant grade paper coatings**  
 DB-SHEEN™
- pigment, newsprint filling**  
 Opacitex
- pigment, paper**  
 Aminotrimethylene phosphonic acid; Atomite®; Basic violet 4; Carbital® 35; Carbital® 75; Carbital® 90; CC™-103; 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol; Copper phthalocyanine blue; Ferric oxide; Hydraline®; Irgalite®; Kaolin, calcined; Kotamite®; Kronos® 1000; Kronos® 1070; Kronos® 1072; Kronos® 1074; Kronos® 2073; Kronos® 2200; Micro-White® 10 Slurry; Micro-White® Superamide; Pigment red 2; Pigment yellow 65; Ponolith™ Fast Violet 4RN Liq.; Ponolith™ Red BWSC Liq.; RO-40; Ropaque® BC-643; Sachtolith® HD-S; Sachtolith® L; Sodium polyacrylate; Synox HB-1094; Synox HG-5040; Synox HG-5050; Synox HG-5060; Synox HG-5080; Synox HR-1200; Synox HR-1201; Synox HR-1202; Synox HR-1203; Synox HR-1204; Synox HR-1205; Synox HR-1208; Synox HR-1209; Synox HY-600M; Synox HY-605M; Synox HY-610M; Synox HY-620M; Talc; Zetafil 2; Zetafil 3
- pigment, paper coating/staining**  
 Pigment red 81
- pigment, paper coatings**  
 Albaglos® PCC; Alphatex HP; Basic red 1; Copper phthalocyanine blue; DB-SHEEN™; Hitox®; Hydral® Coat 2; Hydral® Coat 5; Hydral® Coat 7; Lytron® 2203; Opacitex™; Opacitex; Optiwhite®; Ponolith™ Blue BW Liq.; Ponolith™ Blue PT Liq.; Ponolith™ Blue RDC Liq.; Ponolith™ Fast Black P Liq.; Ponolith™ Fast Blue C Liq.; Ponolith™ Yellow 2GBW Liq.; Ropaque® HP-1055; Ropaque® HP-543P; San-Sil® BD-73; San-Sil® CG-102; San-Sil® KU 33; Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS Vantage®; Wollastonite; Zetafil 1
- pigment, paper coatings: size press treated grades**  
 San-Sil® BD-73; San-Sil® KU 33
- pigment, paper coloration**  
 Irgalite®; Unisperse®
- pigment, paper coloring**  
 Pigment yellow 74
- pigment, paper filling**  
 Alphatex HP
- pigment, paper laminates**  
 Kronos® 2081
- pigment, paper refiners**  
 Sicopur®
- pigment, paper sizing**  
 Kaolin
- pigment, paper tinting**  
 Pigment yellow 74; Ponolith™ Yellow 2GBW Liq.
- pigment, paper wet-end filler additions**  
 San-Sil® CG-102
- pigment, paper: dry food-contact**  
 FD&C Yellow No. 5 Aluminum Lake

**pigment, paper: food-contact**

Kronos® 1000; Kronos® 1070; Kronos® 1072;  
Kronos® 1074; Kronos® 2020; Kronos® 2081;  
Kronos® 2090; Kronos® 2131; Kronos® 2160;  
Kronos® 2210; Kronos® 2220; Kronos® 2230;  
Kronos® 2310

**pigment, paperboard**  
Ebonex SC-5; Hydratine®; Ponolith™ Fast Violet  
4RN Liq.

**pigment, paperboard**  
Ropaque® BC-643

**pigment, paperboard**  
Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS  
Vantage®

**pigment, paperboard coatings**  
San-Sil® CG-102

**pigment, paperboard: dry food-contact**  
FD&C Yellow No. 5 Aluminum Lake

**pigment, papermaking**  
Ansilex®; HP-95™; Miracclipse™; Mirafilm™;  
Miragloss™

**pigment, PC**  
Kronos® 2210; Kronos® 2220; Kronos® 2230

**pigment, PE**  
Kronos® 2230

**pigment, polyolefin fiber**  
Kronos® 2220

**pigment, polyolefins**  
Kronos® 2210

**pigment, poster paper**  
Irgalite®

**pigment, printing paper**  
Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS  
Vantage®

**pigment, PS**  
Kronos® 2230

**pigment, PS/copolymers**  
Kronos® 2210; Kronos® 2220

**pigment, pulp colors**  
Ebonex SC-5

**pigment, PVC**  
Thermoguard® S

**pigment, recycled grade: uncoated freesheet  
paper**  
Luminex™

**pigment, red: acid paper**  
Halopont™ Pink 2BM Liq.

**pigment, red: alkaline paper**  
Halopont™ Pink 2BM Liq.

**pigment, red: sized paper**  
Halopont™ Pink 2BM Liq.

**pigment, reinforcing: paper**  
Albacar® 5970

**pigment, resins**  
1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol;  
Copper phthalocyanine blue

**pigment, rigid PVC outdoor applics.**  
Kronos® 2081

**pigment, saturating paper**  
Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS  
Vantage®

**pigment, saturating paper: coatings**  
San-Sil® AN 45

**pigment, saturating paper: decorative  
laminates**  
San-Sil® AN 45

**pigment, silica gels**  
Wollastonite

**pigment, size press treated paper grades**  
San-Sil® BD-73; San-Sil® KU 33

**pigment, size presses**  
San-Sil® CG-102

**pigment, sized paper**  
Ponolith™ Blue PT Liq.; Ponolith™ Blue RDC  
Liq.; Ponolith™ Blue RT Liq.; Ponolith™ Fast  
Black P Liq.; Ponolith™ Fast Blue C Liq.;  
Ponolith™ Fast Violet 4RN Liq.; Ponolith™ Red  
BWSC Liq.; Ponolith™ Yellow 2GBW Liq.

**pigment, sized paperboard**  
Ponolith™ Fast Violet 4RN Liq.

**pigment, sizing**

*Copper phthalocyanine blue*

**pigment, specialty paper**  
Bayferrox® 56-AC; Bayferrox® 3950;  
Bayferrox® Black 318; Bayferrox® Black  
318M; Bayferrox® Black 330; Bayferrox®  
Brown 686; Bayferrox® Red 110M; Bayferrox®  
Red 115M; Bayferrox® Red 120M; Bayferrox®  
Red 130M; Bayferrox® Red 180M; Bayferrox®  
Red 320; Bayferrox® Red 330; Bayferrox®  
Red 610; Bayferrox® Yellow 1410; Bayferrox®  
Yellow 1420M; Bayferrox® Yellow 3420;  
Bayferrox® Yellow 3910

**pigment, specialty printing grade: uncoated  
freesheet paper**  
Luminex™

**pigment, structured: paper**  
Sampaque® 5002

**pigment, structured: paperboard**  
Sampaque® 5002

**pigment, structured: paperboard coatings**  
Huber BC®

**pigment, surface coatings**  
Sicomín®

**pigment, tinting: acid paper**  
Ponolith™ Red WC Liq.

**pigment, tinting: alkaline paper**  
Ponolith™ Red WC Liq.

**pigment, tinting: sized paper**  
Ponolith™ Red WC Liq.

**pigment, uncoated**  
Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS  
Vantage®

**pigment, uncoated writing paper**  
Ti-Pure® R-794; Ti-Pure® R-795; Ti-Pure® RPS  
Vantage®

**pigment, vinyl coated paper**  
Cosmic Black AP

**pigment, vinyl prods.**  
*Pigment red 81*

**pigment, violet: beater applic., acid-sized  
paper**  
Ponolith™ Supra Violet EB Liq.

**pigment, violet: beater applic., alkaline-sized  
paper**  
Ponolith™ Supra Violet EB Liq.

**pigment, violet: beater applic., neutral-sized  
paper**  
Ponolith™ Supra Violet EB Liq.

**pigment, wet-end paper applics.**  
Ti-Pure® RPD Vantage®

**pigment, white paper tinting**  
Irgalite®; Ponolith™ Blue PT Liq.

**pigment, white: board**  
Pergopak M2

**pigment, white: paper**  
*Calcium sulfate dihydrate; EZA®; Lithopone;  
Pergopak M2; Sodium silicoaluminate; Titanium  
dioxide; Zeolite*

**pigment, white: paper coatings**  
Hydrad™ 10; Hydrad™ 10W; Hydrad™ 15;  
Hydrad™ 15W; Hydrad™ 20; Hydrad™ C;  
Hydrad™ F; Hydrad™ HBC; Hydrad™ HBF

**pigment, white: paper filling**  
Hydrad™ 10; Hydrad™ 10W; Hydrad™ 15;  
Hydrad™ 15W; Hydrad™ 20; Hydrad™ C;  
Hydrad™ F; Hydrad™ HBC; Hydrad™ HBF

**pigment, writing grade: uncoated freesheet  
paper**  
Luminex™

**pitch control agent**  
Catiofast® PL; Polymin® PL; Polymin® PR 971  
L; QEMI BSW 8131; QEMI BSW 8133

**pitch control agent, bleached chem. pulps:  
papermaking**  
Bilt-Plates® 156

**pitch control agent, coated paper**  
Cartafix® CB Liq.

**pitch control agent, groundwood pulps:  
papermaking**

Bilt-Plates® 156

**pitch control agent, kraft**  
Qemidink 8001

**pitch control agent, kraft furnish systems**  
Qemisperse 8845

**pitch control agent, newsprint furnish systems**  
Qemisperse 8845

**pitch control agent, paper**  
Cartafix® CB Liq.

**pitch control agent, paper: food-contact**  
Cartafix® CB Liq.

**pitch control agent, papermaking**  
Atarol K; Darvan® 1; Proisorb®

**pitch control agent, pulp mills**  
Vanzak® 112; Vanzak® 165

**pitch control agent, pulp/paper**  
Bekaperg 834; Mistron® Vapor

**pitch control agent, pulp-making**  
Niccasolt FT-1; Niccasolt O-2; Niccasolt PTOL

**pitch control agent, thick stock**  
Qemisperse 8845

**pitch control agent, unbleached kraft liner  
board**  
Bilt-Plates® 145

**pitch control agent, unbleached pulps:  
papermaking**  
Bilt-Plates® 145

**pitch control agent, white: fixing anionic  
substances**  
FX-704; FX-706

**pitch dispersion**  
Crisotan NN; Crisotan NR

**pkg.**  
*Cellulose acetate butyrate; Cellulose acetate  
propionate; Hi Selon*

**pkg. film, carrier bags**  
*Polyethylene, high-density*

**pkg. film, food wrap**  
*Polyethylene, high-density*

**pkg., protective: fabricated articles**  
*Cellophane*

**pkg., protective: food**  
*Cellophane*

**pkg., protective: industrial**  
*Cellophane*

**pkg., protective: tobacco**  
*Cellophane*

**plasticizer**  
Acintol® R Type S; Alkenyl Succinic Anhydride  
C1618 (ASA); Behenic acid; Behenyl alcohol;  
1,2,4-Butanetriol; 1-Butene; Butyl myristate; n-  
Butyraldehyde; C8-10 alcohols; C20-24 alpha  
olefin; C24-28 alpha olefin; C30 alpha olefin;  
Capric acid; Caprylic acid; Chlorotrifluoroethyl-  
ene polymer; Crisanol FH-1400; Cyclohexanol;  
DBE-9; Dipropylene glycol; Dodecene-1; Elemi  
gum; Glycerol cocoate; Glycerol dilaurate;  
Gulftene® 4; Gulftene® 6; Gulftene® 8;  
Gulftene® 10; Gulftene® 12; Gulftene® 14;  
Gulftene® 16; Gulftene® 18; Gulftene® 20-24;  
Gulftene® 24-28; Gulftene® 30+; Hydrogen  
peroxide; Isopropanolamine; Isostearyl alcohol;  
Jayflex® DHP; Jayflex® DINA; Jayflex® DIOP;  
KP-140®; LX-685®; 125; Maleic anhydride;  
Methyl caprylate; Methyl myristate; Methyl  
oleate; Morflex® 1129; Myristic acid;  
Naphthenic oil; Nonoxynol-4; Nonylphenol;  
Octoxynol; PEG-4; PEG-180; PEG-8 dilaurate;  
PEG-150 lanolin; PEG-2 laurate; PEG-8 laurate;  
PEG-40 sorbitan hexaoleate; Pluriol® E 6000;  
Polyethylene glycol; Polyurethane, thermoplas-  
tic; PPG-20; Propylene carbonate; Pycal 94;  
QO® Tetrahydrofurfuryl Alcohol (THFA®);  
Resin 731D; Sodium dodecylbenzenesulfonate;  
Sodium rosinate; Sorbitol Sol'n. Noncrystalliz-  
ing; Surfonic® DNP-140; Tallow acid; TEBAC;  
Tributyl phosphate; Triolein; Tylose® C-G1;  
Varonic® K-210; 1,2-Vinylpolybutadiene;  
Zonarez® A-25

**plasticizer, ABS**

- Poly- $\alpha$ -methylstyrene*  
**plasticizer, ABS-PC**  
*Triphenyl phosphate*
- plasticizer, acrylate resins**  
*Diisooctyl phthalate*
- plasticizer, aq. coatings**  
 Doversperse 3; Doversperse A-1
- plasticizer, aq. systems**  
*PEG hydrogenated castor oil*
- plasticizer, cellulose acetate**  
 Citroflex® 2; TBP; Uniplex 108
- plasticizer, cellulose esters**  
*Tributyl phosphate*
- plasticizer, cellulose films**  
*Glycol; Pluriol® E 200; Pluriol® E 1500; Pluriol® E 4000; Pluriol® E 8000; Pluriol® E 9000*
- plasticizer, cellulose**  
*Acetyl tributyl citrate; Acetyl triethyl citrate; Butyl oleate; Citroflex® A-2; Diisobutyl phthalate; Diisononyl adipate; Diisononyl phthalate; Diisooctyl phthalate; Dimethyl isophthalate; Dipropylene glycol dibenzoate; Ethyl toluenesulfonamide; Glyceryl laurate; Glyceryl ricinoleate; Glycol dioleate; Isopropyl myristate; Isopropyl palmitate; Methyl ricinoleate; PEG-2 dilaurate; PEG-2 distearate; Phosflex® 61B; Phosflex® TBEP; Sucrose benzoate; Triacetin; Trimethyl-1,3-pentanediol, 2,2,4-diisobutylate; Triphenyl phosphate*
- plasticizer, cigarette filters**  
*Triethyl citrate*
- plasticizer, clear coatings: paper**  
 Uniplex 280 CG
- plasticizer, coatings**  
*Acetyl tributyl citrate; Acetyl triethyl citrate; Citroflex® 2; Citroflex® A-2; Citroflex® A-4; Citroflex® A-4 Special; 2-Ethylhexyl methacrylate; Ethyl toluenesulfonamide; Glyceryl rosinate; Jayflex® DINP; Triphenyl phosphate*
- plasticizer, coatings: food pkg.**  
 Citroflex® A-2; Monostearyl Citrate (MSC)
- plasticizer, coatings: food-contact**  
*n-Butyl phthalyl-n-butyl glycolate; Dibutyl sebacate; s-Dioctyl phthalate; Glyceryl oleate; Propylene glycol; Sorbitol; Triacetin; Triethyl citrate*
- plasticizer, dairy prod. cartons**  
 Uniplex 84
- plasticizer, dammar**  
 Citroflex® 2
- plasticizer, dust control**  
 Volpo C2; Volpo C20; Volpo CS50; Volpo L3
- plasticizer, elastomers**  
*s-Dioctyl phthalate*
- plasticizer, emulsion polymerization**  
 Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; PEG-8 cocoate; PEG-12 ditallowate; PEG hydrogenated castor oil; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate
- plasticizer, emulsions**  
*PEG-8 cocoate; PEG-12 ditallowate; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate*
- plasticizer, flame retardant: ABS**  
 Phosflex® 71B
- plasticizer, flame retardant: cellulose**  
*t-Butylphenyl diphenyl phosphate; Phosflex® 71B*
- plasticizer, flame retardant: paper**  
 Phosflex® 71B
- plasticizer, flame retardant: PS**  
 Phosflex® 71B
- plasticizer, flame retardant: PVAc emulsions**  
*t-Butylphenyl diphenyl phosphate; Phosflex® 71B*
- plasticizer, flame retardant: PVC**  
*t-Butylphenyl diphenyl phosphate; Phosflex® 71B*
- plasticizer, food films**  
 Citroflex® A-4
- plasticizer, food labels**  
 Uniplex 250
- plasticizer, food pkg.**  
*Acetyl tributyl citrate; Acetyl triethyl citrate; n-Butyl phthalyl-n-butyl glycolate; Dibutyl sebacate; Diisooctyl phthalate*
- plasticizer, food pkg. materials**  
*Butyl stearate; Stearyl citrate*
- plasticizer, food wrappers**  
 Uniplex 250
- plasticizer, glassine paper: food-contact**  
*Sodium nitrate-urea complex*
- plasticizer, greaseproof paper: food-contact**  
*Sodium nitrate-urea complex*
- plasticizer, heat-seal applics.**  
 Uniplex 250
- plasticizer, high-solvating: cellulosic resins**  
*Butyl benzyl phthalate*
- plasticizer, high-solvating: NC lacquers/films**  
*Butyl benzyl phthalate*
- plasticizer, high-solvating: polyvinyl resins**  
*Butyl benzyl phthalate*
- plasticizer, HIPS**  
*Triphenyl phosphate*
- plasticizer, hot-melt coatings**  
 Acrawax® C
- plasticizer, internal**  
 Blemmer IDMA; Blemmer SLMA; Hexyl methacrylate; Lauryl methacrylate; Mhoromer® AM 107; Mhoromer® BM 713
- plasticizer, internal: copolymer films**  
 Octomer DOM
- plasticizer, lacquers**  
*Butyl stearate; Castor (Ricinus communis) oil; s-Dioctyl phthalate; Glycol dilaurate; Isooctyl stearate; Tributyl phosphate; Triethyl citrate*
- plasticizer, latex coatings**  
*Diethylene glycol dibenzoate*
- plasticizer, paper**  
*Isooctyl stearate; Kemester® 5500; Kemester® 6000SE; Meroxapol 108; Meroxapol 171; Meroxapol 172; Meroxapol 174; Meroxapol 178; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 255; Meroxapol 258; Meroxapol 311; Meroxapol 312; Meroxapol 314; Monostearyl Citrate (MSC); Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 10-CO; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; PEG-8 cocoate; PEG-12 ditallowate; PEG hydrogenated castor oil; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate; Petrolatum RPB; Propylene glycol; Tech Pet F™; Tetronic® 90R4*
- plasticizer, paper coatings**  
 Admex® 515; Admex® 6996; Cecavon® CA 350 P; Doversperse 3; Doversperse A-1; HB-40®; Liponic 70-NC; Liponic 76-NC; Lubracal® 48; Lubracal® 53; Lubracal® 60; Nevpene® 9500; Nopalcol 4-O; Nopcote® 6510 Free; Nopcote C-104; Nopcote® C-104-HS; Nopcote® C-104-HS Free; Octyl stearate; Phosflex® 61B
- plasticizer, paper coatings**  
 Uniplex 84
- plasticizer, paper coatings**  
 W.G.S. Hydrogenated Fish Glyceride 117
- plasticizer, paper/paperboard: food pkg.**  
 Citroflex® A-2
- plasticizer, papermaking**  
 Bersoft® 4600; Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Glycol ricinoleate; Meroxapol 105; PEG-2 stearate; Volpo C2; Volpo C20; Volpo CS50; Volpo L3
- plasticizer, PE films**  
 Rhodasurf® E 400; Rhodasurf® E 600
- plasticizer, pigment grinding**  
*Propylene glycol myristate*
- plasticizer, pkg.**  
 Petrolatum RPB; Tech Pet F™
- plasticizer, polyacrylates**  
 Citroflex® A-2
- plasticizer, polymeric coatings: paper/paperboard: dry food-contact**  
*Glyceryl tribenzoate*
- plasticizer, polymers**  
*Diethylene glycol dibenzoate*
- plasticizer, polymers: food-contact**  
*Butyl benzyl phthalate; Di (C7, C9-alkyl) adipate; Dicyclohexyl phthalate; Dihexyl phthalate; Diisononyl adipate; Diisononyl phthalate; Hydrogenated polybutene; Polyisobutene; Polypropylene glycol; PPG-20; PPG-26; PPG-34*
- plasticizer, polymers: paper/paperboard, dry food-contact**  
*Diethylene glycol dibenzoate; Dipropylene glycol dibenzoate*
- plasticizer, polyvinyl butyral**  
 Dibutyl sebacate
- plasticizer, primary**  
*Diallyl phthalate; Reomol® TBP; Tributoxoethyl phosphate*
- plasticizer, primary: cellulose acetate**  
 Kronitex® TBP
- plasticizer, primary: ethyl cellulose**  
 Drakeol® 19
- plasticizer, primary: NC**  
 Kronitex® TBP
- plasticizer, primary: surface coatings**  
 Eastman® TXIB; Trimethyl-1,3-pentanediol, 2,2,4-diisobutylate
- plasticizer, PS**  
*Butyl oleate; Diisobutyl phthalate; Diisononyl adipate; Diisononyl phthalate; Dimethyl isophthalate; Dipropylene glycol dibenzoate; Drakeol® 9; Drakeol® 35; Ethyl toluenesulfonamide; Glyceryl laurate; Isobutyl stearate; Sucrose benzoate; Trimethyl-1,3-pentanediol, 2,2,4-diisobutylate*
- plasticizer, pulp/paper**  
 Glypax 200; Glypax 400; Glypax 600; Glypax 1000; Glypax 3000; Glypax 4000; Glypax 6000; Oleyl alcohol; Paxsol PC; Pluronic® 10R5; Polypax EGDS; Polypax EGMS; Propylene glycol laurate
- plasticizer, PVAc**  
*Butyl oleate; Citroflex® A-2; Citroflex® A-4; Dicyclohexyl phthalate; Diisobutyl phthalate; Ethyl toluenesulfonamide; Methyl ricinoleate; Paraffin, chlorinated; Phosflex® TBEP; Sucrose benzoate*
- plasticizer, PVAc polymers**  
 Phosflex® 61B
- plasticizer, PVAc: paper/paperboard, food-contact**  
*Diethylene glycol dibenzoate; Dipropylene glycol dibenzoate*
- plasticizer, PVB**  
*Butyl oleate; Citroflex® 2; Citroflex® A-4; Diisobutyl phthalate; Dimethyl isophthalate; Dipropylene glycol dibenzoate; Ethyl toluenesulfonamide; Glyceryl ricinoleate; Methyl ricinoleate*
- plasticizer, PVC**  
*Butyl oleate; n-Butyl phthalyl-n-butyl glycolate; Citroflex® 2; Citroflex® A-2; Citroflex® A-4; Coumarone/indene resin; Diallyl phthalate; Dicyclohexyl phthalate; Diisobutyl phthalate; Diisononyl adipate; Diisooctyl phthalate; Dimethyl isophthalate; Dipropylene glycol dibenzoate; Drakeol® 35; Glyceryl laurate; Glycol dioleate; Hydroabietyl alcohol; Isobutyl stearate; Paraffin, chlorinated; Phosflex® 61B;*

*Polyester adipate; Poly- $\alpha$ -methylstyrene; Sucrose benzoate; Triaryl phosphate; Trimethyl-1,3-pentanediol, 2,2,4-diisobutylate*  
**plasticizer, PVC cable compds.**  
*Diisononyl phthalate*  
**plasticizer, PVC foams**  
 Phosflex® 61B  
**plasticizer, PVC resins**  
*2-Ethylhexanol*  
**plasticizer, PVdC**  
*Citroflex® 2; Citroflex® A-2; Citroflex® A-4*  
**plasticizer, resin compositions**  
*Antarox® L-64*  
**plasticizer, resin-treated paper**  
*PPG-9; PPG-12; PPG-17; PPG-30*  
**plasticizer, resins**  
*Alkamide® STEDA; s-Dioctyl phthalate; 2-Ethylhexyl methacrylate; Ethyl toluenesulfonamide; Poloxamer 184*  
**plasticizer, SBR**  
*Octyl tallate*  
**plasticizer, secondary**  
*Marlican®*  
**plasticizer, shellac**  
*Uniplex 108*  
**plasticizer, silicone elastomers**  
*Dimethiconol*  
**plasticizer, solvent emulsions**  
*PEG hydrogenated castor oil*  
**plasticizer, solvent systems**  
*Carbaset® 515*  
**plasticizer, starch**  
*Norfox® C-75; Norfox® Sulfated Castor Oil #75; Sulfated tallow*  
**plasticizer, starch films**  
*Basoplast® 335 D*  
**plasticizer, starch pastes**  
*DePEG 200; DePEG 300; DePEG 400; DePEG 600; Rhodasurf® E 400; Rhodasurf® E 600*  
**plasticizer, surface coatings**  
*Butyl oleate; Epoxy resin*  
**plasticizer, varnishes**  
*Glycol dilaurate*  
**plasticizer, vinyl acetate resins**  
*Diethylene glycol dibenzoate*  
**plasticizer, vinyl resins**  
*Acetyl tributyl citrate; Octomer DOM*  
**plasticizer, vinyl: food pkg. coatings**  
*Morflex® 190*  
**plasticizer, vinyl: food pkg. paper**  
*Morflex® 190*  
**plasticizer, water repellents**  
*Dimethiconol*  
**plasticizer, waterborne systems**  
*Carbaset® 515*  
**plasticizer, waxes**  
*Propylene glycol myristate*  
**polishing, paper**  
*Boron carbide*  
**polyacrylamide prod, water-sol.: pulp/paper**  
*Acrylamide*  
**polyacrylamide prod, water-sol.: sewage treatment**  
*Acrylamide*  
**polyacrylamide prod, water-sol.: water treatment**  
*Acrylamide*  
**polyelectrolyte, cationic: effluent treatment**  
*Acrylamides copolymer*  
**polyelectrolyte, cationic: paper retention aid**  
*Polyethylenimine*  
**polyelectrolyte, cationic: pigment dispersion**  
*Polyethylenimine*  
**polyelectrolyte, cationic: wet-strength additive**  
*Polyethylenimine*  
**polymer treatment**  
*DL-Diepoxybutane*  
**polymer, film-forming: coatings**  
*Polypropylene, chlorinated*  
**polymer, film-forming: paper coatings**

*Polypropylene, chlorinated*  
**polymer, food-contact**  
*Novapol® TF-Y534-IP; Novapol® TF-Y822-BP; Novapol® TF-Y822-CP; Novapol® TR-0338-U; Novapol® TR-0338-UG; Novapol® TR-0535-U; Novapol® TR-0535-UG; Petrothene® NA 214-000*  
**polymer, paper**  
*Phenyltrimethoxysilane*  
**polymer, paper coatings**  
*Tetrachloronaphthalene*  
**polymer, scale inhibition**  
*Sodium polycarboxylate*  
**polymer, sludge control**  
*Sodium polycarboxylate*  
**polymer, water treatment**  
*Sodium polycarboxylate*  
**polymerization aid**  
*Potassium rosinate*  
**polymerization control agent, melamine-formaldehyde resins**  
*Hexamethylenetetramine*  
**polymerization control agent, paper/paperboard in contact with dry food**  
*Chloral hydrate*  
**polymerization control agent, paper/paperboard: aq./fatty food-contact**  
*Chloroacetamide*  
**polymerization inhibitor**  
*Benzophenone; Di-t-butylhydroquinone; N,N'-Diphenyl-p-phenylenediamine*  
**polymerization inhibitor, 2-sulfoethyl methacrylate: food pkg.**  
*N,N'-Diphenyl-p-phenylenediamine*  
**polymerization inhibitor, vinyl acetate**  
*Hydroquinone*  
**polymerization initiator, latex**  
*Ammonium persulfate*  
**polymerization initiator, olefins**  
*Di-t-butyl peroxide*  
**polymerization initiator, polyacrylonitrile**  
*Ammonium persulfate*  
**polymerization initiator, resins**  
*Di-t-butyl peroxide*  
**polymerization initiator, silicones**  
*Di-t-butyl peroxide*  
**polymerization initiator, styrenated alkyls**  
*Di-t-butyl peroxide*  
**polymerization initiator, styrene**  
*Di-t-butyl peroxide*  
**polymerization initiator, styrene copolymers**  
*Ammonium persulfate*  
**polymerization, condensation**  
*Ammonium hydroxide*  
**polymerizing agent**  
*Butyl acid phosphate*  
**polymerizing agent, oils**  
*Methyl acid phosphate*  
**polymerizing agent, resins**  
*Methyl acid phosphate*  
**polymers, food pkg.**  
*Acrylates/C10-30 alkyl acrylate crosspolymer; Carbomer; 2-Hydroxyethyl methacrylate; Shamrock Taber Tiger 5512*  
**polymers, food-contact**  
*Nanoxytol-55; Novapol® HD-2100-A; Novapol® PD-2115-A; Polybond® 3002; Polybond® 3150; Polyethylene, medium density; Polyethylene, very low-density; Polyox® WSR 205; Polyox® WSR 301; Polyox® WSR 303; Polyox® WSR 308; Polyox® WSR 3333; Polyox® WSR Coagulant; Polyox® WSR N-10; Polyox® WSR N-12K; Polyox® WSR N-60K; Polyox® WSR N-80; Polyox® WSR N-750; Polyox® WSR N-3000*  
**polymethyl methacrylate block bonding agent**  
*Methyl methacrylate*  
**polysulfide polymer/polyepoxy resins, food-contact**  
*Epoxy resin; Magnesium chloride; Sodium*

*bisulfide; Sodium dibutyl naphthalene sulfonate; Sodium polynaphthalene sulfonate; Ureal formaldehyde resin*  
**pour pt. depressant**  
*DeMOX LAO; Methacrylic acid copolymer; Milldride® ODSA; Stearyl methacrylate*  
**powder detergent prod.**  
*Ceteareth-18*  
**PP modifier**  
*Unilin® 425 Alcohol*  
**precipitant, acid-free paper**  
*Altriform®*  
**precipitant, cationic**  
*Dimethylaminoethyl methacrylate*  
**precipitant, heavy metal: wastewater streams**  
*Sodium dimethyldithiocarbamate*  
**precipitant, heavy metal: wastewater treatment**  
*Sulfur*  
**precipitant, paper size**  
*Sodium alum*  
**precipitant, reclaims fiber**  
*Polymin® PR 973*  
**precipitant, solids**  
*Polymin® PR 973*  
**precipitant, waste stream treatment**  
*Carbon dioxide*  
**precipitant, waste treatment**  
*Calcium carbonate; Calcium monocarbonate*  
**precipitant, water hardness: water treatment**  
*Sodium phosphate dibasic anhydrous*  
**precoater, board**  
*Lightcoat*  
**precoater, paper**  
*Lightcoat*  
**precursor, synthesis of dyes and pigments: color lacquers**  
*Benzidine*  
**precursor, synthesis of dyes and pigments: color paper**  
*Benzidine*  
**preservative**  
*Ammonia; Benzalkonium chloride; 1,2-Benzisothiazolin-3-one; Benzylparaben; Caprylic acid; Carbon dioxide; Chloroacetamide; Copper 8-quinolinolate; Diiodomethyl tolylsulfone; Formic acid; Glutaral; Hyamine® 3500 50%; Iodopropynyl butylcarbamate; Koster Keunen Ceresine; Methyltribromoglutaronitrile; Myacide® Pharma® BP; Nipabenzyl; Pentasodium triphosphate; Phenol; Phenylmercuric acetate; o-Phenylphenol; Potassium pentachlorophenate; Protectol® KLC 50; Protectol® TOE Granules; Sodium borate; Sodium chloride; Tektamer® 38; Tektamer® 38 A.D.; Tektamer® 38 L.V.; Tributyltin oxide*  
**preservative, antifoam emulsions**  
*2-Bromo-2-nitropropane-1,3-diol*  
**preservative, antimicrobial finishing: paper/paperboard, food-contact**  
*Dilurit 464 C*  
**preservative, antimicrobial finishing: paperboard**  
*Dilurit 464 C*  
**preservative, antimicrobial paper/paperboard finishing**  
*Dilurit 464 C*  
**preservative, aq. coatings**  
*Nuosept® 95*  
**preservative, aq. end prods.**  
*Dowicil® 75*  
**preservative, aq. systems**  
*Amerstat® 233; Protectol® GDA; Protectol® TOE*  
**preservative, archival paper**  
*Diethyl zinc*  
**preservative, binders**  
*2-Bromo-4-hydroxyacetophenone*  
**preservative, broad-spectrum: aq. systems**  
*Troysan® 586*  
**preservative, broke**  
*Busan® 1210*

- preservative, casein**  
2,6-Bis (dimethylaminomethyl) cyclohexanone
- preservative, casein-based systems**  
Nuosept® S
- preservative, chemical pulping**  
Dilurit 850; Dilurit 946; Dilurit 974
- preservative, coatings**  
Amerstat® 282; Biochek® 430; 2-Bromo-4'-hydroxyacetophenone; 2-Bromo-2-nitropropane-1,3-diol; Dimethyl oxazolidine; Nuosept® 120; Nuosept® S
- preservative, coatings, food-contact**  
Potassium trichlorophenolate
- preservative, coatings: food-contact**  
Formaldehyde; β-Naphthol; Potassium pentachlorophenolate; Sodium 2-mercaptobenzothiazole; Sodium pentachlorophenolate; Sodium-2,4,5-trichlorophenolate
- preservative, coatings: paper**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, coatings: paperboard**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, coolant: water treatment**  
Hydroxyethyl-s-triazine
- preservative, cooling tower water treatment**  
Methylchloroisothiazolinone
- preservative, cooling towers**  
2-Bromo-2-nitropropane-1,3-diol; Myacide® AS Plus
- preservative, cooling water**  
Tributyltin oxide
- preservative, disinfectants**  
Calcium disodium EDTA
- preservative, electroless copper plating**  
Calcium disodium EDTA
- preservative, extender slurries**  
2-Bromo-2-nitropropane-1,3-diol
- preservative, felt**  
Amine D®
- preservative, food**  
Calcium disodium EDTA; Koster Keunen Paraffin Wax
- preservative, high-viscosity suspensions: paper**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, high-viscosity suspensions: paperboard**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, industrial**  
Hexahydro-1,3,5-triethyl-s-triazine; Sodium o-phenylphenate; Sodium-2,4,5-trichlorophenolate
- preservative, industrial: aq. prods.**  
Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® CI; Nipacide® CI 15
- preservative, latex emulsions**  
Biochek® 430
- preservative, latex emulsions: paper**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, latex emulsions: paperboard**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, microbiostat: aq. compositions**  
Proxel® BD 20
- preservative, microbiostat: aq. slurries**  
Proxel® BD 20
- preservative, microbiostat: aq. systems**  
Nipacide® BIT 20
- preservative, microbiostat: casein dispersions**  
Nipacide® BIT 20; Proxel® BD 20
- preservative, microbiostat: mineral slurries**  
Nipacide® BIT 20
- preservative, microbiostat: o/w emulsions**  
Nipacide® BIT 20; Proxel® BD 20
- preservative, microbiostat: pigment dispersions**  
Nipacide® BIT 20
- preservative, microbiostat: polymer emulsions**  
Nipacide® BIT 20
- preservative, microbiostat: rosin dispersions**  
Nipacide® BIT 20; Proxel® BD 20
- preservative, microbiostat: titanium dioxide slurries**  
Proxel® BD 20
- preservative, microbiostat: water treatment**  
Nipacide® BIT 20
- preservative, mineral slurries**  
Amerstat® 233
- preservative, paper**  
Amerstat® 233; Amerstat® 251; Amine D®; Biochek® 430; Dilurit 850; Dilurit 946; Dilurit 974; Lauritrimonium chloride; Nipacide® OPP; Pine (Pinus palustris) oil; Sodium 2-mercaptobenzothiazole; Tolcide® MBT; Tributyltin oxide
- preservative, paper coatings**  
Amerstat® 282; Dowicil® 75; Iodopropynyl butylcarbamate; Protectol® GDA; Troysan® Polyphase® AF1
- preservative, paper coatings: food-contact**  
Sodium o-phenylphenate
- preservative, paper pulp**  
Calcium hydrogen sulfite
- preservative, paper/paperboard coatings: aq./fatty food-contact**  
Dichlorophene
- preservative, paper/paperboard coatings: aq./fatty/dry food-contact**  
Formaldehyde
- preservative, paper/paperboard coatings: dry food-contact**  
Barium metaborate; Bis (trichloromethyl) sulfone; Boric acid; Sodium borate decahydrate
- preservative, paper/paperboard coatings: food-contact**  
Copper 8-quinolinolate; Methyl dibromo glutaronitrile
- preservative, paper/paperboard: aq./fatty food-contact**  
Benzoyl peroxide
- preservative, paper/paperboard: aq./fatty/dry food-contact**  
1,2-Benzisothiazolin-3-one
- preservative, paper/paperboard: food-contact**  
3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Methyl dibromo glutaronitrile; β-Naphthol; Potassium pentachlorophenolate; Potassium trichlorophenolate; Sodium 2-mercaptobenzothiazole; Sodium pentachlorophenolate; Sodium-2,4,5-trichlorophenolate
- preservative, paper: food pkg.**  
Troysan® 142
- preservative, paper: food-contact**  
Dilurit 850; Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® BKX; Nipacide® CBX A; Nipacide® CI; Nipacide® CI 15; Nipacide® XRP
- preservative, papermakers felt**  
Solucote® 1003
- preservative, papermaking**  
Myacide® AS Plus
- preservative, pigment binders: paper/paperboard, food-contact**  
Quaternium-15
- preservative, pigment dispersions**  
2,6-Bis (dimethylaminomethyl) cyclohexanone
- preservative, pigment slurries**  
Biochek® 430; 2-Bromo-4'-hydroxyacetophenone; 2-Bromo-2-nitropropane-1,3-diol; Busan® 1058; 3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione; Protectol® GDA; Quaternium-15
- preservative, pigment slurries: coatings**  
Methyl dibromo glutaronitrile
- preservative, pigment slurries: paper**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, pigment slurries: paperboard**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, pigment slurries: paperboard**  
Metasol® CB-220; Metasol® CB-225A.D.; Metasol® CB-225 L.C.
- preservative, polymer dispersions**  
Dimethylol urea; Protectol® DMU
- preservative, polymer emulsions**  
Methylchloroisothiazolinone
- preservative, polymer emulsions: food-contact**  
Nipacide® BIT 10; Nipacide BIT 10A; Nipacide® BIT AS; Nipacide® BKX; Nipacide® CBX A; Nipacide® CFX2; Nipacide® CFX3; Nipacide® CI; Nipacide® CI 15; Nipacide® FC; Nipacide® XRP
- preservative, polymers**  
Calcium disodium EDTA
- preservative, process waters**  
Myacide® AS Plus
- preservative, pulp**  
Cupric sulfate anhydrous
- preservative, pulp/paper**  
Acticide® DW; Acticide® HF; Acticide® SPX; Calcium disodium EDTA; Paxgard BK 20; Paxgard BKC; Paxgard GDA; Paxgard GT 10; Paxgard GT 20; Polyquat 2 C; Sodium pentachlorophenolate
- preservative, recirculating water systems**  
Dimethyl oxazolidine
- preservative, sizing sol'ns.: paper/paperboard, aq./fatty food-contact**  
2-Bromo-4'-hydroxyacetophenone
- preservative, sizings: paper/paperboard, dry food-contact**  
Barium metaborate
- preservative, slurries**  
Nuosept® 120; Nuosept® S
- preservative, slurries: clays**  
Taurine-KWT; Taurine-MBT
- preservative, slurries: coatings**  
Taurine-KWT; Taurine-MBT
- preservative, slurries: high-viscosity suspensions**  
Taurine-KWT; Taurine-MBT
- preservative, starch**  
2-Bromo-2-nitropropane-1,3-diol; Dowicil® 75; Vancide® MZ-96; Zinc dimethyldithiocarbamate
- preservative, starch paste**  
Vancide® 51
- preservative, starch-based systems**  
Nuosept® S
- preservative, stock**  
Busan® 1210
- preservative, water treatment**  
Calcium disodium EDTA; Tolcide® MBT
- preservative, wax dispersions**  
Dimethylol urea; Protectol® DMU
- preservative, waxes**  
Biochek® 430; Dowicil® 75
- primer, paper**  
Adeka Optomer KR Series; Lightcoat
- primer, preprint: films**  
Sulfopolyester
- primer, preprint: metalized paper**  
Eastek 1200
- printability aid**  
Cecavon® CA 350 P; Curesan™ 199; Curesan™ 200; GMF-B; Resyn® 25-1152; Secoren™-VE
- printability aid, board**  
Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® SI Liq.; Cartacol® XP Liq.
- printability aid, coating base**  
Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® SI Liq.; Cartacol® XP Liq.
- printability aid, ink jet paper**  
PSA-28; PSA-34
- printability aid, ink jet printing paper**  
Cartacol® SI Liq.; Cartacol® XP Liq.
- printability aid, office stationery**  
Cartacol® ASN Liq.; Cartacol® NP Liq.;



Cartacol® SI Liq.; Cartacol® XP Liq.  
**printability aid, offset printing paper**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.  
**printability aid, paper**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.;  
 Cartacol® SI Liq.; Cartacol® XP Liq.  
**printability aid, paper coatings**  
 Lubracal® 48; Lubracal® 53; Lubracal® 60  
**printability aid, paper: dry food-contact**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.  
**printability aid, specialty food wrap, dry food-contact**  
 Cartacol® SI Liq.  
**printability aid, specialty paper**  
 Cartacol® NP Liq.; Cartacol® XP Liq.  
**printability, high-speed blade coatings: LWC paper**  
 Rovene® 4112  
**process aid, aq.: paper**  
*Aminotrimethylene phosphonic acid; Hexamethylene diamine tetra (methylene phosphonate)*  
**process oil, carbon paper**  
 Alcaid 10; Alcaid 13; Alcaid 19; Alcaid 32; Alcaid 46; Alcaid 60; Alcaid 100  
**process treatment**  
*Sodium chlorite*  
**processing aid**  
 Abalyn®; A-C® 1702; Aerosol® OT-75%; Aerosol® OT-75-PG; *Algin; Ammonium hydroxide; Calcium hydroxide; Calcium sulfate; Cumar® R-12 (V-2, V-2½); Cumar® R-13; Cumar® R-17; Dioctyl sodium sulfosuccinate; Methyl rosinat; Paradene® No. 2; Polyethylene wax; Potassium rosinat; Ricon 100; Siperat® 22; Sodium metasilicate; Sodium sulfate; Sodium xylenesulfonate; Struktol® TR 044; Styrene/butadiene polymer; Synthetic wax; TEGO® Antifoam KE 400; 1,2-Vinylpolybutadiene*  
**processing aid, ABS**  
*Ethylene distearamide; Struktol® TR 016*  
**processing aid, aq. coatings**  
*t-Butyl alcohol*  
**processing aid, cigarette inner liner pkg. applic.**  
 Eastek 1200  
**processing aid, cigarette liner pkg.**  
*Sulfopolyester*  
**processing aid, dyes**  
*Ditridecyl sodium sulfosuccinate*  
**processing aid, elastomers**  
*C5 hydrocarbon resin*  
**processing aid, extrusion/molding: ABS**  
*Poly- $\alpha$ -methylstyrene*  
**processing aid, extrusion/molding: PVC**  
*Poly- $\alpha$ -methylstyrene*  
**processing aid, fumaric acid**  
 Etopol 101-L  
**processing aid, high solids slurries**  
 Alcosperse® 602-N  
**processing aid, internal**  
 EXP-61 Amine Functional Silicone Wax; EXP-77 Mercapto Functional Silicone Wax  
**processing aid, lacquers**  
*Glyceryl tribenzoate*  
**processing aid, mineral**  
*Sodium chloride*  
**processing aid, paper**  
 Dequest® 2060; Dequest® 2066; *Ethylene glycol dimethacrylate; Methacrylic acid; Methyl acid phosphate; Nonyl nonoxynol; Octasodium diethylene triamine penta (methylene phosphonate); Potassium hexamethylene diamine tetra (methylene phosphonate); Rhodacal® N; Ross Wax #160; Stearyl/aminopropyl methicone copolymer*  
**processing aid, paper coatings**  
 Alcosperse® 602-N; Nevpene® 9500  
**processing aid, paper/paperboard: food-contact**

*Tridecyl alcohol*  
**processing aid, paper/printing**  
*Simethicone*  
**processing aid, paper: food pkg.**  
*Kaolin; Sulfamic acid*  
**processing aid, pigments**  
 Alcosperse® 602-N; *Ditridecyl sodium sulfosuccinate*  
**processing aid, polymer processes**  
 Microthene® FA 709-00  
**processing aid, polymers**  
*C5 hydrocarbon resin; Ditridecyl sodium sulfosuccinate*  
**processing aid, polyolefin color concs.**  
 Epolene® N-10; Epolene® N-10P  
**processing aid, polyolefins**  
*Hydrogenated palm glyceride; Struktol® TR 016*  
**processing aid, polyolefins: food pkg.**  
*Polyvinylidene fluoride resin*  
**processing aid, PS**  
*Ethylene distearamide; Hydrogenated palm glyceride; Struktol® TR 016*  
**processing aid, pulp/paper**  
 C11-15 *pareth-15*; Defoamer™ 230; Defoamer™ 1418; Defoamer™ KCE/S; Defoamer™ WL500; Tergitol® 15-S-15  
**processing aid, PVC**  
*Acrylic resin; Acrylonitrile/butadiene/styrene copolymer; Ethylene distearamide; Hydrogenated palm glyceride; Microthene® FA 700-00; Microthene® FA 709-00; Microthene® FE 532-00; Microthene® FN 500-00; Microthene® FN 502-18; Microthene® FN 510-00; Microthene® FN 514-00; Microthene® FN 517-00; Microthene® FN 519-00; Microthene® FP 800-00; Polymethyl methacrylate; Struktol® TR 016; Styrene/MA copolymer*  
**processing aid, PVC coatings: food-contact**  
*Tridecyl alcohol*  
**processing aid, PVC resins**  
 DeMULS SML  
**processing aid, resins**  
*Ditridecyl sodium sulfosuccinate*  
**processing aid, silicone elastomers**  
*Dimethiconol*  
**processing aid, water repellents**  
*Dimethiconol*  
**processing chemical, paper**  
 Baysynthol® AGP; Baysynthol® BMP; Retaminol® 043S; Retaminol® E; Retaminol® H01; Retaminol® K  
**production aid, calendar stack**  
 Advantage® 1280PD  
**production aid, effluent systems**  
 Advantage® 1280PD  
**production aid, paper: food-contact**  
 Advantage® 1280PD  
**production aid, paperboard: food-contact**  
 Advantage® 1280PD  
**production aid, papermaking**  
 Accurac® 105 Retention Aid; Accurac® T-100 Retention/Drainage Aid; Advantage® M1251 Production Aid  
**production aid, pulp/paper**  
 Advantage® 1280PD  
**production aid, size press sol'ns.**  
 Advantage® 1280PD  
**production aid, waste treatment**  
 Advantage® 1280PD  
**production aid, waste/effluent treatment**  
 Advantage® M1251 Production Aid  
**production aid, wet-end processes**  
 Advantage® 1280PD  
**promoter, alkaline papermaking systems**  
 Hydratid® 7607  
**promoter, papermaking**  
 Catiofast® PL  
**protectant, paper**  
 Petrolatum RPB; Tech Pet F™  
**protectant, papermaking**

Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP  
**protectant, pkg.**  
 Petrolatum RPB; Tech Pet F™  
**protectant, UV: polymers**  
*Benzophenone*  
**protectant, water repellent treatment: food pkg. paper**  
 Foraperle® 325  
**protectant, water repellent treatment: food pkg. paperboard**  
 Foraperle® 325  
**protective colloid**  
*2-Acrylamido-2-methylpropanesulfonic acid; Albumen; Alginate acid; AMPS® 2401 Monomer; AMPS® 2404 Monomer; Carboxymethylcellulose sodium; Carrageenan (Chondrus crispus); Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22; Gelatin; Gohseran; Guar (Cyanopsis tetragonoloba) gum; Gum ghatti; Hydrolyzed collagen; Hydroxyethylcellulose; Hydroxypropylcellulose; Karaya (Sterculia urens) gum; Methylcellulose; PVM/MA copolymer; PVP; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; Styrene/MA copolymer*  
**protective colloid, coatings**  
 Klucel® E; Klucel® L; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; *Sodium polyacrylate*  
**protective colloid, elastomers**  
 Supragil RM77 DL  
**protective colloid, emulsion polymerization**  
*Ammonium caseinate; Casein; Elvanol® 85-30; Elvanol® 85-82; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Nonoxynol; Sodium caseinate; Sodium lignosulfonate*  
**protective colloid, emulsions**  
 Gohsenol  
**protective colloid, films**  
*Sodium polyacrylate*  
**protective colloid, paper**  
 Airvol® 205; Airvol® 523; Airvol® 540; Klucel® E; Klucel® L; Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K80; Luviskol® K90; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120  
**protective colloid, paper coatings**  
*Hydroxyethylcellulose*  
**protective colloid, paper sizing**  
 Natrosol® 250  
**protective colloid, polymerization**  
*Polyvinyl alcohol (partially hydrolyzed); Supragil RM77 DL*  
**protective colloid, PS**  
 Gohsenol  
**protective colloid, PVC**  
 Gohsenol  
**protective colloid, suspension polymerization**  
*Hydroxypropylcellulose; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90*  
**protein adsorption**  
*Tannic acid*  
**protein substitute, paper**  
 Airvol® 203S  
**protein substitute, paperboard coatings**  
 Acrosol™ PR 8720 X  
**protein substitute, plaster additives**  
 Airvol® 203S  
**protein substitute, stucco finishes**  
 Airvol® 203S  
**PS modifier**  
 Unilin® 425 Alcohol  
**publication grade paper modifier**  
 Rovene® 4100

- pulp additive**  
Pluronic® 17R2
- pulp bleaching**  
Sodium hydrosulfite
- pulp digestion**  
Sodium bisulfite
- pulp yield improver**  
Anthraquinone
- pulp, fluff: adult incontinence prods.**  
Golden Isles® EF-100
- pulp, fluff: air laid nonwovens**  
Golden Isles® EF-100
- pulp, fluff: disposable baby diapers**  
Golden Isles® EF-100
- pulp, fluff: feminine hygiene prods.**  
Golden Isles® EF-100
- pulp, fluff: meat/poultry pkg.**  
Golden Isles® EF-100
- pulp, long fiber: calendars**  
Leaf River 90 Softwood
- pulp, long fiber: coffee filters**  
Leaf River 90 Softwood
- pulp, long fiber: fine writing paper**  
Leaf River 90 Softwood
- pulp, long fiber: postage stamps**  
Leaf River 90 Softwood
- pulp, long fiber: printing paper**  
Leaf River 90 Softwood
- pulp, market**  
St. Croix Hardwood
- pulp, short fiber: cast coated paper**  
Leaf River 90 Hardwood
- pulp, short fiber: coated paper**  
Leaf River 90 Hardwood
- pulp, short fiber: computer paper**  
Leaf River 90 Hardwood
- pulp, short fiber: copy paper**  
Leaf River 90 Hardwood
- pulp, short fiber: printing paper**  
Leaf River 90 Hardwood
- pulp, short fiber: writing paper**  
Leaf River 90 Hardwood
- pulp/paper**  
Aluminum orthophosphate; Antarox® PGP 23-7; Armul™ 910; Belsperse® 164; Briquest® ADPA-60AW; Chevron Clarity® Synthetic Paper Machine Oil ISO 100; Chevron Clarity® Synthetic Paper Machine Oil ISO 150; Chevron Clarity® Synthetic Paper Machine Oil ISO 220; Chevron Clarity® Synthetic Paper Machine Oil ISO 320; Chevron Clarity® Synthetic Paper Machine Oil ISO 460; Crystal™ 78; Crystal™ 82; Derakane® 411-350; Diammonium EDTA; Disodium EDTA; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; Lumisorb™ SMS; Nonionic L-4; Novus™; Sodium carbonate; Sodium diethylenetriaminepentakis(methylenephosphonate); Steareth-2; Sulfur; Surfonic® TOFA-5; Surfonic® TOFA-6; Surfonic® TOFA-X10; Surfonic® TOFA-20; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750; Utec® 3040; Utec® 6540; Versene 100 SRG
- pulp/paper additive**  
PEG-4 dicocoate
- pulp/paper auxiliary**  
TEGOPREN® 5852; TEGOPREN® 5863
- pulp/paper defoamer additive**  
Alkamide® STEDA
- pulp/paper mills**  
Derakane® 411-35
- pulp/paper processing**  
C20-40 pareth-3; C20-40 pareth-10; C20-40 pareth-40; C30-50 pareth-3; C30-50 pareth-10; C40-60 pareth-3; C40-60 pareth-10; Nonyl nonoxynol-100
- pulp/paper processing additive**  
Acumer® 2100
- pulp/paper processing, aq.**  
Alkasurf® CA-520
- pulping aid, bleached paper**  
Drew™ KPA 300
- pulping aid, brown paper**  
Drew™ KPA 300
- pulping aid, kraft paper**  
Drew™ KPA 300
- pulping aid, oxygen delignification: kraft hard wood pulp bleaching**  
PQ® Epsom Salt Tech.
- pulping aid, oxygen delignification: soft wood pulp bleaching**  
PQ® Epsom Salt Tech.
- pulping aid, paper**  
Drew™ KPA 300
- pulping aid, recycled fiber systems**  
ReChem®
- pulping, kraft**  
Poly-Tergent® E-20B
- pulping, paper**  
Tivar®-1000
- pulping, sulfite**  
MHT® 60 S; MHT® 60 XS
- pulping, wood**  
MEA Commercial Grade; MEA Low Freeze Grade; MEA Low Iron Grade; MEA Low Iron-Low Freeze Grade; MEA NF Grade
- purifier**  
Silica
- purifier, water: water treatment**  
Potassium alum dodecahydrate
- PVC modifier**  
Unilin® 425 Alcohol
- quench oil, board**  
PD-25; PD-28
- quench oil, fiber lubricants**  
PD-25; PD-28
- quench oil, paper**  
PD-23; PD-25; PD-28
- quench oil, paperboard**  
PD-23
- quench oil, water treatment**  
PD-23
- quencher, fluorescence: deinked pulps**  
Cartarex® 2L Liq.; Cartarex® NT Liq.
- quencher, fluorescence: recycled fiber**  
Cartarex® 2L Liq.; Cartarex® NT Liq.
- quencher, fluorescence: waste paper**  
Cartarex® 2L Liq.; Cartarex® NT Liq.
- radiation-curable coating modifier, papermaking**  
Bisomer PEG 200DMA
- rag stock cooking, paper**  
Etopol 62-L; Etopol 63-L
- rag-stripping assistant, paper**  
Peregal® ST
- rapid diazotype coupler, coatings: light-sensitive paper**  
p-Diazodimethylaniline zinc chloride double salt
- raw material, catalyst**  
Polyaluminum chloride; Sodium aluminate; Zirconium oxide
- raw material, finishing agents: syn. fiber**  
PEG-15 oleate; PEG-20 oleate
- raw material, paper auxiliaries**  
Genapol® C-050; Genapol® C-080; Genapol® C-100; Genapol® C-150; Genapol® C-200; Genapol® O-020; Genapol® O-050; Genapol® O-080; Genapol® O-090; Genapol® O-100; Genapol® O-120; Genapol® O-150; Genapol® O-200; Genapol® O-230; Genapol® S-020; Nonyl nonoxynol-16; Nonyl nonoxynol-30
- raw material, paper coatings**  
Dimethiconol; Masil® SFR 70
- raw material, unfortified paper size**  
Westvaco® Rosin T
- reactant, security paper**  
Chlorostain™ Blue RR Powd.; Chlorostain BR; Chlorostain™ BR Liq.; Chlorostain OR Liq.
- readhesion inhibitor, carbon**  
Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882
- reagent, bleaching**  
Sodium bisulfide
- reagent, dechlorination: effluent**  
Sodium metabisulfite; Sodium sulfite; Sodium thiosulfate anhydrous; Sodium thiosulfate pentahydrate
- reagent, dechlorination: pulp/paper**  
Sodium sulfite; Sodium thiosulfate pentahydrate
- reagent, dyestuffs processing**  
Sodium bisulfide
- reagent, flotation**  
Amine D®; Laurtrimonium chloride; Rewopol® B 2003
- reagent, paper size pretreatment**  
α-Amylase
- reagent, papermaking**  
Potassium phosphate dibasic
- reagent, pulp/paper**  
Potassium alum anhydrous
- reagent, pulping**  
Anthraquinone
- reagent, solvent**  
Acetic acid
- reagent, sulfur dye prod.**  
Sodium sulfide
- reagent, wood pulp pretreatment**  
Pentasodium pentetate
- rebonding agent, tissue paper**  
Hartomer™ RB-25
- recirculating water systems**  
Nuosept® 166
- reclaiming agent, fiber: excess white water**  
Catiofast® GM; Catiofast® PL; Polymin® 978 L; Polymin® PL; Polymin® PR 266 L; Polymin® PR 8578
- reclaiming agent, fiber: wastewater**  
Polymin® 978 L
- recovery aid, fines: paper machine white water**  
Polymin® SNA
- recycling**  
t-Butyl hydroperoxide; T-Hydro® Sol'n.
- recycling, furnishes**  
OEMI DSR 8117A
- reducing agent**  
Ammonium sulfate; Ammonium thiosulfate; Diphenyldimethoxysilane; Formaldehyde; Phosphonic acid; Potassium ferricyanide; Potassium persulfate; Silicon; Sodium bisulfite; Sodium borohydride; Sodium thiosulfate pentahydrate; Sulfur dioxide
- reducing agent, chromium: effluent treatment**  
Sodium hydrosulfite
- reducing agent, disperse dye: blueprint papermaking**  
Thiourea dioxide
- reducing agent, dyeing**  
Formic acid
- reducing agent, dyes**  
Sodium sulfite
- reducing agent, effluent treatment**  
Sodium bisulfite
- reducing agent, polymerization**  
Hydrosulfite of Soda, 70%; Hydrosulfite of Soda Conc.
- reducing agent, polymerization initiators**  
Sodium bisulfite
- reducing agent, pulp/paper**  
Tysul® WW 35; Tysul® WW 50
- reducing agent, redox-catalyzed polymerization**  
Sodium formaldehyde sulfoxylate; Zinc formaldehyde sulfoxylate
- reducing agent, wastewater treatment**  
Tysul® WW 35; Tysul® WW 50
- reducing bleaching agent, wood pulps**  
Hydrosulphite®
- reducing bleaching agent, wood-based old paper**

**pulp additive**  
 Pluronic® 17R2

**pulp bleaching**  
*Sodium hydrosulfite*

**pulp digestion**  
*Sodium bisulfite*

**pulp yield improver**  
*Anthraquinone*

**pulp, fluff: adult incontinence prods.**  
 Golden Isles® EF-100

**pulp, fluff: air laid nonwovens**  
 Golden Isles® EF-100

**pulp, fluff: disposable baby diapers**  
 Golden Isles® EF-100

**pulp, fluff: feminine hygiene prods.**  
 Golden Isles® EF-100

**pulp, fluff: meat/poultry pkg.**  
 Golden Isles® EF-100

**pulp, long fiber: calendars**  
 Leaf River 90 Softwood

**pulp, long fiber: coffee filters**  
 Leaf River 90 Softwood

**pulp, long fiber: fine writing paper**  
 Leaf River 90 Softwood

**pulp, long fiber: postage stamps**  
 Leaf River 90 Softwood

**pulp, long fiber: printing paper**  
 Leaf River 90 Softwood

**pulp, market**  
 St. Croix Hardwood

**pulp, short fiber: cast coated paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: coated paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: computer paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: copy paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: printing paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: writing paper**  
 Leaf River 90 Hardwood

**pulp/paper**  
*Aluminum orthophosphate*; Antarox® PGP 23-7; Armul™ 910; Belsperse® 164; Briquest® ADPA-60AW; Chevron Clarity® Synthetic Paper Machine Oil ISO 100; Chevron Clarity® Synthetic Paper Machine Oil ISO 150; Chevron Clarity® Synthetic Paper Machine Oil ISO 220; Chevron Clarity® Synthetic Paper Machine Oil ISO 320; Chevron Clarity® Synthetic Paper Machine Oil ISO 460; Crystal™ 78; Crystal™ 82; Derakane® 411-350; Diammonium EDTA; Disodium EDTA; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; Lumisorb™ SMS; Nonionic L-4; Novus™; Sodium carbonate; Sodium diethylenetriaminepentakis (methylenephosphonate); Steareth-2; Sulfur; Surfonic® TOFA-5; Surfonic® TOFA-6; Surfonic® TOFA-X10; Surfonic® TOFA-20; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750; Utec® 3040; Utec® 6540; Versene 100 SRG

**pulp/paper additive**  
*PEG-4 dicocoate*

**pulp/paper auxiliary**  
 TEGOPREN® 5852; TEGOPREN® 5863

**pulp/paper defoamer additive**  
 Alkamide® STEDA

**pulp/paper mills**  
 Derakane® 411-35

**pulp/paper processing**  
*C20-40 pareth-3; C20-40 pareth-10; C20-40 pareth-40; C30-50 pareth-3; C30-50 pareth-10; C40-60 pareth-3; C40-60 pareth-10; Nonyl nonoxynol-100*

**pulp/paper processing additive**  
 Acumer® 2100

**pulp/paper processing, aq.**

Alkasurf® CA-520

**pulping aid, bleached paper**  
 Drew™ KPA 300

**pulping aid, brown paper**  
 Drew™ KPA 300

**pulping aid, kraft paper**  
 Drew™ KPA 300

**pulping aid, oxygen delignification: kraft hard wood pulp bleaching**  
 PQ® Epsom Salt Tech.

**pulping aid, oxygen delignification: soft wood pulp bleaching**  
 PQ® Epsom Salt Tech.

**pulping aid, paper**  
 Drew™ KPA 300

**pulping aid, recycled fiber systems**  
 ReChem®

**pulping, kraft**  
 Poly-Tergent® E-20B

**pulping, paper**  
 Tivar®-1000

**pulping, sulfite**  
 MHT® 60 S; MHT® 60 XS

**pulping, wood**  
 MEA Commercial Grade; MEA Low Freeze Grade; MEA Low Iron Grade; MEA Low Iron-Low Freeze Grade; MEA NF Grade

**purifier**  
*Silica*

**purifier, water: water treatment**  
*Potassium alum dodecahydrate*

**PVC modifier**  
 Unilin® 425 Alcohol

**quench oil, board**  
 PD-25; PD-28

**quench oil, fiber lubricants**  
 PD-25; PD-28

**quench oil, paper**  
 PD-23; PD-25; PD-28

**quench oil, paperboard**  
 PD-23

**quench oil, water treatment**  
 PD-23

**quencher, fluorescence: deinked pulps**  
 Cartarex® 2L Liq.; Cartarex® NT Liq.

**quencher, fluorescence: recycled fiber**  
 Cartarex® 2L Liq.; Cartarex® NT Liq.

**quencher, fluorescence: waste paper**  
 Cartarex® 2L Liq.; Cartarex® NT Liq.

**radiation-curable coating modifier, papermaking**  
 Bisomer PEG 200DMA

**rag stock cooking, paper**  
 Etopol 62-L; Etopol 63-L

**rag-stripping assistant, paper**  
 Peregal® ST

**rapid diazotype coupler, coatings: light-sensitive paper**  
*p-Diazodimethylaniline zinc chloride double salt*

**raw material, catalyst**  
*Polyaluminum chloride; Sodium aluminate; Zirconium oxide*

**raw material, finishing agents: syn. fiber**  
*PEG-15 oleate; PEG-20 oleate*

**raw material, paper auxiliaries**  
 Genapol® C-050; Genapol® C-080; Genapol® C-100; Genapol® C-150; Genapol® C-200; Genapol® O-020; Genapol® O-050; Genapol® O-080; Genapol® O-090; Genapol® O-100; Genapol® O-120; Genapol® O-150; Genapol® O-200; Genapol® O-230; Genapol® S-020; Nonyl nonoxynol-16; Nonyl nonoxynol-30

**raw material, paper coatings**  
*Dimethiconol; Masil® SFR 70*

**raw material, unfortified paper size**  
 Westvaco® Rosin T

**reactant, security paper**  
 Chlorostain™ Blue RR Powd.; Chlorostain BR; Chlorostain™ BR Liq.; Chlorostain OR Liq.

**readhesion inhibitor, carbon**

Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882

**reagent, bleaching**  
*Sodium bisulfide*

**reagent, dechlorination: effluent**  
*Sodium metabisulfite; Sodium sulfite; Sodium thiosulfate anhydrous; Sodium thiosulfate pentahydrate*

**reagent, dechlorination: pulp/paper**  
*Sodium sulfite; Sodium thiosulfate pentahydrate*

**reagent, dyestuffs processing**  
*Sodium bisulfide*

**reagent, flotation**  
 Amine D®; Laurtrimonium chloride; Rewopol® B 2003

**reagent, paper size pretreatment**  
*α-Amylase*

**reagent, papermaking**  
*Potassium phosphate dibasic*

**reagent, pulp/paper**  
*Potassium alum anhydrous*

**reagent, pulping**  
*Anthraquinone*

**reagent, solvent**  
*Acetic acid*

**reagent, sulfur dye prod.**  
*Sodium sulfide*

**reagent, wood pulp pretreatment**  
*Pentasodium pentetate*

**rebonding agent, tissue paper**  
 Hartomer™ RB-25

**recirculating water systems**  
 Nuosept® 166

**reclaiming agent, fiber: excess white water**  
 Catiofast® GM; Catiofast® PL; Polymin® 978 L; Polymin® PL; Polymin® PR 266 L; Polymin® PR 8578

**reclaiming agent, fiber: wastewater**  
 Polymin® 978 L

**recovery aid, fines: paper machine white water**  
 Polymin® SNA

**recycling**  
*t-Butyl hydroperoxide; T-Hydro® Sol'n.*

**recycling, furnishes**  
 OEMI DSR 8117A

**reducing agent**  
*Ammonium sulfate; Ammonium thiosulfate; Diphenyldimethoxysilane; Formaldehyde; Phosphonic acid; Potassium ferricyanide; Potassium persulfate; Silicon; Sodium bisulfite; Sodium borohydride; Sodium thiosulfate pentahydrate; Sulfur dioxide*

**reducing agent, chromium: effluent treatment**  
*Sodium hydrosulfite*

**reducing agent, disperse dye: blueprint papermaking**  
*Thiourea dioxide*

**reducing agent, dyeing**  
*Formic acid*

**reducing agent, dyes**  
*Sodium sulfite*

**reducing agent, effluent treatment**  
*Sodium bisulfite*

**reducing agent, polymerization**  
 Hydrosulfite of Soda, 70%; Hydrosulfite of Soda Conc.

**reducing agent, polymerization initiators**  
*Sodium bisulfite*

**reducing agent, pulp/paper**  
 Tysul® WW 35; Tysul® WW 50

**reducing agent, redox-catalyzed polymerization**  
*Sodium formaldehyde sulfoxylate; Zinc formaldehyde sulfoxylate*

**reducing agent, wastewater treatment**  
 Tysul® WW 35; Tysul® WW 50

**reducing bleaching agent, wood pulps**  
 Hydrosulphite®

**reducing bleaching agent, wood-based old paper**

**pulp additive**  
 Pluronic® 17R2

**pulp bleaching**  
*Sodium hydrosulfite*

**pulp digestion**  
*Sodium bisulfite*

**pulp yield improver**  
*Anthraquinone*

**pulp, fluff: adult incontinence prods.**  
 Golden Isles® EF-100

**pulp, fluff: air laid nonwovens**  
 Golden Isles® EF-100

**pulp, fluff: disposable baby diapers**  
 Golden Isles® EF-100

**pulp, fluff: feminine hygiene prods.**  
 Golden Isles® EF-100

**pulp, fluff: meat/poultry pkg.**  
 Golden Isles® EF-100

**pulp, long fiber: calendars**  
 Leaf River 90 Softwood

**pulp, long fiber: coffee filters**  
 Leaf River 90 Softwood

**pulp, long fiber: fine writing paper**  
 Leaf River 90 Softwood

**pulp, long fiber: postage stamps**  
 Leaf River 90 Softwood

**pulp, long fiber: printing paper**  
 Leaf River 90 Softwood

**pulp, market**  
 St. Croix Hardwood

**pulp, short fiber: cast coated paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: coated paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: computer paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: copy paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: printing paper**  
 Leaf River 90 Hardwood

**pulp, short fiber: writing paper**  
 Leaf River 90 Hardwood

**pulp/paper**  
*Aluminum orthophosphate*; Antarox® PGP 23-7; Armul™ 910; Belsperse® 164; Briquest® ADPA-60AW; Chevron Clarity® Synthetic Paper Machine Oil ISO 100; Chevron Clarity® Synthetic Paper Machine Oil ISO 150; Chevron Clarity® Synthetic Paper Machine Oil ISO 220; Chevron Clarity® Synthetic Paper Machine Oil ISO 320; Chevron Clarity® Synthetic Paper Machine Oil ISO 460; Crystal™ 78; Crystal™ 82; Derakane® 411-350; Diammonium EDTA; Disodium EDTA; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; Lumisorb™ SMS; Nonionic L-4; Novus™; Sodium carbonate; Sodium diethylenetriaminepentakis (methylenephosphonate); Steareth-2; Sulfur; Surfonic® TOFA-5; Surfonic® TOFA-6; Surfonic® TOFA-X10; Surfonic® TOFA-20; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750; Utec® 3040; Utec® 6540; Versene 100 SRG

**pulp/paper additive**  
*PEG-4 dicocoate*

**pulp/paper auxiliary**  
 TEGOPREN® 5852; TEGOPREN® 5863

**pulp/paper defoamer additive**  
 Alkamide® STEDA

**pulp/paper mills**  
 Derakane® 411-35

**pulp/paper processing**  
*C20-40 pareth-3; C20-40 pareth-10; C20-40 pareth-40; C30-50 pareth-3; C30-50 pareth-10; C40-60 pareth-3; C40-60 pareth-10; Nonyl nonoxynol-100*

**pulp/paper processing additive**  
 Acumer® 2100

**pulp/paper processing, aq.**

Alkasurf® CA-520

**pulping aid, bleached paper**  
 Drew™ KPA 300

**pulping aid, brown paper**  
 Drew™ KPA 300

**pulping aid, kraft paper**  
 Drew™ KPA 300

**pulping aid, oxygen delignification: kraft hard wood pulp bleaching**  
 PQ® Epsom Salt Tech.

**pulping aid, oxygen delignification: soft wood pulp bleaching**  
 PQ® Epsom Salt Tech.

**pulping aid, paper**  
 Drew™ KPA 300

**pulping aid, recycled fiber systems**  
 ReChem®

**pulping, kraft**  
 Poly-Tergent® E-20B

**pulping, paper**  
 Tivar®-1000

**pulping, sulfite**  
 MHT® 60 S; MHT® 60 XS

**pulping, wood**  
 MEA Commercial Grade; MEA Low Freeze Grade; MEA Low Iron Grade; MEA Low Iron-Low Freeze Grade; MEA NF Grade

**purifier**  
*Silica*

**purifier, water: water treatment**  
*Potassium alum dodecahydrate*

**PVC modifier**  
 Unilin® 425 Alcohol

**quench oil, board**  
 PD-25; PD-28

**quench oil, fiber lubricants**  
 PD-25; PD-28

**quench oil, paper**  
 PD-23; PD-25; PD-28

**quench oil, paperboard**  
 PD-23

**quench oil, water treatment**  
 PD-23

**quencher, fluorescence: deinked pulps**  
 Cartarex® 2L Liq.; Cartarex® NT Liq.

**quencher, fluorescence: recycled fiber**  
 Cartarex® 2L Liq.; Cartarex® NT Liq.

**quencher, fluorescence: waste paper**  
 Cartarex® 2L Liq.; Cartarex® NT Liq.

**radiation-curable coating modifier, papermaking**  
 Bisomer PEG 200DMA

**rag stock cooking, paper**  
 Etopol 62-L; Etopol 63-L

**rag-stripping assistant, paper**  
 Peregal® ST

**rapid diazotype coupler, coatings: light-sensitive paper**  
*p-Diazodimethylaniline zinc chloride double salt*

**raw material, catalyst**  
*Polyaluminum chloride; Sodium aluminate; Zirconium oxide*

**raw material, finishing agents: syn. fiber**  
*PEG-15 oleate; PEG-20 oleate*

**raw material, paper auxiliaries**  
 Genapol® C-050; Genapol® C-080; Genapol® C-100; Genapol® C-150; Genapol® C-200; Genapol® O-020; Genapol® O-050; Genapol® O-080; Genapol® O-090; Genapol® O-100; Genapol® O-120; Genapol® O-150; Genapol® O-200; Genapol® O-230; Genapol® S-020; Nonyl nonoxynol-16; Nonyl nonoxynol-30

**raw material, paper coatings**  
*Dimethiconol; Masil® SFR 70*

**raw material, unfortified paper size**  
 Westvaco® Rosin T

**reactant, security paper**  
 Chlorostain™ Blue RR Powd.; Chlorostain BR; Chlorostain™ BR Liq.; Chlorostain OR Liq.

**readhesion inhibitor, carbon**

Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882

**reagent, bleaching**  
*Sodium bisulfide*

**reagent, dechlorination: effluent**  
*Sodium metabisulfite; Sodium sulfite; Sodium thiosulfate anhydrous; Sodium thiosulfate pentahydrate*

**reagent, dechlorination: pulp/paper**  
*Sodium sulfite; Sodium thiosulfate pentahydrate*

**reagent, dyestuffs processing**  
*Sodium bisulfide*

**reagent, flotation**  
 Amine D®; Laurtrimonium chloride; Rewopol® B 2003

**reagent, paper size pretreatment**  
*α-Amylase*

**reagent, papermaking**  
*Potassium phosphate dibasic*

**reagent, pulp/paper**  
*Potassium alum anhydrous*

**reagent, pulping**  
*Anthraquinone*

**reagent, solvent**  
*Acetic acid*

**reagent, sulfur dye prod.**  
*Sodium sulfide*

**reagent, wood pulp pretreatment**  
*Pentasodium pentetate*

**rebonding agent, tissue paper**  
 Hartomer™ RB-25

**recirculating water systems**  
 Nuosept® 166

**reclaiming agent, fiber: excess white water**  
 Catiofast® GM; Catiofast® PL; Polymin® 978 L; Polymin® PL; Polymin® PR 266 L; Polymin® PR 8578

**reclaiming agent, fiber: wastewater**  
 Polymin® 978 L

**recovery aid, fines: paper machine white water**  
 Polymin® SNA

**recycling**  
*t-Butyl hydroperoxide; T-Hydro® Sol'n.*

**recycling, furnishes**  
 OEMI DSR 8117A

**reducing agent**  
*Ammonium sulfate; Ammonium thiosulfate; Diphenyldimethoxysilane; Formaldehyde; Phosphonic acid; Potassium ferricyanide; Potassium persulfate; Silicon; Sodium bisulfite; Sodium borohydride; Sodium thiosulfate pentahydrate; Sulfur dioxide*

**reducing agent, chromium: effluent treatment**  
*Sodium hydrosulfite*

**reducing agent, disperse dye: blueprint papermaking**  
*Thiourea dioxide*

**reducing agent, dyeing**  
*Formic acid*

**reducing agent, dyes**  
*Sodium sulfite*

**reducing agent, effluent treatment**  
*Sodium bisulfite*

**reducing agent, polymerization**  
 Hydrosulfite of Soda, 70%; Hydrosulfite of Soda Conc.

**reducing agent, polymerization initiators**  
*Sodium bisulfite*

**reducing agent, pulp/paper**  
 Tysul® WW 35; Tysul® WW 50

**reducing agent, redox-catalyzed polymerization**  
*Sodium formaldehyde sulfoxylate; Zinc formaldehyde sulfoxylate*

**reducing agent, wastewater treatment**  
 Tysul® WW 35; Tysul® WW 50

**reducing bleaching agent, wood pulps**  
 Hydrosulphite®

**reducing bleaching agent, wood-based old paper**

**reinforcing agent**

- Hydrosulphite®  
**reinforcing agent**  
Aluminum hydroxide; Asbestos; Bilt-Plates® 156; Boron carbide; Carbon black; Contintex® LH-10; Contintex® N351; Hexamethoxymethylmelamine; Kevlar® 29, 49; LX-782®; Magnesium carbonate; Mica; Phenolic resin; Polyvinyl chloride; Silica; Silica, fumed; Styrene/butadiene polymer; Terpene resin
- reinforcing agent, aq. emulsions**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- reinforcing agent, cardboard**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- reinforcing agent, coatings**  
Atomite®; Cab-O-Sil® EH-5; Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® M-7D; Calcium silicate; Micro-White® 10 Slurry
- reinforcing agent, defoamers**  
Cab-O-Sil® H-5
- reinforcing agent, dry paper**  
Cogum®
- reinforcing agent, dull coatings**  
Carbital® 35
- reinforcing agent, elastomers**  
Cab-O-Sil® H-5; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D; Calcium silicate
- reinforcing agent, EPDM**  
ASP® 072
- reinforcing agent, films**  
Mica
- reinforcing agent, hot-melt coatings**  
Poly- $\alpha$ -methylstyrene
- reinforcing agent, lubricants**  
Cab-O-Sil® H-5
- reinforcing agent, matte coatings**  
Carbital® 35
- reinforcing agent, nitrile**  
ASP® 072
- reinforcing agent, paper**  
Aerosil® 200; Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342; Atomite®; Carbital® 35; Carbital® 75; Carbital® 90; CC™-103; Cellulose; Fibrox 030-E; Fibrox 030-ES; Fibrox 300; Kotamite®; Micro-White® 10 Slurry; Micro-White® 25 Slurry; RO-40; Talc
- reinforcing agent, paper coatings**  
Opacimite™
- reinforcing agent, polymers**  
ASP® 072
- reinforcing agent, resins**  
Cab-O-Sil® H-5
- reinforcing agent, SBR**  
ASP® 072
- reinforcing agent, silicones**  
Cab-O-Sil® H-5; Cab-O-Sil® HS-5; Cab-O-Sil® LM-150D; Cab-O-Sil® M-7D; Cab-O-Sil® MS-75D
- reinforcing agent, specialized paper**  
Mewlon
- reinforcing agent, wet paper**  
Polyfix®
- release agent**  
Calcium stearate; Carnauba (Copernica cerifera) wax; Castor (Ricinus communis) oil; Dimethicone; Diphenyldimethoxysilane; 2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate; Glycol/butylene glycol montanate; Hydroxylated lecithin; Microcrystalline wax; Nonoxynol-7; PEG-8 dilaurate; Phenyltrimethoxysilane; Polyamidoamine; Polytetrafluoroethylene; Polyvinyl alcohol; PPG-20; Silicone emulsions; Synthetic wax; TLV 68-SB; TLV 68-UB; TLV 70-SB; TLV 70-UB; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS
- release agent, abrasive paper**  
Liquazinc AQ-90
- release agent, board coatings**  
TEGO® Glide 403
- release agent, coated paper surface finish**  
Sunkem® 301; Sunkem® 329
- release agent, coated paperboard surface finish**  
Sunkem® 301; Sunkem® 329
- release agent, coating colors**  
Ombrelub® CD
- release agent, coatings: food-contact**  
Dimethicone; Ethylene dioleamide; Ethylene distearamide; Oleamide; Petrolatum; Polyethylene wax; Polytetrafluoroethylene; Silicone
- release agent, food pkg.**  
Quilon® C; Quilon® H; Quilon® L; Quilon® S; Stearamide
- release agent, food-contact**  
Advawax® 240
- release agent, grease-crawl-resistant paper**  
Quilon® S
- release agent, grease-resistant coatings**  
Quilon® L
- release agent, grease-resistant paper**  
Quilon® C; Quilon® H; Quilon® S
- release agent, industrial release sheets**  
Quilon® S
- release agent, internal: polyolefins**  
Hoechst Wax S
- release agent, internal: PS**  
Hoechst Wax S
- release agent, internal: PVC**  
Hoechst Wax S
- release agent, mold: paper**  
Lambent E-2140; Lambent E-2140 35% Food Grade
- release agent, mold: pulp/paper**  
Polysynth SI 40
- release agent, pan liners**  
Quilon® L; Quilon® S
- release agent, paper**  
Bersize® 6400; MS-122DF; Qemisoft 8075; Quilon® H; Quilon® L; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF; Stearyl/aminopropyl methicone copolymer
- release agent, paper coatings**  
TEGO® Glide 403
- release agent, paper prods.**  
SM 2128
- release agent, paper sizes**  
Fluorad® FX-13; Safacid 20/22 CD; Safacid 20/22 DF; Safacid 20/22 HF; Safacid 20/22 LF
- release agent, paper surface finishing: dry food-contact**  
Cerol® M Liq.
- release agent, paperboard**  
Bersize® 6400; Quilon® H; Quilon® L
- release agent, papermaking**  
Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol® 20USP; Britol® 35USP; Britol® 50USP; Sanpeg™
- release agent, pkg. materials**  
Quilon® C; Quilon® H; Quilon® S
- release agent, polymer systems**  
Struktol® TR 131
- release agent, polymers: food-contact**  
Erucamide; Hydrogenated polybutene
- release agent, polyolefins**  
Hoechst Wax E; Hoechst Wax OP
- release agent, preprint applics.**  
TEGO® Glide 403
- release agent, press: rubber roll release problems, pulp/paper**  
Lubrol 90
- release agent, pressure-sensitive tape/label separator sheets**  
Quilon® L
- release agent, pressure-sensitive tapes/labels separator sheets**  
Quilon® S
- release agent, PS**  
Hoechst Wax E; Hoechst Wax OP
- release agent, PVC**  
Hoechst Wax E; Hoechst Wax OP
- release agent, PVC films**  
Ethylene dioleamide
- release agent, rayon paper**  
Suntorl KL
- release agent, release paper**  
Quilon® C; Quilon® H; Quilon® S
- release agent, solvent: paper coatings**  
Pentalyn® 856
- release agent, solvent: wax emulsions**  
Pentalyn® 856
- release agent, surface finishing: board**  
Cerol® M Liq.; Cerol® MN Liq.
- release agent, surface finishing: paper**  
Cerol® M Liq.; Cerol® MN Liq.
- release agent, thin paper**  
Suntorl 311; Suntorl C-500; Suntorl KL; Suntorl P-40
- release agent, tissue machines**  
Qemidink 8001
- release agent, tissue paper**  
ProSoft™; Suntorl KL
- release agent, tissues**  
Suntorl 311
- release agent, toilet roll paper**  
Suntorl KL
- release agent, toilet rolls**  
Suntorl 311
- release agent, water-repellent coatings**  
Quilon® L
- release agent, water-repellent pkg. materials**  
Quilon® L
- release agent, Yankee dryers**  
Cynol® 760 Softener; Nopcoate® DC-1153
- release coating, cellulose acetate**  
Synthemul® 97635; Synthemul® 97635-00
- release coating, films**  
Polyvinyl octadecyl carbamate
- release coating, paper**  
Mayzo RA-120W
- release coating, paper labels**  
Mayzo RA-60R; Mayzo RA-75; Mayzo RA-95H; Mayzo RA-95HS; Mayzo RA-100W; Mayzo RA-150W
- release coating, papermaking equip.**  
McLube 1829
- release coating, pressure-sensitive films**  
Mayzo RA-120W
- release coating, pressure-sensitive paper labels**  
Mayzo RA-120W
- release coating, pressure-sensitive paper tapes**  
Mayzo RA-120W
- release coating, uncoated paper**  
Synthemul® 97635; Synthemul® 97635-00
- release coatings, EB/UV-curable: films**  
Silicone acrylate
- release coatings, EB/UV-curable: paper**  
Silicone acrylate
- release coatings, EB/UV-radiation cured: paper**  
TEGO® Silicone Acrylate RC
- release paper**  
Gohsenal; Gohseran
- removal aid, color: water treatment**  
Sodium chlorite
- removal aid, color: water treatment/purification**  
Chlorine dioxide
- removal aid, Fe/Mn: water treatment**  
Sodium chlorite
- removal aid, Fe/Mn: water treatment/purification**  
Chlorine dioxide
- repulping aid, decolorize: paper**  
Kybreak®
- repulping aid, decolorize: paperboard**

- Kybreak®  
**repulping aid, defiber: paper**  
 Kybreak®  
**repulping aid, defiber: paperboard**  
 Kybreak®  
**repulping aid, paper**  
 Qemisoft 8075  
**rescue agent**  
 Hi-Mar DFP-503  
**rescue agent, microbiological foam**  
 Hi-Mar DFP-31  
**rescue agent, wastewater systems**  
 Hi-Mar DFI-51; Hi-Mar DFI-51-S  
**resin adhesion promoter, coatings**  
*Tosylamide/formaldehyde resin*  
**resin ester, thermoplastic: coatings**  
*Tall oil glycerides*  
**resin modifier, coatings**  
 Sucrose Benzoate Regular and Coatings Grade;  
*Tosylamide/formaldehyde resin*  
**resin, extrusion coatings**  
 Enathene® EA 720-009  
**resin, laminations**  
 Enathene® EA 720-009  
**resin, overprint lacquers**  
 Herculite® 240; Herculite® 290  
**resin, paper**  
 Norsocryl® MA  
**resin, polymer modification**  
 Herculite® 240; Herculite® 290  
**resin, pulp/paper**  
 Atlac® 382-05; Atlac® 382-05A; Atlac® 382-05AC  
**resin, specialty pkg.**  
 Enathene® EA 720-009  
**resin, surface wetting: paper coatings**  
*Methyl rosinate*  
**resin, thermoplastic acidic: paper sizes**  
 Pexite® Wood Rosins  
**resin, thermoplastic: paper coatings**  
 Resin 731D  
**resin, thermoplastic: paperboard coatings**  
 Resin 731D  
**resin, thermoplastic: papermaking**  
 Polyox® WSR N-750  
**resin, viscosifier: paper coatings**  
*Methyl rosinate*  
**retention aid**  
 Agefloc B50LV; *Dimethylamine/epichlorohydrin copolymer*; Hartfloc® 425; *Methacrylic acid copolymer*  
**retention aid, acid papermaking**  
 Hanwet HCD-31; Praestaret®  
**retention aid, alkaline fine paper**  
 Compozil™ P BMA 780; Compozil™ P BMB  
**retention aid, alkaline papermaking**  
 Apollo® 4200 Cationic Starches; Hanwet HCD-31  
**retention aid, alkaline papermaking wet-end**  
 Sta-Lok® 374, 376  
**retention aid, alkaline sizes**  
 Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206  
**retention aid, backwater clarification**  
 Cartaretin® F Liq.; Cartaretin® K Liq.; *Polyamidoamine*  
**retention aid, belt filter dewatering**  
 Qemifloc CEPG 164  
**retention aid, board paper**  
 Torez Resin P-1020R  
**retention aid, board prod.**  
*Polyamidoamine*  
**retention aid, centrifuge dewatering**  
 Qemifloc CEPG 164  
**retention aid, colloidal substances: paper fiber**  
 Polymin® SO  
**retention aid, color removal**  
 Qemireten 8015  
**retention aid, dissolved air flotation**  
 Qemifloc CEPG 164  
**retention aid, fiber**  
*Sodium phosphoaluminate*  
**retention aid, fiber fines/trash removal: papermaking systems**  
 Jaguar® 8707  
**retention aid, fiber recovery**  
 Cartaretin® 5CP Powd.; Cartaretin® 10AE Liq.; Cartaretin® 10AP Powd.; Cartaretin® 10CE Liq.; Cartaretin® 10CP Powd.; Cartaretin® 20AE Liq.; Cartaretin® 20AP Powd.; Cartaretin® 20CE Liq.; Cartaretin® 30AE Liq.; Cartaretin® 30AP Powd.; Cartaretin® 30CP Powd.; Cartaretin® 40CE Liq.; Cartaretin® F Liq.; Cartaretin® K Liq.; *Polyamidoamine*  
**retention aid, fibers**  
 DA-4; MPD-7; MS-290; MSG-329  
**retention aid, fibers: paper machine wire**  
 Polymin® PR 8578  
**retention aid, fibers: papermaking**  
 Polymin® 978 L  
**retention aid, fibrous material recovery**  
 Floclair® DMR; Floclair® PAR  
**retention aid, fillers**  
 DA-4; MPD-7; MS-290; MSG-329; *Sodium phosphoaluminate*  
**retention aid, fillers: paper machine web formation**  
 Polymin® KE 78 PF; Polymin® KE 84  
**retention aid, fillers: paper machine wires**  
 Polymin® PR 973; Polymin® PR 8578  
**retention aid, fillers: papermaking**  
 Polymin® 978 L  
**retention aid, fine paper**  
 Compozil™ BMA 0; Compozil™ BMA 9; Compozil™ S BMA 670; Compozil™ S BMA 890; Jaguar® CB-123  
**retention aid, fines: paper**  
 Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206  
**retention aid, fines: paper fiber**  
 Polymin® SO  
**retention aid, fines: paper machine web formation**  
 Polymin® KE 78 PF; Polymin® KE 84  
**retention aid, fines: paper machine wires**  
 Polymin® PR 973  
**retention aid, gravity settling**  
 Qemifloc CEPG 164  
**retention aid, high conductivity/cationic demand systems**  
 Compozil™ P BMA 780  
**retention aid, industrial liq.-solid separation processes**  
 Qemireten 8015  
**retention aid, influent clarification**  
 Qemireten 8015  
**retention aid, liner paper**  
 Torez Resin P-1020R  
**retention aid, linerboard**  
 Jaguar® CB-123  
**retention aid, liq.-solid separation processes**  
 Qemifloc CEPG 164  
**retention aid, mech. furnishes: groundwood specialties**  
 Organopol®  
**retention aid, mech. furnishes: newsprint**  
 Organopol®  
**retention aid, mech. furnishes: paperboard**  
 Organopol®  
**retention aid, microparticle: paper**  
 Hydrocol®  
**retention aid, microparticle: paperboard**  
 Hydrocol®  
**retention aid, microparticle: pulp**  
 Hydrocol®  
**retention aid, mill water clarification: pulp/paper**  
 Hydrad® 2010; Hydrad® 8105  
**retention aid, neutral papermaking**  
 Praestaret®  
**retention aid, neutral/alkaline paper**  
 Polyflex® 300 Retention Aid  
**retention aid, newsprint**  
 Oxicol®; Oxirez®  
**retention aid, oily wastewater separation**  
 Qemireten 8015  
**retention aid, paper**  
*Acrylamides copolymer*; Ageflex FA-1Q80DMS; Ageflex FA-1Q80MC; Ageflex FA-2; Ageflex FA-2Q50DMS; Ageflex FM-1; Ageflex FM-1Q75MC; Ageflex FM-1Q80DMS; Ageflex FM-2; Agefloc PC20HV; Amerfloc® 485; Apollo® 4200 Cationic Starches; Apollo® Cationic Starches; Aquagel Gold Seal™ 200; Aquagel Gold Seal™ 325; Cartafen ZFN Liq.; Cartaretin® 5CP Powd.; Cartaretin® 10AE Liq.; Cartaretin® 10AP Powd.; Cartaretin® 10CE Liq.; Cartaretin® 10CP Powd.; Cartaretin® 20AE Liq.; Cartaretin® 20AP Powd.; Cartaretin® 20CE Liq.; Cartaretin® 30AE Liq.; Cartaretin® 30AP Powd.; Cartaretin® 30CP Powd.; Cartaretin® 40CE Liq.; Cartaretin® DS Liq.; Cartaretin® Dual System; Cartaretin® E Powd.; Cartaretin® F Liq.; Cartaretin® K Liq.; *Diethylaminoethyl acrylate*; *Diethylaminoethyl acrylate dimethyl sulfate quat*; *Dimethylaminoethyl acrylate dimethyl sulfate*; *Dimethylaminoethyl acrylate methyl chloride quat*; *Dimethylaminoethyl methacrylate*; *Dimethylaminoethyl methacrylate dimethyl sulfate quat*; *Dimethylaminoethyl methacrylate methyl chloride quat*; *Dimethyl diallyl ammonium chloride*; Intrafix®; Jaguar® CP-4; Jaguar® CP-13; Pencat® Cationic Starches; *Polyamidoamine*; Polyfix®; *Poly (glycidyltrimethyl ammonium chloride)*; Polymin® 978 L; Polymin® KE 78 PF; Polymin® KE 84; Polymin® PL; Polymin® PR 266 L; Polymin® PR 973; Polymin® PR 8578; Polymin® SNA; *Polyquaternium-5*; *Polysilicic acid*; Qemifloc CEPG 164; *Sodium aluminate*  
**retention aid, paper coatings**  
 Admiral® Water Soluble Polymer  
**retention aid, paper recycle clarification**  
 Qemireten 8015  
**retention aid, paper/paperboard: aq./fatty food-contact**  
*Acrylamide/methacrylic acid/maleic anhydride copolymer*; *Dimethylamine/epichlorohydrin copolymer*; *N-Methyldiallylamine hydrochloride polymer with epichlorohydrin*; *Polyamide/epichlorohydrin polymer*; *Poly [(methylimino) (2-hydroxytrimethylene) hydrochloride]*; *Polyquaternium-5*; *Polyquaternium-6*; *Polyquaternium-7*  
**retention aid, paper/paperboard: aq./fatty/dry food-contact**  
*Poly [acrylamide-acrylic acid-N-(dimethylamino-methyl) acrylamide]*; *Poly (2-aminoethyl acrylate nitrate-co-2-hydroxypropyl acrylate)*  
**retention aid, paper/paperboard: food-contact**  
*Poly-1,4,7,10,13-pentaaza-15-hydroxyhexadecane*  
**retention aid, paper: food-contact**  
 Cartaretin® F Liq.; Cartaretin® K Liq.  
**retention aid, paperboard**  
 Apollo® 4200 Cationic Starches; Apollo® Cationic Starches; Oxicol®; Oxirez®; Pencat® Cationic Starches; PerForm™; Polyflex® 300 Retention Aid  
**retention aid, papermaking**  
 Accurac® 105 Retention Aid; Accurac® T-100 Retention/Drainage Aid; Agequat C505; Astro® X Cationic Starches; Chargemaster® R415; Chargemaster® R515; Chargemaster® R615; Jaguar® 8707; Particol®; Torez Resin P-1020R; Ultimer™ 1460  
**retention aid, papermaking size presses**  
 Electra® 7458; Lok-Size® 30; Staysize® 140  
**retention aid, papermaking water treatment**  
 Agefloc B4508P  
**retention aid, papermaking wet-end**  
 Interbond® C; Sta-Lok® 120, 160, 180, 182; Sta-

- Lok® 140; Sta-Lok® 300, 310, 330; Sta-Lok® 400, 410, 430, 440
- retention aid, pigments: paper fiber**  
Polymín® SO
- retention aid, pitch control**  
Qemireten 8015
- retention aid, pulp**  
*Polyquaternium-5*
- retention aid, pulp/paper**  
Aquapac™; Hydrad® 7736 EZ; Hydrad® 7871; Hydrad® 8182 EZ; PerForm™; Retek®
- retention aid, raw clarification**  
Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- retention aid, recycled board**  
Interbond® C; Sta-Lok® 300, 310, 330; Sta-Lok® 400, 410, 430, 440
- retention aid, recycled waste board**  
Cartafen ZFN Liq.; Cartaretin® E Powd.
- retention aid, recycled waste newsprint**  
Cartafen ZFN Liq.; Cartaretin® E Powd.
- retention aid, recycled waste paper**  
Cartafen ZFN Liq.; Cartaretin® E Powd.
- retention aid, recycling operations**  
Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- retention aid, save-all operation: pulp/paper**  
Hydrad® 2010; Hydrad® 8105
- retention aid, screw press dewatering**  
Qemifloc CEPG 164
- retention aid, slimy colloids: paper fiber**  
Polymín® SO
- retention aid, sludge dewatering**  
Qemireten 8015
- retention aid, solid-liq. separation processes**  
Qemifloc 8086
- retention aid, stickies control**  
Qemireten 8015
- retention aid, tissue paper**  
Jaguar® CB-123
- retention aid, wastewater clarification**  
Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- retention aid, water treatment: paper**  
Agefloc A4506; Agefloc A4510
- retention aid, water: paper coatings**  
Modarez® WR; Vandrox® 184
- retention aid, water: paper sticking**  
Modarez® WR
- retention aid, wet-end papermaking**  
Synthro®-Pac 812 L
- retention aid, wet-end processing: pulp/paper**  
*Polyacrylamide*
- retention aid, wet-strength additives: pulp/paper**  
*Polyacrylamide*
- retention aid, wood-containing paper**  
Compozil™ P BMA 780; Compozil™ P BMB
- retention control system, closed-loop: paper**  
Alcotech® RCS
- retention control system, closed-loop: paperboard**  
Alcotech® RCS
- rewetting agent**  
Abex® 18S; Abex® 22S; *Isolaureth-6*; Surfonic® DDP-40; Surfonic® DDP-50; Tergitol® NP-7
- rewetting agent, coatings**  
Morcryl® 535
- rewetting agent, coatings: food pkg.**  
Lucidene® 5010
- rewetting agent, emulsion polymerization**  
Geropon® WT-27; Igepal® CO-630; Igepal® CO-710
- rewetting agent, o/w emulsions**  
Merpol® SE
- rewetting agent, paper**  
Alkanol® 1009C; Alkanol® SB; *Cetyl betaine*; Chemax CO-16; Chemax CO-30; Chemax CO-40; Chemax NP-15; Chemax NP-20; Chemax NP-30; Chemax NP-30/70; *C10-12* *pareth-6*; *C12-14* *pareth-3*; DeIONIC LF-EP-20; DeSonic™ 6C; *Dodoxynol-6*; Duponol® LS Paste; Eldorado DEF-741; Etopol 81-L; Freedom SBO-65; Freedom SBT-65; Geropon® SDS; Geropon® WT-27; Igepal® CO-630; Igepal® CO-660; Igepal® CO-710; Igepal® CO-720; Merpol® SE; Morcryl® 535; Morez® 500; *Nonoxynol-20*; *PEG-6* *castor oil*; *PEG-16* *castor oil*; *PEG-25* *castor oil*; *PEG-30* *castor oil*; *PEG-36* *castor oil*; *PEG-40* *castor oil*; *PEG-200* *castor oil*; *PEG-5* *hydrogenated* *castor oil*; *PEG-16* *hydrogenated* *castor oil*; *PEG-25* *hydrogenated* *castor oil*; *PEG-200* *hydrogenated* *castor oil*; Product BCO; Rhodasurf® TDA-8.5; *Sodium butyl oleate sulfonate*; *Sodium butyl tallate sulfate*; *Sodium oleyl sulfate*; *Sulfated butyl tallate*; T-Det® N-8; T-Det® N-9.5; Trydet 2676
- rewetting agent, paper towels**  
DeIONIC LF-EP-30; Densol P-82; DeTHOX TDA-8.5; Igepal® RC-520; Poly-Tergent® S-205LF; Serdiox® NOP 9; Trycol® 5941
- rewetting agent, paper: corrugated**  
Surfonic® L12-6; Surfonic® L24-3
- rewetting agent, paper: food pkg.**  
Lucidene® 5010
- rewetting agent, paper: food-contact**  
Eldorado DEF-741
- rewetting agent, paper: liner board**  
Surfonic® L12-6; Surfonic® L24-3
- rewetting agent, paperboard coatings**  
*PEG-3.5 tetramethyl decynediol*; Surfynol® 440
- rewetting agent, papermaking**  
Eldorado DEF-710; Sanfac™
- rewetting agent, semichemical corrugated media**  
Igepal® RC-520
- rewetting agent, tissue machines**  
Eldorado DEF-741
- rewetting agent, tissues**  
Igepal® RC-520; Serdiox® NOP 9
- rewetting agent, toweling machines**  
Eldorado DEF-741
- rewetting agent, wet-strength paper**  
DePEG 30-CO; DePEG 40-CO; DeSonic™ 30C; DeSonic™ 36C; DeSonic™ 40C; DeSonic™ 54C; *PEG-54* *castor oil*
- rheology control agent**  
Foamaster® PL; Imidazolone 180H
- rheology control agent, aq. systems**  
Tafigel® PUR 40
- rheology control agent, barrier paper coatings**  
Pliolite® AC-3
- rheology control agent, coating colors**  
Acrosol™ C 50 L; Leukoglanzöl® BPA 50; Sterocoll® FS; *Sulfated vegetable oil*, *sodium salt*
- rheology control agent, coatings**  
AquaGel Gold Seal™ 200; AquaGel Gold Seal™ 325; Cab-O-Sil® EH-5; Cab-O-Sil® HS-5; Cab-O-Sil® L-90; Cab-O-Sil® LM-130; Cab-O-Sil® LM-150; Cab-O-Sil® M-5; Cab-O-Sil® PTG
- rheology control agent, emulsions**  
KELZAN®; KELZAN® XC Polymer
- rheology control agent, fiber suspensions**  
Carbopol® 934
- rheology control agent, flow: coatings**  
Zonyl® FSN
- rheology control agent, gloss overlacquer paper coatings**  
Pliolite® AC-3
- rheology control agent, heavy paper coatings**  
Rhoplex® E-2961
- rheology control agent, heavy paperboard coatings**  
Rhoplex® E-2961
- rheology control agent, lightweight coatings**  
Rhoplex® TT-935
- rheology control agent, paper**  
Aqualon® CMC-T; *Diatomaceous earth*, *amorphous*; Pro-Cote®; Tafigel® PUR 40
- rheology control agent, paper coatings**  
Admiral® Water Soluble Polymer; Benaqua® 1000; Leukoglanzöl® BPA 50; Pliolite® AC-3; Rheovis®; Rhoplex® ASE-75; Rhoplex® ASE-95NP; Rhoplex® ASE-108NP; Rhoplex® E-2961; Rhoplex® RM-232D; Rhoplex® TT-935; Vandrox® 184; *Vinyl-toluene/acrylate copolymer*; Viscalex®
- rheology control agent, paper suspensions**  
Carbopol® 934
- rheology control agent, paperboard**  
Pro-Cote®
- rheology control agent, paperboard coatings**  
Rhoplex® ASE-75; Rhoplex® ASE-95NP; Rhoplex® ASE-108NP; Rhoplex® E-2961; Rhoplex® RM-232D; Rhoplex® TT-935
- rheology control agent, pigment slurries: papermaking**  
Polystabil®
- rheology control agent, pigments**  
Amgard® TBEP; KELZAN®; KELZAN® XC Polymer
- rheology control agent, silicone emulsions**  
Carbopol® 934
- rheology control agent, silicones**  
Cab-O-Sil® HS-5; Cab-O-Sil® LM-150D
- rheology wax, coatings**  
A-C® 405(M); A-C® 405(S); A-C® 405(T)
- rinse aid**  
Pluronic® 25R2
- rinse aid, paper**  
Pluronic® L10
- rinse aid, paper machine felt washing**  
Serdiox® NOP 9
- roll wrap, paper**  
Elvax® 550, 560
- roller coverings, copier**  
*Epichlorohydrin/ethylene oxide copolymer*
- roller coverings, paper**  
*Epichlorohydrin/ethylene oxide copolymer*
- roller coverings, printing**  
*Epichlorohydrin/ethylene oxide copolymer*
- rosin ester gum prod.**  
*Hydrogenated rosin*
- rub resistance aid**  
Hercules® 2043
- runnability aid, metered size presses**  
Acrosol™ C 50 L; Sterocoll® BL
- runnability aid, papermaking**  
Chargemaster® R615; Hydrofix®
- runnability, high speed blade coatings: LWC paper**  
Rovene® 4112
- rust conversion agent**  
*Potassium ferricyanide*
- rust inhibitor**  
Aerosol® OT-75%; Aerosol® OT-75-PG; Aerosol® TR-70; Albrite® PA-75; *Butyl phosphate*; *Diocetyl sodium sulfosuccinate*; *Lanolin*; *Petrolatum*; *Sodium benzoate*; *Sodium borate*; *Sodium borate decahydrate*; *Sorbitan trioleate*; Surfonic® N-60; Teric™ N6; TLV 68-SB; TLV 68-UB; TLV 70-SB; TLV 70-UB; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS
- rust inhibitor oils**  
*Glycerol oleate*
- rust inhibitor, lubricants: food-contact**  
*Sodium nitrite*
- rust inhibitor, paper**  
Stafoam F
- rust inhibitor, paper machine lubrication systems**  
PMO Ashless 150; PMO Ashless 220; PMO Ashless 320; PMO Ashless 460
- rust inhibitor, paper machine oils**  
K-Corr® 100A2; K-Corr® 181CA; K-Corr® 182CA
- rust inhibitor, pigment grinding**  
*Propylene glycol myristate*
- rust inhibitor, waxes**



- Propylene glycol myristate*  
**rustproofing compds.**  
 Multiwax® ML-445
- sag control agent, paper**  
*Cellulose*
- sanitizer**  
 Barquat® MB-50; Barquat® OJ-80; *Cocoalkonium chloride*; *Cocotrimonium chloride*; *Octoxynol-13*
- sanitizer ingred.**  
*Pine (Pinus palustris) oil*
- sanitizer, food-contact**  
*Acetic acid*
- sanitizer, water treatment**  
*Calcium hypochlorite*
- saturant**  
 Colloid™ 60; Neoprene Latex 735A
- saturant, fiber laminates**  
*Ethylene/VA copolymer*
- saturant, filter media**  
 Stanfax 388
- saturant, flame retardant: natural fiber**  
 PryoBreak™ EX-13; PryoBreak™ EX-18
- saturant, flame retardant: paper treatment**  
 PryoBreak™ EX-13; PryoBreak™ EX-18
- saturant, flame retardant: paperboard**  
 PryoBreak™ EX-13; PryoBreak™ EX-18
- saturant, flame retardant: paperboard pkg. wood**  
 PryoBreak™ EX-13; PryoBreak™ EX-18
- saturant, paper**  
 Airflex® 100 HS; Airflex® 108; Airflex® 110; Airflex® 144; Airflex® 456; Airflex® 4514; Airflex® 4530; Baypren Latex L 200A; Laminating Adhesive #5110; Piccopale® 100; Piccopale® 100-70M66; Piccotac® 95T; Rovene® 5005; Tylac® 68513-00; Tylac® 68520-00; *Vinyl acetate/acrylate copolymer*
- saturant, paper/paperboard**  
*Ethylene/VA copolymer*; *Ethylene/vinyl chloride copolymer*
- saturant, paperboard**  
 Airflex® 100 HS; Airflex® 110; Airflex® 456; Airflex® 4514; Airflex® 4530; Piccotac® 95T
- saturant, papermaking**  
 Berbond® 8200
- saturant, reprographic applics.**  
 Airflex® 110
- saturant, size presses**  
 Airflex® 100 HS; SunCryl® CP-50; SunCryl® CP-75
- saturant, size presses: label grades**  
 Sunbond® 853; Sunbond® 857; Sunbond® CP-58
- saturant, specialty paper**  
 Airflex® 124; Airflex® 144
- saturant, web**  
 Tylac® 68513-00; Tylac® 68520-00
- saturation**  
 Hycar® 1552; Hycar® 1562; Hycar® 1572; Hycar® 1577; Nacrylic X 4280; X-Link 2833; X-Link 2893; X-Link 5627
- saturation, felt**  
 Darex® 110L
- saturation, paper**  
 Ameripol Synpol 1013; Baypren Latex L 345; Darex® 110L; Darex® 620L; Good-Rite® 2570X59; Hycar® 1561; Hycar® 1571; Hycar® 2671; Hycar® 2679; Hycar® 26084; Hycar® 26092; Hycar® 26106; Hycar® 26322; MT 1970-D; Rohamere® 84116; Rovene® 4402
- scale control**  
*Pentetic acid*
- scale control agent, alkaline deinking systems: papermaking**  
 Sansperse™ WTC
- scale control agent, milk**  
*Sodium hexametaphosphate*
- scale control agent, paperboard**  
 Zenix™
- scale control agent, pulp/paper**  
 Zenix™
- scale control agent, water treatment**  
*Sodium phosphate dibasic anhydrous*
- scale control, cooling water treatment**  
*Sulfuric acid*
- scale inhibitor**  
 Acumer® 2100; BHMT Amine; BHMT-HP; *Bis-hexamethylenetriamine*; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Hanwet CA-1; Mhoromer® BM 903; Mhoromer® BM 905; Mhoromer® BM 923; Mhoromer® BM 951; Mhoromer® BM 955; *Pentasodium diethylene triamine pentamethylene phosphonate*; *Pentasodium ethylene diamine tetramethylene phosphonate*; *Sodium silicate*; *Sodium p-styrenesulfonate*; Spinomar NaSS; *Tetrasodium pyrophosphate*; Tolcide® PS 352C; Tolcide® PS 355A; *Trisodium NTA*
- scale inhibitor, aq. systems**  
 Dequest® 2010; Dequest® 2054; Dequest® 2060; *Octasodium diethylene triamine penta (methylene phosphonate)*; *Potassium hexamethylene diamine tetra (methylene phosphonate)*; Tamol® 731A; Tamol® 808; Tamol® 850; Tamol® 960
- scale inhibitor, bleach stabilization**  
 Briquest® 543-45AS
- scale inhibitor, caustic makeup systems**  
 Hartfloc® A-40
- scale inhibitor, chemical pulp**  
 Aquaprox® TD 2000
- scale inhibitor, chemical pulping**  
 Aquaprox® TD 1100
- scale inhibitor, cooling systems**  
*2-Phosphono butane tricarboxylic acid-1,2,4*
- scale inhibitor, cooling towers**  
*Diethylene triamine pentamethylene phosphonic acid*; *Ethylenediaminetetra (methylene phosphonic acid)*; Polywet® ND-2
- scale inhibitor, cooling water**  
 Hartfloc® A-40; *Phosphinopolycarboxylic acid*
- scale inhibitor, cooling water treatment**  
*Aminotrimethylene phosphonic acid*; Dequest® 2000; Dequest® 2006; Dequest® 2066; *Hexasodium diethylenetriaminepenta (methylenephosphonate)*; *Pentasodium aminotrimethylene phosphonate*; *Sodium bisulfate*; *Sodium polyacrylate*; *Sodium polymethacrylate*; *Sulfamic acid*; Tamol® 850; Tamol® 960
- scale inhibitor, deink plant**  
 Hartfloc® A-40
- scale inhibitor, hard water**  
 Donlar C-20C; Donlar C-30D
- scale inhibitor, industrial water systems**  
*Hexamethylene diamine tetra (methylene phosphonate)*
- scale inhibitor, inorg. pigment dispersions**  
 Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA
- scale inhibitor, kaolin clay slurries**  
 Dequest® 2016 D Powder
- scale inhibitor, kraft digesters**  
 Drewfax® 342
- scale inhibitor, kraft pulp paper mills: cooling water**  
 Belclene® 283
- scale inhibitor, kraft pulp paper mills: industrial water**  
 Belclene® 283
- scale inhibitor, minerals**  
*Acrylates/acrylamide copolymer*
- scale inhibitor, paper**  
*Pentasodium aminotrimethylene phosphonate*
- scale inhibitor, paper machine circuit**  
 Tallofin®
- scale inhibitor, paper machines**  
 Hartfloc® A-40
- scale inhibitor, paper/paperboard: aq./fatty food-contact**  
*Maleic anhydride, polymer with ethyl acrylate and vinyl acetate, hydrolyzed*; *Sodium methyl tall oil acid taurate*
- scale inhibitor, paper/paperboard: food-contact**  
*Acrylic acid/sulfonic acid copolymer*; Good-Rite® K-776 Polymer
- scale inhibitor, papermaking**  
 Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA; Dispel®
- scale inhibitor, peroxide bleach stabilization**  
*Hexasodium diethylenetriaminepenta (methylene phosphonate)*; Unihib® 905
- scale inhibitor, peroxide stabilization**  
 Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; *Ethylenediaminetetra (methylene phosphonic acid)*; *Sodium diethylenetriamine penta (methylene phosphonate)*; SPE 9528; *Tetrasodium etidronate*
- scale inhibitor, process waters**  
*Pentasodium aminotrimethylene phosphonate*
- scale inhibitor, pulp/paper**  
 Briquest® 543-45AS; *Phosphinopolycarboxylic acid*; Polysynth RRE
- scale inhibitor, pulp/paper bleaching**  
 Dequest® 2000LC; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; *Ethylenediaminetetra (methylene phosphonic acid)*; *Sodium diethylenetriamine penta (methylene phosphonate)*; SPE 9528; *Tetrasodium etidronate*; Unihib® 905
- scale inhibitor, pulp/paper chemicals**  
 Aquacid-105 EX
- scale inhibitor, pulp/paper processing systems**  
 Acumer® 4161
- scale inhibitor, recirculated cooling water**  
 Tamol® 731A; Tamol® 808
- scale inhibitor, threshold effect**  
 Calnox® 214; Calnox® 214 DN
- scale inhibitor, threshold effect: papermaking**  
 Eldorado WT-30
- scale inhibitor, waste treatment**  
*Sodium carbonate*
- scale inhibitor, water systems**  
*Acrylic resin*
- scale inhibitor, water treatment**  
*Acrylic acid/sulfonic acid copolymer*; Acumer® 1000; Acumer® 1020; Acumer® 1100; Acumer® 4161; Acumer® 9300; Aquacid-105 EX; Briquest® 543-45AS; *Calcium disodium EDTA*; Dequest® 2016 D Powder; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; *Etidronic acid*; Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-765 Polymer; Good-Rite® K-776 Polymer; Good-Rite® K-7028 Polymer; Good-Rite® K-7028N Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer; *Isobutylene/MA copolymer*; *Phosphinopolycarboxylic acid*; Polywet® ND-2; Polywet® ND-35; *Potassium hexamethylene diamine tetra (methylene phosphonate)*; *Potassium phosphate dibasic*; *Potassium*

*Propylene glycol myristate*  
**rustproofing compds.**  
 Multiwax® ML-445  
**sag control agent, paper**  
*Cellulose*  
**sanitizer**  
 Barquat® MB-50; Barquat® OJ-80; *Cocoalkonium chloride*; *Cocotrimonium chloride*; *Octoxynol-13*  
**sanitizer ingred.**  
*Pine (Pinus palustris) oil*  
**sanitizer, food-contact**  
*Acetic acid*  
**sanitizer, water treatment**  
*Calcium hypochlorite*  
**satrant**  
 Colloid™ 60; Neoprene Latex 735A  
**satrant, fiber laminates**  
*Ethylene/VA copolymer*  
**satrant, filter media**  
 Stanfax 388  
**satrant, flame retardant: natural fiber**  
 PryoBreak™ EX-13; PryoBreak™ EX-18  
**satrant, flame retardant: paper treatment**  
 PryoBreak™ EX-13; PryoBreak™ EX-18  
**satrant, flame retardant: paperboard**  
 PryoBreak™ EX-13; PryoBreak™ EX-18  
**satrant, flame retardant: paperboard pkg. wood**  
 PryoBreak™ EX-13; PryoBreak™ EX-18  
**satrant, paper**  
 Airflex® 100 HS; Airflex® 108; Airflex® 110; Airflex® 144; Airflex® 456; Airflex® 4514; Airflex® 4530; Baypren Latex L 200A; Laminating Adhesive #5110; Piccopale® 100; Piccopale® 100-70M66; Piccotac® 95T; Rovene® 5005; Tylac® 68513-00; Tylac® 68520-00; *Vinyl acetate/acrylate copolymer*  
**satrant, paper/paperboard**  
*Ethylene/VA copolymer*; *Ethylene/vinyl chloride copolymer*  
**satrant, paperboard**  
 Airflex® 100 HS; Airflex® 110; Airflex® 456; Airflex® 4514; Airflex® 4530; Piccotac® 95T  
**satrant, papermaking**  
 Berbond® 8200  
**satrant, reprographic applics.**  
 Airflex® 110  
**satrant, size presses**  
 Airflex® 100 HS; SunCryl® CP-50; SunCryl® CP-75  
**satrant, size presses: label grades**  
 Sunbond® 853; Sunbond® 857; Sunbond® CP-58  
**satrant, specialty paper**  
 Airflex® 124; Airflex® 144  
**satrant, web**  
 Tylac® 68513-00; Tylac® 68520-00  
**saturation**  
 Hycar® 1552; Hycar® 1562; Hycar® 1572; Hycar® 1577; Nacrylic X 4280; X-Link 2833; X-Link 2893; X-Link 5627  
**saturation, felt**  
 Darex® 110L  
**saturation, paper**  
 Ameripol Synpol 1013; Baypren Latex L 345; Darex® 110L; Darex® 620L; Good-Rite® 2570X59; Hycar® 1561; Hycar® 1571; Hycar® 2671; Hycar® 2679; Hycar® 26084; Hycar® 26092; Hycar® 26106; Hycar® 26322; MT 1970-D; Rohamere® 84116; Rovene® 4402  
**scale control**  
*Pentetic acid*  
**scale control agent, alkaline deinking systems: papermaking**  
 Sansperse™ WTC  
**scale control agent, milk**  
*Sodium hexametaphosphate*  
**scale control agent, paperboard**  
 Zenix™  
**scale control agent, pulp/paper**  
 Zenix™

**scale control agent, water treatment**  
*Sodium phosphate dibasic anhydrous*  
**scale control, cooling water treatment**  
*Sulfuric acid*  
**scale inhibitor**  
 Acumer® 2100; BHMT Amine; BHMT-HP; *Bis-hexamethylenetriamine*; Empiphos STP; Empiphos STP/1P; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Hanwet CA-1; Mhoromer® BM 903; Mhoromer® BM 905; Mhoromer® BM 923; Mhoromer® BM 951; Mhoromer® BM 955; *Pentasodium diethylene triamine pentamethylene phosphonate*; *Pentatodium ethylene diamine tetramethylene phosphonate*; *Sodium silicate*; *Sodium p-styrenesulfonate*; Spinomar NaSS; *Tetrasodium pyrophosphate*; Tolcide® PS 352C; Tolcide® PS 355A; *Trisodium NTA*  
**scale inhibitor, aq. systems**  
 Dequest® 2010; Dequest® 2054; Dequest® 2060; *Octasodium diethylene triamine penta (methylene phosphonate)*; *Potassium hexamethylene diamine tetra (methylene phosphonate)*; Tamol® 731A; Tamol® 808; Tamol® 850; Tamol® 960  
**scale inhibitor, bleach stabilization**  
 Briquest® 543-45AS  
**scale inhibitor, caustic makeup systems**  
 Hartfloc® A-40  
**scale inhibitor, chemical pulp**  
 Aquaprox® TD 2000  
**scale inhibitor, chemical pulping**  
 Aquaprox® TD 1100  
**scale inhibitor, cooling systems**  
*2-Phosphono butane tricarboxylic acid-1,2,4*  
**scale inhibitor, cooling towers**  
*Diethylene triamine pentamethylene phosphonic acid*; *Ethylenediaminetetra (methylene phosphonic acid)*; Polywet® ND-2  
**scale inhibitor, cooling water**  
 Hartfloc® A-40; *Phosphinopolycarboxylic acid*  
**scale inhibitor, cooling water treatment**  
*Aminotrimethylene phosphonic acid*; Dequest® 2000; Dequest® 2006; Dequest® 2066; *Hexasodium diethylenetriaminepenta (methylenephosphonate)*; *Pentasodium aminotrimethylene phosphonate*; *Sodium bisulfate*; *Sodium polyacrylate*; *Sodium polymethacrylate*; *Sulfamic acid*; Tamol® 850; Tamol® 960  
**scale inhibitor, deink plant**  
 Hartfloc® A-40  
**scale inhibitor, hard water**  
 Donlar C-20C; Donlar C-30D  
**scale inhibitor, industrial water systems**  
*Hexamethylene diamine tetra (methylene phosphonate)*  
**scale inhibitor, inorg. pigment dispersions**  
 Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA  
**scale inhibitor, kaolin clay slurries**  
 Dequest® 2016 D Powder  
**scale inhibitor, kraft digesters**  
 Drewfax® 342  
**scale inhibitor, kraft pulp paper mills: cooling water**  
 Belclene® 283  
**scale inhibitor, kraft pulp paper mills: industrial water**  
 Belclene® 283  
**scale inhibitor, minerals**  
*Acrylates/acrylamide copolymer*  
**scale inhibitor, paper**  
*Pentasodium aminotrimethylene phosphonate*  
**scale inhibitor, paper machine circuit**  
 Tallofin®

**scale inhibitor, paper machines**  
 Hartfloc® A-40  
**scale inhibitor, paper/paperboard: aq./fatty food-contact**  
*Maleic anhydride, polymer with ethyl acrylate and vinyl acetate, hydrolyzed*; *Sodium methyl tall oil acid taurate*  
**scale inhibitor, paper/paperboard: food-contact**  
*Acrylic acid/sulfonic acid copolymer*; Good-Rite® K-776 Polymer  
**scale inhibitor, papermaking**  
 Acriflow 041-S; Acriflow 050-S; Acriflow 141 S; Acriflow 241-M; Acriflow 241-SA; Dispel®  
**scale inhibitor, peroxide bleach stabilization**  
*Hexasodium diethylenetriaminepenta (methylene-phosphonate)*; Unihib® 905  
**scale inhibitor, peroxide stabilization**  
 Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; *Ethylenediaminetetra (methylene phosphonic acid)*; *Sodium diethylenetriamine penta (methylene phosphonate)*; SPE 9528; *Tetrasodium etidronate*  
**scale inhibitor, process waters**  
*Pentasodium aminotrimethylene phosphonate*  
**scale inhibitor, pulp/paper**  
 Briquest® 543-45AS; *Phosphinopolycarboxylic acid*; Polysynth RRE  
**scale inhibitor, pulp/paper bleaching**  
 Dequest® 2000LC; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; *Ethylenediaminetetra (methylene phosphonic acid)*; *Sodium diethylenetriamine penta (methylene phosphonate)*; SPE 9528; *Tetrasodium etidronate*; Unihib® 905  
**scale inhibitor, pulp/paper chemicals**  
 Aquacid-105 EX  
**scale inhibitor, pulp/paper processing systems**  
 Acumer® 4161  
**scale inhibitor, recirculated cooling water**  
 Tamol® 731A; Tamol® 808  
**scale inhibitor, threshold effect**  
 Calnox® 214; Calnox® 214 DN  
**scale inhibitor, threshold effect: papermaking**  
 Eldorado WT-30  
**scale inhibitor, waste treatment**  
*Sodium carbonate*  
**scale inhibitor, water systems**  
*Acrylic resin*  
**scale inhibitor, water treatment**  
*Acrylic acid/sulfonic acid copolymer*; Acumer® 1000; Acumer® 1020; Acumer® 1100; Acumer® 4161; Acumer® 9300; Aquacid-105 EX; Briquest® 543-45AS; *Calcium disodium EDTA*; Dequest® 2016 D Powder; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; *Etidronic acid*; Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-765 Polymer; Good-Rite® K-776 Polymer; Good-Rite® K-7028 Polymer; Good-Rite® K-7028N Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer; *Isobutylene/MA copolymer*; *Phosphinopolycarboxylic acid*; Polywet® ND-2; Polywet® ND-35; *Potassium hexamethylene diamine tetra (methylene phosphonate)*; *Potassium phosphate dibasic*; *Potassium*

- tripolyphosphate; Sodium carbonate; Sodium hexametaphosphate; SPE 9528*
- scavenger, acid: flame retardants**  
*Calcium stearoyl lactylate*
- scavenger, acid: pigments**  
*Calcium stearoyl lactylate*
- scavenger, acid: polyolefins**  
*Calcium stearoyl lactylate*
- scavenger, heavy metal**  
*Sodium ferrocyanide*
- scouring agent**  
*Celeareth-5; C12-15 pareth-10; C13-15 pareth-9; Oleth-15; Sodium oleic sulfate; Sulfated castor oil; Trideceth-8; Trideceth-10; Trideceth-15; Trideceth-23; Volpo C2; Volpo C20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15*
- scouring agent, paper**  
*Hydrochloric acid*
- scouring agent, paper deinking**  
*Synperonic 91/6; Synperonic 91/8; Synperonic 91/8T*
- scouring agent, paper reclamation**  
*Synperonic A9; Synperonic A11*
- scouring agent, papermaking**  
*Volpo C2; Volpo C20; Volpo CS50; Volpo L3*
- scouring agent, papermaking**  
*Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15*
- scouring agent, pigment grinding**  
*Propylene glycol myristate*
- scouring agent, waxes**  
*Propylene glycol myristate*
- scratch resistance aid, coatings**  
*Surfynol® SM-745*
- scuff resistance aid, offset/opaque communication paper grades**  
*NovaBond® 150*
- scuff resistance aid, printing board uncoated sides**  
*NovaBond® 150*
- scuff resistance aid, printing paper uncoated sides**  
*NovaBond® 150*
- security chemicals, paper**  
*Sappco Spa Securigard*
- security paper**  
*Benzidine*
- sedimentation aid, secondary: pulp/paper**  
*Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24*
- sedimentation aid, secondary: waste treatment**  
*Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24*
- sedimentation aid, secondary: water treatment**  
*Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24*
- separation agent, ink from fiber: pulp/paper mill water streams**  
*Hartfloc® 409*
- separation agent, solid/liq.: coatings**  
*Amerfloc® 485*
- sequestrant**  
*Calnox® 214; Calnox® 214 DN; Colloid™ 202; Dequest® 2006; Dequest® 2060; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Oxystearin; Pentasodium diethylene triamine pentamethylene phosphonate; Pentasodium ethylene diamine tetramethylene phosphonate; Potassium tripolyphosphate; Sodium glucoheptonate; Sodium thiosulfate anhydrous; Sorbitol; Triethanolamine; Triethyl citrate*
- sequestrant, bleach stabilization**  
*Briquest® 543-45AS*
- sequestrant, calcium**  
*Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer; Tetrapotassium pyrophosphate*
- sequestrant, chemical cleaning**  
*Pentasodium pentetate*
- sequestrant, cleaning compds.**  
*Sodium lignosulfonate*
- sequestrant, coatings**  
*Alcosperse® 149*
- sequestrant, cooling water treatment**  
*Hexasodium diethylenetriaminepenta (methylene phosphonate); Pentasodium aminotrimethylene phosphonate; Sodium diethylenetriamine penta (methylene phosphonate)*
- sequestrant, deinking**  
*Sodium diethylenetriamine penta (methylene phosphonate)*
- sequestrant, disinfectants**  
*Calcium disodium EDTA*
- sequestrant, high solids slurries**  
*Alcosperse® 602-N*
- sequestrant, iron**  
*Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer; Tetrapotassium pyrophosphate*
- sequestrant, kaolin clay slurries**  
*Dequest® 2016 D Powder*
- sequestrant, magnesium**  
*Good-Rite® K-702 Polymer; Good-Rite® K-732 Polymer; Good-Rite® K-739 Polymer; Good-Rite® K-752 Polymer; Good-Rite® K-759 Polymer; Good-Rite® K-7058D Polymer; Good-Rite® K-7058N Polymer; Tetrapotassium pyrophosphate*
- sequestrant, micronutrient systems**  
*Sodium lignosulfonate*
- sequestrant, paper**  
*Dequest® 2000; Dequest® 2010; Dequest® 2054; Dequest® 2066; Kalipol™ 4KP; Kalipol™ 20; Kalipol™ KTP; Pentasodium aminotrimethylene phosphonate; Tetrasodium EDTA*
- sequestrant, paper coatings**  
*Alcosperse® 602-N*
- sequestrant, paper deinking**  
*Pentasodium pentetate*
- sequestrant, paper machine felt cleaning**  
*Eldorado ALK-6100; Eldorado ALK-6156*
- sequestrant, paper machine steam cleaning**  
*Eldorado ALK-6100; Eldorado ALK-6156*
- sequestrant, paper/paperboard: food-contact**  
*Pentasodium pentetate*
- sequestrant, peroxide bleach stabilization**  
*Hexasodium diethylenetriaminepenta (methylene phosphonate)*
- sequestrant, peroxide stabilization**  
*Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; Ethylenediaminetetra (methylene phosphonic acid); Sodium diethylenetriamine penta (methylene phosphonate); SPE 9528; Tetrasodium etidronate*
- sequestrant, pigments**  
*Alcosperse® 149; Alcosperse® 602-N*
- sequestrant, polymerization**  
*Pentasodium pentetate*
- sequestrant, polymers**  
*Calcium disodium EDTA*
- sequestrant, pretreatment: mech. pulp before bleaching**  
*Masquol® DTPA Liq.*
- sequestrant, process waters**  
*Pentasodium aminotrimethylene phosphonate*
- sequestrant, pulp bleach stabilization**  
*Sodium diethylenetriamine penta (methylene phosphonate)*
- sequestrant, pulp bleaching**  
*Briquest® 543-33S*
- sequestrant, pulp/paper**  
*Briquest® 543-45AS; Calcium disodium EDTA; Pentasodium pentetate*
- sequestrant, pulp/paper bleaching**  
*Dequest® 2000LC; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; Ethylenediaminetetra (methylene phosphonic acid); Sodium diethylenetriamine penta (methylene phosphonate); SPE 9528; Tetrasodium etidronate*
- sequestrant, pulp/paper chemicals**  
*Aquacid-105 EX*
- sequestrant, pulp/paper chems.**  
*Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX*
- sequestrant, pulp/paper processing**  
*Nitrilotriacetic acid*
- sequestrant, pulp: pre-bleaching**  
*Tetralon®*
- sequestrant, water demineralization**  
*PVM/MA copolymer*
- sequestrant, water softening**  
*Tetrasodium EDTA*
- sequestrant, water treatment**  
*Aquacid-105 EX; Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX; Briquest® 543-33S; Briquest® 543-45AS; Briquest® ADPA-60AW; Calcium disodium EDTA; Dequest® 2016 D Powder; Dequest® 2041; Dequest® 2046; Dequest® 2066A; Dequest® 2066C2; Dequest® 2086; Dequest® 3000S; Dequest® 7000; Empiphos STP; Empiphos STP/1L; Empiphos STP/1P; Empiphos STP/2P; Empiphos STP/D; Empiphos STP/D16; Empiphos STP/DMST; Empiphos STP/E; Empiphos STP/L16; Empiphos STP/M; Empiphos STP/MST; Empiphos STP/N; Empiphos STP/P; Etidronic acid; Nitrilotriacetic acid; Pentasodium*

- pentetate; Potassium hexamethylene diamine tetra (methylene phosphonate); Potassium phosphate dibasic; Potassium tripolyphosphate; Sodium diethylenetriaminepentakis (methylene phosphonate); Sodium hexameta-phosphate; SPE 9528; Tetrasodium etidronate
- setting agent, industrial processing**  
Polyamide/epichlorohydrin polymer
- setting agent, protein: paper/paperboard, aq./fatty food-contact**  
Paraformaldehyde
- setting agent, wastewater**  
Polyamide/epichlorohydrin polymer
- settling agent**  
Aerosol® C-61
- settling agent, paper**  
Delfloc® 763
- settling agent, pulp/paper**  
Pura-Chem®
- shear-sensitive structure, aq. formulations**  
Sodium magnesium fluorosilicate
- sheet property improver, paper surface applic.**  
Microlube™ N
- short stop, polymerization: SBR**  
Thiostop® N
- silica activation, effluent**  
Sulfur dioxide
- silica activation, water treatment**  
Sulfur dioxide
- silica removal**  
Sodium aluminate
- silicone RTV systems, raw material**  
Dimethiconol
- size press sol'ns.**  
Geo FM® DF-122; Geo FM® DF-122-NS
- size press, board**  
Coatmaster® K50F
- size press, paper**  
Coatmaster® K50F; Coatmaster® K500
- size press, paperboard**  
Coatmaster® K500
- size presses**  
Bebond® 8032; Bebond® 8200; Blankophor® P150 Liq.; Blankophor® P Liq.; Coatmaster® K61F; Douglas® Starches; Dur-O-Set® E-623; Dur-O-Set® E-646; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33; DynaCoat™ XA; DynaCoat™ XC; Luredur® JP 2; Mirafilm™; Pro-Cote®; Sunkote® 460; Synthamin 3000; Vanzyme® Powd.; Vinac® 828; X-Link 2833; X-Link 2893
- sizes**  
Sodium borate
- sizes, paper**  
Amylase; 1-Butene; C20-24 alpha olefin; C24-28 alpha olefin; C30 alpha olefin; Dodecene-1; Ethyl crotonate; 2-(N-Ethylperfluorooctanesulfonamido) ethyl acrylate; Hydroxyethylcellulose; Magnesium sulfate anhydrous; Methacrylamidopropyltrimethylammonium chloride; Polyvinyl acetate; Potassium aluminate; Rosin, maleated; Sodium phosphoaluminate
- sizing**  
Dimethyl hydantoin-formaldehyde polymer; Dimethylol urea; Gelatin
- sizing agent**  
Acrylic acid/acrylamide copolymer; Methylcellulose; Sodium tallow sulfate
- sizing agent, acid papermaking**  
NeuRoz® 540
- sizing agent, alkaline**  
Polymix® PR 971 L
- sizing agent, alkaline fine paper**  
LASAR™
- sizing agent, alkaline paper**  
ASA 100; ODSA
- sizing agent, alkaline papermaking**  
Bersize® 6900; Bersize® 6918; Sugum 300 NS
- sizing agent, alkaline reactive: papermaking systems**  
NovaSize® AKD
- sizing agent, alkaline reactive: papermaking systems, alkaline**  
NovaSize® ASA
- sizing agent, alkaline reactive: papermaking systems, neutral**  
NovaSize® ASA
- sizing agent, alkaline reactive: recycled OCC**  
NovaSize® AKD
- sizing agent, alkaline reactive: specialty grades**  
NovaSize® AKD
- sizing agent, bleached sulfate pulp**  
Plasmine® PLH-55
- sizing agent, board**  
Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® SI Liq.; Cartacol® XP Liq.
- sizing agent, calcium carbonate containing paper**  
AquaColl 30 CC; AquaColl 30 PA
- sizing agent, cardboard**  
AquaColl 30 CC; AquaColl 30 PA; AquaColl 300; AquaColl 400; AquaColl 433 S; AquaColl P 231; Super 50
- sizing agent, coating base**  
Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® SI Liq.; Cartacol® XP Liq.
- sizing agent, coating base paper**  
AquaColl 433 S; AquaColl P 231
- sizing agent, coatings**  
PenFilm™ Binder; Polyacrylamide
- sizing agent, deep colored paper**  
NeuRoz® 426
- sizing agent, fine paper**  
Accosize® 100 Synthetic Size
- sizing agent, food pkg.**  
AquaColl 300; AquaColl 400; AquaColl 433 S; AquaColl P 231; PenFilm™ Binder; Super 50
- sizing agent, ink jet printing paper**  
Cartacol® SI Liq.; Cartacol® XP Liq.; PenExcel™ Sizing Agent
- sizing agent, internal: acid papermaking systems**  
NovaPlus®; NovaPlus® HS
- sizing agent, internal: bleached paper**  
NovaFlo® 50; NovaFlo® HW; NovaSpers™
- sizing agent, internal: cardboard**  
Opticoll 23
- sizing agent, internal: dispersed fillers**  
Keydime® D Series
- sizing agent, internal: fine paper systems**  
Keydime® E Series
- sizing agent, internal: food pkg.**  
Opticoll 23
- sizing agent, internal: neutral papermaking**  
NeuRoz® 700; NovaPlus®; NovaPlus® HS
- sizing agent, internal: neutral pH range**  
Perglulin® 450/220; Perglulin® 450/240
- sizing agent, internal: paper**  
Bersize® 6409; Bersize® 6482; Keydime® A Series; Keydime® C Series; Keydime® D Series; Keydime® E Series; Malros®; Neutros®; Neutros® Extra; Opticoll 23; Perglulin® 450/280; Perglulin® K 418; Roscol®
- sizing agent, internal: paper, aq./fatty food-contact**  
NovaFlo® 50; NovaSpers™
- sizing agent, internal: paper/paperboard, water resist.**  
NovaSize, Dark Fortified; NovaSize, Dark Unfortified; NovaSize, Pale Fortified
- sizing agent, internal: paper: food-contact**  
Paracol® 802A
- sizing agent, internal: paperboard**  
Bersize® 6409; Bersize® 6482; Integral®; NovaFlo® 50; NovaFlo® HW; NovaSpers™; Opticoll 23
- sizing agent, internal: paperboard: food-contact**  
Paracol® 802A
- sizing agent, internal: papermaking**  
NeuRoz® XC-7; Ultra-pHase™
- sizing agent, internal: pulp/paper**  
Integral®
- sizing agent, internal: recycled fiber**  
Keydime® D Series; NeuRoz® 700
- sizing agent, internal: recycled fine paper**  
NovaPlus®; NovaPlus® HS
- sizing agent, internal: unbleached paper**  
NovaFlo® HW
- sizing agent, neutral papermaking**  
Bersize® 6900; Bersize® 6918; Sugum 300 NS; Sugum 300 WR
- sizing agent, neutral pH range**  
Ekoflock™
- sizing agent, OCC furnishes**  
NeuRoz® 426
- sizing agent, office stationery**  
Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® SI Liq.; Cartacol® XP Liq.
- sizing agent, offset printing paper**  
Cartacol® ASN Liq.; Cartacol® NP Liq.
- sizing agent, paper**  
Acintol® R Type S; Alcan Aluminum Sulphate Solid; Alcan Aluminum Sulphate Sol'n.; Alcoa® KB30; Alcoproof®; Alkenyl Succinic Anhydride C1618 (ASA); Aluminum sulfate; Ammonium alum; AquaColl 30 CC; AquaColl 30 PA; AquaColl 300; AquaColl 400; AquaColl 433 S; AquaColl P 231; Bersize® 6103; Bersize® 6155; Bersize® 6200; Bersize® 6205; Bersize® 6400; Bersize® 6900; Bersize® 6918; Candelilla (Euphorbia cerifera) wax; Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® SI Liq.
- sizing agent, paper**  
Cartacol® XP Liq.
- sizing agent, paper**  
Dextrin; Dimethicone; Donlar C-20C; Donlar C-30D; Donlar C-50D; Elvanol® 85-30; Elvanol® 85-82; Gluconal® GA-50; Gluconal® NG-C; Gohsenol; Gulftene® 4; Gulftene® 6; Gulftene® 8; Gulftene® 10; Gulftene® 12; Gulftene® 14; Gulftene® 16; Gulftene® 18; Gulftene® 20-24; Gulftene® 24-28; Gulftene® 30+; Hexadecenyl succinic anhydride; Koster Keunen Candelilla; Koster Keunen Ceresine; Koster Keunen Synthetic Candelilla; Maleic anhydride; Milldride® ODSA; Neodene® 12/14; Neodene® 14/16; Newpelt-1000; Octadecenyl succinic anhydride; Paracol® 404G; Paraffin; Pentasize 8; Pentasize 68; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; Pristerene 4909; Pristerene 4912; Pristerene 4913; Pristerene 4916; Pristerene 4931; Pristerene 4943; Pristerene 4945; Pristerene 4963; SMA® 1000; SMA® 2000; SMA® 3000; Sodium Alginate HV NF/FCC; Sodium Alginate LV; Sodium Alginate LVC; Sodium Alginate MV NF/FCC; Sodium aluminate; Styrene/acrylates copolymer; Styrene/MA copolymer; Sulfuric acid; Super 50; Tannic acid; Tylose® CBR Grades; Tylose® CR
- sizing agent, paper coatings**  
Prox®-Size C 902 E
- sizing agent, paper sticking**  
Prox®-Size C 902 E
- sizing agent, paper surface finishing**  
Cerol® M Liq.; Cerol® MN Liq.
- sizing agent, paper surface finishing: dry food-contact**  
Cerol® M Liq.
- sizing agent, paper/paperboard**  
Paraffin-rosin emulsion
- sizing agent, paper/paperboard surfaces: food-contact**  
Paracol® 802A
- sizing agent, paper/paperboard: aq./fatty food-contact**  
Alkenyl succinic anhydride

- sizing agent, paper/paperboard: aq./fatty foods contact**  
Dialkyl (C16-C18) carbamoyl chloride
- sizing agent, paper/paperboard: food pkg.**  
Paraffin-rosin emulsion
- sizing agent, paper: dry food-contact**  
Cartacol® ASN Liq.; Cartacol® NP Liq.
- sizing agent, paper: food pkg.**  
Aquacoll 30 CC; Aquacoll 30 PA
- sizing agent, paperboard**  
Alcoproof®; Bersize® 6103; Bersize® 6155; Bersize® 6200; Bersize® 6205; Bersize® 6400; Bersize® 6900; Bersize® 6918; Elvanol® 85-30; Elvanol® 85-82; Paracol® 404G
- sizing agent, papermaking**  
Accosize® 60R Cationic Starch; Aquapel® Reactive Size; Hanwet HW-96E; Harsize; NeuRoz® 426; Plasmine® N-750-P; Plasmine® PLH-50; Plasmine® PLH-55; Sequel™ ASA; Sugum 500; Sugum 700
- sizing agent, pulp/paper**  
Aquapac™
- sizing agent, recycled fiber**  
Cartacol® SI Liq.; Cartacol® XP Liq.
- sizing agent, recycled fiber furnish**  
Plasmine® PLH-55
- sizing agent, recycled paper**  
Aquacoll 30 CC; Aquacoll 30 PA; Aquacoll 433 S; Aquacoll P 231
- sizing agent, recycled paperboard**  
Prelude™
- sizing agent, size press paper**  
PenFilm™ Binder
- sizing agent, specialty food wrap, dry food-contact**  
Cartacol® SI Liq.
- sizing agent, specialty paper**  
Cartacol® NP Liq.; Cartacol® XP Liq.
- sizing agent, starches**  
Hanwet HW-96E
- sizing agent, surface: acid paper**  
DSP 15; DSP 70; DSP 80; XZ 26001.00; XZ 26005.00
- sizing agent, surface: acid papermaking, calender operations**  
Plasmine KN-500
- sizing agent, surface: acid papermaking, size presses**  
Plasmine KN-500
- sizing agent, surface: alkaline paper**  
DSP 15; DSP 70; DSP 80; XZ 26001.00; XZ 26005.00
- sizing agent, surface: alkaline papermaking, calender operations**  
Plasmine KN-500
- sizing agent, surface: alkaline papermaking, size presses**  
Plasmine KN-500
- sizing agent, surface: bleached fine paper**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: cardboard**  
Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425; Synthamin 3000; Synthamin 7000
- sizing agent, surface: checks**  
Piosafe 30
- sizing agent, surface: coated paper**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: coated paperboard**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: coating holdout**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: coatings**  
Prox®-Size A 925 E
- sizing agent, surface: communication paper**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: copier toner adhesion**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: copy paper**  
Laserbond; NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: copying paper**  
Synthamin 7000
- sizing agent, surface: digital printing applics.**  
Sequatone® 2000
- sizing agent, surface: fine paper**  
Bersize® 6385
- sizing agent, surface: food pkg.**  
Synthamin 3000
- sizing agent, surface: frictionize linerboard**  
Bindzil® 15/500; Bindzil® 30/80; Bindzil® 30/220; Bindzil® 30/360; Bindzil® 30NH/220; Bindzil® 40/130; Bindzil® 40/220; Bindzil® 50/80; Bindzil® 305; Bindzil® CAT80; Bindzil® F45
- sizing agent, surface: graphic paper**  
Perglulin® A 200; Perglulin® A 281; Styrene/methacrylate copolymer; Synthamin 3000; Synthamin 7000
- sizing agent, surface: highly filled alkaline paper**  
DynaCoat™ XC
- sizing agent, surface: highly loaded press circulations**  
Perglulin® 204; Perglulin® 395
- sizing agent, surface: ink jet paper**  
Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425; NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD; Synthamin 7000
- sizing agent, surface: laser paper**  
Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425; Laserbond; Synthamin 7000
- sizing agent, surface: laser printing**  
Uniq-Print® 8000
- sizing agent, surface: neutral paper**  
DSP 15; DSP 70; DSP 80; XZ 26001.00; XZ 26005.00
- sizing agent, surface: offset paper**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: offset printing on paper**  
Basoplast® 250 D
- sizing agent, surface: paper**  
Basoplast® 265 D; Basoplast® 335 D; Bersize® 6385; Bersize® 6500; DynaCoat™ XA; DynaCoat XL; Graphsize®; Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425
- sizing agent, surface: paper**  
Jetsize® Emulsion
- sizing agent, surface: paper**  
Laserbond; Paracol® 404C; Perglulin® K 333; Perglulin® K 485; Synthamin 3000; Synthamin 7000; Tylose® C, CB Series
- sizing agent, surface: paper coatings**  
NC Size C-25
- sizing agent, surface: paper impregnation**  
NC Size C-25
- sizing agent, surface: paper ink jet printing**  
Basoplast® 400 DS
- sizing agent, surface: paper sticking**  
Prox®-Size A 925 E
- sizing agent, surface: paper toner adhesion**  
Basoplast® 400 DS
- sizing agent, surface: paper, aq./fatty food-contact**  
Styrene/MA copolymer, sodium salt
- sizing agent, surface: paper: food-contact**  
Styrene/acrylic copolymer ammonium salt
- sizing agent, surface: paperboard**  
Bersize® 6385; Bersize® 6500; Integral®; Paracol® 404C
- sizing agent, surface: papermaking**  
Cyprus® 310 Surface Size; PSA-28; PSA-34
- sizing agent, surface: papermaking, acid/alkaline**  
Styrene/acrylic copolymer ammonium salt
- sizing agent, surface: photocopying**  
Uniq-Print® 8000
- sizing agent, surface: printing paper**  
Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425; Suresize®; Synthamin 7000
- sizing agent, surface: pulp/paper**  
Integral®
- sizing agent, surface: raw paper**  
Perglulin® K 175 EP; Perglulin® K 440
- sizing agent, surface: recycled fiber linerboard**  
Bindzil® 15/500; Bindzil® 30/80; Bindzil® 30/220; Bindzil® 30/360; Bindzil® 30NH/220; Bindzil® 40/130; Bindzil® 40/220; Bindzil® 50/80; Bindzil® 305; Bindzil® CAT80; Bindzil® F45
- sizing agent, surface: safety paper**  
Piosafe 30
- sizing agent, surface: security paper**  
Piosafe 30
- sizing agent, surface: size press paper coatings**  
Sequapel® 1415
- sizing agent, surface: size presses**  
Sequapel® 403; Sequapel® 409; Sequapel® 414; Sequapel® 417; Sequapel® NS; Sunsize® 4133; Sunsize® 4134
- sizing agent, surface: stock certificates**  
Piosafe 30
- sizing agent, surface: total office paper**  
Perglulin® A 281
- sizing agent, surface: uncoated paper**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: uncoated paperboard**  
NovaCote™ 1905; NovaCote™ 1933; NovaCote™ 1936; NovaCote™ 2000; NovaCote™ SCD
- sizing agent, surface: unsized paper**  
DSP 15; DSP 70; DSP 80; XZ 26001.00; XZ 26005.00
- sizing agent, surface: writing paper**  
Intacol S-22; Intacol S-24; Intacol S-26; Intacol S-28; Intacol S-2240; Intacol S-2252; Intacol S-2425; Suresize®
- sizing agent, unbleached sulfate pulp**  
Plasmine® PLH-55
- sizing agent, virgin linerboard**  
NeuRoz® 426
- sizing agent, water treatment**  
Polyacrylamide
- sizing agent, wax: paper**  
Starwax® 100
- sizing agent, wet-end: gravure printing on paper**  
Basoplast® 250 D
- sizing agent, wet-end: paper**  
Basoplast® 265 D; Basoplast® 335 D
- sizing agent, white paper**  
NeuRoz® 426
- sizing agent, wood-containing paper grades**  
Keydime® NU
- sizing auxiliary, papermaking**  
Suntorl WP
- sizing fiber**  
Araldite® PY 323; Araldite® PZ 3917; Araldite® XU 3900; Araldite® XU 3903



Polysynth SI 40  
**slip agent, PVAc**  
 Shamrock Hydrocer EC 98  
**slip agent, PVC**  
 Shamrock Hydrocer EC 98  
**slip agent, PVdC**  
 Shamrock Hydrocer EC 98  
**slip agent, solvent coatings**  
 Aldo® MS LG FG  
**slip agent, solventless coatings**  
 Aldo® MS LG FG  
**slip agent, waxes**  
 Ethylene dioleamide  
**slip control agent, paper treatment**  
 Snowtex 20L; Snowtex 40; Snowtex 50;  
 Snowtex C; Snowtex N; Snowtex O; Snowtex  
 OL; Snowtex ST-UP  
**slip control, paper treatment**  
 Snowtex ST-ZL  
**slipcoat, gravure: cigarette inner liner pkg.  
 applic.**  
 Eastek 1200  
**smoke suppressant, coatings**  
 Hydrax™ H-312; Hydrax™ H-470; Hydrax™ H-  
 490; Hydrax™ H-550; Hydrax™ H-636;  
 Hydrax™ H-910; Micral® 916; Micral® 932;  
 SB-332; SB-805  
**smoke suppressant, elastomers**  
 Hydral® 716  
**smoke suppressant, paper**  
 Hydrax™ H-312; Hydrax™ H-470; Hydrax™ H-  
 490; Hydrax™ H-550; Hydrax™ H-636;  
 Hydrax™ H-910; Micral® 532; SB-332; SB-805  
**smoke suppressant, paper coatings**  
 Micral® 916; Micral® 932  
**smoke suppressant, paper fillers**  
 Micral® 916; Micral® 932  
**sodium dithionite generator, bleaching: mech.  
 pulp**  
 Borino®  
**soft component, emulsions**  
 Mhoromer® AM 107  
**soft component, paper**  
 Mhoromer® AM 107  
**softener**  
 Ajidew A-100; Ajidew N-50; Ajidew SP-100;  
 Crisanol FH-1400; DeMULS PSTS-65; DeMULS  
 SML; Dialkyl dimethyl ammonium chloride;  
 Diethanolamine; Ethyl crotonate; Hartosoft™  
 333CP; Imidazoline 18OH; Imidazoline SOH;  
 Incroquat SDQ-25; Isostearyl ethylimidonium  
 ethosulfate; Isostearyl hydroxyethyl imidazo-  
 line; Lauryl hydroxyethyl imidazoline; LX-  
 685®; LX-125; LX-782®; Methyl rosinate;  
 Naphthenic oil; PCA; PEG-60 castor oil; PEG-  
 80 castor oil; PEG-12 dilaurate; PEG-12  
 dioleate; PEG-14 oleate; PEG-16 oleate; PEG-8  
 sesquioleate; Polyethylene glycol; Polysorbate  
 60; Sodium castorate; Sodium hydroxide;  
 Sorbitan tristearate; Stearamine; Steartrimo-  
 nium chloride; Triethyl citrate; Triethylenetetra-  
 mine; Trisodium NTA; Zonarez® A-25  
**softener, absorbent paper**  
 Cynol® 760 Softener  
**softener, cellulose: paper industry**  
 Urea  
**softener, coatings**  
 Glycerol rosinate  
**softener, EVA**  
 Abalyn®  
**softener, fiber**  
 Alkamuls® S-8; DeTHOX ACID S-8  
**softener, handtoweling crepe**  
 Cartaflex® K Liq.; Cartaflex® RW Liq.  
**softener, hydrophilic**  
 TEGOPREN® 5863  
**softener, hydrophilizing: wadding**  
 Prox®-Amine CH 66  
**softener, hydrophilizing: wet-end paper**  
 Prox®-Amine CH 66

**softener, paper**  
 Adogen® 412; Arquad® 2C-75; Arquad® 12-50;  
 Arquad® 16-50; Arquad® 18-50; Arquad® C-50;  
 Arquad® T-27W; Avitone® A; Carsoquat®  
 SDQ-25; Chemax CO-16; Chemax CO-30;  
 Chemax CO-40; Chemax HCO-5; Chemax  
 HCO-16; Chemax HCO-25; DeSonic™ 6C;  
 Hartosoft™ 1500-78; Hartosoft™ 1540B1; PEG-  
 180; PEG-6 castor oil; PEG-16 castor oil; PEG-  
 25 castor oil; PEG-30 castor oil; PEG-36 castor  
 oil; PEG-40 castor oil; PEG-200 castor oil;  
 PEG-5 hydrogenated castor oil; PEG-16  
 hydrogenated castor oil; PEG-25 hydrogenated  
 castor oil; PEG-200 hydrogenated castor oil;  
 PEG-5 laurate; Petrolatum RPB; Pluracol®  
 E400 NF; Pluracol® E600 NF; Pluracol®  
 E1450; Pluracol® E2000; Pluracol® E4500;  
 Pluracol® E8000; Pluriol® E 200; Pluriol® E  
 1500; Pluriol® E 4000; Pluriol® E 6000; Pluriol®  
 E 8000; Pluriol® E 9000; Potassium acetate;  
 Rhodasurf® E 400; Rhodasurf® E 600;  
 Schercozoline I; Schercozoline L; Schercozo-  
 line O; Schercozoline S; Tech Pet F™  
**softener, paper coatings**  
 Liponic 70-NC; Liponic 76-NC; Nevpene® 9500;  
 Prox®-Lube SN 5070; W.G.S. Hydrogenated  
 Fish Glyceride 117  
**softener, paper deitching**  
 Adekamine 4DAC-80; Adekamine 4DAC-85;  
 Adekamine 4MAC-30; Adekamine ADG-30;  
 Adekamine E Series; Adekamine LDM;  
 Adekamine MD-30; Adekamine MT-50;  
 Adekamine PMS-100  
**softener, paper sticking**  
 Prox®-Lube SN 5070  
**softener, paper tissue**  
 Berocell® 564; PEG-4; Solan E; Solan X  
**softener, paper wadding**  
 Prox®-Amine CE 9122 AL  
**softener, papermaking**  
 Britol® 6NF; Britol® 7NF; Britol® 9NF; Britol®  
 20USP; Britol® 35USP; Britol® 50USP  
**softener, pkg.**  
 Petrolatum RPB; Tech Pet F™  
**softener, polyisobutylene**  
 Abalyn®  
**softener, polyurethane foams**  
 PEG-36 castor oil  
**softener, PS**  
 Abalyn®  
**softener, pulp/paper**  
 Nissan Cation MA; Nissan Cation SA;  
 Paxsorbate 20; Paxsorbate 60; Paxsorbate 80;  
 Polypax 1C; Polyquat 2 C; Polyquat 188;  
 Polyquat PR; Polysynth SI 40  
**softener, pulp: disposable diapers**  
 AMV 100  
**softener, pulp: facial tissue**  
 AMV 100  
**softener, pulp: toweling**  
 AMV 100  
**softener, PVC**  
 Coumarone/indene resin  
**softener, SBR**  
 Abalyn®; Acintol® R Type S  
**softener, tech. paper**  
 1,2,6-Hexanetriol  
**softener, tissue**  
 Cartaflex® RW Liq.  
**softener, tissue crepe**  
 Cartaflex® K Liq.  
**softener, tissue paper**  
 Ablupol PD100; Ablusol PD100; Berocell® 596;  
 Burcosoft LEQ; Cynol® 760 Softener; ProSoft™;  
 Qemidink 8002; Qemisoft 8075; Qemisoft 8100;  
 SanSoft™  
**softener, waste treatment**  
 Sodium carbonate  
**softener, water treatment**  
 Calcium hydroxide; Calcium oxide; Sodium

carbonate; Sodium phosphate dibasic  
 anhydrous  
**softener, water: papermaking**  
 DePEG 200; DePEG 300; DePEG 400; DePEG  
 600  
**softener, wet-end paper: wadding**  
 Prox®-Amine CH 65  
**softener, wet-strength paper**  
 DePEG 30-CO; DePEG 40-CO; DeSonic™ 30C;  
 DeSonic™ 36C; DeSonic™ 40C; DeSonic™  
 54C; PEG-54 castor oil  
**solids removal, influent/effluent waters**  
 Bufloc® 5551; Bufloc® 5554  
**sol'n. coatings, paperboard**  
 Citroflex® A-4  
**solubilizer**  
 Aerosol® 22; Aerosol® MA-80; Calimulse PRS;  
 Cetareth-20; Ceteth-20; Coco-betaine; C9-11  
 pareth-6; C9-11 pareth-8; C9-11 pareth-12;  
 C12-15 pareth-5; C12-15 pareth-10; C12-15  
 pareth-12; Crillet 1 HP; Crillet 1 NF; Crillet 2;  
 Crillet 31; 2-Decyl-1-tetradecanol; DePEG 200;  
 DePEG 300; DeWET SDO-70PG; DeWET SDO-  
 75E; Disponil® O 250; Eldorado FCD-142; EO/  
 PO block polymer or copolymer; Glycerol  
 caprate; Glycerol caprylate; Glycerol cocoate;  
 Isopropyl myristate; Isoundeceth-6;  
 Isoundeceth-12; Marlican®; Monawet MT-70;  
 Monawet SNO-35; Nonoxynol; Nonoxynol-55;  
 Nonyl nonoxynol-100; Octoxynol-12;  
 Octyldodecanol; Oleth-15; Paxsorbate 20;  
 Paxsorbate 60; Paxsorbate 80; PEG-32; PEG-5  
 castor oil; PEG-8 castor oil; PEG-15 castor oil;  
 PEG-60 castor oil; PEG-80 castor oil; PEG-20  
 corn glycerides; PEG-60 corn glycerides; PEG-  
 32 dilaurate; PEG-6 dioleate; PEG-20 dioleate;  
 PEG-32 dioleate; PEG-20 distearate; PEG-32  
 distearate; PEG hydrogenated castor oil; PEG-  
 75 lanolin; PEG-150 lanolin; PEG-4 laurate;  
 PEG-8 laurate; PEG-12 laurate; PEG-32  
 laurate; PEG-12 oleate; PEG-20 oleate; PEG-32  
 oleate; PEG-75 oleate; PEG-40 sorbitan  
 hexaoleate; PEG-32 stearate; Pluriol® E 200;  
 Polysorbate 60; Rewopal® HV 9; Rewopal®  
 HV 25; Rhodacal® 3594; Rhodacal® DS/4-E25;  
 Rhodapon® UB/E-30; Rhodapon® UB/E-N;  
 Sorbitan laurate; Steareth-2; Surfonic® NB-307;  
 Surfonic® NB-407; Surfonic® NB-557;  
 Surfonic® OPB-407; Trideceth-8; Trideceth-15;  
 Trideceth-18; Trideceth-20; Triisopropanolamine  
**solubilizer, alkylaryl sulfonates**  
 DeTHOX TDA-15  
**solubilizer, aq./alcoholic systems**  
 PEG-20 glycerol laurate  
**solubilizer, aq./alcoholic systems**  
 Solan E; Solan X  
**solubilizer, bleaching**  
 Rhodafac® BG-510  
**solubilizer, coatings**  
 C12-14 pareth-23; C16-18 pareth-20; C16-18  
 pareth-31; C16-18 pareth-33; C16-18 pareth-36;  
 C16-18 pareth-60; Glycerol ricinoleate;  
 Imbentin-AG/124S/230 G; Imbentin-AG/168S/  
 200 G; Imbentin-AG/168S/250 G; Imbentin-AG/  
 168S/300 G; Imbentin-AG/168S/330 G;  
 Imbentin-AG/168S/360 G; Imbentin-AG/168S/  
 500 G; Imbentin-AG/168S/600 G; Imbentin-AG/  
 168S/800 G; Imbentin-C/91/080 OFA; Imbentin-  
 C/91/120; Imbentin-C/135/200; Imbentin-DE/  
 300; Imbentin-DT/250; Imbentin-EAM/300;  
 Imbentin-N/200 80%; Imbentin-N/300 G;  
 Imbentin-N/400 G; Imbentin-N/600 G 50%;  
 Imbentin-OAM/200; Imbentin-POA/220 6065 G;  
 Imbentin-POA/220 G; Imbentin-POA/310 G;  
 Imbentin-POA/800 G; Imbentin-SAM/250;  
 Imbentin-SAM/400; Imbentin-T/150; Imbentin-T/  
 400 G; Imbentin-TAM/200 N; Imbentin-TAM/350;  
 PEG-8 oleate; PEG-25 stearamine; PEG-35  
 tallowamine; PEG-25 tallow aminopropylamine;  
 Polyacrylamide



**solubilizer, colorants**

Polysorbate 21

**solubilizer, deinking pulp/paper**

Eldorado ED-550

**solubilizer, detergents**

Methyl acid phosphate

**solubilizer, dust control**Volpo C2; Volpo C20; Volpo CS2; Volpo CS50;  
Volpo L3; Volpo N20; Volpo T5; Volpo T10;  
Volpo T15**solubilizer, dye: carbon paper coatings**

Armid® 18; Stearamide

**solubilizer, emulsion polymerization**C12-14 pareth-23; C16-18 pareth-20; C16-18  
pareth-31; C16-18 pareth-33; C16-18 pareth-36;  
C16-18 pareth-60; DeWET SDTD-70; Imbentin-  
AG/124S/230 G; Imbentin-AG/168S/200 G;  
Imbentin-AG/168S/250 G; Imbentin-AG/168S/  
300 G; Imbentin-AG/168S/330 G; Imbentin-AG/  
168S/360 G; Imbentin-AG/168S/500 G;  
Imbentin-AG/168S/600 G; Imbentin-AG/168S/  
800 G; Imbentin-C/91/080 OFA; Imbentin-C/91/  
120; Imbentin-C/135/200; Imbentin-N/200 80%;  
Imbentin-N/300 G; Imbentin-N/400 G; Imbentin-  
N/600 G 50%; Imbentin-POA/220 6065 G;  
Imbentin-POA/220 G; Imbentin-POA/310 G;  
Imbentin-POA/800 G; Imbentin-T/150; Imbentin-  
T/400 G; Monawet MB-45; Monawet MO-70;  
Nonoxynol-15; Nonyl nonoxynol-70; PEG-40  
sorbitan tetraoleate; PEG-35 tallowamine; PEG-  
25 tallow aminopropylamine; Plonon 102;  
Plonon 104; Plonon 201; Plonon 204; Plonon  
208; Polysorbate 20; Polysorbate 61;  
Polysorbate 81; PVM/MA copolymer;  
Rhodasurf® L-25; Surfonic® DNP-700;  
Surfonic® DNP-1000; Surfonic® DNP-1500;  
Surfonic® N-200; Surfonic® N-300; Surfonic®  
N-400; Surfonic® N-1000; Surfonic® NB-307;  
Surfonic® NB-407; Teric™ N8; Teric™ N9;  
Teric™ N10; Teric™ N12; Teric™ N13; Teric™  
N15; Teric™ N30; Wayfos® D-10N**solubilizer, emulsion polymerization: SBR**

Aerosol® 18

**solubilizer, emulsion polymerization: vinyl**

chloride

Aerosol® 18

**solubilizer, emulsions**

Rhodasurf® L-25

**solubilizer, nonionic surfactants**

DePHOS RA-40

**solubilizer, o/w emulsions**

DeWET SDTD-70

**solubilizer, oil-based systems**

Isopropylamine dodecylbenzenesulfonate

**solubilizer, oil-soluble dyestuffs**

Oleamide

**solubilizer, paper**Alkamuls® EL-620; Carsonon® TD-10; Chemax  
DNP-8; Chemax DNP-15; Chemax DNP-18;  
Chemax DNP-150; Chemax DNP-150/50;  
Chemax NP-1.5; Chemax NP-4; Chemax NP-  
6; Chemax NP-9; Chemax NP-10; Chemax  
OP-10; Chemax OP-30/70; C12-14 pareth-23;  
C16-18 pareth-20; C16-18 pareth-31; C16-18  
pareth-33; C16-18 pareth-36; C16-18 pareth-60;  
Meroxapol 108; Meroxapol 171; Meroxapol 172;  
Meroxapol 174; Meroxapol 178; Meroxapol 251;  
Meroxapol 252; Meroxapol 254; Meroxapol 255;  
Meroxapol 258; Meroxapol 311; Meroxapol 312;  
Meroxapol 314; Nonoxynol-15; Nonyl  
nonoxynol-8; Nonyl nonoxynol-18; Octowet  
70A; Oleth-2; PEG-20 castor oil; PEG-26 castor  
oil; PEG-180 castor oil; PEG-25 stearamine;  
PEG-35 tallowamine; PEG-25 tallow aminopro-  
pylamine; Plonon 102; Plonon 104; Plonon 201;  
Plonon 204; Plonon 208; Pluronic® L10;  
Polyglyme; PVM/MA copolymer; Rewopol®  
SBDO 70; Servirox® OEG 55; Servirox® OEG  
90; Servirox® OEG 90/50; T-Det® C-40;  
Tetronic® 90R4; Trideceth-10**solubilizer, paper auxiliary**

EO/PO ethylenediamine block copolymer

**solubilizer, paper coating mixes**

Pogol® 600

**solubilizer, paper coatings**Jarcot™ I-20; Monawet MB-45; Ucon® 50-HB-55;  
Ucon® 50-HB-100; Ucon® 50-HB-170; Ucon®  
50-HB-260; Ucon® 50-HB-400; Ucon® 50-HB-  
660; Ucon® 50-HB-2000; Ucon® 50-HB-3520;  
Ucon® 50-HB-5100; Ucon® 75-H-450; Ucon®  
LB-65; Ucon® LB-135; Ucon® LB-165; Ucon®  
LB-285; Ucon® LB-385; Ucon® LB-525; Ucon®  
LB-625; Ucon® LB-1145; Ucon® LB-1715;  
Ucon® LB-3000**solubilizer, paper deresination**

Rhodafac® BG-510

**solubilizer, paper finishes**

Rhodasurf® L-4; Rhodasurf® L-25

**solubilizer, papermaking**Imbentin-AG/124S/230 G; Imbentin-AG/168S/200  
G; Imbentin-AG/168S/250 G; Imbentin-AG/168S/  
300 G; Imbentin-AG/168S/330 G; Imbentin-AG/  
168S/360 G; Imbentin-AG/168S/500 G;  
Imbentin-AG/168S/600 G; Imbentin-AG/168S/  
800 G; Imbentin-C/91/080 OFA; Imbentin-C/91/  
120; Imbentin-C/135/200; Imbentin-DE/300;  
Imbentin-DT/250; Imbentin-EAM/300; Imbentin-  
N/200 80%; Imbentin-N/300 G; Imbentin-N/400  
G; Imbentin-N/600 G 50%; Imbentin-OAM/200;  
Imbentin-POA/220 6065 G; Imbentin-POA/220  
G; Imbentin-POA/310 G; Imbentin-POA/800 G;  
Imbentin-SAM/250; Imbentin-SAM/400;  
Imbentin-T/150; Imbentin-T/400 G; Imbentin-  
TAM/200 N; Imbentin-TAM/350; Meroxapol 105;  
Poly-Tergent® E-17A; Poly-Tergent® E-17B;  
Poly-Tergent® E-25B; Volpo C2; Volpo C20;  
Volpo CS2; Volpo CS50; Volpo L3; Volpo N20;  
Volpo T5; Volpo T10; Volpo T15; Wayfos® D-  
10N**solubilizer, pigment dispersion**

DeWET SDTD-70

**solubilizer, polymerization**Polysorbate 40; Polysorbate 65; Sorbitan  
sesquioleate**solubilizer, polymers**Surfonic® NB-307; Surfonic® NB-407; Volpo T10;  
Volpo T15**solubilizer, proteins**

Octoxynol

**solubilizer, pulp/paper**Adekanol 25R-1; Adekanol 25R-2; Adekanol F-  
68; Adekanol F-88; Adekanol F-108; Adekanol  
F-127; Adekanol L-31; Adekanol L-34; Adekanol  
L-44; Adekanol L-61; Adekanol L-62; Adekanol  
L-64; Adekanol L-71; Adekanol L-72; Adekanol  
L-101; Adekanol L-121; Adekanol L-122;  
Adekanol P-84; Adekanol P-85; Adekanol P-  
103; Glypax 200; Glypax 400; Glypax 600;  
Glypax 1000; Glypax 3000; Glypax 4000;  
Glypax 6000; Nonipax AAO; Nonipax OP 10;  
Nonipax X 100; Nonipax X 150; Nonyl  
nonoxynol-70; Paxogen COB; Paxonic CO 40;  
Paxonic CO 60; Paxosolv PC; Paxosorbate 20;  
Paxosorbate 60; Paxosorbate 80; Pluronic®  
10R5; Polysorbate 65; Surfonic® DNP-700;  
Surfonic® DNP-1000; Surfonic® DNP-1500;  
Teric™ N6; Teric™ N8**solubilizer, pulping**

Pilot® SXS-40; Rhodafac® BG-510

**solubilizer, radiation-cured coatings**

Dimethylethanolamine

**solubilizer, resins**

Aminomethyl propanol; Hydrogen peroxide

**solubilizer, silicone emulsification**

Celath-2

**solubilizer, suspension polymerization**

DeWET SDTD-70; Monawet MO-70

**solubilizer, w/o emulsions**

DeWET SDTD-70

**solubilizer, water treatment**Methyl acid phosphate; Monawet MB-45;  
Monawet MO-70; Monawet MO-70R; PEG-4  
dilaurate; PEG-8 dioleate; PEG-6 distearate;  
Pluronic® 10R5; Polyacrylamide; Poly-  
Tergent® E-17A; Poly-Tergent® E-17B; Poly-  
Tergent® E-25B**solubilizer, wax emulsions**Imbentin-AG/124S/230 G; Imbentin-AG/168S/200  
G; Imbentin-AG/168S/250 G; Imbentin-AG/168S/  
300 G; Imbentin-AG/168S/330 G; Imbentin-AG/  
168S/360 G; Imbentin-AG/168S/500 G;  
Imbentin-AG/168S/600 G; Imbentin-AG/168S/  
800 G; Imbentin-C/91/080 OFA; Imbentin-C/91/  
120; Imbentin-C/135/200; Imbentin-N/200 80%;  
Imbentin-N/300 G; Imbentin-N/400 G; Imbentin-  
N/600 G 50%; Imbentin-POA/220 6065 G;  
Imbentin-POA/220 G; Imbentin-POA/310 G;  
Imbentin-POA/800 G; Imbentin-T/150; Imbentin-  
T/400 G**solubilizer, waxes**

DeTHOX TDA-8.5; Synperonic 13/9; Trideceth-14

**solvating agent**

Methoxy tripropylene glycol acrylate

**solvating agent, resin: paper coatings**

HB-40®

**solvent**n-Amyl alcohol; Bis(methylethyl)-1,1'-biphenyl;  
Bromine; n-Butyraldehyde; Crisanol FH-1400;  
Cyclohexanol; DBE-2, -2SPG; DBE-3; DBE-4;  
DBE-5; DBE-6; DBE-9; n-Decane; Decyl  
alcohol; Deodorized kerosene; Dimethyl  
formamide; Ethyl crotonate; Ethylenediamine;  
Exxsol® D 40; Exxsol® D 60; Exxsol® D 80;  
Exxsol® D 110; EZA®; Glyceryl caprylate;  
Glyceryl ricinoleate; 1,2,6-Hexanetriol;  
Hexylene glycol; Isobutyl alcohol; Isopar® G;  
Isopar® H; Isopar® K; Isopropyl myristate;  
Isopropyl palmitate; Laureth-9; Lumulse™  
GMO; Methyl ethyl ketone; N-Methyl-2-  
pyrrolidone; Mineral spirits; PEG-12; PEG  
dimethyl ether; PEG-20 oleate; Phenol;  
Phenylethylethanolamine; Pine (Pinus palustris)  
oil; Polyethylene glycol; Propylene glycol  
alginate; Sodium silicoaluminate; Sorbitan  
trioleate; Teric™ PEG 300; Ucon® 75-H-450;  
Uniplex 150; VM&P naphtha; Xylene**solvent cleaning**

Dodoxynol-7

**solvent, acid gases**

Diethylenetriamine; Tetraethylenepentamine

**solvent, alkaloids**

Isopropyl alcohol

**solvent, aq. coatings**

t-Butyl alcohol; 2-Ethylhexanol

**solvent, CAB**

Isopropyl acetate

**solvent, carbon paper**

Triolein

**solvent, carbonless copy paper**

Diisopropyl naphthalene; Marlican®

**solvent, carbonless copy paper: office forms**Penreco 2251 Oil; Penreco 2257 Oil; Penreco  
2259 Oil; Penreco 2260 Oil; Penreco 2263 Oil**solvent, casein**

Morpholine; Triethanolamine

**solvent, casting: food-contact films**

Tetrahydrofuran

**solvent, cellulose**Benzyltriethyl ammonium chloride; PPG-2 methyl  
ether**solvent, cellulose acetate**

TBP

**solvent, cellulose esters**Epichlorohydrin; Propyl alcohol; Tetrahydrofurfuryl  
alcohol**solvent, cellulose ethers**

Cyclohexane; Epichlorohydrin; Propyl alcohol

**solvent, cellulose resins**

Acetone

**solvent, cellulotics**

**solvent, cleaners**

*Diisobutyl phthalate; Isopropyl alcohol*  
**solvent, cleaners**  
*Alcohol; Isobutyl alcohol; Tetrahydrofurfuryl alcohol*  
**solvent, coatings**  
*Acetyl tributyl citrate; Acetyl triethyl citrate; Alcohol; 2-Butanol; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; Citroflex® 2; Citroflex® A-2; Citroflex® A-4; Cyclohexane; Dimethyl adipate; Dimethyl glutarate; Dimethyl succinate; Ethyl acetate; Ethylene glycol propyl ether; Isopropyl alcohol; Mineral spirits; Morcyl® 535; PEG-8 oleate; Vista LPA; Vista LPA-142; Vista LPA-210*  
**solvent, colorants**  
*Sodium hydroxide*  
**solvent, coupling; resin/water systems**  
*Ethylene glycol propyl ether*  
**solvent, degreasing**  
*Kerosene; Propyl alcohol*  
**solvent, diluent: carbonless copy paper**  
*Norpar® 12; Norpar® 13; Norpar® 15*  
**solvent, dyes**  
*Alcohol; Cyclohexanol; Diethylenetriamine; Ethoxydiglycol; 2-Ethylhexanol; Glyceryl dioleate; Hexyldecanol; Methyl alcohol; Morpholine; Polysorbate 60; PPG-2-buteth-3; PPG-3-buteth-5; PPG-5-buteth-7; PPG-7-buteth-10; PPG-9-buteth-12; PPG-12-buteth-16; PPG-20-buteth-30; PPG-28-buteth-35; PPG-33-buteth-45; PPG-5 butyl ether; PPG-9 butyl ether; PPG-15 butyl ether; PPG-18 butyl ether; PPG-22 butyl ether; PPG-24 butyl ether; PPG-33 butyl ether; PPG-40 butyl ether; PPG-53 butyl ether; PPG-2 methyl ether; Propylene carbonate; Tetradecene-1; Tetraethylenepentamine; Triacetin; Triethanolamine*  
**solvent, emulsions**  
*Erucamide*  
**solvent, extraction: mineral processing**  
*n-Amyl alcohol; Butyl alcohol*  
**solvent, fiber lubricants**  
*PD-25; PD-28*  
**solvent, food pkg. paper**  
*Citroflex® A-2*  
**solvent, food pkg. paperboard**  
*Citroflex® A-2*  
**solvent, high-boiling: cellulose**  
*PPG-3 methyl ether*  
**solvent, high-boiling: dyes**  
*PPG-3 methyl ether*  
**solvent, high-boiling: resins**  
*PPG-3 methyl ether*  
**solvent, industrial**  
*Methyl alcohol*  
**solvent, industrial cleaning**  
*1,1'-Biphenyl, butenylated; 1,1'-Biphenyl (1-methylethyl)*  
**solvent, lacquers**  
*Acetone; Butoxyethanol; Cyclohexane; Formic acid; Heptane; Isobutyl alcohol; Isopropyl acetate; Methyl ethyl ketone; PPG-2 methyl ether; Propylene glycol methyl ether acetate; Turpentine*  
**solvent, manila resin**  
*Methyl alcohol*  
**solvent, methacrylate resins**  
*Isopropyl acetate*  
**solvent, natural resins**  
*Triethyl citrate*  
**solvent, NC**  
*TBP*  
**solvent, oil-based systems**  
*Isopropylamine dodecylbenzenesulfonate*  
**solvent, oils**  
*Cyclohexane; Tetradecene-1*  
**solvent, paper**  
*Carbowax® PEG 300; Morcyl® 535; PD-23; PD-25; PD-28; Turpentine; Vista LPA-142; Vista LPA-170; Vista LPA-210*

**solvent, paper chems.**  
*Vista LPA*  
**solvent, paper coatings**  
*1,1'-Biphenyl, butenylated; 1,1'-Biphenyl (1-methylethyl); Jarcol™ I-16; Octyl stearate; Shell Sol B HT; Shell Tolu-Sol® W HT Solv.; Shell VM&P Naphtha HT*  
**solvent, paperboard**  
*PD-23*  
**solvent, PES: food-contact**  
*N-Methyl-2-pyrrolidone*  
**solvent, pigments**  
*Glyceryl dioleate; Propylene carbonate*  
**solvent, polar process**  
*Propylene carbonate*  
**solvent, polymerization**  
*Methyl ethyl ketone; Polysorbate 60; Tetrahydrofuran*  
**solvent, polymers**  
*Propylene carbonate*  
**solvent, polysulfide polymer/polyepoxy resins: food-contact**  
*Butoxyethanol; Butyl alcohol*  
**solvent, polysulfone: food-contact**  
*N-Methyl-2-pyrrolidone*  
**solvent, polyvinyl butyral**  
*Methyl alcohol*  
**solvent, PPO: food-contact**  
*Methyl alcohol; Toluene*  
**solvent, primary**  
*Reomol® TBP*  
**solvent, PS**  
*Diisobutyl phthalate; Isopropyl acetate*  
**solvent, pulp/paper**  
*Paxsolv PC; Polysorbate 60; Propylene glycol laurate*  
**solvent, pulping**  
*Pilot® SXS-40*  
**solvent, PVAc**  
*Diisobutyl phthalate; Pycal 94*  
**solvent, PVB**  
*Diisobutyl phthalate*  
**solvent, PVC**  
*Diisobutyl phthalate*  
**solvent, reductions**  
*Tetrahydrofuran*  
**solvent, resins**  
*Acetone; Butoxyethanol; Butyl alcohol; Cyclohexane; Dibutyl phthalate; Diethylenetriamine; Erucamide; Ethoxydiglycol; Isopropyl alcohol; N-Methyl-2-pyrrolidone; Morpholine; PPG-2 methyl ether; Propyl alcohol; Tetradecene-1; Tetraethylenepentamine; Tetrahydrofuran*  
**solvent, rosin**  
*Methyl alcohol*  
**solvent, S/B prod.**  
*Tetrahydrofuran*  
**solvent, selective**  
*N-Methyl-2-pyrrolidone*  
**solvent, selective: lubricating oil dearomatization**  
*Phenol*  
**solvent, shellac**  
*Butyl alcohol; Methyl alcohol; Triethanolamine*  
**solvent, soluble oils**  
*Butoxyethanol*  
**solvent, specialty**  
*Glycol distearate; Glycol stearate; Methyl soyate; Methyl stearate; Triacetin*  
**solvent, specialty coatings**  
*Vista LPA-170*  
**solvent, syn. fiber**  
*Propylene carbonate*  
**solvent, syn. resins**  
*Isopropyl acetate; TBP*  
**solvent, varnishes**  
*Acetone; Butoxyethanol; Butyl alcohol; Methyl ethyl ketone*  
**solvent, vinyl films**

*Methyl ethyl ketone*  
**solvent, water treatment**  
*PD-23; Vista LPA-142; Vista LPA-170; Vista LPA-210*  
**solvent, waterborne coatings**  
*Methyl alcohol*  
**solvent, waxes**  
*Acetone; Butyl alcohol; Cyclohexane; Dioctyl maleate; Erucamide; N-Methyl-2-pyrrolidone; Morpholine; Norpar® 15; Propyl alcohol; Turpentine*  
**solvent, wet felt continuous cleaning: brown paper machine press section**  
*Qemifeltwash 8020N*  
**solvent, wet felt continuous cleaning: linerboard paper machine press sections**  
*Qemifeltwash 8020N*  
**solvent, wet felt continuous cleaning: paper machine press sections**  
*Qemifeltwash 8020A; Qemifeltwash 8020N*  
**sorbent**  
*Diatomaceous earth*  
**spreading agent**  
*Hexyldecanol; Isolaureth-6; Isolaureth-10; Nonoxynol-30; PEG-6 dilaurate; PEG-12 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-2 laurate SE; PEG-32 laurate; PEG-4 oleate; PEG-32 oleate; PEG-75 oleate; PEG-200 oleate; PEG-32 stearate*  
**spreading agent, coatings**  
*Lodyne®; Silwet® L-77*  
**spreading agent, paper**  
*Oleth-2; Silwet® L-77*  
**spreading agent, paper deinking**  
*Tergitol® TMN-10*  
**spreading agent, papermaking**  
*Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B*  
**spreading agent, pulp processing**  
*C12-16 pareth-1; C12-16 pareth-2; C12-16 pareth-3; C12-16 pareth-5; C12-16 pareth-6; C12-16 pareth-7; C12-16 pareth-8; C12-16 pareth-11*  
**spreading agent, water treatment**  
*PEG-6 distearate; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Tergitol® TMN-10*  
**stabilizer**  
*Abex® EP-120; Ablunol NP30; Ablunol NP30 70%; Ablunol NP40; Ablunol NP40 70%; Ablunol NP50; Ablunol NP50 70%; Acumer® 9000; Acumer® 9141; Acumer® 9400; Acumer® 9460; Agefloc B50LV; BNX® 1010; Calcium stearate; Calcium stearoyl lactylate; Carbomer; Carbomer 910; Cuirol® RZ 80; DeIONIC OPE-30; DeIONIC OPE-40; DeMOX CAPO; DeMOX LAO; Dihydroxyethyl cocamine oxide; N,N'-Diphenyl-p-phenylenediamine; Disodium EDTA; Glyceryl distearate; Glyceryl ricinoleate; Harol D; Hydroquinone; Igepal® CO-897; Irganox® 1035; Isostearyl alcohol; KELACID®; KELCOLOID® DH; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; KELCOSOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Nonylphenol; Oleth-3; Oleth-23; PEG-80 sorbitan laurate; Polysorbate 61; Polysorbate 85; Polyvinyl acetate; Polyvinyl alcohol; Potassium tripolyphosphate; Propylene glycol distearate; Propylene glycol oleate; Sodium cocoate; Sodium polynaphthalene sulfonate; Sodium xylenesulfonate; Stabilizer 7000; Stannic chloride; Steareth-2; Styrene/MA copolymer; Styrene/PVP copolymer; Surfonic® DNP-140; T-De® C-40; Trideceth-3; Trideceth-6; Trideceth-10; Trideceth-12; Trideceth-20; Triolein; Trisodium EDTA; Trycol® 6970; Urea; Xanthan Gum; Zinc laurate; Zonarez® B-115;*

- Zonarez® B-125
- stabilizer, ABS**  
Santonox® TBMC; *Sodium rosinate*
- stabilizer, ABS polymerization**  
*Potassium rosinate*
- stabilizer, alkaline size emulsions**  
Astro® X Cationic Starches; Pencat® Cationic Starches
- stabilizer, alkaline sizes**  
Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- stabilizer, aq. emulsions**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- stabilizer, aq. pigment slurries: paper/paperboard, aq./fatty food-contact**  
*Xanthan gum*
- stabilizer, aq. slurries**  
Proxel® DL
- stabilizer, aq. systems**  
Tafigel® PUR 40
- stabilizer, barrier applics.**  
*Gum ghatti*
- stabilizer, bleaches**  
*Sodium diethylenetriaminepentakis (methylene-phosphonate)*
- stabilizer, blocked copolymers**  
Anox® PP18
- stabilizer, butadiene emulsion polymers**  
Rhodapon® LCP
- stabilizer, calcium stearate dispersions: paper/paperboard coatings, food-contact**  
*Decyl alcohol*
- stabilizer, calcium stearate dispersions: paper/paperboard, aq./fatty foods contact**  
*Calcium isostearate*
- stabilizer, cardboard**  
Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342
- stabilizer, cellulosics**  
*Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate*
- stabilizer, chlorinated organic compds.**  
*Dimethyl hexynol*
- stabilizer, chlorinated polymers**  
*Dimethylaminoethyl methacrylate*
- stabilizer, chlorine**  
*Sulfamic acid*
- stabilizer, clays**  
Polystar OM; Polystar OMP
- stabilizer, coating mixtures**  
Polysalt
- stabilizer, coating slurries**  
Polysalt
- stabilizer, coatings**  
Albrite® PA-75; *Gum ghatti*; Klucel® E; Klucel® L; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; *Sodium polyacrylate*
- stabilizer, colloidal dispersions**  
*PVP/acrylic acid copolymer*
- stabilizer, color**  
Alkanox® P-24; DePEG 600; Rhodasurf® E 600
- stabilizer, color: coatings**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, color: elastomers**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, color: polyesters**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, color: polymer processing**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, color: polyolefins**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, color: styrenics**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, copolymerizable**  
*Sodium allyloxy hydroxypropyl sulfonate*
- stabilizer, dimensional: paper wet-strength resins**  
Lumulse™ PEG 1000
- stabilizer, dryer felts: paper**  
Stabilizer 7000
- stabilizer, drying oils**  
Permanax™ PTBC; Santowhite® BBMC
- stabilizer, dyes**  
*Ethylenediamine*; Polystar OM; Polystar OMP; Surfonic® NB-307; Surfonic® NB-407
- stabilizer, elastomer**  
Irganox® 259
- stabilizer, electrostatic: emulsion polymerization**  
Abex® 2005
- stabilizer, emulsion**  
*Acrylates/C10-30 alkyl acrylate crosspolymer; Aldo® MS LG FG; Alkaterge®-E; Aluminum caprylate; Aluminum distearate; Aluminum myristates/palmitates; Aluminum stearates; Aluminum tristearate; Bentonite; Calcium carrageenan; Calcium lignosulfonate; Carbomer; Carbopol® 941; Carbopol® 1342; Carbopol® 1382; Carbopol® ETD 2020; Carboxymethylcellulose sodium; Carboxymethyl hydroxypropyl guar; Ceresin; Cetearath-50; Cetearyl alcohol; Ceteth-20; Cocamide; Cocamide DEA; C16-18 pareth-25; C16-18 pareth-50; Crill 3; Crill 4; Crillet 3; DeIONIC OPE-5; DePEG 40-CO; Dihydroxyethyl cocamine oxide; Ethylene/acrylic acid copolymer; Ethylene/VA copolymer; Ethyl hydroxymethyl oleyl oxazoline; Glyceryl stearate lactate; Gohsenol; Guar (Cyanopsis tetragonoloba) gum; Hydrogenated vegetable glyceride; Hydrogenated vegetable glycerides; Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl guar; Kessco® Cetyl Alcohol NF; Lignosite® AC; Liporol SP; Magnesium aluminum silicate; Methylcellulose; Microcrystalline wax; Montmorillonite; Myristyl alcohol; Oleth-9; Oleth-20; Ozokerite; Palmamide DEA; Paxonic CO 40; Paxonic CO 60; PEG-80 castor oil; PEG-2 laurate SE; PEG-2M; PEG-5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-90M; PEG-115M; PEG-20 stearamine; PEG-30 stearamine; Polyacrylic acid; Polyethylene; Polyisobutene; Polyvinyl acetate; Potassium carrageenan; Potassium sulfopropyl methacrylate; Potato (Solanum tuberosum) starch; PVM/MA copolymer; PVP; Sandarac (Callitris quadrivalvis) gum; Scogin™ HVF; Scogin™ LV; Scogin™ QH; Scogin™ QL; Scogin™ QM; Sodium thiocyanate; Stearamide DEA; Stearamide MEA; Stearyl alcohol; Synthetic beeswax; Teric™ 12M2; Teric™ 12M5; Teric™ 12M15; Teric™ 16M2; Teric™ 16M10; Teric™ 16M15; Teric™ 18M2; Teric™ 18M5; Teric™ 18M10; Teric™ 18M20; Teric™ 18M30; Trylox® 5906; Veegum® T*
- stabilizer, emulsion polymerization**  
*Ammonium nonoxynol-9 sulfate; Ammonium polyacrylate; Cetearyl alcohol; Ditridecyl sodium sulfosuccinate; Igepal® NP-9; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Nonoxynol-12; Nonyl nonoxynol-8; PVM/MA copolymer; Sipomer® COPS 1; Surfonic® DNP-700; Surfonic® DNP-1000; Surfonic® DNP-1500; Surfonic® NB-307; Surfonic® NB-407; Wayfos® D-10N*
- stabilizer, emulsion polymers**  
Rhodasurf® L-25
- stabilizer, emulsion: aq. systems**  
Van Gel® B
- stabilizer, emulsion: board surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV
- stabilizer, emulsion: dyestuffs**  
Lignosite® 823
- stabilizer, emulsion: emulsion polymerization**  
SPM
- stabilizer, emulsion: paper**  
Tetric® 90R4
- stabilizer, emulsion: paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV
- stabilizer, emulsion: pigments**  
Lignosite® 458; Lignosite® 823
- stabilizer, emulsion: pulp/paper**  
*Oleyl alcohol*
- stabilizer, emulsion: syn. latexes**  
DeIONIC OPE-30; DeIONIC OPE-40
- stabilizer, emulsion: water treatment**  
*Sodium lignosulfonate*
- stabilizer, emulsion: wax emulsions**  
Lignosite® 458; Lignosite® 823
- stabilizer, enzyme**  
Borax; Neobor®; *Sodium tetraborate pentahydrate*
- stabilizer, EPM**  
Santonox® TBMC
- stabilizer, epoxy resins**  
*Triethylenetetramine*
- stabilizer, fiber lubricants**  
Tergitol® 15-S-12; Triton® XL-80N
- stabilizer, fiber suspensions**  
Carbopol® 934
- stabilizer, films**  
*Sodium polyacrylate*
- stabilizer, foam**  
Acusol® 820; Acusol® 842; *Ammonium stearate; Capramide DEA; Cobalt acetate (ous); Cocamide; Cocamide DEA; Cocamidopropylamine oxide; DeIONIC OPE-12; Erucamide; Glyceryl stearate lactate; Glycol; Lauramide DEA; Myristamide DEA; Oleamide DEA; Polyquaternium-7; Sodium laureth sulfate; Trideceth-18*
- stabilizer, foam: coatings**  
Bubreak® 453; Triton® X-102
- stabilizer, foam: emulsions**  
KELZAN®; KELZAN® XC Polymer
- stabilizer, foam: paper**  
KELZAN®; KELZAN® XC Polymer
- stabilizer, foam: paper coatings**  
*Cocamidopropylamine oxide; DeMOX CAPO; DeMOX LAO; Rhodamox® LO*
- stabilizer, foam: papermaking**  
Triton® X-102
- stabilizer, foam: pigments**  
KELZAN®; KELZAN® XC Polymer
- stabilizer, foam: pulp/paper**  
Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PSLs; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; Paxnol TLS
- stabilizer, foam: sanitizers**  
Triton® X-102
- stabilizer, foam: SBR latex systems**  
*Ammonium stearate*
- stabilizer, food defoamers containing dimethicone**  
*Sodium polyacrylate*
- stabilizer, food pkg.**  
*Potassium oleate; Potassium stearate; Sodium stearate; Tetrasodium pyrophosphate; Zinc rosinate*
- stabilizer, food-contact polymers**  
*Pentaerythrityl distearate*
- stabilizer, food-grade polymers**  
*Boric acid; 4,4-Butylidenebis (6-t-butyl-m-cresol); Dicyandiamide; Loxiol® HOB 7121; Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Pentaerythrityl tetrakis [3-(3',5'-di-t-butyl-4-hydroxyphenyl) propionate]; Struktol® TR 044; 4,4-Thiobis-6-(t-butyl-m-cresol); Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate; Zinc palmitate; Zinc stearate*
- stabilizer, heat**  
A-C® 6; A-C® 6A; A-C® 8; A-C® 9, 9A, 9F; A-C® 15; A-C® 16; A-C® 316; A-C® 316A; A-C® 400; A-C® 400A; A-C® 405(T); A-C® 430; A-C® 540; A-C® 540A; A-C® 580; A-C® 617; A-C® 617A; A-C® 629; A-C® 629A; A-C® 1702; A-C® 6702; *C20-40 alcohols; Unilin® 425 Alcohol*

stabilizer, heat: ABS polymer systems

*Dimethyl succinate*  
**stabilizer, heat: flexible PVC**  
*Dimethyl succinate*  
**stabilizer, heat: food-contact coatings**  
 Irganox® 1010  
**stabilizer, heat: food-grade polymers**  
*Calcium-zinc complex*  
**stabilizer, heat: paper**  
 Haro® Chem ZPR-2  
**stabilizer, heat: paper, food-contact**  
 Irganox® 1010  
**stabilizer, heat: polyolefins**  
*Dimethyl succinate*  
**stabilizer, heat: PVC**  
*Epoxy, bisphenol A; Zinc laurate; Zinc stearate*  
**stabilizer, heat: PVC, rigid/plasticized**  
*Calcium-zinc complex*  
**stabilizer, heat: varnishes**  
*Zinc laurate*  
**stabilizer, hydrogen peroxide**  
 Hartfloc® A-40; *Sodium metasilicate pentahydrate; Sodium stannate*  
**stabilizer, hydrogen peroxide bleaches: paper**  
*Sodium silicate*  
**stabilizer, hydrogen peroxide: pulp bleaching**  
 Hanwet CA-1  
**stabilizer, hydrophilic colloids**  
*Dioctyl sodium sulfosuccinate*  
**stabilizer, hydrosulfite: mech. pulp**  
 Actiron® DTF 021  
**stabilizer, industrial**  
*Sorbitan stearate*  
**stabilizer, light**  
 Celnax® CX-Z210 IP; Celnax® CX-Z300H;  
 Celnax® CX-Z401M; *1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-, polymers with morpholine-2,4,6-trichloro-1,3,5-triazine*  
**stabilizer, light: ABS**  
*Methacrylic acid copolymer*  
**stabilizer, light: ABS polymer systems**  
*Dimethyl succinate*  
**stabilizer, light: carbon paper**  
 Black Pearls® L; Mogul® L  
**stabilizer, light: coatings**  
 Black Pearls® L  
**stabilizer, light: dry toners**  
 Black Pearls® L  
**stabilizer, light: flexible PVC**  
*Dimethyl succinate*  
**stabilizer, light: food pkg.**  
*Dimethyl succinate*  
**stabilizer, light: HDPE**  
*Methacrylic acid copolymer*  
**stabilizer, light: LDPE**  
*Methacrylic acid copolymer*  
**stabilizer, light: LLDPE**  
*Methacrylic acid copolymer*  
**stabilizer, light: paper**  
 Regal® 330; Regal® 330R  
**stabilizer, light: PC**  
*Methacrylic acid copolymer*  
**stabilizer, light: polyolefins**  
*Dimethyl succinate*  
**stabilizer, light: PP**  
*Methacrylic acid copolymer*  
**stabilizer, light: PS**  
*Methacrylic acid copolymer*  
**stabilizer, light: PVC**  
*Zinc stearate*  
**stabilizer, light: surface coatings**  
*Methacrylic acid copolymer*  
**stabilizer, lubricant: fiber**  
 Santonox® TBMC  
**stabilizer, m.w.: coatings**  
*Distearyl pentaerythrityl diphosphate*  
**stabilizer, m.w.: styrenics**  
*Distearyl pentaerythrityl diphosphate*  
**stabilizer, neutral sizes**

Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206  
**stabilizer, nitrocellulose**  
*Dicyandiamide*  
**stabilizer, NR latex**  
 Octowet 75E  
**stabilizer, o/w emulsions**  
 Granular Gum Ghatti #1; Powdered Gum Ghatti #1; Powdered Gum Ghatti #2; Staform P  
**stabilizer, org. substrates**  
 Irganox® 259  
**stabilizer, paper**  
 Aerosil® K315; Aerosil® K328; Aerosil® K330; Aerosil® K342; Airvol® 205; Airvol® 523; Airvol® 540; Aqualon® CMC-T; Aromox® C/12; Aromox® C/12-W; Chemal BP 261; Chemal BP-262; Chemal BP-2101; Igepal® DM-970 FLK; KELACID®; KELCOLOID® S; KELCOLOID® HVF; KELCOLOID® LVF; KELCOLOID® O; KELCOLOID® S; KELCO-SOL®; KELGIN® F; KELGIN® HV; KELGIN® LV; KELGIN® MV; KELGIN® XL; KELSET®; Kemester® 5500; Klucel® E; Klucel® L; Lomar® PW; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; *Merxapol 108; Merxapol 171; Merxapol 172; Merxapol 174; Merxapol 178; Merxapol 251; Merxapol 252; Merxapol 254; Merxapol 255; Merxapol 258; Merxapol 311; Merxapol 312; Merxapol 314; Mersol® HCS; Nonyl nanoxynol-150; Oleth-2; Pluronic® L10; PVM/MA copolymer; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120; Tafigel® PUR 40; Tergitol® 15-S-7; Tergitol® 15-S-12*  
**stabilizer, paper aq. systems**  
 Liporol SP  
**stabilizer, paper coatings**  
 Alcosperse® 404; Proxel® DL; Santowhite® BBMC; *Styrene/PVP copolymer*  
**stabilizer, paper deinking**  
 Triton® XL-80N  
**stabilizer, paper sizing**  
 Natrosol® 250; Ticaxan® Regular  
**stabilizer, paper starch coatings**  
 DeTHOX ACID S-8; Emerest® 2640  
**stabilizer, paper suspensions**  
 Carbopol® 934  
**stabilizer, paper: food-contact**  
 Aviro® SA 4106; *Sodium octyl sulfate*  
**stabilizer, paperboard: food-contact**  
 Aviro® SA 4106  
**stabilizer, papermaking**  
 Antaro® 17-R-2; Antaro® 25-R-2; Antaro® 31-R-1; Hyonic® PE-90; Jungbunzlauer Xanthan Gum, Technical Grade; Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; *Merxapol 105; PEG-2 stearate; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB; Teric™ 12M2; Teric™ 12M5; Teric™ 12M15; Wayfos® D-10N*  
**stabilizer, PE**  
 Santonox® TBMC  
**stabilizer, peroxide**  
 Briquest® ADPA-60AW; Dequest® 2000LC  
**stabilizer, peroxide bleach**  
 Dequest® 2060; *Sodium metasilicate*  
**stabilizer, peroxide bleaching liquors: cellulose**  
 Lastabil 923  
**stabilizer, peroxide bleaching liquors: mechanical pulp**  
 Lastabil 923  
**stabilizer, peroxide bleaching liquors: secondary fiber**  
 Lastabil 923  
**stabilizer, peroxide bleaching: pulp**  
 Eldorado Peroxide Stabilizer

**stabilizer, peroxide bleaching: pulp/paper**  
 Dequest® 2006; Dequest® 2016 D Powder; Dequest® 2066; *Diethylene triamine pentamethylene phosphonic acid*  
**stabilizer, peroxide: bleaching process**  
 Bekaflex 2000 V  
**stabilizer, peroxide: deinking**  
 Actiron® NS; Bekaflex 2000 V  
**stabilizer, peroxide: deinking process**  
 Lastabil 928 OE  
**stabilizer, peroxide: mechanical pulp**  
 Actiron® NS; Actiron® PME  
**stabilizer, peroxide: postbleaching**  
 D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR  
**stabilizer, peroxide: pulp deinking**  
 Actiron® DTP 298  
**stabilizer, peroxide: repulping**  
 D® Sodium Silicate; K® Sodium Silicate; N® Clear Sodium Silicate; O® Sodium Silicate; Star® Sodium Silicate; Stixso® RR  
**stabilizer, pigment slurries**  
 Alcosperse® 404  
**stabilizer, pigment suspensions**  
*2-Phosphono butane tricarboxylic acid-1,2,4*  
**stabilizer, pigments**  
 Polystar OM; Polystar OMP  
**stabilizer, polyacetal**  
 Irganox® 259  
**stabilizer, polymerization**  
*Polyvinyl alcohol (partially hydrolyzed); Sorbitan stearate*  
**stabilizer, polymers**  
 Ageflex FM-10; *4,4'-Butyldienebis (6-t-butyl-m-cresol); Isodecyl methacrylate; Surfonic® NB-307; Surfonic® NB-407; Surfonic® OPB-407*  
**stabilizer, polyolefins**  
 Anox® PP18; Irganox® 259; *Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate*  
**stabilizer, post-emulsion**  
 Darvan® 7  
**stabilizer, PP**  
 Santonox® TBMC  
**stabilizer, primary: S/B emulsion copolymers**  
 Abex® EP-110  
**stabilizer, primary: vinyl acetate**  
 Abex® EP-110  
**stabilizer, PS**  
*Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate*  
**stabilizer, PS emulsions**  
 Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22  
**stabilizer, pulp/paper**  
 Paxsorbat 20; Paxsorbat 60; Paxsorbat 80; Pluronic® 10R5; Polypax SMS; Polysynth RRE; *Propylene glycol laurate*  
**stabilizer, pulp/paper processing**  
 Surfonic® DNP-700; Surfonic® DNP-1000; Surfonic® DNP-1500  
**stabilizer, PVC**  
 Anox® PP18; *Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate; Thiodiethylene bis (3,5-di-t-butyl-4-hydroxy) hydrocinnamate*  
**stabilizer, PVC resins**  
*Calcium stearate; Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22*  
**stabilizer, raw water clarification**  
 Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206  
**stabilizer, recycling operations**  
 Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206  
**stabilizer, resins**  
*Epoxy resin; Santowhite® BBMC*  
**stabilizer, rosin paper sizes**  
*Casein*  
**stabilizer, rosin size emulsions: papermaking**  
 Taurine-DFX

- stabilizer, S/B**  
*Nonoxynol-12*
- stabilizer, S/B emulsion polymerization**  
 POLYSTEP® F-5
- stabilizer, SBR**  
*Sodium rosinate*
- stabilizer, SBR polymerization**  
*Potassium rosinate*
- stabilizer, secondary: SBR**  
 Lomar® LS-1; Lomar® LS Liq.; Lomar® PWA;  
 Lomar® PWA Liq.
- stabilizer, silicone emulsification**  
*Ceteth-2*
- stabilizer, silicone emulsions**  
 Carbopol® 934
- stabilizer, size presses**  
 Pen-cote® Starch
- stabilizer, sizes**  
 Crisotan NN; Crisotan NR
- stabilizer, sizes: paper**  
 Agefloc PC20HV
- stabilizer, sodium aluminate sol'ns.: water treatment**  
 Gluconal® GA-50; Gluconal® NG-C
- stabilizer, specialty paper coatings**  
 Pen-cote® Starch
- stabilizer, SR latex**  
 Octowet 75E
- stabilizer, starch-based paper coatings**  
 Alkamuls® S-8
- stabilizer, steric: emulsion polymerization**  
 Abex® 2005
- stabilizer, storage: coatings**  
 Albrite® Isooctyl Acid Phosphate
- stabilizer, styrene acrylic emulsion polymerization**  
 POLYSTEP® F-5
- stabilizer, styrene emulsion polymers**  
 Rhodapon® LCP
- stabilizer, styrene-acrylics**  
*Nonoxynol-12*
- stabilizer, styrenics**  
 Irganox® 259; *Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate*
- stabilizer, surface active agents**  
*Dimethyl hexynol*
- stabilizer, suspension polymerization**  
 Luviskol® K17; Luviskol® K30; Luviskol® K60;  
 Luviskol® K90
- stabilizer, syn. polymers**  
 Santowhite® BBMC
- stabilizer, thermal fax paper**  
 Santowhite® BBMC
- stabilizer, UV**  
 Unilin® 425 Alcohol
- stabilizer, UV light: coatings**  
 Busan® 11-M2
- stabilizer, UV: food-grade polymers**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, UV: polyolefins**  
*Distearyl pentaerythrityl diphosphite*
- stabilizer, varnishes**  
 BNX® 1010
- stabilizer, vinyl acetate**  
 Elvanol® 50-42; Elvanol® 51-05; Elvanol® 52-22
- stabilizer, vinyl chloride emulsion polymers**  
 Rhodapon® LCP
- stabilizer, vinyl polymerization**  
*Hydroxyethylcellulose*
- stabilizer, viscosity**  
*Ammonium polyacrylate*; Armid® 18; Armid® O;  
 Arquad® 18-50; *Calcium sulfate*; *Cocamide*;  
 DePEG 30-CO; DePEG 40-CO; *Glycerol oleate*;  
 Kessco® Cetyl Alcohol NF; *Methylcellulose*;  
*Oleamide*; *Stearamide*
- stabilizer, viscosity: aq. systems**  
 Surfynol® 104NP; Van Gel® B
- stabilizer, viscosity: calender stack water box treatments**  
 Eldorado PA-500
- stabilizer, viscosity: coatings**  
 Prox®-Lube SC 5060
- stabilizer, viscosity: dyes**  
 Surfynol® 104E
- stabilizer, viscosity: emulsion polymerization**  
 Surfynol® 104E
- stabilizer, viscosity: films**  
 Elvanol® 75-15
- stabilizer, viscosity: high-solids pigmented coatings**  
 Eldorado PA-500
- stabilizer, viscosity: paper**  
 Elvanol® 75-15
- stabilizer, viscosity: paper coatings**  
 Eldorado PA-500; Surfynol® 104E; Surfynol® 104NP
- stabilizer, viscosity: paper sticking**  
 Prox®-Lube SC 5060
- stabilizer, viscosity: paperboard coatings**  
 Eldorado PA-500
- stabilizer, viscosity: pigmented size presses**  
 Eldorado PA-500
- stabilizer, viscosity: pigments**  
 Surfynol® 104E
- stabilizer, viscosity: PVC**  
 Surfynol® 104E
- stabilizer, wastewater clarification**  
 Agefloc PC20VHV; Agefloc PC40; Agefloc PC40HV; Agefloc PC2206
- stabilizer, water treatment**  
*Diethyl ammonium sulfosuccinate*; *Edetic acid*;  
 Pluronic® 10R5; Tergitol® 15-S-7; Tergitol® 15-S-12; Triton® XL-80N
- stabilizer, waxes**  
*Acrylates copolymer*; BNX® 1010; Surfonic® OPB-407
- stain blocker, tannin: coatings**  
 Busan® 11-M2
- stain resistance aid, paper coatings**  
 Santolink® AM-129
- staining, paper**  
*Copper hydroxide (ic)*
- starch hydrolysis**  
*Hydrochloric acid*
- starch modifier**  
 Polyquat 188; *Potassium persulfate*
- starch modifier, paper sizing**  
 Scripset® 500; Scripset® 520; Scripset® 540;  
 Scripset® 542; Scripset® 550; Scripset® 640;  
 Scripset® 700; Scripset® 720; Scripset® 740;  
 Scripset® 742; Scripset® 745; Scripset® 746;  
 Scripset® 747; Scripset® 808
- starch modifier, paper/paperboard: aq./fatty food-contact**  
*Polyacrolein-sodium bisulfite adduct*
- starch modifier, pulp/paper**  
*Peracetic acid*
- starch prod.**  
*Dimethicone*
- starch reducer**  
 Nopcote® 1675
- starch, size-press**  
 Chargemaster® R462
- starch/protein reactant, paper/paperboard coatings: dry food-contact**  
*Urea/ethanedial/formaldehyde/propionaldehyde polymer*
- starch-based systems**  
*p-Chloro-m-cresol*
- stencils, paper**  
*Butyl myristate*
- sterilant, pulp/paper**  
 Paxgard BK 20; Paxgard BKC; Paxgard EM
- stickies control agent, paper stock**  
 Eldorado DIC-107
- stickies control agent, papermaking**  
 Atalor K; ProSORB®
- stickies control agent, stock**  
 Eldorado PA-780; Eldorado Lube-20
- stickies control agent, wet-end**  
 FX-704; FX-706
- stiffener, heat-seal paper coatings**  
 Microthene® MN 701-00; Microthene® MN 710-20
- stiffener, paper**  
 Eldorado PA-650
- stiffener, paper coatings**  
 Resyn® 25-1190
- stiffener, paperboard**  
 AcryPrint™ 2163; Eldorado PA-650
- stiffener, short fiber, recycled furnishes**  
 Eldorado PA-650
- stiffener, soft waxes**  
 Koster Keunen Candelilla; Koster Keunen Synthetic Candelilla
- stiffener, stocks**  
 Kotamite®
- stock deaerator, papermaking**  
 Etingal® L
- straws, drinking**  
 Parvan® 131
- strength agent, alkaline papermaking**  
 Apollo® 4200 Cationic Starches
- strength agent, alkaline-sized paper**  
*Ammonium zirconium carbonate*; Bacote™ 20;  
 Protec ZZA
- strength agent, bleached sulfate**  
 Tylac® 037
- strength agent, cast paper coatings**  
 Tylac® 692
- strength agent, coated natural grades**  
 Tylac® 037
- strength agent, coated recycled grades**  
 Tylac® 037
- strength agent, fine paper**  
 Jaguar® CB-123
- strength agent, linerboard**  
 Jaguar® CB-123
- strength agent, paper**  
 Apollo® 4200 Cationic Starches; Megafil® PCC
- strength agent, paperboard**  
 Apollo® 4200 Cationic Starches
- strength agent, paperboard coatings**  
 Tylac® 037
- strength agent, papermaking**  
 Berbond® 8200; Jaguar® 418
- strength agent, secondary fiber systems**  
 Jaguar® CP-13
- strength agent, tissue paper**  
 Jaguar® CB-123
- strength agent, web grades: glossy finishes**  
 Tylac® 820; Tylac® 936
- strength agent, web grades: matte finishes**  
 Tylac® 820; Tylac® 936
- strength agent, web grades: offset formulations**  
 Tylac® 820; Tylac® 936
- strength agent, web grades: offset printing**  
 Tylac® 820; Tylac® 936
- strength agent, web grades: roto formulations**  
 Tylac® 820; Tylac® 936
- strength resin, corrugating medium kraft paper**  
 Torez Resin P-2000; Torez Resin P-2010
- strength resin, liner paper**  
 Torez Resin P-2000; Torez Resin P-2010
- strengtheners, hot-melt coatings**  
 Ultrathene® UE 631-04; Ultrathene® UE 634-04;  
 Ultrathene® UE 639-67; Ultrathene® UE 649-04;  
 Ultrathene® UE 653-67; Ultrathene® UE 654-67
- stretch pkg. film, heavy-duty**  
*Polyethylene, very low-density*
- stripping agent, dyes**  
*Sodium hydrosulfite*
- stripping assistant, dyes**  
 Peregai® ST
- structuring agent, coatings: paper**  
 Pro-Cote®
- structuring agent, coatings: paperboard**

Pro-Cote®  
**structuring agent, pigment: dry food-contact**  
*Hydrolyzed soy protein*  
**structuring agent, pigment: paper/paperboard**  
*Hydrolyzed soy protein*  
**substantive dye, turquoise: alkaline-sized paper**  
 Pontamine™ Substantive Turquoise 6G Liq.  
**substantive dye, turquoise: hardwood kraft pulps**  
 Pontamine™ Substantive Turquoise 6G Liq.  
**substantive dye, turquoise: softwood kraft pulps**  
 Pontamine™ Substantive Turquoise 6G Liq.  
**substantive dye, turquoise: tissue paper**  
 Pontamine™ Substantive Turquoise 6G Liq.  
**substantivity agent, paper**  
 Burco® Imidazoline O; Burco® Imidazoline T  
**sulfidity control agent, Kraft paper process**  
*Sodium bisulfide*  
**sulfite control agent**  
 Oemidink 8001  
**sulfite pulp**  
*Magnesium hydroxide*  
**sulfite pulp process raw material, papermaking**  
*Dolomite*  
**sulfite removal, paper mills**  
*Hydrogen peroxide*  
**superabsorbent**  
*Methacrylamidopropyltrimethylammonium chloride; Mhoromer® BM 613*  
**superfatting agent**  
*Coconut alcohol; Coconut (Cocos nucifera) oil; Glyceryl dioleate; Hydrogenated coconut oil; Lauric acid; Myristamide DEA; Oleamide DEA; Oleic acid; Oleth-3; Oleth-7; PEG-60 castor oil; PEG-20 corn glycerides; PEG-12 dioleate; PEG-75 lanolin; PEG-150 lanolin; PPG-26-buteth-26; Soyamide DEA; Stearamide MEA; Stearic acid; Sulfated castor oil*  
**superfatting agent, aq./aq.-alcoholic systems**  
 Solan E; Solan X  
**superfatting agent, emulsion polymerization**  
*PEG-40 sorbitan tetraoleate*  
**superfatting oil**  
*Octyl stearate*  
**surface property improver, paper**  
 Douglas® Starches  
**surface strength agent, carbonless paper**  
 Cartabond® TSI Liq.  
**surface strength agent, coated board**  
 Cartabond® TSI Liq.  
**surface strength agent, coatings**  
 PenFilm™ Binder  
**surface strength agent, food pkg.**  
 Cartabond® TSI Liq.; PenFilm™ Binder  
**surface strength agent, labels**  
 Cartabond® TSI Liq.  
**surface strength agent, offset printing paper**  
 Cartabond® TSI Liq.  
**surface strength agent, offset/opaque communication paper grades**  
 NovaBond® 150  
**surface strength agent, pkg. paper**  
 Cartabond® TSI Liq.  
**surface strength agent, printed paper**  
 Cartabond® TSI Liq.  
**surface strength agent, printing board uncoated sides**  
 NovaBond® 150  
**surface strength agent, printing paper uncoated sides**  
 NovaBond® 150  
**surface strength agent, self adhesive paper**  
 Cartabond® TSI Liq.  
**surface strength agent, silicon release paper**  
 Cartabond® TSI Liq.  
**surface strength agent, size press board**  
 PenFilm™ Binder

**surface strength agent, size press paper**  
 PenFilm™ Binder  
**surface tension reducer**  
 Aerosol® OT-70 PG; Aerosol® OT-S; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; DeWET SDO-70PG; DeWET SDO-75E; Lodyne®; Rhodaterge® BCC  
**surface tension reducer, board coatings**  
 TEGO® Glide 404  
**surface tension reducer, emulsion polymerization**  
 Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Teric™ N30L  
**surface tension reducer, paper**  
 Aerosol® OT-75%; Aerosol® OT-75-PG; Drewfax® 0007; Merpol® A; Penetron OT-30  
**surface tension reducer, paper coatings**  
 TEGO® Glide 404  
**surface tension reducer, paper/board coatings**  
 TEGO® Flow 354  
**surface tension reducer, pulp/paper**  
 Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Teric™ N6; Teric™ N11; Teric™ N30L  
**surface tension reducer, pulp/paper bleaching**  
 Monafax 1214  
**surface treatment**  
*Behenyl hydroxyethyl imidazoline*  
**surface treatment agent, fiber**  
 Snowtex PS-L; Snowtex PS-M  
**surface treatment agent, paper**  
 Snowtex PS-L; Snowtex PS-M  
**surface treatment, alkaline sized paper: film press**  
 Cartacol® SI Liq.  
**surface treatment, alkaline sized paper: size presses**  
 Cartacol® SI Liq.  
**surface treatment, coatings**  
*Sodium methyl silicate*  
**surface treatment, film presses**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® XP Liq.  
**surface treatment, neutral sized paper: film press**  
 Cartacol® SI Liq.  
**surface treatment, neutral sized paper: size presses**  
 Cartacol® SI Liq.  
**surface treatment, paper**  
 Jetsize® Colloidal Disp.; Jetsize® Sol'n.; Scogin™ HVF; Scogin™ LV; Scogin™ OH; Scogin™ QL; Scogin™ QM; Tylose® C-G1; Witcobond® W-213  
**surface treatment, paper at calender**  
 Aqualon® CMC-T  
**surface treatment, paper at size presses**  
 Aqualon® CMC-T  
**surface treatment, recycled board: calender stack**  
 PenStack™ Calender Size  
**surface treatment, size presses**  
 Cartacol® ASN Liq.; Cartacol® NP Liq.; Cartacol® XP Liq.  
**surface treatment, water box formulations: calender stack**  
 PenStack™ Calender Size  
**surfaces, paper/paperboard: food-contact**  
 C110; D12F; D120  
**surfactant**  
 Abalyn®; Abex® 2005; Abex® 2020; Abex® 2515; Abex® 2525; Abex® 2535; Abex® 2545; Ablupol D1101; Ablupol FD101; Ablusol PD100; Ablusol SEP40; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882; Aerosol® 22; Aerosol® OT-70 PG; Algim; Benzalkonium chloride; Burco® Imidazoline O; Burco® Imidazoline T; Butyl phosphate; Caster Wax A; Castor (*Ricinus communis*) oil; Cetareth-20; Ceteth-20; Cetyl betaine; Coco-betaine; C9-11

pareth-3; C9-11 pareth-6; C10-12 pareth-3; C12-14 pareth-1; C12-14 pareth-5; C12-15 pareth-23; C16-18 pareth-30; Deceth-4 phosphate; DePEG 200; DePEG 300; DePEG 400; DePEG 600; Dimethicone; 2,6-Dimethyl heptanol-4; Dioctyl maleate; Dioctyl sodium sulfosuccinate; Disponil® AAP 43; Disponil® NP 4; Disponil® NP 6; Disponil® NP 10; Disponil® NP 11; Disponil® NP 12; Disponil® NP 20; Disponil® NP 208; Disponil® NP 307; Ditridecyl sodium sulfosuccinate; Dodoxynol-9; Dodoxynol-12; Empol® 1004; Empol® 1007; Empol® 1016; Empol® 1018; Empol® 1020; Empol® 1022; Empol® 1026; EO/PO block polymer or copolymer; Glyceryl dioleate; Hydrogenated castor oil; Hydrogenated coconut acid; Hydrogenated ditallowamine; Hydrogenated menhaden acid; Isostearyl hydroxyethyl imidazoline; Lauramine oxide; Laureth-3; Laureth-4; Magnesium stearate; Magnesium tallowate; MIPA-dodecylbenzene-sulfonate; Myristalkonium chloride; Nontonic L-4; Nonoxynol-1; Nonoxynol-2; Nonoxynol-3; Nonoxynol-4; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-9; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; Nonoxynol-13; Nonoxynol-14; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-25; Nonoxynol-30; Nonoxynol-40; Nonoxynol-44; Nonoxynol-50; Nonoxynol-55; Nonoxynol-60; Nonoxynol-70; Nonoxynol-100; Nonyl nonoxynol; Nonyl nonoxynol-14; Nonyl nonoxynol-100; Octadecenyl succinic anhydride; Octoxynol-33; Oleth-23; Paxogen LAO; Paxonic CO 40; Paxonic CO 60; PEG-180; PEG-5 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-6 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-4 laurate; PEG-8 laurate; PEG-32 laurate; PEG-20 oleate; PEG-24 oleate; PEG-32 oleate; PEG-75 oleate; PEG-100 oleate; Pegospere® 600 DO; PEG-32 stearate; PEG tetramethyl decynediol; Poly [2-(diethylamino) ethyl methacrylate] phosphate; Polydimethylsiloxane; Polyethylene; Polyethylene wax; Polysorbate 60; POLYSTEP® AE-120; POLYSTEP® AE-307; Rhodasurf® A-60; Silicone; Silwet® L-720 AP; Sodium lauryl sulfate; Surfonic® JL-80X; Surfynol® SM-740; Synerponic PE/L61; Tergitol® NP-7; Tergitol® NP-8; Tergitol® NP-9; Tergitol® NP-9.5; Tergitol® NP-10; Tergitol® NP-11; Tergitol® NP-12; Tergitol® NP-13; Tergitol® NP-15; Thiourea; Trideceth-4; Trideceth-25; Trideceth-29; Triisopropanolamine; Trilinoleic acid; Undeceth-5  
**surfactant concs.**  
 TEGO® Antifoam 2-67; TEGO® Antifoam 14; TEGO® Antifoam 28; TEGO® Antifoam 93; TEGO® Antifoam 1488; TEGO® Antifoam MR 1015  
**surfactant, acid pickling baths**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate*  
**surfactant, amphoteric**  
*Methyl acrylate*  
**surfactant, antifoams**  
 Nonionic 1017-R  
**surfactant, aq. systems**  
 Adeka Catioace DM-30A; Surfynol® 104NP  
**surfactant, cellulose fluff**  
 Berocell® 564  
**surfactant, cellulose prods.**  
 Berocell® 564  
**surfactant, cleaners**  
*Isolaureth-3; Isolaureth-6*  
**surfactant, closed systems**  
 Stanfax 560  
**surfactant, coatings**

- Ammonium laureth sulfate; Ammonium laureth-12 sulfate; Imbentin-CMEA/100; Imbentin-OAD/500 70%; Imbentin-PEG/300; Imbentin-PEG/400; Imbentin-PEG/600; Imbentin-PEG/1500 G; Nonoxynol-34; POLYSTEP® F-9S; POLYSTEP® LAS-50; POLYSTEP® OP-9; POLYSTEP® OP-3070; POLYSTEP® OP-4070; Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7500; Silwet® L-7608; Silwet® L-7657; Tricetylmonium chloride; Triton® X-15; Triton® X-35; Undeceth-8*
- surfactant, copolymerizable**  
*Sodium allyloxy hydroxypropyl sulfonate*
- surfactant, debonding: tissue paper**  
Hartosoft™ DBS-1527; Hartosoft™ DBS-5080; Hartosoft™ DBS-7374
- surfactant, dedusters**  
Nonionic 1017-R
- surfactant, deinking**  
Nonatell™ 1061, 1075, 1088, 1089, 1092
- surfactant, deinking: groundwood finish**  
Nonatell™ 1052
- surfactant, deinking: magazine**  
Nonatell™ 1123
- surfactant, deinking: newsprint**  
Nonatell™ 1123
- surfactant, deinking: pulp/paper**  
Nonatell™ 1123
- surfactant, deinking: telephone directory furnishes**  
Nonatell™ 1123
- surfactant, demulsifiers**  
Nonionic 1017-R
- surfactant, dust control**  
Volpo C2; Volpo C20; Volpo CS50; Volpo L3
- surfactant, dyeing auxiliaries**  
*Talloweth-11 phosphate*
- surfactant, dyes**  
Adekanate B-556; *Cetareth-15; Polysorbate 60; Product BCO*
- surfactant, effluent stream waste treatment**  
Triton® SP-135; Triton® SP-140; Triton® SP-160; Triton® SP-175; Triton® SP-190
- surfactant, emulsion polymerization**  
*Aerosol® TR-70; Ammonium laureth sulfate; Ammonium laureth-12 sulfate; Calimulse EM-22; Calimulse EM-96F; Calimulse L-22; Calimulse L-30; Calimulse L-50; Calimulse PR; Calimulse PRS; Calimulse SLS; DeSULF SLS-30LC; Igepal® CO-897; Nonoxynol-15; Nonoxynol-34; Nonoxynol-120; Octoxynol-25; PEG-4 castor oil; PEG-20 hydrogenated castor oil; PEG-10 tetramethyl decylenediol; Pentasol DO-70PG; Pentex® 99; Polysorbate 20; POLYSTEP® A-13; POLYSTEP® B-7; POLYSTEP® B-330S; POLYSTEP® F-9S; POLYSTEP® LAS-50; POLYSTEP® OP-9; POLYSTEP® OP-3070; POLYSTEP® OP-4070; Ralufon® F4-I; Ralufon® F5-13I; Ralufon® F7-13; Ralufon® F11-13; Ralufon® N3.5; Ralufon® N6; Ralufon® N9; Ralufon® N10; Ralufon® N20-90; Ralufon® NAPE 14-90; Rhodapon® LCP; Rhodasurf® L-25; Sipomer® COPS 1; Stanfax 238; Stanfax 560; Stanfax 997; Stanfax 1012; Stanfax 1066; Surfonic® DNP-70; Surfonic® DNP-140; Surfonic® DNP-700; Surfonic® DNP-1000; Surfonic® DNP-1500; Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Surfynol® 465; Teric™ N30L; Texapon® 842; Triton® X-15; Triton® X-35; Trycol® 6965; Undeceth-8*
- surfactant, emulsion polymerization: paper SPAE**
- surfactant, emulsion polymers**  
Antarox® PGP 18-2LF
- surfactant, emulsions**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate; PEG-20 hydrogenated castor oil; Rhodasurf® L-25; Trycol® 6965*
- surfactant, felt washing**  
Geropon® 99
- surfactant, fiber**  
Silwet® L-722; Silwet® L-7220; Silwet® L-7608
- surfactant, filler coatings**  
Stanfax 320
- surfactant, filter media saturants**  
Stanfax 320
- surfactant, flotation deinking: newsprint paper**  
Floatsan™ 209
- surfactant, flotation deinking: paper**  
Floatsan™ 210
- surfactant, flotation deinking: wood-free paper**  
Floatsan™ 209
- surfactant, fluff pulp**  
Berocell® 509; Berocell® 509HA; Berocell® 584; Berocell® 587K
- surfactant, food pkg. paper**  
Trycol® 6965
- surfactant, fuel treatment**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate*
- surfactant, high-foaming**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: acrylate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: butadiene emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: latex emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: lt. duty cleaners**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: methacrylate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: paper**  
Stanfax 234; Stanfax 234LCP
- surfactant, high-foaming: polymeric coatings**  
Stanfax 234; Stanfax 234LCP
- surfactant, high-foaming: styrene emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-foaming: vinyl acetate emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*
- surfactant, high-solids dispersions**  
Darvan® 7
- surfactant, industrial**  
*Glycol stearate; Quaternium-18; Stanfax 968*
- surfactant, industrial chemicals**  
*Polysorbate 60*
- surfactant, industrial processes**  
*Isolaureth-3; Isolaureth-6*
- surfactant, industrial: alkaline systems**  
*Sodium oleic sulfate*
- surfactant, low-foaming**  
Nopco® Color-Sperse® 188A
- surfactant, low-foaming: paper**  
*Dadoxynol-4*
- surfactant, newsprint**  
Wetsan™ DI284-1
- surfactant, paper**  
Abex® EP-110; Abluhide LB660; Adeka PEG-200; Adeka PEG-300; Adeka PEG-400; Adeka PEG-600; Adeka PEG-1000; Adeka PEG-1500; Adeka PEG-4000; Adeka PEG-6000; Adeka PEG-20,000; Adekanate B-556; Aromox® C/12-W; Arquad® 2C-70 Nitrite; Arquad® 210-50; Arquad® 218-75; Arquad® HTL8(W) MS-85; Carsoquat® SDQ-25; Chemax NP-15; Chemax NP-20; Chemax NP-30; Chemax NP-30/70; C12-15 pareth-9; 2-Ethylhexyl hydrogenated tallowalkyl methosulfate; Igepal® CO-630/EP; Incroquat SDQ-25; Isotrideceth-6 phosphate; Istemul 710; Istemul 770; Istemul 775; Lauritrimonium chloride; Nonoxynol-15; Nonoxynol-20; Nonoxynol-20 phosphate; Oleth-2; Oleth-7 phosphate; PEG-20 hydrogenated
- castor oil; Pentex® 99; Pluronic® L10; Qemidink 8787; Ralufon® EA 15-90; Ralufon® F3-13; Ralufon® F4-I; Ralufon® F5-13I; Ralufon® F7-13; Ralufon® F11-13; Ralufon® N3.5; Ralufon® N6; Ralufon® N9; Ralufon® N10; Ralufon® N20-90; Ralufon® NAPE 14-90; Schercozoline I; Schercozoline L; Schercozoline O; Schercozoline S; Servoxyl® VPDZ 6/100; Servoxyl® VPFZ 7/100; Servoxyl® VPI 55; Servoxyl® VPNZ 20/100; Servoxyl® VPRZ 100; Silwet® L-77; Silwet® L-722; Silwet® L-7001; Silwet® L-7002; Silwet® L-7087; Silwet® L-7220; Silwet® L-7500; Silwet® L-7608; Silwet® L-7657; Sodium butyl phosphate; Sodium diphenyl ether disulfonate; Surfonic® DDP-40; Surfonic® DDP-50; Surfonic® LF-18; Surfonic® LF-37; Surfonic® LF-40; Surfonic® LF-41; Surfonic® LF-47; Surfonic® LF-68; Surfonic® LF-0312; Surfonic® P-1; Surfonic® P-3; Surfonic® P-5; Surfonic® P-6; Tallow phosphate; T-Det® C-20; T-Det® EPO-62L; T-Det® EPO-64L; Teric™ 164; Teric™ 165; Teric™ 167; Teric™ 168; Teric™ 170; Teric™ 171; Teric™ 173; Tetricon® 90R4; Undeceth-8*
- surfactant, paper auxiliary products**  
Propetal 387
- surfactant, paper coatings**  
Abex® 18S; Abex® 22S; Abex® 3594; *Ammonium nonoxynol-4 sulfate; Dimethyl hexynol; Dynol™ 604; Surfynol® 61; Surfynol® 104NP*
- surfactant, paper defoamers**  
Pegosperse® 100 L; Pegosperse® 400 DOT
- surfactant, paper deinking**  
Tergitol® Min-Foam 1X; Tergitol® Min-Foam 2X
- surfactant, paper depitching**  
Adekamine 4DAC-80; Adekamine 4DAC-85; Adekamine 4MAC-30; Adekamine ADG-30; Adekamine E Series; Adekamine LDM; Adekamine MD-30; Adekamine MT-50; Adekamine PMS-100
- surfactant, paper finishes**  
Rhodasurf® L-25
- surfactant, paper mill stock chest cleaners**  
Rhodaterge® BCC
- surfactant, paper rewetting**  
Geropon® 99
- surfactant, paper separation: PET recycling systems**  
Rhodaterge® PRC
- surfactant, paper towels**  
Surfonic® DDP-40; Surfonic® DDP-50
- surfactant, paperboard**  
Rhodapon® LCP
- surfactant, papermaking**  
Genapol® UD-070; Genapol® UD-079; Genapol® UD-080; Genapol® UD-110; Imbentin-CM/125; Imbentin-CM/145; Imbentin-CM/935; Imbentin-CMEA/100; Imbentin-OAD/500 70%; Imbentin-PAP/6100; Imbentin-PAP/6200; Imbentin-PAP/10200; Imbentin-PEG/300; Imbentin-PEG/400; Imbentin-PEG/600; Imbentin-PEG/1500 G; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Poly-Tergent® P-32A; Sanfac™; Sanslnk SB 301; Surfonic® OP-50; Teric™ G12A7; *Tricetylmonium chloride; Triton® X-15; Triton® X-35; Undeceth-11; Volpo C2; Volpo C20; Volpo CS50; Volpo L3*
- surfactant, pigment binders**  
Abex® 22S
- surfactant, pigment dispersing**  
*Tricetylmonium chloride*
- surfactant, pigments**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate; Silwet® L-7220*
- surfactant, pitch control: papermaking**  
Berocell® 25; Berocell® 535; Berocell® 537; Berocell® 1025
- surfactant, polyacrylamide drainage aids:**



**paper/paperboard, aq./fatty food-contact**  
*Poly (isobutene)/maleic anhydride adduct, diethanolamine reaction prod.*

**surfactant, polyacrylamide retention aids: paper/paperboard, aq./fatty food-contact**  
*Poly (isobutene)/maleic anhydride adduct, diethanolamine reaction prod.*

**surfactant, polymer dispersions**  
 Sulfofon® 101; Sulfofon® 101 Special RHD; Texapon® K-12 C Powd.; Texapon® K-1296 C Needles; Texapon® LS Highly Conc. Needles; Texapon® T 42; Texapon® ZHC Needles

**surfactant, polymerization**  
*Behenyl alcohol; Loxiol® G 53; PEG-40 sorbitan hexaoleate; Polysorbate 60; Polysorbate 65; Polysorbate 85; Sorbitan palmitate; Trycol® 5941*

**surfactant, polymerization: polymer dispersions**  
 Texapon® K-12 PA 15

**surfactant, polymerization: vinyl acetate emulsions**  
 Igepal® CO-977

**surfactant, protective coatings**  
*2-Ethylhexyl hydrogenated tallowalkyl methosulfate*

**surfactant, pulp processing**  
*C12-16 pareth-1; C12-16 pareth-2; C12-16 pareth-3; C12-16 pareth-5; C12-16 pareth-6; C12-16 pareth-7; C12-16 pareth-8; C12-16 pareth-11*

**surfactant, pulp/paper**  
 Adekanol 25R-1; Adekanol 25R-2; Adekanol B-608; Adekanol B-713; Adekanol B-714; Adekanol B-722; Adekanol B-733; Adekanol B-750; Adekanol B-762; Adekanol B-786; Adekanol B-795; Adekanol B-797; Adekanol B-2020; Adekanol B-2030; Adekanol B-4001; Adekanol B-4009; Adekanol F-68; Adekanol F-88; Adekanol F-108; Adekanol F-127; Adekanol L-31; Adekanol L-34; Adekanol L-44; Adekanol L-61; Adekanol L-62; Adekanol L-64; Adekanol L-71; Adekanol L-72; Adekanol L-101; Adekanol L-121; Adekanol L-122; Adekanol P-84; Adekanol P-85; Adekanol P-103; Adekanol TR-701; Adekanol TR-702; Adekanol TR-704; Adekanol TR-913; Adekanol TS-401; Adekanol TS-403A; Adekanol TS-406; Adekanol TS-415A; Adekanol TS-661; Adekanol TS-751; Adekanol TS-780; Adekanol TS-800; Adekanol TS-800C; Adekanol TS-801C; Adekanol TS-830; Adekanol TS-840; Adekanol TS-843; Adekanol TS-845; Adekatol LO-3; Adekatol LO-7; Adekatol LO-9; Adekatol SO-105; Adekatol SO-120; Adekatol SO-135; Adekatol SO-145; Adekatol SO-160; Antarox® EGE 25-2; *Glycol stearate*; Gradonic LFA Series; Hartaflo™ FA-5164; Hartaflo™ FA-7451; Hartaflo™ G-5000; Hartaflo™ P-621; Hartaflo™ SE-6250; Hartaflo™ SE-6400-1; Hartaflo™ SE-6405; Hartaflo™ SE-6500; Hartaflo™ SE-6600; Hartaflo™ SE-6620; Hartasperse™ DI-6; Hartasperse™ DI-2609; Hartasperse™ DI-2710; Hartasperse™ DI-2805; Hartasperse™ DI-2915; Hartasperse™ DI-2920; Hartasperse™ DI-2940; Hartasperse™ DI-3670; Hartasperse™ DI-4670; Hartasperse™ DI-4900 Series; Hartasperse™ DI-6660; Hartasperse™ SE 6412; Hartasperse™ SE 6440; Hartasperse™ SE 7311; Hartfloc® 207; Hartfloc® 210; Hartfloc® 409; Hartfloc® Anionic Series; Hartfloc® Cationic Series; *Laureth-4; Linoleamido dimethylamino lactate*; Lumulse™ EGDS; Lumulse™ PGML; Lumulse™ PGMP; Lumulse™ PGMS; Monafax 1293; Nonionic 1017-R; Nonionic 1025-R; Nonionic 1077-F; Nonionic 1087-F; Nonionic 1108-F; Nonionic 1127-F; Nonionic 8017R; Nonionic GR-25; Nonionic GR-40; Nonionic GR-52; Nonionic L-10; Nonionic L-23; Nonionic S-2; Nonionic S-12; Nonionic S-20; Nonionic

TD-6; Nonionic TD-12; Nonionic TD-15; Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; Paxnol ALES; Paxnol ALS; Paxnol LES; Paxnol PLES; Paxnol PSLs; Paxnol SLS Liq.; Paxnol SLS Powd.; Paxnol SLS Pure; Paxnol TLS; Paxogen COB; Paxogen LAO; Paxonic CO 40; Paxonic CO 60; Paxorsorbate 20; Paxorsorbate 60; Paxorsorbate 80; *PEG-52 castor oil; PEG-80 sorbitan laurate; Poloxamer 237; Polypax SMS; Polyquat 2 C; Polyquat 188; Polysorbate 60; Polysorbate 65; Polysorbate 85; Propylene glycol laurate; Propylene glycol palmitate; Sorbitan palmitate; Surfonic® CO-15; Surfonic® CO-20; Surfonic® CO-25; Surfonic® CO-30; Surfonic® CO-42; Surfonic® DNP-140; Surfonic® DNP-700; Surfonic® DNP-1000; Surfonic® DNP-1500; Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Surfonic® OPB-167; Teric™ N11; Teric™ N30L; Triton® SP-135; Triton® SP-140; Triton® SP-160; Triton® SP-175; Triton® SP-190; Ukanil 3500; Ukanil 3501*

**surfactant, pulp/paper bleaching**  
 Monafax 1214

**surfactant, pulp/paper deinking**  
*C11-15 pareth-3; Isolaureth-3; Isolaureth-6*

**surfactant, pulp/paper: wash/flotation**  
 Hartaflo™ G-5000

**surfactant, pulping liquor recovery**  
 Adekanate B-556

**surfactant, PVC**  
 Emulgator E 30

**surfactant, PVC dispersions**  
 Maranil® Paste A 55

**surfactant, PVC emulsion**  
 Emulgator E 30

**surfactant, recycled paper**  
 Haritop

**surfactant, S/B**  
 POLYSTEP® A-15-30K; *Potassium dodecylbenzene sulfonate*

**surfactant, S/B dispersions**  
 Maranil® Paste A 55

**surfactant, S/B emulsions**  
 Calimulse SLS

**surfactant, S/B systems**  
 Emulgator E 30

**surfactant, silicone**  
*Dimethicone copolyol; Dimethiconol*

**surfactant, silicone emulsification**  
*Ceteareth-15*

**surfactant, silicone emulsions**  
*PEG-4 castor oil*

**surfactant, soft paper**  
 Berocell® 564

**surfactant, solvent coatings**  
 Pegospere® 100 L; Pegospere® 400 DOT

**surfactant, solventless coatings**  
 Pegospere® 100 L; Pegospere® 400 DOT

**surfactant, sulfite pulp deresination**  
 Mazawet® 77

**surfactant, surface modifying: paper deinking**  
 Igepal® CO-610

**surfactant, surface modifying: pulp/paper**  
 Igepal® CO-610

**surfactant, syn. resin emulsions**  
 Adekanate B-556

**surfactant, tissue**  
 Surfonic® DDP-40; Surfonic® DDP-50

**surfactant, tissue paper**  
 Ablupol PD100

**surfactant, VDC latex**  
*Potassium dodecylbenzene sulfonate*

**surfactant, vinyl acetate**  
 Emulgator E 30; *Nonoxynol-34*

**surfactant, vinyl acetate emulsions**  
 Abex® VA 50

**surfactant, vinyl chloride**  
*Potassium dodecylbenzene sulfonate*

**surfactant, waste paper**

Adekanol RP-605D

**surfactant, waste paper deinking**  
 Surfactant 10G

**surfactant, wastewater**  
 Adekanate B-556

**surfactant, wastewater treatment**  
 Arquad® 2C-70 Nitrite; Arquad® 210-50; Arquad® 218-75; Arquad® HTL8(W) MS-85; *2-Ethylhexyl hydrogenated tallowalkyl methosulfate*

**surfactant, water repellent treatment: food pkg. paper**  
 Foraperle® 325

**surfactant, water repellent treatment: food pkg. paperboard**  
 Foraperle® 325

**surfactant, water treatment**  
*C11-15 pareth-3; Glycol stearate; Isobutylene/MA copolymer; Isolaureth-3; Isolaureth-6; Nonionic 1017-R; Nonionic 1025-R; Nonionic 8017R; Nonionic 8025R; PEG-4 dilaurate; PEG-6 distearate; Poloxamer 237; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Tergitol® Min-Foam 2X; Teric™ 164; Teric™ 165; Teric™ 167; Teric™ 168; Teric™ 170; Teric™ 171; Teric™ 173*

**surfactant, water-free systems**  
 Aerosol® OT-100%

**surfactant, wax emulsions**  
*PEG-4 castor oil; TEA-oleate*

**surfactant, waxes**  
*Ceteareth-15*

**surfactant, wet felt continuous cleaning: brown paper machine press section**  
 Qemifeltwash 8020N

**surfactant, wet felt continuous cleaning: linerboard paper machine press sections**  
 Qemifeltwash 8020N

**surfactant, wet felt continuous cleaning: paper machine press sections**  
 Qemifeltwash 8020A; Qemifeltwash 8020N

**surfactant, wood-free paper**  
 Wetsan™ DI284-1

**surfactants**  
*Stearyl alcohol*

**suspending agent**  
 A-C® 430; *Acrylamides copolymer; Aerosil® 200; Algin; Aluminum palmitate; Bentonite; Calcium silicate; Carbomer; Carbomer 910; Carbomer 934; Carbomer 934P; Carbomer 940; Carbomer 941; Carbopol® 907; Carbopol® 910; Carbopol® 934P; Carbopol® 940; Carbopol® 971P; Carbopol® 974P; Carbopol® 2984; Carbopol® 5984; Carbopol® ETD 2001; Carboxymethylcellulose sodium; Carboxymethyl guar; Carboxymethyl hydroxypropyl guar; DeWET SMA-80; Dextrin; Ethylene/MA copolymer; Gelatin; Geropon® T-33; Geropon® TA/72/S; Glyceryl palmitate/stearate; Hydroxyethylcellulose; Hydroxypropyl guar; KELCOSOL®; Locust bean (Ceratonja siliqua) gum; Locust Bean Gum Speckless Type D-200; Magnesium aluminum silicate; PEG-15 cocoate; PEG-9M; Peregol® ST; Petrac® Calcium Stearate CP-11; Petrac® Calcium Stearate CP-11 LS; Petrac® GMS; Polyacrylic acid; Polysorbate 61; Polysorbate 81; Polysorbate 85; Potassium tripolyphosphate; Powdered Gum Guar NF Type 80 Mesh B/T; Powdered Gum Guar Type 140 Mesh B/T; Powdered Gum Guar Type ECM; Powdered Gum Guar Type M; Powdered Gum Guar Type MM FCC; Powdered Gum Guar Type MM (HV); Powdered Gum Guar Type MMM 1/2; Powdered Gum Guar Type MMW; Powdered Locust Bean Gum Type D-200; Powdered Locust Bean Gum Type D-300; Powdered Locust Bean Gum Type P-100; Powdered Locust Bean Gum Type PP-100; Propylene glycol alginate; PVP; Quso® G35, G38, WR55, WR83; RITA PEO-1; RITA PEO-2; RITA PEO-3;*

- RITA PEO-8; RITA PEO-18; RITA PEO-27; Scogin™ HVF; Scogin™ LV; Scogin™ QH; Scogin™ QL; Scogin™ QM; *Silica*; Sodium Alginate HV NF/FCC; Sodium Alginate LV; Sodium Alginate LVC; Sodium Alginate MV NF/FCC; *Sodium methylphthalenesulfonate*; *Sodium methyl tall oil acid taurate*; *Sorbitan tristearate*; *Tetrapotassium pyrophosphate*; *Trideceth-4*; *Xanthan gum*
- suspending agent, anhydrous systems**  
*Synthetic beeswax*
- suspending agent, aq. pigment slurries: paper/paperboard, aq./fatty food-contact**  
*Xanthan gum*
- suspending agent, aq. systems**  
Laponite® JS; Van Gel® B
- suspending agent, coatings**  
Klucel® E; Klucel® L; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; *Polyacrylamide*
- suspending agent, emulsion polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90
- suspending agent, emulsions**  
Acritamer® 504E; KELZAN®; KELZAN® XC Polymer
- suspending agent, fiber**  
Celite® 263; Celite® 321; Celite® 388
- suspending agent, fiber processing**  
Acritamer® 501E
- suspending agent, fiber suspensions**  
Acritamer® 504E; Carbopol® 934
- suspending agent, paper**  
Acritamer® 501E; Aqualon® CMC-T; KELZAN®; KELZAN® XC Polymer; Klucel® E; Klucel® L; Lomar® PW; Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K80; Luviskol® K90; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120
- suspending agent, paper coatings**  
Alcosperse® 404; Colloid 488T; Colloid 602; Van Gel® B; Veegum® T
- suspending agent, paper converting operations**  
Aqualon® CMC-T
- suspending agent, paper sizing**  
Natrosol® 250; Ticaxan® Regular
- suspending agent, paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV
- suspending agent, paper suspensions**  
Acritamer® 504E; Carbopol® 934
- suspending agent, paper treatment**  
Acritamer® 501E
- suspending agent, papermaking**  
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; *Water*
- suspending agent, pigment slurries**  
Alcosperse® 404
- suspending agent, pigment: paper/paperboard, aq./fatty food-contact**  
*Aminomethyl propanol*
- suspending agent, pigments**  
KELZAN®; KELZAN® XC Polymer; Rheolate® 2001
- suspending agent, PVC**  
*Polyvinyl acetate*
- suspending agent, PVC polymerization**  
*Hydroxypropylcellulose*
- suspending agent, silicone emulsions**  
Carbopol® 934
- suspending agent, solids**  
*Polyquaternium-5*
- suspending agent, suspension polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90
- suspending agent, water treatment**  
*Polyacrylamide*; *Sodium hexametaphosphate*
- suspension control agent, coatings**  
Claytone® SO
- suspension control agent, paper**  
Claytone® SO
- suspension control agent, waste treatment**  
Claytone® SO
- swelling agent, fiber**  
*Sodium thiocyanate*
- syn. latexes**  
*Nonyl nonoxynol-15*
- synergist, antioxidants**  
*Stearyl citrate*
- synergist, bacterial hydrolysis: cellulose**  
*Cellulase*
- synergist, flame-retardant: paper**  
FireShield® H; FireShield® L
- synergist, papermaking**  
Cypro® 514 Promoter
- synergist, UV-cured coatings**  
*Ethyl 4-(dimethylamino) benzoate*
- synergist, UV-cured lacquers**  
*Ethyl 4-(dimethylamino) benzoate*
- tackifier**  
Sylvatrac® 1085; Zonarez® M-1115
- tackifier resin, paper coatings**  
*Methyl rosinate*
- tackifier, aq. coatings**  
Doversperse 3; Doversperse A-1
- tackifier, carbon paper**  
*Octyl tallate*; Plasthall® 7041; Plasthall® 7049; Plasthall® R-9
- tackifier, coatings**  
*Glycerol hydrogenated rosinate*; *Glycerol rosinate*; Nevtac® 10°; Nevtac® 80; Nevtac® 100; Nevtac® 115; Super Nevtac® 99; *Terpene resin*; Zonarez® 1040; Zonarez® 1085; Zonarez® 1115T; Zonarez® 1125; Zonarez® 1135; Zonarez® T-4115; Zonatac® 105; Zonatac® 105L; Zonatac® 115L; Zonatac® 501; Zonatac® 501L; Zonatac® M-105; Zonester® 25
- tackifier, coatings: heat-sealable**  
*Hydrogenated rosin*
- tackifier, coatings: hot-melt-applied decorative**  
*Hydrogenated rosin*
- tackifier, coatings: pressure-sensitive**  
*Hydrogenated rosin*
- tackifier, computer ribbons**  
*Octyl tallate*
- tackifier, EVA**  
Abalyn®; Nevtac® 10°; Nevtac® 80; Nevtac® 100; Nevtac® 115; Pentalyn® H; Super Nevtac® 99
- tackifier, hot-melt coatings**  
Zonester® 85
- tackifier, lacquers**  
*Pentaerythrityl rosinate*
- tackifier, paper**  
Nirez® 7042; Pentalyn® A; Pentalyn® H; RITA PEO-1; RITA PEO-2; RITA PEO-3; RITA PEO-8; RITA PEO-18; RITA PEO-27; Zonarez® 1040; Zonarez® 1085; Zonarez® 1115T; Zonarez® 1125; Zonarez® 1135; Zonarez® T-4115; Zonatac® 501; Zonatac® 501L; Zonatac® M-105; Zonester® 25
- tackifier, paper coatings**  
Doversperse 3; Doversperse A-1; Nevpen® 9500
- tackifier, paperboard**  
Nirez® 7042
- tackifier, PE**  
Super Nevtac® 99
- tackifier, polyisobutylene**  
Abalyn®
- tackifier, polyisoprene**  
Super Nevtac® 99
- tackifier, polymeric coatings**  
Nirez® 7042
- tackifier, polymers**  
*C5 hydrocarbon resin*; *Terpene resin*; Uni-Tac® 70
- tackifier, PP**  
Super Nevtac® 99
- tackifier, PS**  
Abalyn®
- tackifier, PVC**  
*Diallyl phthalate*
- tackifier, resinous/polymeric food-contact coatings**  
Sylvatrac® 4083; Sylvatrac® 4105; Sylvatrac® 4136; Sylvatrac® 4203; Sylvatrac® 4216
- tackifier, SBR**  
Abalyn®; Acintol® R Type S; Uni-Tac® 70
- tackifier, varnishes**  
*Pentaerythrityl rosinate*
- tackifier, wastewater treatment**  
RITA PEO-1; RITA PEO-2; RITA PEO-3; RITA PEO-8; RITA PEO-18; RITA PEO-27
- tar recovery, water-gas process emulsions**  
*Oleyl hydroxyethyl imidazoline*
- taste control agent, water purification**  
*Ammonium alum*
- taste control agent, water treatment**  
*Ozone*
- taste control agent, water treatment/purification**  
*Chlorine dioxide*
- taste control, water treatment**  
*Diatomaceous earth*
- tear strength aid, paper saturation: label stock**  
Nacrylic X 4280; X-Link 2833
- tear strength aid, paper saturation: tag stock**  
Nacrylic X 4280; X-Link 2833
- thermal paper**  
Gohsenal; Gohseran
- thermoforming resin, blister packs**  
*Styrene/butadiene polymer*
- thermoplastic powd. coating reinforcing agent**  
*Poly- $\alpha$ -methylstyrene*
- thermoplastic resin, water-sol.: paper**  
PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M
- thermoplastic resin, water-sol.: paper prod.**  
PEG-5M
- thermoplastic resin, water-sol.: wastewater treatment**  
PEG-5M; PEG-9M; PEG-23M; PEG-45M
- thermoset, coatings**  
*Vinyl ester resin*
- thermoset, pulp/paper mills**  
*Vinyl ester resin*
- thermosetting resin, mica paper binder**  
*1,2-Vinylpolybutadiene*
- thermosetting resin, paper laminates**  
*1,2-Polybutadiene-styrene-divinyl benzene terpolymer*
- thickener**  
*Acrylic acid/acrylamide copolymer*; *Bentonite*; *Burco*® Imidazoline O; *Burco*® Imidazoline T; *Calcium stearate*; *Caprimide DEA*; *Carbomer*; *Carbomer 910*; *Carbopol*® 934P; *Carboxymethyl hydroxypropyl guar*; *Cetyl alcohol*; *DeTHOX ACID S-8*; *Dextrin*; *Glycol distearate*; *Krytox*® DF; *Krytox*® DF250/IPA; *Krytox*® DF/IPA; *Krytox*® DF/W; *Laureth-3*; *Lumulse*™ DGS; *Lumulse*™ DGS-C; *Lumulse*™ DGS-N; *Methylcellulose*; *Mhoromer*® BM 613; *Oleamide DEA*; *PEG-6 dilaurate*; *PEG-12 dilaurate*; *PEG-32 dilaurate*; *PEG-6 dioleate*; *PEG-12 dioleate*; *PEG-20 dioleate*; *PEG-32 dioleate*; *PEG-20 distearate*; *PEG-32 distearate*; *PEG-4 laurate*; *PEG-32 laurate*; *PEG-2M*; *PEG-90M*; *PEG-115M*; *PEG-20 oleate*; *PEG-32 oleate*; *PEG-75 oleate*; *PEG-32 stearate*; *Polyethylene*; *Polyisobutene*; *Polyox*® WSR 301; *Polyox*® WSR 3333; *Polyox*® WSR N-10; *Polyox*® WSR N-12K; *Polyox*® WSR N-60K; *Polyox*® WSR N-80; *Polyox*® WSR N-3000; *Polyvinyl alcohol*; *Propylene glycol stearate*; *Qemifloc CEPG 164*; *Rhoplex*® ASE-95NP; *Scogin*™ HVF; *Scogin*™

RITA PEO-8; RITA PEO-18; RITA PEO-27; Scogin™ HVF; Scogin™ LV; Scogin™ QH; Scogin™ QL; Scogin™ QM; *Silica*; Sodium Alginate HV NF/FCC; Sodium Alginate LV; Sodium Alginate LVC; Sodium Alginate MV NF/FCC; *Sodium methylphthalenesulfonate*; *Sodium methyl tall oil acid taurate*; *Sorbitan tristearate*; *Tetrapotassium pyrophosphate*; *Trideceth-4*; *Xanthan gum*

**suspending agent, anhydrous systems**  
*Synthetic beeswax*

**suspending agent, aq. pigment slurries: paper/paperboard, aq./fatty food-contact**  
*Xanthan gum*

**suspending agent, aq. systems**  
 Laponite® JS; Van Gel® B

**suspending agent, coatings**  
 Klucel® E; Klucel® L; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; *Polyacrylamide*

**suspending agent, emulsion polymerization**  
 Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**suspending agent, emulsions**  
 Acritamer® 504E; KELZAN®; KELZAN® XC Polymer

**suspending agent, fiber**  
 Celite® 263; Celite® 321; Celite® 388

**suspending agent, fiber processing**  
 Acritamer® 501E

**suspending agent, fiber suspensions**  
 Acritamer® 504E; Carbopol® 934

**suspending agent, paper**  
 Acritamer® 501E; Aqualon® CMC-T; KELZAN®; KELZAN® XC Polymer; Klucel® E; Klucel® L; Lomar® PW; Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K80; Luviskol® K90; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120

**suspending agent, paper coatings**  
 Alcosperse® 404; Colloid 488T; Colloid 602; Van Gel® B; Veegum® T

**suspending agent, paper converting operations**  
 Aqualon® CMC-T

**suspending agent, paper sizing**  
 Natrosol® 250; Ticaxan® Regular

**suspending agent, paper surface treatment**  
 Scogin™ F; Scogin™ HV; Scogin™ MV

**suspending agent, paper suspensions**  
 Acritamer® 504E; Carbopol® 934

**suspending agent, paper treatment**  
 Acritamer® 501E

**suspending agent, papermaking**  
 Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; *Water*

**suspending agent, pigment slurries**  
 Alcosperse® 404

**suspending agent, pigment: paper/paperboard, aq./fatty food-contact**  
*Aminomethyl propanol*

**suspending agent, pigments**  
 KELZAN®; KELZAN® XC Polymer; Rheolate® 2001

**suspending agent, PVC**  
*Polyvinyl acetate*

**suspending agent, PVC polymerization**  
*Hydroxypropylcellulose*

**suspending agent, silicone emulsions**  
 Carbopol® 934

**suspending agent, solids**  
*Polyquaternium-5*

**suspending agent, suspension polymerization**  
 Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**suspending agent, water treatment**  
*Polyacrylamide*; *Sodium hexametaphosphate*

**suspension control agent, coatings**

Claytone® SO

**suspension control agent, paper**  
 Claytone® SO

**suspension control agent, waste treatment**  
 Claytone® SO

**swelling agent, fiber**  
*Sodium thiocyanate*

**syn. latexes**  
*Nonyl nonoxynol-15*

**synergist, antioxidants**  
*Stearyl citrate*

**synergist, bacterial hydrolysis: cellulose**  
*Cellulase*

**synergist, flame-retardant: paper**  
 FireShield® H; FireShield® L

**synergist, papermaking**  
 Cypro® 514 Promoter

**synergist, UV-cured coatings**  
*Ethyl 4-(dimethylamino) benzoate*

**synergist, UV-cured lacquers**  
*Ethyl 4-(dimethylamino) benzoate*

**tackifier**  
 Sylvatrac® 1085; Zonarez® M-1115

**tackifier resin, paper coatings**  
*Methyl rosinate*

**tackifier, aq. coatings**  
 Doversperse 3; Doversperse A-1

**tackifier, carbon paper**  
*Octyl tallate*; Plasthall® 7041; Plasthall® 7049; Plasthall® R-9

**tackifier, coatings**  
*Glyceryl hydrogenated rosinate*; *Glyceryl rosinate*; Nevtac® 10°; Nevtac® 80; Nevtac® 100; Nevtac® 115; Super Nevtac® 99; *Terpene resin*; Zonarez® 1040; Zonarez® 1085; Zonarez® 1115T; Zonarez® 1125; Zonarez® 1135; Zonarez® T-4115; Zonatac® 105; Zonatac® 105L; Zonatac® 115L; Zonatac® 501; Zonatac® 501L; Zonatac® M-105; Zonester® 25

**tackifier, coatings: heat-sealable**  
*Hydrogenated rosin*

**tackifier, coatings: hot-melt-applied decorative**  
*Hydrogenated rosin*

**tackifier, coatings: pressure-sensitive**  
*Hydrogenated rosin*

**tackifier, computer ribbons**  
*Octyl tallate*

**tackifier, EVA**  
 Abalyn®; Nevtac® 10°; Nevtac® 80; Nevtac® 100; Nevtac® 115; Pentalyne® H; Super Nevtac® 99

**tackifier, hot-melt coatings**  
 Zonester® 85

**tackifier, lacquers**  
*Pentaerythrityl rosinate*

**tackifier, paper**  
 Nirez® 7042; Pentalyne® A; Pentalyne® H; RITA PEO-1; RITA PEO-2; RITA PEO-3; RITA PEO-8; RITA PEO-18; RITA PEO-27; Zonarez® 1040; Zonarez® 1085; Zonarez® 1115T; Zonarez® 1125; Zonarez® 1135; Zonarez® T-4115; Zonatac® 501; Zonatac® 501L; Zonatac® M-105; Zonester® 25

**tackifier, paper coatings**  
 Doversperse 3; Doversperse A-1; Nevpen® 9500

**tackifier, paperboard**  
 Nirez® 7042

**tackifier, PE**  
 Super Nevtac® 99

**tackifier, polyisobutylene**  
 Abalyn®

**tackifier, polyisoprene**  
 Super Nevtac® 99

**tackifier, polymeric coatings**  
 Nirez® 7042

**tackifier, polymers**  
*C5 hydrocarbon resin*; *Terpene resin*; Uni-Tac® 70

**tackifier, PP**  
 Super Nevtac® 99

**tackifier, PS**  
 Abalyn®

**tackifier, PVC**  
*Diallyl phthalate*

**tackifier, resinous/polymeric food-contact coatings**  
 Sylvatrac® 4083; Sylvatrac® 4105; Sylvatrac® 4136; Sylvatrac® 4203; Sylvatrac® 4216

**tackifier, SBR**  
 Abalyn®; Acintol® R Type S; Uni-Tac® 70

**tackifier, varnishes**  
*Pentaerythrityl rosinate*

**tackifier, wastewater treatment**  
 RITA PEO-1; RITA PEO-2; RITA PEO-3; RITA PEO-8; RITA PEO-18; RITA PEO-27

**tar recovery, water-gas process emulsions**  
*Oleyl hydroxyethyl imidazoline*

**taste control agent, water purification**  
*Ammonium alum*

**taste control agent, water treatment**  
*Ozone*

**taste control agent, water treatment/purification**  
*Chlorine dioxide*

**taste control, water treatment**  
*Diatomaceous earth*

**tear strength aid, paper saturation: label stock**  
 Nacrylic X 4280; X-Link 2833

**tear strength aid, paper saturation: tag stock**  
 Nacrylic X 4280; X-Link 2833

**thermal paper**  
 Gohsenal; Gohseran

**thermoforming resin, blister packs**  
*Styrene/butadiene polymer*

**thermoplastic powd. coating reinforcing agent**  
*Poly- $\alpha$ -methylstyrene*

**thermoplastic resin, water-sol.: paper**  
 PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M

**thermoplastic resin, water-sol.: paper prod.**  
 PEG-5M

**thermoplastic resin, water-sol.: wastewater treatment**  
 PEG-5M; PEG-9M; PEG-23M; PEG-45M

**thermoset, coatings**  
*Vinyl ester resin*

**thermoset, pulp/paper mills**  
*Vinyl ester resin*

**thermosetting resin, mica paper binder**  
*1,2-Vinylpolybutadiene*

**thermosetting resin, paper laminates**  
*1,2-Polybutadiene-styrene-divinyl benzene terpolymer*

**thickener**  
*Acrylic acid/acrylamide copolymer*; *Bentonite*; *Burco*® Imidazoline O; *Burco*® Imidazoline T; *Calcium stearate*; *Caprimide DEA*; *Carbomer*; *Carbomer 910*; *Carbopol*® 934P; *Carboxymethyl hydroxypropyl guar*; *Cetyl alcohol*; *DeTHOX ACID S-8*; *Dextrin*; *Glycol distearate*; *Krytox*® DF; *Krytox*® DF250/IPA; *Krytox*® DF/IPA; *Krytox*® DF/W; *Laureth-3*; *Lumulse*™ DGS; *Lumulse*™ DGS-C; *Lumulse*™ DGS-N; *Methylcellulose*; *Mhoromer*® BM 613; *Oleamide DEA*; *PEG-6 dilaurate*; *PEG-12 dilaurate*; *PEG-32 dilaurate*; *PEG-6 dioleate*; *PEG-12 dioleate*; *PEG-20 dioleate*; *PEG-32 dioleate*; *PEG-20 distearate*; *PEG-32 distearate*; *PEG-4 laurate*; *PEG-32 laurate*; *PEG-2M*; *PEG-90M*; *PEG-115M*; *PEG-20 oleate*; *PEG-32 oleate*; *PEG-75 oleate*; *PEG-75 oleate*; *PEG-32 stearate*; *Polyethylene*; *Polyisobutene*; *Polyox*® WSR 301; *Polyox*® WSR 3333; *Polyox*® WSR N-10; *Polyox*® WSR N-12K; *Polyox*® WSR N-60K; *Polyox*® WSR N-80; *Polyox*® WSR N-3000; *Polyvinyl alcohol*; *Propylene glycol stearate*; *Qemifloc CEPG 164*; *Rhoplex*® ASE-95NP; *Scogin*™ HVF; *Scogin*™

LV; Scogin™ QH; Scogin™ QL; Scogin™ QM; Silica; Sodium polyacrylate; Steareth-2; Stearyl alcohol; Styrene/acrylates copolymer; Styrene/MA copolymer, sodium salt; Syllysia 310; Syllysia 320; Syllysia 350; Veegum® T; Xanthan Gum; Zinc laurate

**thickener, aq. systems**  
PEG hydrogenated castor oil; Polyox® WSR Coagulant; Van Gel® B

**thickener, associative: aq. systems**  
Tafigel® PUR 40

**thickener, associative: coated paper**  
Tychem® 68710-00

**thickener, associative: paper**  
Sipomer® SEM 25; Tafigel® PUR 40

**thickener, associative: uncoated paper**  
Tychem® 68710-00

**thickener, board coatings**  
Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1047; Esi-Cryl™ 1055; Esi-Cryl™ 1056; Esi-Cryl™ 1065; Esi-Cryl™ 1066; Esi-Cryl™ 1099

**thickener, board surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**thickener, cardboard**  
Rhodoviol® 4/125

**thickener, coatings**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Polyacrylamide; Sodium polyacrylate

**thickener, coatings: food-contact**  
Styrene/MA copolymer, sodium salt; Styrene/methacrylic acid copolymer, potassium salt

**thickener, corrugated board coatings**  
Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1055

**thickener, corrugated coatings**  
Esi-Cryl™ 1056

**thickener, corrugated paper coatings**  
Esi-Cryl™ 1047; Esi-Cryl™ 1065; Esi-Cryl™ 1066; Esi-Cryl™ 1099

**thickener, diazo paper**  
Wacker HDK® N20

**thickener, emulsion polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; PEG-8 cocoate; PEG-12 ditallowate; PEG hydrogenated castor oil; PEG-20 hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate; PVM/MA copolymer

**thickener, emulsions**  
Acritamer® 504E; Glycerol stearate; PEG-8 cocoate; PEG-12 ditallowate; PEG-60 hydrogenated tallowate; PEG-12 ricinoleate

**thickener, fiber processing**  
Acritamer® 501E

**thickener, fiber suspensions**  
Acritamer® 504E; Carbopol® 934

**thickener, films**  
Sodium polyacrylate

**thickener, food defoamers containing dimethicone**  
Sodium polyacrylate

**thickener, industrial emulsions**  
PEG-8 distearate

**thickener, lubricants**  
Aluminum oleate; Aluminum palmitate; Aluminum tristearate

**thickener, newsprint coatings**  
Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1047; Esi-Cryl™ 1055; Esi-Cryl™ 1056; Esi-Cryl™ 1065; Esi-Cryl™ 1066; Esi-Cryl™ 1099

**thickener, paper**  
Acritamer® 501E; Aerosil® 200; Aqualon® CMC-T; Luviskol® K12; Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K80; Luviskol®

K90; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; PEG-8 cocoate; PEG-12 ditallowate; PEG hydrogenated castor oil; PEG-60 hydrogenated tallowate; PEG-5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-45M; PEG-12 ricinoleate; Pluracol® E400 NF; Pluracol® E600 NF; Pluracol® E1450; Pluracol® E2000; Pluracol® E4500; Pluracol® E8000; PVM/MA copolymer; Rhodoviol® 4/125; Smectite; TIC Pretested® Guar Gum TICOLV

**thickener, paper aq. systems**  
Liporol SP

**thickener, paper coatings**  
Admiral® Water Soluble Polymer; Alcogum® L-15; Alcospense® 404; Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1047; Esi-Cryl™ 1055; Esi-Cryl™ 1056; Esi-Cryl™ 1065; Esi-Cryl™ 1066; Esi-Cryl™ 1099; Hydroxyethylcellulose; Lauramine oxide; Rhodamox® CAPO; Sipernat® 22LS; Sta-Jel® 141; Sta-Jel® 142; Staramic® 105; Staramic® 747; Star\*pol® 136; Star\*pol® 410; Star\*pol® 468, 469, 600; Star\*pol® 700, 800; Sterocoll® BL; Sterocoll® FD; Sterocoll® FS

**thickener, paper coatings: food pkg.**  
Sterocoll® FS

**thickener, paper converting operations**  
Aqualon® CMC-T

**thickener, paper emulsions**  
PEG-20 hydrogenated castor oil

**thickener, paper finishes**  
Koster Keunen Beeswax; Rhodasurf® L-4

**thickener, paper sizing**  
Natrosol® 250; Ticaxan® Regular

**thickener, paper starch coatings**  
Emerest® 2640

**thickener, paper sticking**  
Prox® A 899 E

**thickener, paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**thickener, paper suspensions**  
Acritamer® 504E; Carbopol® 934

**thickener, paper treatment**  
Acritamer® 501E

**thickener, paperboard coatings**  
Sterocoll® BL; Sterocoll® FD; Sterocoll® FS

**thickener, paperboard coatings: food pkg.**  
Sterocoll® FS

**thickener, papermaking**  
Jungbunzlauer Xanthan Gum, Technical Grade; Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; PEG-2 stearate; Polyox® WSR 205; Polyox® WSR 303; Polyox® WSR N-750; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB

**thickener, pigment slurries**  
Alcospense® 404

**thickener, printing dyes**  
Carboxymethylcellulose sodium

**thickener, printing paper**  
Sylophobic

**thickener, pulp/paper**  
Paxogen COB; Paxogen LAO; Paxsorbate 20; Paxsorbate 60; Paxsorbate 80; Polypax IC; Polysynth RRE

**thickener, PVAc emulsions**  
Pycal 94

**thickener, reactive dye printing: cellulose fiber**  
Scogin™ HV; Scogin™ LV; Scogin™ MV

**thickener, silicone emulsification**  
Ceteth-2

**thickener, silicone emulsions**  
Carbopol® 934

**thickener, sludge: pulp/paper**  
Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24

**thickener, sludge: secondary: waste treatment**  
Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24

**thickener, sludge: water treatment**  
Percol® 368; Percol® 370; Percol® 402; Percol® 403; Percol® 406; Percol® 710; Percol® 712; Percol® 721; Percol® 722; Percol® 728; Percol® 734; Percol® 736; Percol® 737; Percol® 737HL; Percol® 742; Percol® 744; Percol® 745; Percol® 747; Percol® 748; Percol® 750; Percol® 751; Percol® 753; Percol® 755; Percol® 757; Percol® 759; Percol® 763; Percol® 764; Percol® 765; Percol® 766; Percol® 767; Percol® 775; Percol® 775 FS25; Percol® 775 FS40; Percol® 778; Percol® 778 FS25; Percol® 778 FS40; Percol® 780; Percol® 787; Percol® 788N; Percol® 790; Percol® 919; Percol® E24

**thickener, solvent emulsions**  
PEG hydrogenated castor oil

**thickener, starch-based paper coatings**  
Alkamuls® S-8

**thickener, surface active: coatings**  
Klucel® E; Klucel® L

**thickener, surface active: paper**  
Klucel® E; Klucel® L

**thickener, suspension polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**thickener, transfer paper printing**  
CHT Prisolun SNP-113S

**thickener, waste treatment**  
Smectite

**thickener, wastewater treatment**  
PEG-5M; PEG-9M; PEG-23M; PEG-45M

**thickener, water treatment**  
PEG-6 distearate; Polyacrylamide

**thickener, waxes**  
Acrylates copolymer

**thickener, wet scrubber**  
Cat-Floc® 8151; Cat-Floc® 8959

**thinner, lacquers**  
Turpentine

**thixotrope**  
Lithopone; Polyamide

**thixotrope, aq. systems**  
Laponite® JS

**thixotrope, coatings**  
Aramid; Van Gel® B

**thixotrope, diazo paper**  
Wacker HDK® N20

**thixotrope, paper**  
Smectite

- thixotrope, waste treatment  
*Smectite*
- threshold inhibitor, pulp/paper chemicals  
Aquacid-105 EX
- threshold inhibitor, pulp/paper chems.  
Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX
- threshold inhibitor, water treatment  
Aquacid-105 EX; Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX
- titanium dioxide substitute, paper  
Ultrapaque® PCC
- toner additive  
TEBAC
- toughener, coatings  
*Urea/formaldehyde resin*
- toughener, paper saturation: label stock  
Nacrylic X 4280; X-Link 2833
- toughener, paper saturation: tag stock  
Nacrylic X 4280; X-Link 2833
- towellettes  
Nucrel® 0407; Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214; Nucrel® 3990
- trace metal scavenger, effluent treatment  
*Sodium borohydride*
- transfer paper printing auxiliary  
Luprintol® FBT
- trash collector, anionic: coated broke  
Eldorado PA-755
- trash collector, anionic: paper, food-contact  
WAC® Paper
- trash collector, anionic: papermaking  
Redifloc® Series; WAC® Paper
- trash collector, anionic: pulp/paper  
Hydraid® 7607
- trash collector, anionic: thermomechanical pulp  
Eldorado PA-755
- trash collector, anionic: upstream retention prods.  
WAC® Paper
- trash collector, barium sulfate deposit control: papermaking  
Ekoflock™
- trash control agent, anionic: coated board  
Cartafix® CB Liq.
- trash control agent, anionic: coated paper  
Cartafix® CB Liq.
- trash control agent, anionic: paper  
Cartafix® CB Liq.; Cartafix® DPR Liq.
- trash control agent, anionic: paper, food-contact  
Cartafix® CB Liq.
- trash remover, pulp  
Praestafix®
- UV absorber  
*Carbon black*
- UV inhibitor  
*Hydroquinone monomethyl ether*
- UV initiator, paper coatings  
Trigonal® 12
- UV synergist  
Weston® 618
- UV/EB-cured prods., paper  
CN 971 A80
- UV-resistance resin, paper coatings  
Pliolite® AC
- varnishes  
*Alumina; Aluminum orthophosphate; Aluminum palmitate; Bone black; Candelilla synthetic; Carnauba (Copernicia cerifera) wax; Cellulose acetate; Copper nitrate (ic); Coumarone/indene resin; Elemi gum; 2,2',4,4',5,5'-Hexachlorobiphenyl; Pine (Pinus palustris) tar oil; Shellac; Stearyl methacrylate; Triphenyl phosphate*
- varnishes, paper  
WorléeSin MS 235
- vehicle  
*C20-40 pareth-3; C20-40 pareth-40; C30-50 pareth-10; C40-60 pareth-10; PEG-100; Propylene glycol stearate*
- vehicle, clear coating: paper  
Ecco Rez U-8
- vehicle, clear coatings: paper  
Carbaset® GA1604
- vehicle, clear coatings: paperboard  
Carbaset® GA1604
- vehicle, coatings  
Amoco® H-15; Amoco® L-14; Amoco® L-50; *Hydrogenated polybutene; Polybutene; Styrene/acrylates copolymer*
- vehicle, colorants  
*C20-40 pareth-10; C30-50 pareth-3; C40-60 pareth-3; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750*
- vehicle, enamels  
*Kerosene*
- vehicle, extending: board coatings  
Esi-Cryl™ 847; Esi-Cryl™ 865
- vehicle, extending: corrugated board coatings  
Esi-Cryl™ 847; Esi-Cryl™ 865
- vehicle, extending: newsprint coatings  
Esi-Cryl™ 847; Esi-Cryl™ 865
- vehicle, extending: paper coatings  
Esi-Cryl™ 847; Esi-Cryl™ 865
- vehicle, grinding: aq. coatings  
NeoCryl® BT-175
- vehicle, grinding: newsprint coatings  
Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1055
- vehicle, hard film-forming: paper, food pkg.  
Lucidene® 5020; Lucidene® 5021
- vehicle, high gloss: paper  
Carbaset® GA1086
- vehicle, high gloss: paperboard  
Carbaset® GA1086
- vehicle, latex  
*Styrene/acrylates copolymer*
- vehicle, letdown: corrugated board coatings  
Esi-Cryl™ 1055
- vehicle, letdown: corrugated coatings  
Esi-Cryl™ 1056
- vehicle, letdown: food pkg. coatings  
Lucidene® 5010; Lucidene® 5011
- vehicle, letdown: food pkg. paper  
Lucidene® 5010; Lucidene® 5011
- vehicle, letdown: newsprint coatings  
Esi-Cryl™ 1055; Esi-Cryl™ 1056
- vehicle, letdown: paper coatings  
Esi-Cryl™ 1055; Esi-Cryl™ 1056
- vehicle, paper  
Carbowax® PEG 300; Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex N; Snowtex O; Snowtex OL; Snowtex ST-UP; Snowtex ST-ZL; *Vinyl acrylic copolymer*
- vehicle, paper coatings  
Everflex® MA; *Vinyl acetate/ethylene/vinyl chloride terpolymer*
- vehicle, paper impregnation  
Everflex® MA
- vehicle, pigment grinding  
*Polyester adipate; Polyester resin, thermosetting; Styrene/acrylates copolymer; Urea/formaldehyde resin*
- vehicle, pigment pastes  
*Polyethylene*
- vehicle, pigmented coating: paper  
Ecco Rez U-8
- vehicle, surface coatings  
*Epoxy, bisphenol A*
- vehicle, thinners  
*Kerosene*
- vehicle, varnishes  
*Kerosene*
- vehicle, waxes  
*C20-40 pareth-10; C30-50 pareth-3; C40-60 pareth-3; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750*
- vehicles, pigment dispersions  
*Diisobutyl phthalate; Diisononyl phthalate*
- viscosity builder  
*Ammonium laurth sulfate; Ammonium lauryl sulfate; Armul™ 910; Burco® Imidazoline O; Burco® Imidazoline T; Coco-betaine; DeMOX CAPO; DeMOX LAO; Dihydroxyethyl cocamine oxide; Jaguar® 418; Jaguar® 2100®; Jaguar® 8707; PEG-2 laurate SE; Sodium lauryl sulfate; Sorbitol Sol'n. Noncrystallizing; Tallowamide DEA*
- viscosity builder, aq. pigment coatings  
*Carboxymethyl corn starch; Sodium carboxymethyl corn starch*
- viscosity builder, aq. systems  
Tafigel® PUR 40
- viscosity builder, coatings  
Claytone® SO
- viscosity builder, emulsion polymerization  
*TEA-lauryl sulfate*
- viscosity builder, emulsions  
*Glycerol stearate*
- viscosity builder, oil-well workover fluids  
*Hydroxypropyl guar*
- viscosity builder, paper  
Claytone® SO; Tafigel® PUR 40
- viscosity builder, paper coatings  
*Carboxymethyl corn starch; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; Sodium carboxymethyl corn starch; Vandrox® 184; Vandrox® 185F; Vandrox® 186*
- viscosity builder, papermaking size presses  
Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095
- viscosity builder, pulp  
Busperse® 379
- viscosity builder, pulp/paper  
Paxnol ALES; Paxnol ALS; Polypax EGDS; Polypax EGMS
- viscosity builder, pulp: kraft hard/soft wood pulp bleaching  
*Magnesium sulfate heptahydrate*
- viscosity builder, surfactant systems  
*Methyl hydroxystearate*
- viscosity builder, waste treatment  
Claytone® SO
- viscosity control agent  
*Acrylates/VA copolymer; Algin; Alginic acid; Alumina; Aluminum caprylate; Aluminum distearate; Aluminum hydroxide; Aluminum myristates/palmitates; Aluminum stearates; Aluminum tristearate; Ammonium sulfate; AntaroX® PGP 23-7; Bentonite; Butadiene/acrylonitrile copolymer; Butyl methacrylate; Calcium carrageenan; Calcium silicate; Capramide DEA; Carbomer; Carboxymethyl hydroxypropyl guar; Cellophane; Cellulose; Ceresin; Ceteareth-20; Cetearyl alcohol; Cetyl alcohol; Cocamide; Corn (Zea mays) starch; Dammar; Decyl alcohol; Dextrin; DiaFil® 110; DiaFil® 190; Dimethylaminoethyl methacrylate; Disodium EDTA; Erucamide; Ethylene dioleamide; Ethylene distearamide; Ethyl methacrylate; Gelatin; 1,2,6-Hexanetriol; Hydrogenated castor oil; Hydrogenated rice bran wax; Hydrogenated vegetable glyceride; Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl guar; Isobutylene/isoprene copolymer; Isobutylene/MA copolymer; Isostearyl alcohol; Lauramide DEA; Lauramine oxide; Lauryl methacrylate; Linoleamide DEA; Magnesium aluminum silicate; Magnesium carbonate hydroxide; Magnesium palmitate; Magnesium sulfate anhydrous; Methylcellulose; Methyl hydrogenated rosinate; Methyl soyate; Methylstyrene/vinyltoluene copolymer; Montan acid wax; Montan wax; Montmorillonite; Myristamide DEA; Myristyl alcohol; Neobor®; Nylon 12; Oleamide; Oleamide DEA; Oleyl alcohol; Ozokerite; Palmamide DEA;*

thixotrope, waste treatment  
*Smeclite*

threshold inhibitor, pulp/paper chemicals  
 Aquacid-105 EX

threshold inhibitor, pulp/paper chems.  
 Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX

threshold inhibitor, water treatment  
 Aquacid-105 EX; Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX

titanium dioxide substitute, paper  
 Ultrapaque® PCC

toner additive  
 TEBAC

toughener, coatings  
*Urea/formaldehyde resin*

toughener, paper saturation: label stock  
 Nacrylic X 4280; X-Link 2833

toughener, paper saturation: tag stock  
 Nacrylic X 4280; X-Link 2833

towellettes  
 Nucrel® 0407; Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214; Nucrel® 3990

trace metal scavenger, effluent treatment  
*Sodium borohydride*

transfer paper printing auxiliary  
 Luprintol® FBT

trash collector, anionic: coated broke  
 Eldorado PA-755

trash collector, anionic: paper, food-contact  
 WAC® Paper

trash collector, anionic: papermaking  
 Redifloc® Series; WAC® Paper

trash collector, anionic: pulp/paper  
 Hydrad® 7607

trash collector, anionic: thermomechanical pulp  
 Eldorado PA-755

trash collector, anionic: upstream retention prods.  
 WAC® Paper

trash collector, barium sulfate deposit control: papermaking  
 Ekoflock™

trash control agent, anionic: coated board  
 Cartafix® CB Liq.

trash control agent, anionic: coated paper  
 Cartafix® CB Liq.

trash control agent, anionic: paper  
 Cartafix® CB Liq.; Cartafix® DPR Liq.

trash control agent, anionic: paper, food-contact  
 Cartafix® CB Liq.

trash remover, pulp  
 Praestafix®

UV absorber  
 Carbon black

UV inhibitor  
*Hydroquinone monomethyl ether*

UV initiator, paper coatings  
 Trigonal® 12

UV synergist  
 Weston® 618

UV/EB-cured prods., paper  
 CN 971 A80

UV-resistance resin, paper coatings  
 Pliolite® AC

varnishes  
*Alumina; Aluminum orthophosphate; Aluminum palmitate; Bone black; Candelilla synthetic; Carnauba (Copernicia cerifera) wax; Cellulose acetate; Copper nitrate (ic); Coumarone/indene resin; Elemi gum; 2,2',4,4',5,5'-Hexachlorobiphenyl; Pine (Pinus palustris) tar oil; Shellac; Stearyl methacrylate; Triphenyl phosphate*

varnishes, paper  
 WorléeSin MS 235

vehicle  
 C20-40 *pareth-3*; C20-40 *pareth-40*; C30-50

*pareth-10*; C40-60 *pareth-10*; PEG-100;  
*Propylene glycol stearate*

vehicle, clear coating: paper  
 Ecco Rez U-8

vehicle, clear coatings: paper  
 Carboset® GA1604

vehicle, clear coatings: paperboard  
 Carboset® GA1604

vehicle, coatings  
 Amoco® H-15; Amoco® L-14; Amoco® L-50;  
*Hydrogenated polybutene; Polybutene; Styrene/acrylates copolymer*

vehicle, colorants  
 C20-40 *pareth-10*; C30-50 *pareth-3*; C40-60 *pareth-3*; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750

vehicle, enamels  
*Kerosene*

vehicle, extending: board coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, extending: corrugated board coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, extending: newsprint coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, extending: paper coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, grinding: aq. coatings  
 NeoCryl® BT-175

vehicle, grinding: newsprint coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1055

vehicle, hard film-forming: paper, food pkg.  
 Lucidene® 5020; Lucidene® 5021

vehicle, high gloss: paper  
 Carboset® GA1086

vehicle, high gloss: paperboard  
 Carboset® GA1086

vehicle, latex  
*Styrene/acrylates copolymer*

vehicle, letdown: corrugated board coatings  
 Esi-Cryl™ 1055

vehicle, letdown: corrugated coatings  
 Esi-Cryl™ 1056

vehicle, letdown: food pkg. coatings  
 Lucidene® 5010; Lucidene® 5011

vehicle, letdown: food pkg. paper  
 Lucidene® 5010; Lucidene® 5011

vehicle, letdown: newsprint coatings  
 Esi-Cryl™ 1055; Esi-Cryl™ 1056

vehicle, letdown: paper coatings  
 Esi-Cryl™ 1055; Esi-Cryl™ 1056

vehicle, paper  
 Carbowax® PEG 300; Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex N; Snowtex O; Snowtex OL; Snowtex ST-UP; Snowtex ST-ZL; *Vinyl acrylic copolymer*

vehicle, paper coatings  
 Everflex® MA; *Vinyl acetate/ethylene/vinyl chloride terpolymer*

vehicle, paper impregnation  
 Everflex® MA

vehicle, pigment grinding  
*Polyester adipate; Polyester resin, thermosetting; Styrene/acrylates copolymer; Urea/formaldehyde resin*

vehicle, pigment pastes  
*Polyethylene*

vehicle, pigmented coating: paper  
 Ecco Rez U-8

vehicle, surface coatings  
*Epoxy, bisphenol A*

vehicle, thinners  
*Kerosene*

vehicle, varnishes  
*Kerosene*

vehicle, waxes  
 C20-40 *pareth-10*; C30-50 *pareth-3*; C40-60 *pareth-3*; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750

vehicles, pigment dispersions  
*Diisobutyl phthalate; Diisononyl phthalate*

viscosity builder  
*Ammonium laureth sulfate; Ammonium lauryl sulfate; Armul™ 910; Burco® Imidazoline O; Burco® Imidazoline T; Coco-betaine; DeMOX CAPO; DeMOX LAO; Dihydroxyethyl cocamine oxide; Jaguar® 418; Jaguar® 2100®; Jaguar® 8707; PEG-2 laurate SE; Sodium lauryl sulfate; Sorbitol Sol'n. Noncrystallizing; Tallowamide DEA*

viscosity builder, aq. pigment coatings  
*Carboxymethyl corn starch; Sodium carboxymethyl corn starch*

viscosity builder, aq. systems  
 Tafigel® PUR 40

viscosity builder, coatings  
 Claytone® SO

viscosity builder, emulsion polymerization  
*TEA-lauryl sulfate*

viscosity builder, emulsions  
*Glycerol stearate*

viscosity builder, oil-well workover fluids  
*Hydroxypropyl guar*

viscosity builder, paper  
 Claytone® SO; Tafigel® PUR 40

viscosity builder, paper coatings  
*Carboxymethyl corn starch; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; Sodium carboxymethyl corn starch; Vandrox® 184; Vandrox® 185F; Vandrox® 186*

viscosity builder, papermaking size presses  
 Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095

viscosity builder, pulp  
 Busperse® 379

viscosity builder, pulp/paper  
 Paxnol ALES; Paxnol ALS; Polypax EGDS; Polypax EGMS

viscosity builder, pulp: kraft hard/soft wood pulp bleaching  
*Magnesium sulfate heptahydrate*

viscosity builder, surfactant systems  
*Methyl hydroxystearate*

viscosity builder, waste treatment  
 Claytone® SO

viscosity control agent  
*Acrylates/VA copolymer; Algin; Alginate acid; Alumina; Aluminum caprylate; Aluminum distearate; Aluminum hydroxide; Aluminum myristates/palmitates; Aluminum stearates; Aluminum tristearate; Ammonium sulfate; AntaroX® PGP 23-7; Bentonite; Butadiene/acrylonitrile copolymer; Butyl methacrylate; Calcium carrageenan; Calcium silicate; Capramide DEA; Carbomer; Carboxymethyl hydroxypropyl guar; Cellophane; Cellulose; Ceresin; Ceteareth-20; Cetearyl alcohol; Cetyl alcohol; Cocamide; Corn (Zea mays) starch; Dammar; Decyl alcohol; Dextrin; DiaFil® 110; DiaFil® 190; Dimethylaminoethyl methacrylate; Disodium EDTA; Erucamide; Ethylene dioleamide; Ethylene distearamide; Ethyl methacrylate; Gelatin; 1,2,6-Hexanetriol; Hydrogenated castor oil; Hydrogenated rice bran wax; Hydrogenated vegetable glyceride; Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl guar; Isobutylene/isoprene copolymer; Isobutylene/MA copolymer; Isostearyl alcohol; Lauramide DEA; Lauramine oxide; Lauryl methacrylate; Linoleamide DEA; Magnesium aluminum silicate; Magnesium carbonate hydroxide; Magnesium palmitate; Magnesium sulfate anhydrous; Methylcellulose; Methyl hydrogenated rosinate; Methyl soyate; Methylstyrene/vinyltoluene copolymer; Montan acid wax; Montan wax; Montmorillonite; Myristamide DEA; Myristyl alcohol; Neobor®; Nylon 12; Oleamide; Oleamide DEA; Oleyl alcohol; Ozokerite; Palmamide DEA;*

thixotrope, waste treatment  
*Smeclite*

threshold inhibitor, pulp/paper chemicals  
 Aquacid-105 EX

threshold inhibitor, pulp/paper chems.  
 Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX

threshold inhibitor, water treatment  
 Aquacid-105 EX; Aquacid-106 EX; Aquacid-108 EX; Aquacid-109 EX

titanium dioxide substitute, paper  
 Ultrapaque® PCC

toner additive  
 TEBAC

toughener, coatings  
*Urea/formaldehyde resin*

toughener, paper saturation: label stock  
 Nacrylic X 4280; X-Link 2833

toughener, paper saturation: tag stock  
 Nacrylic X 4280; X-Link 2833

towellettes  
 Nucrel® 0407; Nucrel® 0609HS; Nucrel® 0908HS; Nucrel® 0910HS; Nucrel® 1214; Nucrel® 3990

trace metal scavenger, effluent treatment  
*Sodium borohydride*

transfer paper printing auxiliary  
 Luprintol® FBT

trash collector, anionic: coated broke  
 Eldorado PA-755

trash collector, anionic: paper, food-contact  
 WAC® Paper

trash collector, anionic: papermaking  
 Redifloc® Series; WAC® Paper

trash collector, anionic: pulp/paper  
 Hydrad® 7607

trash collector, anionic: thermomechanical pulp  
 Eldorado PA-755

trash collector, anionic: upstream retention prods.  
 WAC® Paper

trash collector, barium sulfate deposit control: papermaking  
 Ekoflock™

trash control agent, anionic: coated board  
 Cartafix® CB Liq.

trash control agent, anionic: coated paper  
 Cartafix® CB Liq.

trash control agent, anionic: paper  
 Cartafix® CB Liq.; Cartafix® DPR Liq.

trash control agent, anionic: paper, food-contact  
 Cartafix® CB Liq.

trash remover, pulp  
 Praestafix®

UV absorber  
 Carbon black

UV inhibitor  
*Hydroquinone monomethyl ether*

UV initiator, paper coatings  
 Trigonal® 12

UV synergist  
 Weston® 618

UV/EB-cured prods., paper  
 CN 971 A80

UV-resistance resin, paper coatings  
 Pliolite® AC

varnishes  
*Alumina; Aluminum orthophosphate; Aluminum palmitate; Bone black; Candelilla synthetic; Carnauba (Copernicia cerifera) wax; Cellulose acetate; Copper nitrate (ic); Coumarone/indene resin; Elemi gum; 2,2',4,4',5,5'-Hexachlorobiphenyl; Pine (Pinus palustris) tar oil; Shellac; Stearyl methacrylate; Triphenyl phosphate*

varnishes, paper  
 WorléeSin MS 235

vehicle  
 C20-40 *pareth-3*; C20-40 *pareth-40*; C30-50

*pareth-10*; C40-60 *pareth-10*; PEG-100;  
*Propylene glycol stearate*

vehicle, clear coating: paper  
 Ecco Rez U-8

vehicle, clear coatings: paper  
 Carboset® GA1604

vehicle, clear coatings: paperboard  
 Carboset® GA1604

vehicle, coatings  
 Amoco® H-15; Amoco® L-14; Amoco® L-50;  
*Hydrogenated polybutene; Polybutene; Styrene/acrylates copolymer*

vehicle, colorants  
 C20-40 *pareth-10*; C30-50 *pareth-3*; C40-60 *pareth-3*; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750

vehicle, enamels  
*Kerosene*

vehicle, extending: board coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, extending: corrugated board coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, extending: newsprint coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, extending: paper coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865

vehicle, grinding: aq. coatings  
 NeoCryl® BT-175

vehicle, grinding: newsprint coatings  
 Esi-Cryl™ 847; Esi-Cryl™ 865; Esi-Cryl™ 1055

vehicle, hard film-forming: paper, food pkg.  
 Lucidene® 5020; Lucidene® 5021

vehicle, high gloss: paper  
 Carboset® GA1086

vehicle, high gloss: paperboard  
 Carboset® GA1086

vehicle, latex  
*Styrene/acrylates copolymer*

vehicle, letdown: corrugated board coatings  
 Esi-Cryl™ 1055

vehicle, letdown: corrugated coatings  
 Esi-Cryl™ 1056

vehicle, letdown: food pkg. coatings  
 Lucidene® 5010; Lucidene® 5011

vehicle, letdown: food pkg. paper  
 Lucidene® 5010; Lucidene® 5011

vehicle, letdown: newsprint coatings  
 Esi-Cryl™ 1055; Esi-Cryl™ 1056

vehicle, letdown: paper coatings  
 Esi-Cryl™ 1055; Esi-Cryl™ 1056

vehicle, paper  
 Carbowax® PEG 300; Snowtex 20L; Snowtex 40; Snowtex 50; Snowtex C; Snowtex N; Snowtex O; Snowtex OL; Snowtex ST-UP; Snowtex ST-ZL; *Vinyl acrylic copolymer*

vehicle, paper coatings  
 Everflex® MA; *Vinyl acetate/ethylene/vinyl chloride terpolymer*

vehicle, paper impregnation  
 Everflex® MA

vehicle, pigment grinding  
*Polyester adipate; Polyester resin, thermosetting; Styrene/acrylates copolymer; Urea/formaldehyde resin*

vehicle, pigment pastes  
*Polyethylene*

vehicle, pigmented coating: paper  
 Ecco Rez U-8

vehicle, surface coatings  
*Epoxy, bisphenol A*

vehicle, thinners  
*Kerosene*

vehicle, varnishes  
*Kerosene*

vehicle, waxes  
 C20-40 *pareth-10*; C30-50 *pareth-3*; C40-60 *pareth-3*; Unithox® 420; Unithox® 450; Unithox® 480; Unithox® 520; Unithox® 550; Unithox® 720; Unithox® 750

vehicles, pigment dispersions  
*Diisobutyl phthalate; Diisononyl phthalate*

viscosity builder  
*Ammonium laureth sulfate; Ammonium lauryl sulfate; Armul™ 910; Burco® Imidazoline O; Burco® Imidazoline T; Coco-betaine; DeMOX CAPO; DeMOX LAO; Dihydroxyethyl cocamine oxide; Jaguar® 418; Jaguar® 2100®; Jaguar® 8707; PEG-2 laurate SE; Sodium lauryl sulfate; Sorbitol Sol'n. Noncrystallizing; Tallowamide DEA*

viscosity builder, aq. pigment coatings  
*Carboxymethyl corn starch; Sodium carboxymethyl corn starch*

viscosity builder, aq. systems  
 Tafigel® PUR 40

viscosity builder, coatings  
 Claytone® SO

viscosity builder, emulsion polymerization  
*TEA-lauryl sulfate*

viscosity builder, emulsions  
*Glycerol stearate*

viscosity builder, oil-well workover fluids  
*Hydroxypropyl guar*

viscosity builder, paper  
 Claytone® SO; Tafigel® PUR 40

viscosity builder, paper coatings  
*Carboxymethyl corn starch; Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095; Sodium carboxymethyl corn starch; Vandrox® 184; Vandrox® 185F; Vandrox® 186*

viscosity builder, papermaking size presses  
 Ethylex® 2005, 2015, 2020, 2025, 2035, 2040, 2065, 2075, 2095

viscosity builder, pulp  
 Busperse® 379

viscosity builder, pulp/paper  
 Paxnol ALES; Paxnol ALS; Polypax EGDS; Polypax EGMS

viscosity builder, pulp: kraft hard/soft wood pulp bleaching  
*Magnesium sulfate heptahydrate*

viscosity builder, surfactant systems  
*Methyl hydroxystearate*

viscosity builder, waste treatment  
 Claytone® SO

viscosity control agent  
*Acrylates/VA copolymer; Algin; Alginate acid; Alumina; Aluminum caprylate; Aluminum distearate; Aluminum hydroxide; Aluminum myristates/palmitates; Aluminum stearates; Aluminum tristearate; Ammonium sulfate; AntaroX® PGP 23-7; Bentonite; Butadiene/acrylonitrile copolymer; Butyl methacrylate; Calcium carrageenan; Calcium silicate; Capramide DEA; Carbomer; Carboxymethyl hydroxypropyl guar; Cellophane; Cellulose; Ceresin; Ceteareth-20; Cetearyl alcohol; Cetyl alcohol; Cocamide; Corn (Zea mays) starch; Dammar; Decyl alcohol; Dextrin; DiaFil® 110; DiaFil® 190; Dimethylaminoethyl methacrylate; Disodium EDTA; Erucamide; Ethylene dioleamide; Ethylene distearamide; Ethyl methacrylate; Gelatin; 1,2,6-Hexanetriol; Hydrogenated castor oil; Hydrogenated rice bran wax; Hydrogenated vegetable glyceride; Hydroxyethylcellulose; Hydroxypropylcellulose; Hydroxypropyl guar; Isobutylene/isoprene copolymer; Isobutylene/MA copolymer; Isostearyl alcohol; Lauramide DEA; Lauramine oxide; Lauryl methacrylate; Linoleamide DEA; Magnesium aluminum silicate; Magnesium carbonate hydroxide; Magnesium palmitate; Magnesium sulfate anhydrous; Methylcellulose; Methyl hydrogenated rosinate; Methyl soyate; Methylstyrene/vinyltoluene copolymer; Montan acid wax; Montan wax; Montmorillonite; Myristamide DEA; Myristyl alcohol; Neobor®; Nylon 12; Oleamide; Oleamide DEA; Oleyl alcohol; Ozokerite; Palmamide DEA;*



*Palmitamide DEA; Paraffin; PEG-5 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-8 ditallate; PEG-12 ditallate; PEG-6 laurate; PEG-8 laurate; PEG-2M; PEG-5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-90M; PEG-115M; PEG-13 oleate; PEG-23 oleate; PEG-8 sesquioleate; PEG-14 tallate; PEI-15; PEI-30; PEI-275; PEI-700; PEI-1000; PEI-1400; PEI-1500; PEI-1750; PEI-2500; Pentaerythrityl tetraoleate; Pentaerythrityl tetrastearate; Polyacrylic acid; Polybutene; Polybutylene terephthalate; Polyethylene; Polyethylene, oxidized; Polyisobutene; Polymethyl methacrylate; Polypropylene; Polyvinyl alcohol; Polyvinyl butyral; Potassium carrageenan; Potassium silicate; Propylene glycol alginate; Propylene glycol dicaprylate; Propylene glycol dilaurate; Propylene glycol distearate; Silica, hydrated; Smectite; Sodium tetraborate pentahydrate; Tylose® C-G1; Urea/formaldehyde resin*

**viscosity control agent, cellulose derivs.**  
*Hydrogen peroxide*

**viscosity control agent, coating colors**  
Acrosol™ C 50 L; Sterocoll® FS

**viscosity control agent, coatings**  
*PEG-8 oleate*

**viscosity control agent, paper**  
*Cellulose; Meroxapal 108; Meroxapal 171; Meroxapal 172; Meroxapal 174; Meroxapal 178; Meroxapal 251; Meroxapal 252; Meroxapal 254; Meroxapal 255; Meroxapal 258; Meroxapal 311; Meroxapal 312; Meroxapal 314*

**viscosity control agent, paper coatings**  
Lumiten® P

**viscosity control agent, papermaking**  
*Meroxapal 105*

**viscosity control agent, pulp/paper**  
Nonionic 1025-R; Nonionic 2017-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123

**viscosity control agent, water treatment**  
Etopol 62DX-L; Etopol 62LF-L; Nonionic 1025-R; Nonionic 2017-R; Nonionic 4025-R; Nonionic 5025-R; *PEG-4 dilaurate*; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123

**viscosity index improver**  
Ageflex FM-1; Ageflex FM-10; *Dimethylaminoethyl methacrylate; Isodecyl acrylate; Isodecyl methacrylate; Methacrylic acid copolymer; Milldride® ODSA; 2-Phenoxyethyl acrylate; Polybutene*

**viscosity modifier**  
DeMULS PSML-20; *PEG-80 sorbitan laurate; Polysorbate 61; Polysorbate 81; Polysorbate 85; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; Steareth-20; Veegum® T*

**viscosity modifier, coatings**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Pegospense® 600 DOT

**viscosity modifier, emulsion polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**viscosity modifier, epoxy novolacs**  
*Epoxy, bisphenol F*

**viscosity modifier, paper**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Pegospense® 400 DOT; Pegospense® 600 DOT

**viscosity modifier, paper coatings**  
Van Gel® B; Veegum® T

**viscosity modifier, papermaking**  
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB

**viscosity modifier, pigment coatings**  
Tylose® C-G1

**viscosity modifier, pulp/paper**  
Nonionic 1035-L

**viscosity modifier, suspension polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**viscosity modifier, water treatment**  
Pegospense® 400 DOT; Pegospense® 600 DOT

**viscosity reducer**  
*Ammonium naphthalene sulfonate; C20-40 alcohols; Crill 1; Crill 2; Harol D; Lomar® PWA; Monawet SNO-35; Sodium xylenesulfonate; Unilin® 425 Alcohol*

**viscosity reducer, emulsion polymerization**  
*Ditridecyl sodium sulfosuccinate*

**viscosity reducer, emulsion polymerization of PVC**  
Geropon® BIS/SODICO-2

**viscosity reducer, paper softeners**  
Chemquat 12/33; Chemquat 12/50; Chemquat 16/50

**viscosity reducer, pigment slurries**  
Crisotan NN; Crisotan NR; Lomar® PWA

**viscosity reducer, plastisols**  
KP-140®

**viscosity reducer, PVC**  
*PPG-36 oleate*

**viscosity reducer, PVC emulsion**  
Geropon® CYA/DEP; Geropon® DOS

**viscosity reducer, vinyl plastic sol'ns.**  
*PEG-5 laurate*

**wash-flotation collector**  
Hartaflo™ SE-6250

**wash-flotation systems**  
Hartaflo™ SE-6400-1

**washing agent**  
*C12-14 parth-5*

**washing agent, paper auxiliaries**  
Zusolat 1008/85; Zusolat 1010/85

**washing pulp**  
Ultrazym 100

**waste treatment**  
*t-Butyl hydroperoxide; Mazu® DF 230SX; PVP; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120; T-Hydro® Sol'n.*

**waste treatment, pulp/paper**  
Percol® 720 (LT20); Percol® 725 (LT25); Percol® 726 (LT26); Percol® 727 (LT27); Percol® LT22; Percol® LT22S; Percol® LT24

**wastewater disinfection, pulp/paper**  
*Ozone*

**wastewater treatment**  
*Amylase; Chargemaster® R462; CS-10; Distearylidimonium chloride; Foamgard® 1332; FX-704; FX-706; PEG-90M; PEG-160M; Protease; Silicone Antifoam Emulsion SE 23; Silicone Antifoam Emulsion SRE; Sodium chlorite*

**water absorbent, ink jet printing paper**  
PenExcel™ Sizing Agent

**water absorption barrier, hardboard**  
Octowax 695

**water absorption barrier, paper sizing**  
Octowax 695

**water absorption barrier, paper, food-contact**  
Octowax 695

**water absorption barrier, paperboard**  
Octowax 695

**water absorption control agent, sizing: nonfood paper pkg.**  
Paracol® 802N

**water absorption control agent, sizing: nonfood paperboard pkg.**  
Paracol® 802N

**water clarifier, paper**  
Agefloc B50LV

**water disinfection**  
*Sodium hypochlorite*

**water evaporation control agent**  
Alfol® 20+

**water holder, board surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**water holder, paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**water purification**  
*Aluminum sulfate; Bone black; Calcium hypochlorite; Sodium hypochlorite; Sodium peroxide*

**water release aid, papermaking**  
Chargemaster® R615

**water repellent**  
*Aluminum formate; Coconut acid; Ecco Aluminum Formate; 2-(N-Ethylperfluorooctane-sulfonamido) ethyl acrylate; EXP-61 Amine Functional Silicone Wax; Fluorad® FX-13; Kemamide® W-20; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Necco Fire Retardant 2762; Necco FR 682; Necco FR 7065D; Octadecenyl succinic anhydride; Ross Palm Wax No. 765; Ross Palm Wax No. 1475; Ross Palm Wax No. 1581; Triethanolamine; Vestowax® AO 1535; Vestowax® AO 2733*

**water repellent component, paper**  
Protec ZAT; Protec ZZA

**water repellent compositions**  
Masil® SFR 70; Milldride® ODSA

**water repellent treatment, paper**  
Foraperle® 225; *Zirconium acetate*

**water repellent treatment, paperboard**  
Foraperle® 225

**water repellent, board surface finishing**  
Cerol® MN Liq.

**water repellent, coatings**  
Cecavon® CA 31; Quilon® L; Shamrock Hydrocer EP 91

**water repellent, food pkg.**  
Quilon® C; Quilon® H; Quilon® L; Quilon® S

**water repellent, food separators**  
Quilon® L; Quilon® S

**water repellent, grease-crawl-resistant paper**  
Quilon® L; Quilon® S

**water repellent, grease-resistant paper**  
Quilon® C; Quilon® H; Quilon® L; Quilon® S

**water repellent, industrial release sheets**  
Quilon® S

**water repellent, pan liners**  
Quilon® L; Quilon® S

**water repellent, paper**  
*Ammonium zirconyl carbonate; Bersize® 6155; Bersize® 6400; Drakeol® 35; Dynakoll; Ecco Aluminum Formate; Penreco Amber; Penreco Blond; Penreco Regent; Quilon® H; Quilon® L; Raneoff F-9; Silicone; Stearylaminopropyl methicone copolymer; X-Link 2893*

**water repellent, paper surface finishing**  
Cerol® M Liq.; Cerol® MN Liq.

**water repellent, paper surface finishing: dry food-contact**  
Cerol® M Liq.

**water repellent, paper surfaces**  
TH-44

**water repellent, paper/paperboard: aq./fatty**

viscosity control agent, cellulose derivs.

*Palmitamide DEA; Paraffin; PEG-5 castor oil; PEG-8 castor oil; PEG-15 castor oil; PEG-8 ditallate; PEG-12 ditallate; PEG-6 laurate; PEG-8 laurate; PEG-2M; PEG-5M; PEG-7M; PEG-9M; PEG-14M; PEG-23M; PEG-90M; PEG-115M; PEG-13 oleate; PEG-23 oleate; PEG-8 sesquioleate; PEG-14 tallate; PEI-15; PEI-30; PEI-275; PEI-700; PEI-1000; PEI-1400; PEI-1500; PEI-1750; PEI-2500; Pentaerythrityl tetraoleate; Pentaerythrityl tetrastearate; Polyacrylic acid; Polybutene; Polybutylene terephthalate; Polyethylene; Polyethylene, oxidized; Polyisobutene; Polymethyl methacrylate; Polypropylene; Polyvinyl alcohol; Polyvinyl butyral; Potassium carrageenan; Potassium silicate; Propylene glycol alginate; Propylene glycol dicaprylate; Propylene glycol dilaurate; Propylene glycol distearate; Silica, hydrated; Smectite; Sodium tetraborate pentahydrate; Tylose® C-G1; Urea/formaldehyde resin*

**viscosity control agent, cellulose derivs.**  
*Hydrogen peroxide*

**viscosity control agent, coating colors**  
Acrosol™ C 50 L; Sterocoll® FS

**viscosity control agent, coatings**  
*PEG-8 oleate*

**viscosity control agent, paper**  
*Cellulose; Meroxapol 108; Meroxapol 171; Meroxapol 172; Meroxapol 174; Meroxapol 178; Meroxapol 251; Meroxapol 252; Meroxapol 254; Meroxapol 255; Meroxapol 258; Meroxapol 311; Meroxapol 312; Meroxapol 314*

**viscosity control agent, paper coatings**  
Lumiten® P

**viscosity control agent, papermaking**  
*Meroxapol 105*

**viscosity control agent, pulp/paper**  
Nonionic 1025-R; Nonionic 2017-R; Nonionic 2025-R; Nonionic 4017-R; Nonionic 4025-R; Nonionic 5025-R; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123

**viscosity control agent, water treatment**  
Etopol 62DX-L; Etopol 62LF-L; Nonionic 1025-R; Nonionic 2017-R; Nonionic 4025-R; Nonionic 5025-R; *PEG-4 dilaurate*; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123

**viscosity index improver**  
Ageflex FM-1; Ageflex FM-10; *Dimethylaminoethyl methacrylate; Isodecyl acrylate; Isodecyl methacrylate; Methacrylic acid copolymer; Milldride® ODSA; 2-Phenoxyethyl acrylate; Polybutene*

**viscosity modifier**  
DeMULS PSML-20; *PEG-80 sorbitan laurate; Polysorbate 61; Polysorbate 81; Polysorbate 85; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; Steareth-20; Veegum® T*

**viscosity modifier, coatings**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Pegospense® 600 DOT

**viscosity modifier, emulsion polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**viscosity modifier, epoxy novolacs**  
*Epoxy, bisphenol F*

**viscosity modifier, paper**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; Pegospense® 400 DOT; Pegospense® 600 DOT

**viscosity modifier, paper coatings**  
Van Gel® B; Veegum® T

**viscosity modifier, papermaking**  
Locust Bean Gum Type A-100; Locust Bean Gum Type A-250; Locust Bean Gum Type A-270; Powdered Guar Gum Type A; Powdered Guar Gum Type AA; Powdered Guar Gum Type B; Powdered Guar Gum Type BB

**viscosity modifier, pigment coatings**  
Tylose® C-G1

**viscosity modifier, pulp/paper**  
Nonionic 1035-L

**viscosity modifier, suspension polymerization**  
Luviskol® K17; Luviskol® K30; Luviskol® K60; Luviskol® K90

**viscosity modifier, water treatment**  
Pegospense® 400 DOT; Pegospense® 600 DOT

**viscosity reducer**  
*Ammonium naphthalene sulfonate; C20-40 alcohols; Crill 1; Crill 2; Harol D; Lomar® PWA; Monawet SNO-35; Sodium xylenesulfonate; Unilin® 425 Alcohol*

**viscosity reducer, emulsion polymerization**  
*Ditridecyl sodium sulfosuccinate*

**viscosity reducer, emulsion polymerization of PVC**  
Geropon® BIS/SODICO-2

**viscosity reducer, paper softeners**  
Chemquat 12/33; Chemquat 12/50; Chemquat 16/50

**viscosity reducer, pigment slurries**  
Crisotan NN; Crisotan NR; Lomar® PWA

**viscosity reducer, plastisols**  
KP-140®

**viscosity reducer, PVC**  
*PPG-36 oleate*

**viscosity reducer, PVC emulsion**  
Geropon® CYA/DEP; Geropon® DOS

**viscosity reducer, vinyl plastic sol'ns.**  
*PEG-5 laurate*

**wash-flotation collector**  
Hartaflo™ SE-6250

**wash-flotation systems**  
Hartaflo™ SE-6400-1

**washing agent**  
*C12-14 parth-5*

**washing agent, paper auxiliaries**  
Zusolat 1008/85; Zusolat 1010/85

**washing pulp**  
Ultrazym 100

**waste treatment**  
*t-Butyl hydroperoxide; Mazu® DF 230SX; PVP; PVP K-15; PVP K-15 Sol'n.; PVP K-30; PVP K-60 Sol'n.; PVP K-90; PVP K-90 Sol'n.; PVP K-120; T-Hydro® Sol'n.*

**waste treatment, pulp/paper**  
Percol® 720 (LT20); Percol® 725 (LT25); Percol® 726 (LT26); Percol® 727 (LT27); Percol® LT22; Percol® LT22S; Percol® LT24

**wastewater disinfection, pulp/paper**  
*Ozone*

**wastewater treatment**  
*Amylase; Chargemaster® R462; CS-10; Distearylidimonium chloride; Foamgard® 1332; FX-704; FX-706; PEG-90M; PEG-160M; Protease; Silicone Antifoam Emulsion SE 23; Silicone Antifoam Emulsion SRE; Sodium chlorite*

**water absorbent, ink jet printing paper**  
PenExcel™ Sizing Agent

**water absorption barrier, hardboard**  
Octowax 695

**water absorption barrier, paper sizing**  
Octowax 695

**water absorption barrier, paper, food-contact**  
Octowax 695

**water absorption barrier, paperboard**  
Octowax 695

**water absorption control agent, sizing: nonfood paper pkg.**  
Paracol® 802N

**water absorption control agent, sizing: nonfood paperboard pkg.**  
Paracol® 802N

**water clarifier, paper**  
Agefloc B50LV

**water disinfection**  
*Sodium hypochlorite*

**water evaporation control agent**  
Alfol® 20+

**water holder, board surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**water holder, paper surface treatment**  
Scogin™ F; Scogin™ HV; Scogin™ MV

**water purification**  
*Aluminum sulfate; Bone black; Calcium hypochlorite; Sodium hypochlorite; Sodium peroxide*

**water release aid, papermaking**  
Chargemaster® R615

**water repellent**  
*Aluminum formate; Coconut acid; Ecco Aluminum Formate; 2-(N-Ethylperfluorooctane-sulfonamido) ethyl acrylate; EXP-61 Amine Functional Silicone Wax; Fluorad® FX-13; Kemamide® W-20; Kemamide® W-39; Kemamide® W-40; Kemamide® W-45; Necco Fire Retardant 2762; Necco FR 682; Necco FR 7065D; Octadecenyl succinic anhydride; Ross Palm Wax No. 765; Ross Palm Wax No. 1475; Ross Palm Wax No. 1581; Triethanolamine; Vestowax® AO 1535; Vestowax® AO 2733*

**water repellent component, paper**  
Protec ZAT; Protec ZZA

**water repellent compositions**  
Masil® SFR 70; Milldride® ODSA

**water repellent treatment, paper**  
Foraperle® 225; *Zirconium acetate*

**water repellent treatment, paperboard**  
Foraperle® 225

**water repellent, board surface finishing**  
Cerol® MN Liq.

**water repellent, coatings**  
Cecavon® CA 31; Quilon® L; Shamrock Hydrocer EP 91

**water repellent, food pkg.**  
Quilon® C; Quilon® H; Quilon® L; Quilon® S

**water repellent, food separators**  
Quilon® L; Quilon® S

**water repellent, grease-crawl-resistant paper**  
Quilon® L; Quilon® S

**water repellent, grease-resistant paper**  
Quilon® C; Quilon® H; Quilon® L; Quilon® S

**water repellent, industrial release sheets**  
Quilon® S

**water repellent, pan liners**  
Quilon® L; Quilon® S

**water repellent, paper**  
*Ammonium zirconyl carbonate; Bersize® 6155; Bersize® 6400; Drakeol® 35; Dynakoll; Ecco Aluminum Formate; Penreco Amber; Penreco Blond; Penreco Regent; Quilon® H; Quilon® L; Raneoff F-9; Silicone; Stearylaminopropyl methicone copolymer; X-Link 2893*

**water repellent, paper surface finishing**  
Cerol® M Liq.; Cerol® MN Liq.

**water repellent, paper surface finishing: dry food-contact**  
Cerol® M Liq.

**water repellent, paper surfaces**  
TH-44

**water repellent, paper/paperboard: aq./fatty**

- food-contact**  
*Bis (methoxymethyl) tetrakis-[(octadecyloxy)-methyl] melamine resin; Perfluoroalkyl acrylate copolymer*
- water repellent, paper: food pkg.**  
 Foraperle® 321
- water repellent, paperboard**  
 Berbond® 8032; Bersize® 6155; Bersize® 6400; Quilon® H; Quilon® L
- water repellent, paperboard: food pkg.**  
 Foraperle® 321
- water repellent, paperboard: paperboard**  
 Raneoff F-9
- water repellent, papermaking**  
 Suntori WP
- water repellent, pkg. materials**  
 Quilon® C; Quilon® H; Quilon® L; Quilon® S
- water repellent, pressure-sensitive tape/label separator sheets**  
 Quilon® L
- water repellent, pressure-sensitive tapes/labels separator sheets**  
 Quilon® S
- water repellent, release paper**  
 Quilon® C; Quilon® L; Quilon® S
- water repellent, surface finishing: board**  
 Cerol® M Liq.
- water repellent, varnishes**  
 Shamrock Hydrocer EP 91
- water repellent, vinyl polymer**  
*Methacrylatochromic chloride*
- water repellent, waxed paper**  
 ZAA
- water repellent, zirconium, paper**  
 ZAA
- water resistance aid**  
 Airvol® 103; Airvol® 107; Airvol® 125; Airvol® 165; Airvol® 205S; Airvol® 305; Airvol® 321; Airvol® 325; Airvol® 350; Basocoll® OV; *Butyl oleate*
- water resistance aid, alkaline paper coatings**  
 GMF-B
- water resistance aid, coatings**  
*Polyamide/epichlorohydrin polymer; POLYSTEP® B-7; Styrene/allyl alcohol copolymer*
- water resistance aid, films**  
 Aerosol® NPES 930
- water resistance aid, finished sheet: paper surface strength**  
 Nopcote® 1680
- water resistance aid, neutral paper coatings**  
 GMF-B
- water resistance aid, paper**  
 Lodyne®
- water resistance aid, paper coatings**  
 Glyoxal
- water resistance aid, paper surfaces**  
 Microlube™ N
- water resistance aid, paperboard**  
 Lodyne®
- water resistance aid, size presses**  
 Sequapel® 403; Sequapel® 409; Sequapel® 414; Sequapel® 417; Sequapel® NS; Sunsize® 4133; Sunsize® 4134
- water resistance aid, starch-based coatings**  
 Polycup® 172; Polycup® 1884
- water softener, regeneration: ion exchange materials**  
*Sodium chloride*
- water treatment**  
 Acriflow 041-S; *Acrylates copolymer*; Acusol® 810; Acusol® 820; Acusol® 830; Adeka Hypote; Ageflex FM-2; Alcoa® KB30; *Aluminum sulfate; Calcium sulfate dihydrate*; Carbopol® 907; *C11-15 parath-7; C11-15 parath-9; C11-15 parath-12*; Crystal™ 78; Crystal™ 82; *Diammonium EDTA; 1,3-Dichloro-5,5-dimethyl hydantoin; Diacyldimmonium chloride; Diethylaminoethyl methacrylate; Diisobutyl sodium sulfosuccinate; Dioctyl sodium sulfosuccinate; Disodium EDTA*; DK-230 Nonsilicone Defoamer; Etopol 61-L; Formula 315; Glycowax® 765; Good-Rite® K-765 Polymer; Good-Rite® K-766 Polymer; *Isolaureth-10*; Kalipol™ 4KP; Marasperse 52 CP; MHT® 60 S; MHT® 60 XS; *Mineral oil*; Monawet MO-70E; Monawet MO-85P; *Montmorillonite*; PD-25; PD-28; *PEG-8 ditallate*; *PEG-12 ditallate*; *Phosphonic acid*; *Poloxamer 101*; *Poloxamer 105*; *Poloxamer 108*; *Poloxamer 123*; *Poloxamer 124*; *Poloxamer 181*; *Poloxamer 182*; *Poloxamer 184*; *Poloxamer 185*; *Poloxamer 188*; *Poloxamer 231*; *Poloxamer 234*; *Poloxamer 235*; *Poloxamer 238*; *Poloxamer 282*; *Poloxamer 288*; *Poloxamer 331*; *Poloxamer 333*; *Poloxamer 334*; *Poloxamer 335*; *Poloxamer 338*; *Poloxamer 401*; *Poloxamer 402*; *Poloxamer 403*; *Poloxamer 407*; *Polyacrylic acid*; *Potassium hexamethylene diamine tetra (methylene phosphonate)*; Protectol® KLC 50; PVP; Oemifloc FL 71; Scripset® 500; Scripset® 520; Scripset® 540; Scripset® 542; Scripset® 550; Scripset® 640; Scripset® 700; Scripset® 720; Scripset® 740; Scripset® 742; Scripset® 745; Scripset® 746; Scripset® 747; Scripset® 808; *Sodium hexametaphosphate*; *Sodium hypochlorite*; *Sodium phosphate tribasic*; *Stearamine*; Surfonic® L108/85-5; Surfonic® LF-18; Surfonic® LF-37; Surfonic® LF-40; Surfonic® LF-41; Surfonic® LF-47; Surfonic® LF-68; Surfonic® LF-0312; Surfonic® P-1; Surfonic® P-3; Surfonic® P-5; Surfonic® P-6; Surfonic® POA-25R2; Surfonic® POA-L42; Surfonic® POA-L44; Surfonic® POA-L61; Surfonic® POA-L62; Surfonic® POA-L62LF; Surfonic® POA-L64; Surfonic® POA-L81; Surfonic® POA-L101; Surfonic® POA-LF1; Surfonic® POA-LF2; Surfonic® POA-LF5; Surfonic® POA-S38; Teric™ PE 61; Teric™ PE 62; Teric™ PE 64; Teric™ PE 68; Teric™ PE 75; Teric™ PE 87; *Tetrakis (hydroxymethyl) phosphonium sulfate*; Versene 100 SRG; Vista LPA; Zohar ZDB
- water treatment agent**  
 Sodium MBT
- water treatment chemicals**  
*Diethylaminoethyl acrylate; Dimethylaminoethyl acrylate; Dolomite*
- water treatment polymer**  
 Good-Rite® K-7058 Polymer; Good-Rite® K-7600N Polymer
- water treatment polymer, acrylic: sludge control**  
 Acumer® 1850
- water treatment polymer, scale inhibition: stressed cooling water**  
 Acumer® 1110
- water treatment, pulp mills**  
*Sodium hydroxide*
- water treatment, pulp/paper**  
 Percol® 720 (LT20); Percol® 725 (LT25); Percol® 726 (LT26); Percol® 727 (LT27); Percol® LT22; Percol® LT22S; Percol® LT24
- water vapor barrier, food pkg.**  
 Synthro®-Pel WA 491
- water vapor barrier, paper coatings**  
 Synthro®-Pel WA 491
- water vapor barrier, paper sticking**  
 Synthro®-Pel WA 491
- waterproof coating, paper/paperboard: food-contact**  
*Zirconium oxide*
- waterproofing**  
 Baypren Latex 4 R; Baypren Latex B; Baypren Latex GK; Baypren Latex MKB; Baypren Latex SK; Baypren Latex T; Koster Keunen Candelilla; PM 3082
- waterproofing agent**  
*Aluminum oleate; Aluminum stearate; Calcium resinate; Calcium stearate; Candelilla synthetic; Candelilla (Euphorbia cerifera) wax; Carnauba (Copernicia cerifera) wax; Elemi gum; Lanolin; Paraformaldehyde; Potassium alum anhydrous; Silicone emulsions; Sodium alum; Tallow acid*
- waterproofing agent, butcher paper**  
 Penreco Amber
- waterproofing agent, heat-seal paper coatings**  
 Microthene® MN 701-00; Microthene® MN 710-20
- waterproofing agent, paper**  
*Aluminum palmitate; Aluminum tristearate; Ammonium stearate; Cecavon® NA 61; Cecavon® ZN 70; Cecavon® ZN 735; GP-223; Linseed (Linum usitatissimum) oil; Masil® SF-MH; Methicone; Paraffin; Piccopale® 100; Piccopale® 100-70M66; Piccotac® 95T; Pine (Pinus palustris) tar oil; Rosin; Tristearin; Tung oil; Umbrellit® B 30; Umbrellit® B 30 Mod.; Umbrellit® S 30; Zinc stearate*
- waterproofing agent, paper coatings**  
 Cecavon® CA 350 P
- waterproofing agent, paperboard**  
 Piccotac® 95T
- waterproofing agent, size presses**  
 Cecavon® CA 350 P
- waterproofing agent, specialty paper**  
 Aquafilm
- waterproofing compositions**  
*Butyl oleate; Cottonseed (Gossypium) oil; 2,2',4,4',5,5'-Hexachlorobiphenyl; Hydrogenated cottonseed oil*
- waterproofing, fiberboard**  
 Koster Keunen Microcrystalline Waxes
- waterproofing, paper**  
 Koster Keunen Microcrystalline Waxes
- water-repellent compositions**  
*Stearamide MEA-stearate; Witcamide® MAS*
- water-repellent compositions, paper**  
 Bacote™ 20
- water-repellent formulations, paper**  
*Ammonium zirconium carbonate*
- wax**  
 Hoechst Wax PED 522; *Hydrogenated vegetable oil*; Ross Japan Wax; TLV 68-SB; TLV 68-UB; TLV 70-SB; TLV 70-UB; Yelkin® DS; Yelkin® SS; Yelkin® T; Yelkin® TS
- wax additive**  
 A-C® 430; *Calcium stearate; Isobutylene/ isoprene copolymer*; Slip-Ayd® SL 555
- wax additive, blends**  
 A-C® 400A
- wax additive, coatings**  
 ACumist® A-18; ACumist® C-30
- wax blends**  
*Hydroxystearic acid*
- wax compositions**  
 Elemi gum
- wax emulsion, fiber board pkg.**  
 Teric™ 16M10
- wax emulsion, paper coatings**  
 Octowax 321; Octowax 518
- wax emulsion, sizing**  
 Octowax 321; Octowax 518
- wax modifier**  
 Pexite® Wood Rosins; Polywax® 500; Polywax® 655; Polywax® 850; Polywax® 1000; Polywax® 2000; Polywax® 3000
- wax paper**  
 Beeswax; Ceresin
- wax substitute**  
*Cetylarchidol; Dodecylhexadecanol*
- wax, carbon paper**  
 Ross Montan Wax; Ross Ouricury Wax Replacement
- wax, coatings**  
 A-C® 325; A-C® 330; A-C® 392; A-C® 400; *Microcrystalline wax, oxidized*
- wax, dry-bright: film finishing**

**wax, dry-bright: paper**

Luwax® LGE  
**wax, dry-bright: paper**  
 Luwax® LGE  
**wax, emulsions**  
 A-C® 680; *Glycol/butylene glycol montanate*;  
*Microcrystalline wax, oxidized*; *Polyethylene, oxidized*  
**wax, film coatings**  
 Hoechst Wax KSL  
**wax, finishes**  
*Polyethylene, oxidized*  
**wax, high hardness: paper**  
 Luwax® OA 5  
**wax, hot-melt coatings**  
*Microcrystalline wax*; Starwax® 100  
**wax, hot-melt coatings: paper**  
 Epolene® C-10  
**wax, lacquers**  
*Microcrystalline wax*  
**wax, modifier**  
*Synthetic wax*  
**wax, one-time carbon paper**  
 Petrolite® WB-5  
**wax, paper**  
 A-C® 15; Ross Wax #140; Ross Wax #160  
**wax, paper coatings**  
 A-C® 6; A-C® 6A; A-C® 629; A-C® 629A; A-C® 655; A-C® 656; *Candelilla synthetic*; Candelilla Wax SP 24A; Candelilla Wax SP 50; Candelilla Wax SP 75; Candelilla Wax SP 76; Candelilla Wax SP 78 Prime Quality Crude; Candelilla Wax SP 99; Candelilla Wax SP 350; Candelilla Wax SP 803; Candelilla Wax Fine; Carnauba Wax SP 8; Carnauba Wax SP 59-2; Carnauba Wax SP 63; Carnauba Wax SP 63 NF; Carnauba Wax SP 64 (Extra Light); Carnauba Wax SP 135; Carnauba Wax SP 142; Carnauba Wax SP 200; Carnauba Wax Coarse; Carnauba Wax Fine; Carnauba Wax Hard; Carnauba Wax Soft; Carnauba Wax Superfine; Epolene® C-15; Epolene® C-15P; Hoechst Wax KSL; Hoechst Wax PE 890; *Microcrystalline wax*; Ross Synthetic Candelilla Wax  
**wax, paper sizes**  
*Candelilla synthetic*; Candelilla Wax SP 24A; Candelilla Wax SP 50; Candelilla Wax SP 75; Candelilla Wax SP 76; Candelilla Wax SP 78 Prime Quality Crude; Candelilla Wax SP 99; Candelilla Wax SP 350; Candelilla Wax SP 803; Candelilla Wax Fine; Ross Synthetic Candelilla Wax  
**wax, pkg. materials**  
 Epolene® C-10; Epolene® C-15; Epolene® C-15P  
**wax, plastic modification**  
*Microcrystalline wax*  
**wax, sizing**  
 Ross Montan Wax  
**wax, syn.**  
*Ethylenediamine*  
**wax, varnishes**  
*Microcrystalline wax*  
**wet rub aid, offset/opaque communication paper grades**  
 NovaBond® 150  
**wet rub aid, printing board uncoated sides**  
 NovaBond® 150  
**wet rub aid, printing paper uncoated sides**  
 NovaBond® 150  
**wet web break inhibitor, pressroom**  
 PolyWeb® 5000  
**wet-end additions**  
 Laminating Adhesive #5110  
**wet-end additive, papermaking**  
 Locust Bean Gum Speckless Type D-200; Powdered Gum Guar NF Type 80 Mesh B/T; Powdered Gum Guar Type 140 Mesh B/T; Powdered Gum Guar Type ECM; Powdered Gum Guar Type M; Powdered Gum Guar Type MM FCC; Powdered Gum Guar Type MM (HV); Powdered Gum Guar Type MMM 1/2;

MM FCC; Powdered Gum Guar Type MM (HV); Powdered Gum Guar Type MMM 1/2; Powdered Gum Guar Type MMW; Powdered Locust Bean Gum Type D-200; Powdered Locust Bean Gum Type D-300; Powdered Locust Bean Gum Type P-100; Powdered Locust Bean Gum Type PP-100  
**wet-end additive, sizes**  
 Powdered Gum Guar NF Type 80 Mesh B/T; Powdered Gum Guar Type 140 Mesh B/T; Powdered Gum Guar Type ECM; Powdered Gum Guar Type M; Powdered Gum Guar Type MM FCC; Powdered Gum Guar Type MM (HV); Powdered Gum Guar Type MMM 1/2; Powdered Gum Guar Type MMW  
**wet-end additive, sizing**  
 Locust Bean Gum Speckless Type D-200  
**wet-end applics, paper**  
 Tiona® A-2000  
**wet-strength agent, acid paper**  
 Prox® 923  
**wet-strength agent, neutral paper**  
 Gilulton 1100/28 N; Gilulton HP; Gilulton NL 15; Prox® V P 137  
**wet-strength agent, paper**  
*Adipic acid/dimethylaminohydroxypropyl diethylenetriamine copolymer*; Apollo® Cationic Starches; Ecco Aluminum Formate; Luresin®; *Melamine-formaldehyde resin*; Pencat® Cationic Starches; *Polyamideamine-epichlorohydrin resin*; *Polyamidoamine-epichlorohydrin*; Polymin® PR 971 L; *Urea/formaldehyde resin*  
**wet-strength agent, paper saturation**  
 Dur-O-Set® E-646; X-Link 2893  
**wet-strength agent, paper saturation: filtration**  
 Dur-O-Set® E-623; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33; Resyn® 1090; X-Link 5627  
**wet-strength agent, paper saturation: label stock**  
 Dur-O-Set® Elite 22; Dur-O-Set® Elite 33  
**wet-strength agent, paper saturation: tag stock**  
 Aerosol® 18; Dur-O-Set® Elite 22; Dur-O-Set® Elite 33  
**wet-strength agent, paper/paperboard: aq./fatty food-contact**  
*Dialdehyde guar gum*; *Dialdehyde locust bean gum*; *N-Methylallylamine hydrochloride polymer with epichlorohydrin*  
**wet-strength agent, paperboard**  
 Apollo® Cationic Starches; Pencat® Cationic Starches; *Polyamideamine-epichlorohydrin resin*  
**wet-strength agent, papermaking**  
 Astro® X Cationic Starches; Hanwet HW-96E; Hercobond®; Kenores® Series; Pen-sprae® Starch  
**wet-strength agent, papermaking: craft paper**  
 Toatus 604T  
**wet-strength agent, papermaking: tissue paper**  
 Toatus 604T  
**wet-strength agent, papermaking: wet-proofing corrugated containers**  
 Toatus 604T  
**wet-strength agent, starches**  
 Hanwet HW-96E  
**wet-strength applics., paper**  
 Rohamere® 1900-D  
**wet-strength breaker, repulping: wet-strength paper**  
 Degal BP; Degal S  
**wet-strength improver, paper**  
*Aluminum formate*; *Periodic acid*  
**wet-strength improver, photographic paper**  
*Periodic acid*  
**wet-strength resin**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® C382; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® LOPR; Amres® MOC-3066; Amres® PR-247 HV; Amres® PR-335 CU; Amres® X-184

**wet-strength resin, acid papermaking**  
 QEMI WSR 8122A; QEMI WSR 8123A  
**wet-strength resin, alkaline papermaking**  
 QEMI WSR 8122A; QEMI WSR 8123A  
**wet-strength resin, card paper**  
 Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, core paper**  
 Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, corrugating medium furnishes**  
 QEMI WSR 8123A  
**wet-strength resin, decoration paper**  
 Cecamid® Resins  
**wet-strength resin, fiber card board liner**  
 Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, fine paper**  
 QEMI WSR 8122A  
**wet-strength resin, food paper**  
 Cecamid® Resins  
**wet-strength resin, heavy-duty pkg. paper**  
 Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, high cationic demand furnishes**  
 QEMI WSR 8123A  
**wet-strength resin, kraft paper**  
 Amres® C382; Amres® LOPR; Amres® PR-247 HV; Amres® PR-335 CU; Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, labels**  
 Cecamid® Resins  
**wet-strength resin, linerboard**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® C382; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® LOPR; Amres® MOC-3066; Amres® PR-247 HV; Amres® PR-335 CU; Amres® X-184  
**wet-strength resin, liq. pkg.**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® MOC-3066; Amres® X-184  
**wet-strength resin, paper**  
 Adi-pure®; BHMT Amine; *Bis-hexamethylenetriamine*; *Epichlorohydrin*; Etadurin 31; Hercules® 37M6-8; QEMI WSR 8122A; QEMI WSR 8123A  
**wet-strength resin, paper bags**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® MOC-3066; Amres® X-184  
**wet-strength resin, paper handkerchiefs**  
 Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, paper napkins**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® MOC-3066; Amres® X-184; Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, paper specialties**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® MOC-3066; Amres® X-184  
**wet-strength resin, paper towels**  
 Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® MOC-3066; Amres® X-184; Torez Resin P-1012; Torez Resin P-1025  
**wet-strength resin, paper: aq./fatty food-contact**  
 QEMI WSR 8122A; QEMI WSR 8123A  
**wet-strength resin, paperboard**  
 QEMI WSR 8122A; QEMI WSR 8123A

**wet-strength resin, paperboard: aq./fatty food-contact**

QEMI WSR 8122A; QEMI WSR 8123A

**wet-strength resin, papermaking**

Amres® 2747; Amres® 8855; Amres® 8870; Amres® C12; Amres® C20; Amres® C25; Amres® C28; Amres® C382; Amres® HP-25; Amres® HS-30; Amres® LA-12-2; Amres® LOPR; Amres® MOC-3066; Amres® PR-247 HV; Amres® PR-335 CU; Amres® X-184; Cecamid® Resins

**wet-strength resin, printing paper**

Torez Resin P-1012; Torez Resin P-1025

**wet-strength resin, recycle furnishes**

QEMI WSR 8123A

**wet-strength resin, recycled stock**

QEMI WSR 8122A; QEMI WSR 8123A

**wet-strength resin, sanitation paper**

Torez Resin P-1012; Torez Resin P-1025

**wet-strength resin, specialty paper**

Cecamid® Resins; QEMI WSR 8122A

**wet-strength resin, tissue paper**

Cecamid® Resins; Torez Resin P-1012; Torez Resin P-1025

**wet-strength resin, tube paper container board**

Torez Resin P-1012; Torez Resin P-1025

**wet-strength resin, unbleached kraft**

QEMI WSR 8123A

**wet-strength resin, virgin stock**

QEMI WSR 8122A; QEMI WSR 8123A

**wet-strength resin, writing paper**

Torez Resin P-1012; Torez Resin P-1025

**wetting agent**

Adekanol RP-605D; Adekanol RP-807; Adekanol RP-870; Adekanol RP-882; Aerosol® C-61; Aerosol® OT-70 PG; Aerosol® OT-S; Alfonic® 1412-9; Alkanol® 189-S; Alkenyl succinic anhydride; Aluminum stearate; Ammonium polyacrylate; Arizona DR-22; Behenyl hydroxyethyl imidazoline; Butoxyethanol; Calcium lignosulfonate; Capramide DEA; Cetareth-2; Cetareth-20; Cetareth-50; Ceteth-20; Cetoeth-8; Cetoeth-10; Cetoeth-25; Cetyl alcohol; Cetyl betaine; C10-11 isoparaffin; C11-12 isoparaffin; C11-13 isoparaffin; C13-14 isoparaffin; Cocamide DEA; Coco-betaine; C9-11 pareth-3; C9-11 pareth-5; C9-11 pareth-6; C9-11 pareth-8; C9-11 pareth-12; C10-12 pareth-3; C10-12 pareth-5; C12-13 pareth-7; C12-14 pareth-5; C12-14 pareth-9; C12-15 pareth-3; C12-15 pareth-5; C12-15 pareth-6; C12-15 pareth-10; C12-15 pareth-12; C13-15 pareth-9; Crill 1; Crill 2; Crill 4; Crill 43; Crill 45; Crillet 1 HP; Crillet 1 NF; Crillet 2; Crillet 4; Crillet 31; Crillet 35; Crillet 41; Crillet 45; Deceth-4 phosphate; DelONIC LF-EP-20; DelONIC LF-EP-30; DelONIC OPE-30; DelONIC OPE-40; DeMOX CAPO; DeMOX LAO; DeTHOX LA-4; DeTHOX LA-23; Dihydroxyethyl cocamine oxide; Ditridecyl sodium sulfosuccinate; Dow Corning® 26 Additive; 2-Ethylhexanol; Geropon® T-33; Geropon® T-43; Geropon® T-51; Geropon® T-77; Glyceryl distearate; Glyceryl oleate; Glyceryl ricinoleate; Glyceryl stearate SE; Hyonic® OP-100; Igepal® CO-897; Isolaureth-3; Isolaureth-6; Isolaureth-10; Isopar® G; Isopar® H; Isopar® K; Isopar® L; Isopar® M; Isostearyl ethylimidonium ethosulfate; Isoundeceth-3; Isoundeceth-6; Isoundeceth-9; Isoundeceth-12; Lauric acid; Lecithin; Maranil® Paste A 55; Methyl myristate; Methyl palmitate; Methyl polysiloxane; Methyl ricinoleate; MIPA-dodecylbenzene-sulfonate; Monawet MO-70E; Monawet MT-70; Monawet SNO-35; Nonoxynol-1; Nonoxynol-2;

Nonoxynol-3; Nonoxynol-4; Nonoxynol-5; Nonoxynol-6; Nonoxynol-7; Nonoxynol-8; Nonoxynol-9; Nonoxynol-10; Nonoxynol-11; Nonoxynol-12; Nonoxynol-13; Nonoxynol-14; Nonoxynol-18; Nonoxynol-20; Nonoxynol-23; Nonoxynol-25; Nonoxynol-30; Nonoxynol-40; Nonoxynol-50; Nonoxynol-55; Nonoxynol-60; Nonoxynol-70; Nonoxynol-100; Nortox® 90; Octowet 60-I; Octoxynol; Octoxynol-12; Oleth-15; PEG-60 corn glycerides; PEG-4 dicocotate; PEG-6 dilaurate; PEG-8 dilaurate; PEG-20 dilaurate; PEG-32 dilaurate; PEG-6 dioleate; PEG-20 dioleate; PEG-32 dioleate; PEG-20 distearate; PEG-32 distearate; PEG-8 isolauryl thioether; PEG-75 lanolin; PEG-4 laurate; PEG-32 laurate; PEG-32 oleate; PEG-75 oleate; PEG-8 sesquioleate; PEG-80 sorbitan laurate; PEG-2 soyamine; PEG-20 stearamine; PEG-30 stearamine; PEG-32 stearate; PEG-10 tetramethyl decylenediol; Pentasol DO-70PG; Persoft NK-60, NK-100; Pine (*Pinus palustris*) oil; Pluronic® 17R2; Pluronic® 25R2; Poloxamer 101; Poloxamer 105; Poloxamer 108; Poloxamer 122; Poloxamer 123; Poloxamer 124; Poloxamer 181; Poloxamer 182; Poloxamer 183; Poloxamer 184; Poloxamer 185; Poloxamer 188; Poloxamer 212; Poloxamer 215; Poloxamer 231; Poloxamer 234; Poloxamer 235; Poloxamer 237; Poloxamer 238; Poloxamer 282; Poloxamer 284; Poloxamer 288; Poloxamer 331; Poloxamer 333; Poloxamer 334; Poloxamer 335; Poloxamer 338; Poloxamer 401; Poloxamer 402; Poloxamer 403; Poloxamer 407; Propylene glycol oleate; Pycal 94; Ralufon® EA 15-90; Rapol B-30, B-80, B-90, C-70; Servoxy® VPNZ 71/100; Silicone; Silicone glycol copolymer; Sodium butyl oleate sulfonate; Sodium dibutyl naphthalene sulfonate; Sodium diisooctyl sulfosuccinate; Sodium methyl oleoyl laurate; Sodium octoxynol-2 ethane sulfonate; Sodium oleic sulfonate; Sodium tallow sulfate; Stearamine; Steareth-2; Sulfated castor oil; Sulfotex OA; Surfonic® DOS-70MS; Surfonic® JL-80X; Synperonic OP10; TEGO® Wet 260; Tergitol® TMN-3; Teric™ 18M2; Teric™ 18M5; Teric™ 18M10; Teric™ 18M20; Teric™ 18M30; p-Toluene sulfonic acid; Trideceth-2; Trideceth-4; Trideceth-7; Trideceth-23; Trideceth-25; Trideceth-6 phosphate; Triton® X-305-70%; Trycol® 6962; Trycol® 6970; Trycol® 6984; Undeceth-7; Zinc rosinate; Zonyl® A**wetting agent, ABS**

Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; Polassium rosinate; Sodium rosinate

**wetting agent, acrylate emulsion polymerization**

Ammonium nonoxynol-4 sulfate

**wetting agent, alkaline range**

Curol® RZ 80

**wetting agent, alkaline systems: pH 13**

Leukonol LBA-2

**wetting agent, alkalines**

Monafax 1214

**wetting agent, aq. coatings**

Disponil® SUS IC 865; Disponil® SUS IC 875;

PEG-1.3 tetramethyl decylenediol; PEG-30

tetramethyl decylenediol; Surfynol® 465

**wetting agent, aq. systems**

C12-14 pareth-17; C12-14 pareth-22; C16-18 pareth-16; C16-18 pareth-22; C16-18 pareth-29; PEG hydrogenated castor oil; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Surfonic® LF-17; Surfynol® 104A; Surfynol® 104NP; Troysperse W

**wetting agent, bleaching**

Atlas EMJ-C; Rhodafac® BG-510

**wetting agent, butadiene emulsion polymerization**

Ammonium nonoxynol-4 sulfate

**wetting agent, carbon black**

Darvan® 1

**wetting agent, cellulose**

Isotrideceth-7; Rewopal® HV 9; Rewopal® HV

25; Teric™ 13A7

**wetting agent, cellulose films**

Disponil® SUS IC 865

**wetting agent, clays**

Armuli™ 910

**wetting agent, cleaners**

Alcohol

**wetting agent, coating systems**

Carboset® 514H

**wetting agent, coatings**

Alcohol; Ammonium lauryl sulfate; C14-15 pareth-3; C14-15 pareth-4; C14-16 pareth-4; C16-18 pareth-2; C16-18 pareth-6; C16-18 pareth-8; C16-18 pareth-14; DelONIC 100-VLF; Imbentín-AG/124/020 I; Imbentín-AG/124/030 B; Imbentín-AG/124/040 I; Imbentín-AG/124PG/020; Imbentín-AG/124PG/030; Imbentín-AG/124S/020 I; Imbentín-AG/124S/030; Imbentín-AG/124S/040; Imbentín-AG/146/040; Imbentín-AG/168S/020; Imbentín-AG/168S/060; Imbentín-AG/168S/080; Imbentín-AG/168S/110; Imbentín-AG/168S/140; Imbentín-AG/168S/180 G; Imbentín-AG/200/025; Imbentín-C/91/025; Imbentín-C/125/030; Imbentín-C/135/030; Imbentín-C/135/040; Imbentín-C/145/030; Imbentín-CAM/020; Imbentín-L/145/040; Imbentín-N/040; Imbentín-N/050; Imbentín-OA/020; Imbentín-POA/050 7075; Imbentín-POA/060; Imbentín-SAM/050; Imbentín-T/030; Imbentín-T/040; Imbentín-TAM/050; Imbentín-U/030; Lodyne®; Octowet 60-I; Octowet 70; Octowet 70BC; Octowet 75; Silwet® L-77; Silwet® L-722; Triton® X-102; Triton® X-165-70%

**wetting agent, continuous films**Rapeseed (*Brassica campestris*) oil**wetting agent, dispersions**

Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389

**wetting agent, dust control**

Volpo C2; Volpo C20; Volpo CS2; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10

**wetting agent, dust control,**

Volpo T15

**wetting agent, dye leveling compds.**

Teric™ 16M15

**wetting agent, dyes**

Ammonium lauryl sulfate; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; PEG cocamine; PEG-2 oleamine; Product BCO; Rhodacal® BX-78; Sodium dibutyl naphthalene sulfonate; Surfynol® 104E

**wetting agent, dyes: electrostatic**

PEG stearamine

**wetting agent, dyestuffs**

DeWET SDO-70PG; DeWET SDO-75E

**wetting agent, electroplating**

PEG tetramethyl decylenediol

**wetting agent, emulsification/dispersion PVAc**

Tergitol® NP-4; Tergitol® NP-6

**wetting agent, emulsion polymerization**

Aerosol® OT-100%; Ammonium lauryl sulfate; Ancowet A-70; Ancowet S-60; Ancowet S-70PG; C14-15 pareth-3; C14-15 pareth-4; C14-16 pareth-4; C16-18 pareth-2; C16-18 pareth-6; C16-18 pareth-8; C16-18 pareth-14; DelONIC 100-VLF; DeWET SDDT-70; Geropon® C YA/DEP; Geropon® SS-O-70PG; Geropon® WT-27; Igepal® CO-630; Igepal® CO-710; Imbentín-AG/124/020 I; Imbentín-AG/124/030 B; Imbentín-AG/124/040 I; Imbentín-AG/124PG/020; Imbentín-AG/124PG/030; Imbentín-AG/124S/020 I; Imbentín-AG/124S/030; Imbentín-AG/124S/040; Imbentín-AG/146/040; Imbentín-AG/168S/020; Imbentín-AG/168S/060; Imbentín-AG/168S/080;

Imbentín-AG/168S/110; Imbentín-AG/168S/140; Imbentín-AG/168S/180 G; Imbentín-AG/200/025; Imbentín-C/91/025; Imbentín-C/125/030; Imbentín-C/135/030; Imbentín-C/135/040; Imbentín-C/145/030; Imbentín-L/145/040; Imbentín-N/040; Imbentín-N/050; Imbentín-OA/020; Imbentín-POA/050 7075; Imbentín-POA/060; Imbentín-T/030; Imbentín-T/040; Imbentín-U/030; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Monawet MM-80; Monawet MO-70; NACCONOL® 40G; NACCONOL® 90G; *Nonoxynol-15*; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; *PEG-8 cococate*; *PEG-12 ditallowate*; *PEG hydrogenated castor oil*; *PEG-20 hydrogenated castor oil*; *PEG-60 hydrogenated tallowate*; *PEG-12 ricinoleate*; *PEG-30 tetramethyl decynediol*; Pentex® 99; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; Pluronic® L92; Ralufon® N3.5; Ralufon® N6; Ralufon® N9; Ralufon® N10; Ralufon® N20-90; Ralufon® NAPE 14-90; Rhodasurf® L-25; *Sodium dodecylbenzenesulfonate*; Surfonic® DNP-70; Surfonic® DNP-80; Surfonic® DNP-100; Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Surfynol® 104A; Surfynol® 104DPM; Surfynol® 104E; Surfynol® 104PA; Surfynol® 104PG-50; Surfynol® 485; *TEA-lauryl sulfate*; Teric™ N8; Teric™ N9; Teric™ N10; Teric™ N12; Teric™ N13; Teric™ N15; Teric™ N30L; Texapon® VHC Needles; Texapon® ZHC Powder; Triton® X-165/70%

#### wetting agent, emulsions

Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; *PEG-8 cococate*; *PEG-12 ditallowate*; *PEG-20 hydrogenated castor oil*; *PEG-60 hydrogenated tallowate*; *PEG-12 ricinoleate*; Rhodasurf® L-25

#### wetting agent, fiber

Silwet® L-722

#### wetting agent, fiber lubricants

Tergitol® 15-S-12; Triton® XL-80N

#### wetting agent, filled compositions

Epolene® C-18

#### wetting agent, fillers: color additives

Hercolite® 240; Hercolite® 290

#### wetting agent, flocculation

*Stearamine acetate*

#### wetting agent, flotation frothing agent:

minerals

*Stearamine acetate*

#### wetting agent, foaming

DeSULF SEH-40

#### wetting agent, general purpose

Pluronic® 25R2

#### wetting agent, highly filled compositions

Epolene® C-16

#### wetting agent, hydrophobic powds.

Texapon® 842

#### wetting agent, hydrophobic surfaces

Teric™ 12M2; Teric™ 12M5; Teric™ 12M15

#### wetting agent, low-foaming

*Isotrideceth-3 phosphate*

#### wetting agent, low-foaming auxiliaries: paper

Sabofos PP 75

#### wetting agent, low-foaming: flame retardants

*Nonoxynol-7 phosphate*

#### wetting agent, low-foaming: flotation aids

*Nonoxynol-7 phosphate*

#### wetting agent, low-foaming: pulp/paper

*PEG-4M*; *PEG-6M*; *PEG-10M*; *PEG-35M*

#### wetting agent, methacrylate emulsion

#### polymerization

*Ammonium nonoxynol-4 sulfate*

#### wetting agent, oil emulsions

DeWET SDTD-70; Merpol® SE

#### wetting agent, oil-based systems

*C16-18 pareth-16*; *C16-18 pareth-22*; *C16-18 pareth-29*; *Isopropylamine dodecylbenzenesulfonate*; *PEG-5 tallate*; Teric™ T5; Teric™ T10

#### wetting agent, paper

Ablunol NP9; Adeka PEG-200; Adeka PEG-300; Adeka PEG-400; Adeka PEG-600; Adeka PEG-1000; Adeka PEG-1500; Adeka PEG-4000; Adeka PEG-6000; Adeka PEG-20,000; Aerosol® OT-75%; Aerosol® OT-75-PG; Alcodet® SK; Alkamuls® EL-620; Alkamuls® EL-719; Alkanol® 189-S; Alkanol® 1009C; Alkanol® 6112; Alkanol® A-CN; Alkanol® ND; Alkanol® SB; Alkaquat® DMB-451-50, DMB-451-80; Alkaterge®-E; Aromox® C/12; Aromox® C/12-W; Arquad® 2C-75; Arquad® 12-50; Arquad® 16-50; Arquad® 18-50; Arquad® C-50; Arquad® T-27W; Atlas EMJ-C; Carsonon® TD-10; Chemal BP 261; Chemal BP-262; Chemal BP-2101; Chemax DNP-18; Chemax DNP-150/50; Chemax NP-1.5; Chemax NP-4; Chemax NP-6; Chemax NP-9; Chemax NP-10; Chemax NP-15; Chemax NP-20; Chemax NP-30; Chemax NP-30/70; Chemax OP-10; Chemax OP-30/70; Chimin P40; Chimin P45; *C16-18 pareth-8*; DeSonic™ 9N; DeSonic™ 10N; DeSonic™ 11N; *Dodaxynol-4*; Drewfax® 0007; *Ethyl hydroxymethyl oleyl oxazoline*; Etopol 31-L; Etopol 81-L; Etopol 101-L; Freedom SBO-65; Freedom SBT-65; Geropon® WT-27; *Guanidine stearate*; Iconol NP-6; Iconol NP-8; Iconol NP-9; Iconol NP-10; Iconol NP 14; Igepal® CA-620; Igepal® CO-630; Igepal® CO-630/EP; Igepal® CO-660; Igepal® CO-710; Igepal® CO-720; Igepal® DM-710; Igepal® DM-970 FLK; *Isodeceth-4*; *Isodeceth-6*; *Isotrideceth-7*; *Isotrideceth-9*; *Laureth-8*; *Laureth-9*; *Merioxapal 108*; *Merioxapal 171*; *Merioxapal 172*; *Merioxapal 174*; *Merioxapal 178*; *Merioxapal 251*; *Merioxapal 252*; *Merioxapal 254*; *Merioxapal 255*; *Merioxapal 258*; *Merioxapal 311*; *Merioxapal 312*; *Merioxapal 314*; Merpol® A; Merpol® HCS; Merpol® SE; Merpol® SH; NACCONOL® 40G; NACCONOL® 90G; Nonionic 1044-L; Nonionic 1061-L; Nonionic 1062-L; Nonionic 1064-L; Nonionic 1068-F; Nonionic 1088-F; *Nonoxynol-15*; *Nonoxynol-20*; *Nonyl nonoxynol-18*; *Nonyl nonoxynol-150*; Nopalcol 1-L; Nopalcol 4-C; Nopalcol 4-CH; Nopalcol 4-L; Nopalcol 4-S; Nopalcol 6-DO; Nopalcol 6-DTW; Nopalcol 6-L; Nopalcol 6-R; Nopalcol 6-S; Nopalcol 10-COH; Nopalcol 12-CO; Nopalcol 12-COH; Nopalcol 19-CO; Nopalcol 30-TWH; Nopalcol 200; Nopalcol 400; Nopalcol 600; Nopocogen 22-O; Norfox® DCS; NP4; NP6; NP8; NP9; NP10; NP12; Octowet 40; Octowet 55; Octowet 60; Octowet 60-I; Octowet 65; Octowet 70; Octowet 70A; Octowet 70BC; Octowet 70PG; Octowet 75; Octowet 75E; Oxetal 500/85; Oxetal D 104; Oxetal ID 104; Oxetal O 108; Oxetal O 112; Oxetal TG 111; Oxetal TG 118; *PEG-8 cococate*; *PEG-12 ditallowate*; *PEG hydrogenated castor oil*; *PEG-20 hydrogenated castor oil*; *PEG-60 hydrogenated tallowate*; *PEG-12 ricinoleate*; Penetron OT-30; Pentex® 99; Plonon 102; Plonon 104; Plonon 201; Plonon 204; Plonon 208; Pluronic® L10; Propetal 99; Propetal 241; Ralufon® N3.5; Ralufon® N6; Ralufon® N9; Ralufon® N10; Ralufon® N20-90; Ralufon® NAPE 14-90; Rewopol® HV 9; Rewopol® HV 25; Rewopol® SBDO 70; Rhodacal® BX-78; Serwet® WH 170; Silwet® L-77; Silwet® L-722; *Sodium dibutyl naphthalene sulfonate*; *Sulfated butyl tallate*; Surfonic® DDP-40; Surfonic® DDP-50; Surfonic® LF-17; Surfonic® LF-37;

Synperonic 10/6-100%; Synperonic 10/7-100%; Synperonic 13/9; Synperonic 13/10; Synperonic A7; T-Det® EPO-61; T-Det® EPO-64L; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Teric™ 13A7; Teric™ 13A9; Tetronic® 90R4; *Trideceth-10*; *Trideceth-18*; *Trilauryl phosphate*; Triton® X-45; Ufaryl DL 80 CW; Ufaryl DL 85; Ufaryl DL 90 C; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP; Zonyl® NF; Zonyl® RP

#### wetting agent, paper auxiliaries

*EO/PO block polymer or copolymer*; *EO/PO ethylenediamine block copolymer*; Zusolat 1005/85

#### wetting agent, paper bleaching

Alkanol® XC

#### wetting agent, paper clear coatings

Ebecryl® 1360; Ebecryl® 3702

#### wetting agent, paper coating waxes

Wax Emulsifier 4106

#### wetting agent, paper coatings

Alkamuls® PSMS-20; *Dimethyl hexynol*; Dynol™ 604; Monawet MM-80; *PEG tetramethyl decynediol*; *PEG-1.3 tetramethyl decynediol*; *PEG-30 tetramethyl decynediol*; *Silicone hexaacrylate*; Surfynol® 61; Surfynol® 104A; Surfynol® 104BC; Surfynol® 104DPM; Surfynol® 104E; Surfynol® 104H; Surfynol® 104NP; Surfynol® 104PA; Surfynol® 104PG-50; Surfynol® 420; Surfynol® 485; Surfynol® 504; Surfynol® DF-37; Surfynol® PG-50; Surfynol® SE; Surfynol® SE-F

#### wetting agent, paper deinking

Igepal® CO-610; Synperonic 91/6; Synperonic 91/8; Synperonic 91/8T; Tergitol® Min-Foam 1X; Tergitol® TMN-10; Triton® XL-80N

#### wetting agent, paper desination

Rhodafac® BG-510

#### wetting agent, paper dyes

Alkanol® XC

#### wetting agent, paper felt washing

Surmax® CS-504; Surmax® CS-515; Surmax® CS-521; Surmax® CS-522; Surmax® CS-555; Surmax® CS-586

#### wetting agent, paper finishes

Rhodasurf® L-4; Rhodasurf® L-25

#### wetting agent, paper hydrophobic surfaces

Teric™ 16M2; Teric™ 16M10; Teric™ 16M15

#### wetting agent, paper mill stock chest cleaners

Rhodaterge® BCC

#### wetting agent, paper reclamation

Synperonic A9; Synperonic A11

#### wetting agent, paper recycling

Teric™ 128

#### wetting agent, paper softening

Arquad® 2HT-75; Arquad® 2HT-75PG

#### wetting agent, paper strippers

*Sodium diisooctyl sulfosuccinate*

#### wetting agent, paper tissue

Hyonic® NP-90; Hyonic® OP-100

#### wetting agent, paper towels

Densol P-82; Hyonic® NP-90; Hyonic® OP-100; Hyonic® PE-100; Surfonic® DDP-40; Surfonic® DDP-50; Trycol® 5941

#### wetting agent, paper: food-contact

Avirol® SA 4106; *Sodium octyl sulfate*

#### wetting agent, paperboard

Zonyl® NF; Zonyl® RP

#### wetting agent, paperboard coatings

Ethoduomeen® T120; *PEG-10 tallow aminopropylamine*

#### wetting agent, paperboard: food-contact

Avirol® SA 4106

#### wetting agent, papermaking

Alkasurf® CO-630; Alkasurf® CO-710; Alkasurf® CO-720; Antarox® 17-R-2; Antarox® 25-R-2; Antarox® 31-R-1; *C14-15 pareth-3*; *C14-15 pareth-4*; *C14-16 pareth-4*; *C16-18 pareth-2*; *C16-18 pareth-6*; *C16-18 pareth-14*; Geropon® SS-O-70PG; *Glycol ricinoleate*; Hyonic® PE-90;

Imbentin-AG/124/020 I; Imbentin-AG/124/030 B; Imbentin-AG/124/040 I; Imbentin-AG/124PG/020; Imbentin-AG/124PG/030; Imbentin-AG/124S/020 I; Imbentin-AG/124S/030; Imbentin-AG/124S/040; Imbentin-AG/146/040; Imbentin-AG/168S/020; Imbentin-AG/168S/060; Imbentin-AG/168S/080; Imbentin-AG/168S/110; Imbentin-AG/168S/140; Imbentin-AG/168S/180 G; Imbentin-AG/200/025; Imbentin-C/91/025; Imbentin-C/125/030; Imbentin-C/135/030; Imbentin-C/135/040; Imbentin-C/145/030; Imbentin-CAM/020; Imbentin-L/145/040; Imbentin-N/040; Imbentin-N/050; Imbentin-OA/020; Imbentin-POA/050 7075; Imbentin-POA/060; Imbentin-SAM/050; Imbentin-T/030; Imbentin-T/040; Imbentin-TAM/050; Imbentin-U/030; *Meroxapal 105*; *PEG-2 stearate*; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Surfonic® OP-50; Surfonic® OP-70; Triton® DF-16; Triton® X-102; Triton® X-114; Triton® X-165-70%; Ufaryl DB 80; Volpo C2; Volpo C20; Volpo CS2; Volpo CS5; Volpo CS10; Volpo CS15; Volpo CS20; Volpo CS50; Volpo L3; Volpo N3; Volpo N5; Volpo N10; Volpo N20; Volpo T5; Volpo T10; Volpo T15

**wetting agent, pigment**  
Actrasol PSR; Adekamine 4DAC-80; Adekamine 4DAC-85; Adekamine 4MAC-30; Adekamine ADG-30; Adekamine E Series; Adekamine LDM; Adekamine MD-30; Adekamine MT-50; Adekamine PMS-100; Adekanol B-733; Adekanol B-762; Adekanol B-795; Adekanol B-797; Amgard® TBEP; *Butyl stearate*; Carboaset® 515; *Glycerol hydroxystearate*; GPRI™ BKS-2900; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; *Methyl methacrylate*; Nopco® Color-Sperse® 188A; *Octyl stearate*; *PEG cocamine*; *PEG-2 oleamine*; *PEG-13 oleate*; *PEG-23 oleate*; *PEG-8 sesquioleate*; *Polyster tetraacrylate*; *Potassium ricinoleic sulfate*; Rhodacal® BX-78; *Sodium castor oil sulfate*; Surfynol® 104E; Surfynol® 104PG-50; *Tetramethyl decynediol*

**wetting agent, pigment dispersions**  
DeWET SDTD-70; *Isotrideceth-9*; Texapon® VHC Needles

**wetting agent, pigment flushing**  
*Stearamine acetate*

**wetting agent, pigment grinding**  
DelONIC 100-VLF; *Propylene glycol myristate*; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP

**wetting agent, pigment: aq. coatings**  
SER-AD® FA 620

**wetting agent, pigment: aq. systems**  
*Nonoxynol-30*; Surfynol® TG

**wetting agent, pigment: cleaners**  
Actrasol C-50; Actrasol C-75; Actrasol C-85

**wetting agent, pigment: color additives**  
Hercolite® 240; Hercolite® 290

**wetting agent, pigment: electrostatic**  
*PEG stearamine*

**wetting agent, pigment: paper coatings**  
CN 111; SER-AD® FA 620; Surfynol® TG

**wetting agent, pigment: papermaking**  
Actrasol C-50; Actrasol C-75; Actrasol C-85

**wetting agent, pigment: pigment flushing**  
Actrasol C-50; Actrasol C-75; Actrasol C-85

**wetting agent, pigment: pulp/paper**  
Ancowet A-70; Ancowet S-60; Ancowet S-70PG

**wetting agent, pigment: water treatment**  
Ancowet A-70

**wetting agent, polymer dispersions**  
Texapon® VHC Needles

**wetting agent, polymerization**  
Octowet 70BC; *Oleth-25*; *Sorbitan sesquioleate*; Zonyl® FSA; Zonyl® FSB; Zonyl® FSC; Zonyl® FSN; Zonyl® FSP

**wetting agent, pulp processing**  
*C12-16 pareth-1*; *C12-16 pareth-2*; *C12-16 pareth-3*; *C12-16 pareth-5*; *C12-16 pareth-6*; *C12-16 pareth-7*; *C12-16 pareth-8*; *C12-16 pareth-11*; Synthro®-Pon DI 215

**wetting agent, pulp/paper**  
Alcodet® 218; Alcodet® 260; *C12-14 pareth-17*; *C12-14 pareth-22*; *C16-18 pareth-16*; *C16-18 pareth-22*; *C16-18 pareth-29*; DelONIC 100-VLF; DeSonic™ 6T; Igepal® CA-520; Igepal® CO-610; Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389; Monafax 1293; Nonionic 1035-L; Nonipax AAO; Nonipax OP 10; Nonipax X 100; Nonipax X 150; Paxogen COB; Paxogen LAO; Paxonic CO 40; Paxonic CO 60; Pentasol DO-70PG; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® L92; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; *Propylene glycol laurate*; *Steareth-10*; *Steareth-20*; Surfonic® DA-4; Surfonic® DA-6; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; Surfonic® L28-890; Surfonic® L108/85-5; Surfonic® N-70; Surfonic® N-110; Surfonic® N-500; Surfonic® NB-1007; Teric™ 12A3; Teric™ 12A9; Teric™ 12A23; Teric™ 16A16; Teric™ 16A22; Teric™ 16A29; Teric™ 17A2; Teric™ 17A3; Teric™ 17A6; Teric™ 17A8; Teric™ 17A10; Teric™ 17A13; Teric™ 17A25; Teric™ BL8; Teric™ G9A2; Teric™ G9A10; Teric™ G12A6; Teric™ G12A12; Teric™ N6; Teric™ N8; Teric™ N11; Teric™ N30L; *Trideceth-3*; *Trideceth-6*; *Trideceth-9*; *Trideceth-12*

**wetting agent, pulp/paper bleaching**  
Monafax 1214

**wetting agent, pulp/paper deinking**  
Tergitol® 15-S-3; Tergitol® 15-S-5

**wetting agent, pulp/paper processing**  
Sipol NP-10

**wetting agent, pulping**  
Rhodafac® BG-510

**wetting agent, PVAc**  
Surfynol® 504

**wetting agent, PVC**  
Surfynol® 104E; Surfynol® 104PA

**wetting agent, resins**  
*Isodeceth-6*

**wetting agent, sanitizers**  
Triton® X-102

**wetting agent, SBR**  
Arizona DRS-40; Arizona DRS-42; Arizona DRS-43; *Sodium rosinate*; Surfynol® 504

**wetting agent, SBR polymerization**  
*Potassium rosinate*

**wetting agent, silicone emulsions**  
*C14-15 pareth-3*; *C14-15 pareth-4*

**wetting agent, silicone-treated paper**  
Disponil® SUS IC 865

**wetting agent, solvent emulsion cleaners**  
*Isotrideceth-9*

**wetting agent, solvent emulsions**  
*PEG hydrogenated castor oil*

**wetting agent, SR latexes**  
Borax; *Sodium borate decahydrate*

**wetting agent, starch**  
Etopol 101-L

**wetting agent, styrene emulsion polymerization**  
*Ammonium nonoxynol-4 sulfate*

**wetting agent, sulfite pulp deresination**  
Mazawet® 77

**wetting agent, surface coating stripping**

*PEG-15 cocamine***wetting agent, surface coatings***Guanidine stearate***wetting agent, surface treatment**

Lutensol® TO 3; Lutensol® TO 5; Lutensol® TO 6; Lutensol® TO 7; Lutensol® TO 8; Lutensol® TO 12; Lutensol® TO 89; Lutensol® TO 389

**wetting agent, suspension polymerization**

Aerosol® OT-100%; DeWET SDTD-70; Monawet MM-80; Monawet MO-70

**wetting agent, tissues**

Surfonic® DDP-40; Surfonic® DDP-50

**wetting agent, vinyl acetate emulsion****polymerization***Ammonium nonoxynol-4 sulfate***wetting agent, w/o emulsions**

DeWET SDTD-70

**wetting agent, water treatment**

*C12-14 pareth-17*; *C12-14 pareth-22*; *C16-18 pareth-16*; *C16-18 pareth-22*; *C16-18 pareth-29*; *Diocetyl ammonium sulfosuccinate*; Monawet MM-80; Monawet MO-70; Monawet MO-70R; Monawet MO-70S; Monawet MO-75E; Monawet MO-84R2W; *PEG-4 dilaurate*; *PEG-8 dioleate*; *PEG-6 distearate*; Pluronic® 10R5; Pluronic® F38; Pluronic® F68; Pluronic® F68LF; Pluronic® F77; Pluronic® F87; Pluronic® F88; Pluronic® F98; Pluronic® F108; Pluronic® F127; Pluronic® L31; Pluronic® L35; Pluronic® L43; Pluronic® L44; Pluronic® L64; Pluronic® L92; Pluronic® P84; Pluronic® P85; Pluronic® P103; Pluronic® P104; Pluronic® P105; Pluronic® P123; *Poloxamer 217*; Poly-Tergent® E-17A; Poly-Tergent® E-17B; Poly-Tergent® E-25B; Surfonic® L12-2.6; Surfonic® L24-5; Surfonic® L24-17; Surfonic® L24-22; T-Det® EPO-61; Tergitol® 15-S-3; Tergitol® 15-S-5; Tergitol® 15-S-7; Tergitol® 15-S-9; Tergitol® 15-S-12; Tergitol® TMN-10; Teric™ 12A3; Teric™ 12A9; Teric™ 12A23; Teric™ 16A16; Teric™ 16A22; Teric™ 16A29; Teric™ 17A2; Teric™ 17A3; Teric™ 17A6; Teric™ 17A8; Teric™ 17A10; Teric™ 17A13; Teric™ 17A25; Teric™ BL8; Teric™ G9A2; Teric™ G9A10; Teric™ G12A6; Teric™ G12A12; Triton® XL-80N

**wetting agent, wax emulsification**

Surfonic® DNP-100

**wetting agent, wax emulsions**

*C14-15 pareth-3*; *C14-15 pareth-4*; *C14-16 pareth-4*; *C16-18 pareth-2*; *C16-18 pareth-6*; *C16-18 pareth-8*; *C16-18 pareth-14*; Imbentin-N/040; Imbentin-N/050

**wetting agent, waxes***Isodeceth-6*; *Propylene glycol myristate*; Teric™ 16M2; Wax Emulsifier 4106**wetting agent, wettable powds.**

Armul™ 910

**wetting agent, wood pulp/paper***PEG-6 isolauryl thioether*; *PEG-10 isolauryl thioether***wetting formulation component***PPG-5-buteth-7***wetting improver, pigmented systems***Dipentaerythryl pentaacrylate***whitener**

Octotint 120

**whitener, fluorescent: paper**

Blankophor® ASP; Blankophor® AWP; Blankophor® P01; Blankophor® P150 Liq.; Blankophor® P167; Blankophor® P Liq.; Blankophor® PSK; Blankophor® SOL; Blankophor® TX; Blankophor® UW; Intrawite®; Tinopal®

**whitener, fluorescent: paper surface coatings**

Sunwhite CST

**whitener, fluorescent: paper wet-end**

Sunwhite BY Liq.; Sunwhite BYX H/C

**whitener, fluorescent: paper: food-contact**

Blankophor® P150 Liq.; Blankophor® P Liq.



## whitener, fluorescent: pigment coatings

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### whitener, fluorescent: pigment coatings

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

### whitener, fluorescent: size presses

Sunwhite BY Liq.; Sunwhite BYX H/C; Sunwhite  
CST

### whitener, fluorescent: stock addition

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

### whitener, fluorescent: surface applic.

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

### whitener, fluorescent: surface coatings

Sunwhite BY Liq.; Sunwhite BYX H/C

### whitener, paper coatings

Alcan Superfine SF 4; Alcan Superfine SF 7;

Alcan Superfine SF 11

### wire cleaner, dandy rolls

Eldorado FCD-5050

### wire cleaner, dryer felts

Eldorado FCD-5050

### wire cleaner, paper machine systems

Eldorado FCD-5050

### wire cleaner, paper: food-contact

Eldorado FCD-5050

### wire cleaner, plastic wires

Eldorado FCD-5050

### wire cleaner, suction rolls

Eldorado FCD-5050

### wire cleaner, wet felts

Eldorado FCD-5050

### wrap, butcher

Parvan® 127; Parvan® 131

### wrappings, corrosion protection

*Polypropylene, amorphous*

### Yankee coating chemical, film modifiers

Rezsol®

### Yankee coating chemical, release agents

Rezsol®

### yeast control agent, paper mills

Tolcide® MW10

### yeast control agent, recirculating cooling

towers

Tolcide® MW10

### yeast control, paper mills

Taurine-DBNPA

### yeast inhibitor

Proxel® DL; Proxel® XL2

### zinc green pigment component

*Ferric ferrocyanide*

### ZrO<sub>2</sub> precursor

Protac ZA7

**whitener, fluorescent: pigment coatings**

**whitener, fluorescent: pigment coatings**

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

**whitener, fluorescent: size presses**

Sunwhite BY Liq.; Sunwhite BYX H/C; Sunwhite  
CST

**whitener, fluorescent: stock addition**

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

**whitener, fluorescent: surface applic.**

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

**whitener, fluorescent: surface coatings**

Sunwhite BY Liq.; Sunwhite BYX H/C

**whitener, paper coatings**

Alcan Superfine SF 4; Alcan Superfine SF 7;

Alcan Superfine SF 11

**wire cleaner, dandy rolls**

Eldorado FCD-5050

**wire cleaner, dryer felts**

Eldorado FCD-5050

**wire cleaner, paper machine systems**

Eldorado FCD-5050

**wire cleaner, paper: food-contact**

Eldorado FCD-5050

**wire cleaner, plastic wires**

Eldorado FCD-5050

**wire cleaner, suction rolls**

Eldorado FCD-5050

**wire cleaner, wet felts**

Eldorado FCD-5050

**wrap, butcher**

Parvan® 127; Parvan® 131

**wrappings, corrosion protection**

*Polypropylene, amorphous*

**Yankee coating chemical, film modifiers**

Rezsol®

**Yankee coating chemical, release agents**

Rezsol®

**yeast control agent, paper mills**

Tolcide® MW10

**yeast control agent, recirculating cooling**

towers

Tolcide® MW10

**yeast control, paper mills**

Taurine-DBNPA

**yeast inhibitor**

Proxel® DL; Proxel® XL2

**zinc green pigment component**

*Ferric ferrocyanide*

**ZrO<sub>2</sub> precursor**

Protac ZA7

**whitener, fluorescent: pigment coatings**

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**whitener, fluorescent: pigment coatings**

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

**whitener, fluorescent: size presses**

Sunwhite BY Liq.; Sunwhite BYX H/C; Sunwhite  
CST

**whitener, fluorescent: stock addition**

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

**whitener, fluorescent: surface applic.**

Blankophor® ASP; Blankophor® AWP;  
Blankophor® PSK; Blankophor® SOL;  
Blankophor® TX; Blankophor® UW

**whitener, fluorescent: surface coatings**

Sunwhite BY Liq.; Sunwhite BYX H/C

**whitener, paper coatings**

Alcan Superfine SF 4; Alcan Superfine SF 7;

Alcan Superfine SF 11

**wire cleaner, dandy rolls**

Eldorado FCD-5050

**wire cleaner, dryer felts**

Eldorado FCD-5050

**wire cleaner, paper machine systems**

Eldorado FCD-5050

**wire cleaner, paper: food-contact**

Eldorado FCD-5050

**wire cleaner, plastic wires**

Eldorado FCD-5050

**wire cleaner, suction rolls**

Eldorado FCD-5050

**wire cleaner, wet felts**

Eldorado FCD-5050

**wrap, butcher**

Parvan® 127; Parvan® 131

**wrappings, corrosion protection**

*Polypropylene, amorphous*

**Yankee coating chemical, film modifiers**

Rezsol®

**Yankee coating chemical, release agents**

Rezsol®

**yeast control agent, paper mills**

Tolcide® MW10

**yeast control agent, recirculating cooling**

towers

Tolcide® MW10

**yeast control, paper mills**

Taurine-DBNPA

**yeast inhibitor**

Proxel® DL; Proxel® XL2

**zinc green pigment component**

*Ferric ferrocyanide*

**ZrO<sub>2</sub> precursor**

Protac ZA7

# Part IV

## Manufacturers Directory

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# Manufacturers Directory

## **Aabbitt Adhesives Inc.**

2403 N. Oakley Ave., Chicago, IL 60647-2009 USA (Tel. 773-227-2700; 800-222-2488; FAX 773-227-2103; Internet: [www.aabbitt.com](http://www.aabbitt.com))

## **Aakash Chemicals & Dyestuffs Inc.**

561 Mitchell Rd., Glendale Hts., IL 60639 USA (Tel. 630-469-3838; 800-255-4855; FAX 630-469-2255; E-mail: [aakashchem@aol.com](mailto:aakashchem@aol.com); Internet: <http://members.aol.com/aakashchem/information.html>)

## **AArbor International Corp.**

9434 Mallby Rd., Brighton, MI 48116 USA (Tel. 810-220-0080; 800-4-PIGMENT; FAX 810-220-0088; E-mail: [aarbor@ismi.net](mailto:aarbor@ismi.net); Internet: [www.aarbor.com](http://www.aarbor.com))

## **Aarhus Oliefabrik A/S**

Postboks 50, Bruunsgade 27, DK-8100 Aarhus C. Denmark (Tel. 45 8730 6000; FAX 45 8730 6041)

## **Aashiana Dyestuffs Inc.**

40 Prairie Dr., Addison, IL 60101 USA (Tel. 630-543-7176; FAX 630-543-7198)

## **Abadan Petrochemical Co.**

35.2 Sanei St., Gandi Ave., Tehran, 19699 Iran (Tel. 9821-8783040; FAX 9821-8779174)

## **Abatron, Inc.**

5501 95th Ave., Kenosha, WI 53144 USA (Tel. 414-653-2000; 800-445-1754; FAX 414-653-2019; E-mail: [info@abatron.com](mailto:info@abatron.com); Internet: [www.abatron.com](http://www.abatron.com))

## **Abco Industries, Inc., Subsid. of Eastman**

PO Box 1089, 200 Railroad St., Roebuck, SC 29376 USA (Tel. 864-576-6821; 800-476-4476; FAX 864-576-9378; Internet: [www.abcoindustries.com](http://www.abcoindustries.com))

## **ABCR**

**ABCR GmbH & Co. KG**, Postfach 21 01 35, 76151 Karlsruhe Germany (Tel. 49-721-95061-0; FAX 49-721-95061-80; E-mail: [info@abcr.de](mailto:info@abcr.de); Internet: [www.abcr.de](http://www.abcr.de))

**ABCR (UK) Ltd.**, Unit 60, The Greenhays Business Centre, 10 Pencroft Way, Manchester, M15 6JJ UK (Tel. 44 161 226 9843; FAX 44 161 226 9850; E-mail: [arrowsmith@abcr.de](mailto:arrowsmith@abcr.de); Internet: [www.abcr.de](http://www.abcr.de))

## **ABITEC Corp., Subsid. of Associated British Foods (ABF)**

501 W. First Ave., PO Box 569, Columbus, OH 43216-0569 USA (Tel. 614-429-6427; 800-848-1340; FAX 800-300-0818)

## **Accurate Chemical & Scientific Corp.**

300 Shames Dr., Westbury, NY 11590 USA (Tel. 516-333-2221; 800-645-6264; FAX 516-997-4948; E-mail: [info@accuratechemical.com](mailto:info@accuratechemical.com); Internet: [www.accuratechemical.com](http://www.accuratechemical.com))

## **AccuStandard Inc.**

25 Science Park, New Haven, CT 06511 USA (Tel. 203-786-5290; 800-442-5290; FAX 203-786-5287; E-mail: [usa@accustandard.com](mailto:usa@accustandard.com); Internet: [www.accustandard.com](http://www.accustandard.com))

## **Aceto Corporation**

1 Hollow Lane, Suite 201, Lake Success, NY 11042-1215 USA (Tel. 516-627-6000; FAX 516-627-6093; E-mail: [dcangiano@aceto.com](mailto:dcangiano@aceto.com))

## **AC Industries, Inc., Sattva Chemical Co. Div.**

2 Landmark Sq., Suite 214, Stamford, CT 06901-2410 USA (Tel. 203-348-8002; 800-736-7893; FAX 203-348-3666; E-mail: [sattvachem@aol.com](mailto:sattvachem@aol.com))

## **Acme-Hardesty Co., Div. of Jacob Stern & Sons, Inc.**

1787 Sentry Parkway West, Suite 18-460, Blue Bell, PA 19422 USA (Tel. 215-591-3610; 800-223-7054; FAX 215-591-3620; E-mail: [info@acme-hardesty.com](mailto:info@acme-hardesty.com); Internet: [www.acme-hardesty.com](http://www.acme-hardesty.com))

## **Acros Organics N.V., Div. of Fisher Scientific**

1 Reagent Lane, Fairlawn, NJ 07410 USA (Tel. 201-703-3163; 800-ACROS-01; FAX 800-248-3079; E-mail: [TDAiken@aol.com](mailto:TDAiken@aol.com); Internet: [www.acros.be](http://www.acros.be))

## **Active Organics, Inc.**

1097 Yates St., Lewisville, TX 75057-4829 USA (Tel. 972-221-7500; 800-541-1478; FAX 972-221-3324; E-mail: [sales@activeorganics.com](mailto:sales@activeorganics.com); Internet: [www.activeorganics.com](http://www.activeorganics.com))

## **Actrachem L.P. See Georgia-Pacific Resins/Actrachem Operations**

## **ADA International**

Suite 4H, Changhe Bldg., Jiaolinjiadao, Hepingli Dong St., Beijing, 100013 People's Rep. of China (Tel. 86 10 6226 2026; FAX 86 10 6226 2025; E-mail: [ada@ada-sweet.com](mailto:ada@ada-sweet.com); Internet: [www.ada-sweet.com](http://www.ada-sweet.com))

## **Adeka Fine Chemical Co., Ltd., Subsid. of Asahi Denka Kogyo**

Yoko Bldg., 1-4-5 Hongo, Bunkyo-ku, Tokyo, 113 Japan (Tel. (03) 5689-8681; FAX (03) 5689-8680)

## **Adheswara Chemicals Pvt. Ltd.**

26, Royapettah High Rd., Chennai, 600 014 India (Tel. 91 44 826 7019; FAX 91 44 823 3321; E-mail: [acpl@giasmd01.vsnl.net.in](mailto:acpl@giasmd01.vsnl.net.in); Internet: [www.adheswara.net](http://www.adheswara.net))

## **ADM, Archer Daniels Midland**

**ADM, Archer Daniels Midland Co.**, 4666 Faries Pkwy., PO Box 1470, Decatur, IL 62525 USA (Tel. 217-362-3949; 800-637-5843; FAX 217-424-4119; Internet: [www.archerdaniels.com](http://www.archerdaniels.com))

**ADM Corn Processing**, Div. Archer Daniels Midland Co., Box 1470, Decatur, IL 62525 USA (Tel. 217-424-5200; 800-553-8411; FAX 217-424-5978; Internet: www.admworld.com)

**ADM Food Additives Div.**, Div. Archer Daniels Midland Co., Box 1470, Decatur, IL 62525 USA (Tel. 217-362-3958; 800-553-8411; FAX 217-362-3941; Internet: www.admworld.com)

**ADM Lecithin**, Div. Archer Daniels Midland Co., 4666 Faries Pkwy., Box 1470, Decatur, IL 62525 USA (Tel. 217-424-5898; 800-637-8411; FAX 217-424-5978; E-mail: schroder@corp.admworld.com; Internet: www.admworld.com)

### Advance Coatings, Inc.

Depot Rd., Westminster, MA 01473 USA (Tel. 978-874-5921; 800-247-1117; FAX 978-874-2788; E-mail: advaco@aol.com)

### Advanced Polymer, Inc.

400 Paterson Plank Rd., Carlstadt, NJ 07601 USA (Tel. 201-933-0600; 800-882-9940; FAX 201-933-8442; E-mail: API-1990@worldnet.att.net)

### Advanced Polymer Systems, Inc. (APS)

123 Saginaw Drive, Redwood City, CA 94063 USA (Tel. 650-366-2626; FAX 650-365-6490; E-mail: apos@worldnet.att.net; Internet: www.advancedpolymer.com)

### Advanced Refractory Technologies, Inc. (ART)

699 Hertel Ave., Buffalo, NY 14207-2396 USA (Tel. 716-875-4091; FAX 716-875-0106; E-mail: dmatthew@art-inc.com; Internet: www.art-inc.com)

### Advance Research Chemicals Inc.

Tanumal Chem. Complex Bldg., 81110 W. Keystone Ave., Catossa, OK 74015 USA (Tel. 918-266-6789; FAX 918-266-6796)

### AEP Colloids, Inc.

100 Nathill Rd., PO Box 537, Greenfield Center, NY 12833-0537 USA (Tel. 518-893-0707; 800-848-0658; FAX 518-893-0738; E-mail: aep@aepcolloids.com; Internet: www.aepcolloids.com)

### Aerchem, Inc.

320 N. Walnut, Bloomington, IN 47408 USA (Tel. 812-334-9996; FAX 812-334-1960; E-mail: aerchem@aerchem.com; Internet: www.aerchem.com)

### Ag Environmental Products L.L.C. (AEP)

9804 Pflumm Rd., Lenexa, KS 66215 USA (Tel. 913-599-6911; 800-599-9209; FAX 913-599-2121)

### Agrium

**Agrium Inc.**, 13131 Lake Fraser Drive, Calgary, Alberta, T2J 7E8 Canada (Tel. 403-225-7000; 800-490-4555; FAX 403-225-7602; E-mail: indprod@agrium.com; Internet: www.agrium.com)

**Agrium U.S., Inc.**, 601 W. Riverside Ave., Spokane, WA 99201 USA (Tel. 509-838-4600; 800-541-5810; FAX 509-459-4404)

### Agrolinz Melamin GmbH

St. Peter Str. 25, A-4020 Linz Austria (Tel. 43-732-6914-0; FAX 43-732-6914-3213; E-mail: agrolinz.melamin@agrolinz.com; Internet: www.agrolinz.com)

### Agtrol Chemical Products

7322 Southwest Freeway, Suite 1400, Houston, TX 77074 USA (Tel. 713-995-0111; FAX 713-995-9505; Internet: www.agtrol.com)

### Air Liquide America Corp.

2700 Post Oak Blvd., Suite 1800, Houston, TX 77056 USA (Tel. 800-820-2522; Internet: www.airliquide.com/us)

### Air Products and Chemicals

**Air Products and Chemicals, Inc.**, 7201 Hamilton Blvd., Allentown, PA 18195-1501 USA (Tel. 610-481-4911; 800-345-3148; FAX 610-481-5900; E-mail: info@apci.com; Internet: www.airproducts.com)

**Air Products and Chemicals, Inc./Performance Chemicals**, 7201 Hamilton Blvd., Allentown, PA 18195-1501 USA (Tel. 610-481-4911; 800-345-3148; FAX 610-481-5900; E-mail: gasinfo@apci.com; Internet: www.airproducts.com)

**Air Products and Chemicals, Inc./Polymer Chemicals Div.**, 7201 Hamilton Blvd., Allentown, PA 18195-1501 USA (Tel. 610-481-6799; 800-345-3148; FAX 610-481-4381; Internet: www.airproducts.com)

**Air Products and Chemicals de México, S.A. de C.V.**, Suite 26, Piso 12 World Trade Center, Avenida de las Naciones No. 1, Col. Napoles Mexico D.F. 03810 Mexico (Tel. 525-488-0790; FAX 525-488-0798)

**Air Products Gases Industriais Ltda.**, Praca Radialista Manoel de Nobrega, 65, Casa Verde, 02517-160 Sao Paulo-SP Brazil (Tel. 55 11 856-1600; FAX 55 11 856-1783)

**Air Products (Chemicals) PLC**, Clayton Lane, Clayton, Manchester, Lancashire, M11 4SR UK (Tel. 44-161-230-4265; FAX 44-161-223-4753)

**Air Products Nederland B.V.**, Kanaalweg 15, PO Box 3193, 3502 GD Utrecht The Netherlands (Tel. 31-302 857100; FAX 31-302 857111)

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**Air Products S.A.**, Chaussée de Wavre 1789, B-1160 Brussels Belgium (Tel. 32 2 674 9411; FAX 32 2 674 9462)

**Air Products c/o Anchor Italiana SPA**, 33 Via Scaldasole, Dorno, 27020 Pavia Italy (Tel. 39-382-812281; FAX 39-382-84017)

**Air Products GmbH**, Hauptverwaltung Hattingen, Huetttenstrasse 50, 45527 Hattingen/Ruhr Germany (Tel. 49 2324 6890; FAX 49 2324 689100)

**Air Products Sweden**, World Trade Centre, Maessans Gata 10, Box 5264, 40225 Gothenburg Sweden (Tel. 46-31-357511; FAX 46-31-164200)

**Air Products South Africa (Pty) Ltd.**, 3 Protea Place, Sandton, Private Bag 784090, Sandton, 2146 Rep. of S. Africa (Tel. 27-11-322 0000; FAX 27-11-322-0222)

**Air Products Asia, Inc.**, Suite 6505-7, Central Plaza, 18 Harbour Rd., Wanchai Hong Kong (Tel. 852-2527-0515; FAX 852-2527-1957)

**Air Products Japan, Inc.**, Shuwa No. 2 Kamiyacho Bldg., 11 Fl., 3-18-19, Toranomon, Minato-ku, Tokyo, 105 Japan (Tel. 81-3-3432-7031; FAX 81-3-3432-7052)

**Air Products China, Inc.**, Rm. 611 Beijing Silver Tower, No. 2 North Rd. Dong San Huan, Chaoyang District, Beijing, 100027 P.R. China (Tel. 86 10 6410 6151; FAX 86 10 6410 6153)

**Air Products Singapore Pte. Ltd.**, 9 Temasek Blvd., #28-01, Suntec Tower 2 Singapore 038989 (Tel. 65-332 1610; FAX 65-332 1600)

**Air Products Australia Pty Ltd.**, 2/20 Hunter St., PO Box 4068, Paramatta, NSW, 2124 Australia (Tel. 61-2-9687 1944; FAX 61-2-9687 1950)

### Air Products Polymers

**Air Products Polymers, L.P.**, A joint venture of Air Products and Chemicals, Inc. and Wacker-Chemie GmbH, 7201 Hamilton Blvd., Allentown, PA 18195-1501 USA (Tel. 610-481-6799; 800-345-3148; FAX 610-481-4381)

**Air Products Polymers GmbH & Co. KG/European Headquarters**, Johannes-Hess-strasse 24, Postfach 11 29, D-84489 Burghausen Germany (Tel. 49 86 77 83 22 52; FAX 49 86 77 83 19 05; Internet: www.airproducts.com/ap-polymers)

### Air-Scent International

290-298 Alpha Dr., RIDC Industrial Park, Pittsburgh, PA 15238-2903 USA

(Tel. 412-252-2000; 800-247-0770; FAX 412-252-1010; E-mail: lvasko@earthlink.net; Internet: www.airscents.com)

### Aiscandel S.A.

Paseo de Recotetos, 27, 4<sup>o</sup> planta, 28004 Madrid Spain (Tel. 91-585-3800; FAX 91-585-2300)

### Aithaca Chemical Corp.

50 Charles Lindbergh Blvd., Ste 400, Uniondale, NY 11553 USA (Tel. 516-229-2330; FAX 516-227-2350)

### Ajinomoto

**Ajinomoto Co., Inc.**, 15-1, Kyobashi 1-chome, Chuo-ku, Tokyo, 104-8315 Japan (Tel. 81-3-5250-8111; FAX 81-3-5250-8293)

**Ajinomoto Co., Inc., Beijing Office**, 0903 China World Tower, China World Trade Center No. 1, Jian Guo Men Wai Ave., Beijing, 100005 P.R. China (Tel. 86 10 6505 4201; FAX 86 10 6505 0502)

**Ajinomoto Co. (Hong Kong) Ltd.**, 21st Fl., 14-20 Bonham Strand West Hong Kong (Tel. 852 2534 2888; FAX 852 2534 2899)

**Ajinomoto Co. (Thailand) Ltd.**, 487/1 Si Ayutthaya Rd., Khwaeng Thanon Phayathai, Khet Ratchathewi, Bangkok, 10400 Thailand (Tel. 66 2 245 1614; FAX 66 2 246 3887)

**Union Ajinomoto, Inc.**, Union Ajinomoto Bldg., 331, Sen. Gil J. Puyat Ave., Makati City Philippines (Tel. 63 2 895 6081 9; FAX 63 2 890 6328)

**Ajinomoto Co., Seoul Office**, Seoul Center Bldg., 91-1, Sokong-Dong, Chung-ku, Seoul, Rep. of Korea (Tel. 82 2 755 6166; FAX 82 2 753 6875)

**Ajinomoto (Singapore) Pte. Ltd.**, No. 6, Senoko Ave. Singapore 049315 (Tel. 65 257 2022; FAX 65 257 6866)

**Ajinomoto USA, Inc.**, Country Club Plaza, West 115 Century Rd., Paramus, NJ 07652 USA (Tel. 201-261-1789; FAX 201-261-7343; Internet: www.ajinomoto-usa.com)

**Ajinomoto Interamericana Industria e Comercio Ltda.**, Rue Joaquim Tavora 541, Villa Mariana, 04015-901 Sao Paulo, SP Brazil (Tel. 55 11 5080 6700; FAX 55 11 574 7376)

**Ajinomoto Europe Sales GmbH**, Stubbenhuk 3, 20459 Hamburg Germany (Tel. 49-40-3749-360; FAX 49-40-372087)

**Ajinomoto Co., Inc., European Headquarters**, 153, rue de Courcelles, 75817 Paris Cedex 17 France (Tel. 33 1 47 66 98 63; FAX 33 1 47 66 98 56)

### Akcros

**Akcros Chemicals UK**, Business Unit of Akzo Nobel, Bentcliffe Way, Eccles, Manchester, Lancashire, M30 0BH UK (Tel. 44 161 785 1111; FAX 44 161 788 7886)

**Akcros Chemicals France S.A.**, BP 217, F-60202 Compiègne Cedex France (Tel. 33 3 44 90 30 91; FAX 33 3 44 90 30 92; E-mail: infos.compiegne@cpr.akzonobel.com)

**Akcros Chemicals GmbH & Co. KG**, Werk Greiz, Liebigstrasse 7, D-07973 Greiz Germany (Tel. 49 36 61 780; FAX 49 36 61 782 02)

**Akcros Chemicals Iberica S.L.**, Autovia Castelldefels Rm. 4, 65, E-08820 El Prat Del Llobregat (Barcelona) Spain (Tel. 34 93 478 57 55; FAX 34 93 478 08 88; E-mail: akcros.ib@retemail.es)

**Akcros Chemicals Italia Srl**, Via Anna Kuliscioff 22, I-20152 Milan, MI Italy (Tel. 39 2 4121 188; FAX 39 2 4123 036)

**Akcros Chemicals Nordic AS**, Naverland 2, DK-2600 Glostrup-Copenhagen Denmark (Tel. 45 43 460246; FAX 45 43 460247)

**Akcros Chemicals bv**, Postbus 44, NL-6040 AA Roermond The Netherlands (Tel. 31 475-356356; FAX 31 475-356300; E-mail: akcrosnl@pi.net; Internet: www.akcros.com)

**Akcros Chemicals America**, An Akzo Nobel Company, 500 Jersey Ave., PO Box 638, New Brunswick, NJ 08903 USA (Tel. 732-247-2202; 800-500-7890; FAX 732-247-2287; Internet: www.akcros.com)

**Akcros Chemicals (Asia Pacific) Pte. Ltd.**, 7500A Beach Rd., 15-309 The Plaza, 199591 Singapore (Tel. 65 292 1966; FAX 65 292 9665)

### Akrochem Chemical Co.

255 Fountain St., Akron, OH 44304-1991 USA (Tel. 330-535-2100; 800-321-2260; FAX 330-535-8947)

### Aktiva Ltd., Biochemical Plant

Kaznejov 125, 331 51 Kaznejov, Czech Republic (Tel. 420-182-932532; FAX 420-182-932618)

### Akzo Nobel

**Akzo Nobel Chemicals bv**, Postbus 247, Stationsplein 4, NL-3800 AE Amersfoort The Netherlands (Tel. 31-33-467 62 67; FAX 31-33-467 61 52; E-mail: jan.hasselmann@akzonobel.com; Internet: www.akzonobel.com)

**Akzo Nobel Chemicals AB**, Box 92142, 120 08 Stockholm Sweden (Tel. 46 8 7140355; FAX 46 8 6411009)

**Akzo Nobel Surface Chemistry AB**, S-444 85 Stenungsund Sweden (Tel. 46 303 85000; FAX 46 303 84659; Internet: www.surface.akzonobel.com)

**Akzo Nobel Chemicals GmbH**, Phillipstrasse 27, D-52349 Düren Germany (Tel. 49-2421-49201; FAX 49-2421-492240)

**Akzo Nobel Chemicals Ltd.**, 1-5 Queens Road, Hersham, Walton-on-Thames, Surrey, KT12 5NL UK (Tel. 44 1932 247891; FAX 44 1932 231204)

**Akzo Nobel Chemicals S.A.**, Parc Industriel de Ghlin Zone A, 7011 Ghlin/Mons Belgium (Tel. 32 65 642381; FAX 32 65 642385)

**Akzo Nobel Chemicals SpA**, 80 Via E. Vismara, 20020 Arese (MI) Italy (Tel. 39 2 935 251; FAX 39 2 935 89002)

**Akzo Nobel Chemicals SA**, BP 217, F-60202 Compiègne Cedex France (Tel. 33 3 44 90 30 00; FAX 33 3 44 90 30 44)

**Akzo Nobel Chemicals Inc.**, 300 S. Riverside Plaza, Chicago, IL 60606-6697 USA (Tel. 312-906-7500; 800-227-7070; FAX 312-906-7680; Internet: www.akzonobel.com)

**Akzo Nobel Chemicals Inc.**, 5 Livingstone Ave., Dobbs Ferry, NY 10522-3401 USA (Tel. 914-674-5000; FAX 914-693-3417)

**Akzo Nobel Surface Chemistry, Inc.**, 99 Hawley Lane, Merritt 8 Corporate Park, Stratford, CT 06614 USA (Tel. 203-378-0500; FAX 203-378-5960; E-mail: Susan.E.Booth@akzo-nobel.com; Internet: www.surface.akzonobelusa.com)

**Akzo Nobel Chemicals Ltd.**, 1 City Center Dr., Suite 320, Mississauga, Ontario, L5B 1M2 Canada (Tel. 905-273-5959; FAX 905-273-7339; Internet: www.surface.akzonobel.com)

**Akzo Nobel Ltda./Div. Quimica**, Rodovia Akzo Nobel 707, Bairro Sao Roque da Chave, 13295-000 Itupeva Brazil (Tel. 55 11 7801 8800; FAX 55 11 7801 1495)

**Akzo Nobel Chemicals Ltd.**, 19 Norwoot Crescent, Suite 10, Monnee Ponds, Victoria (Melbourne), 3039 Australia (Tel. 61 3 9391 3633; FAX 61 3 9391 4007)

**Akzo Nobel K.K.**, Bancho Kaikan, 12-1, Gobancho, Chiyoda-ku, Tokyo, 102 Japan (Tel. 81-3-5275-6273; FAX 81-3-3263 0713)

**Akzo Nobel China Beijing, Representative Office**, Corporate East Ocean Center Rm 1901-04, Jian Guo Men Wai Dajie, Beijing, 100004 China (Tel. 86 10 65155736; FAX 86 10 65155737)

**Akzo Nobel Chemicals Pte. Ltd.**, Thomson Rd., SLF Bldg. #17-00 Singapore 298135 (Tel. 65-354 6475; FAX 65-354 6901)

**Akzo Nobel Salt America, Inc.**, PO Box 938, Georgetown, SC 29440



## Alba International Inc.

USA (Tel. 843-546-1925; 800-377-1017; FAX 843-527-1580; E-mail: saltusa@sccoast.net; Internet: www.akzonobelsalt.com)

## Alba International Inc.

PO Box 201, N. Aurora, IL 60542 USA (Tel. 619-272-0444; 800-669-9333; FAX 619-272-0400)

## Albanil Dyestuff International Corp.

PO Box 5179, Jersey City, NJ 07305 USA (Tel. 800-526-3192; FAX 201-332-0444; E-mail: albanildye@aol.com)

## Alban Muller Int'l.

8 Rue Charles Pathe, 96300 Vincennes France (Tel. 33-1-48 08 81 00; FAX 33-1-48 08 81 01; E-mail: muller@worldnet.net)

## Albemarle

**Albemarle Corp.**, 451 Florida Blvd., Baton Rouge, LA 70801 USA (Tel. 504-388-7402; 800-535-3030; FAX 504-388-7848; Internet: www.albemarle.com)

**Albemarle S.A.**, Div. of Albemarle Corp., Parc Scientifique Einstein, Rue du Bosquet 9, B-1348 Louvain La Neuve Sud Belgium (Tel. 32 10 48 1711; FAX 32 10 48 1717)

**Albemarle Asia Pacific Co.**, 111 Somerset Rd. #13-03 Singapore 238164 (Tel. 65-732-6286; FAX 65-737-4155)

**Albemarle Asano Corp.**, 16th Fl., Fukoku Seimei Bldg., 2-2 Uchisaiwaicho, 2-chome, Tokyo, 100 Japan (Tel. 81 3 5251 0791; FAX 81 3 3500 5623)

**Albemarle China Corp.**, China World Tower, Rm. 1317, No. 1 Jian Guo Men Wai Ave., Beijing, 100004 China (Tel. 86 10 6505 4153; FAX 86 10 6505 4150)

## Albright & Wilson

**Albright & Wilson Ltd.**, European & Corporate Headquarters, Wholly owned subsid. of Rhodia, PO Box 3, 210-222 Hagley Rd. West, Oldbury, Warley, West Midlands, B68 0NN UK (Tel. 44 121 429-4942; FAX 44 121 420 5151; Internet: www.rhodia.com)

**Albright & Wilson UK Ltd.**, Phosphorus Specialties, PO Box 3, 210-222 Hagley Road West, Oldbury, Warley, West Midlands, B68 0NN UK (Tel. 44 121 429 4942; FAX 44 121 420 5151)

**Albright & Wilson Americas Inc.**, A Rhodia Group Company, PO Box 4439, 4851 Lake Brook Dr., Glen Allen, VA 23058-4439 USA (Tel. 804-968-6300; 800-446-3700; FAX 804-968-6385)

## Alcan

**Alcan Chemicals**, Div. of Alcan Aluminum Corp., 3690 Orange Place, Suite 400, Cleveland, OH 44122-4438 USA (Tel. 216-765-2550; 800-321-3864; FAX 216-765-2570; E-mail: maison.infocentre@alcan.com; Internet: www.alcan.com)

**Alcan Chemicals Europe**, Part of Alcan Aluminium UK Limited, 135 Aberdour Rd., Burntisland, Fife, KY3 0EP UK (Tel. 44 1592 411000; FAX 44 1592 411111)

## Alchem, Inc.

8135 Red Rd., Rockwell, NC 28138 USA (Tel. 704-279-7908; FAX 704-279-8418)

## Alchemie USA Inc.

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## Alcoa

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**Alcoa World Chemicals Europe**, Olof-Palme-Strasse 37, 60439 Frankfurt Germany (Tel. 49-69-95 73410; FAX 49-69-95 734113; E-mail: AICE.communications@alcoa.com; Internet: www.alumina.alcoa.com)

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## Aldrich. See under Sigma-Aldrich

## Alemark Chemicals, Amsyn Inc.

1011 High Ridge Rd., Stamford, CT 06905 USA (Tel. 203-966-7410; FAX 203-966-4276; E-mail: mail@amsyn.com; Internet: www.amsyn.com)

## Alexander Chemical Corp.

One Corporate Lakes, 2525 Cabot Drive, Lisle, IL 60532 USA (Tel. 630-955-6050; 800-445-9458; FAX 630-955-6065)

## Alfa Aesar, A Johnson Matthey Co.

30 Bond St., Ward Hill, MA 01835 USA (Tel. 978-521-6401; 800-343-8025; FAX 800-322-4757; E-mail: info@alfa.com; Internet: www.alfa.com)

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1055 Reed Rd., Monroe, OH 45050 USA (Tel. 513-539-7373; 800-669-9263; FAX 513-539-7372)

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## Allchem Industries Inc.

6010 NW First Place, Gainesville, FL 32607 USA (Tel. 352-378-9696; FAX 352-338-0400; E-mail: info@allchem.com; Internet: www.allchem.com)

## Allied-Hunter

428 Pennsylvania Ave., Fort Washington, PA 19034 USA (Tel. 215-646-4700; FAX 215-628-4040; E-mail: sales@allied-hunter.com; Internet: www.allied-hunter.com)

## Allied Universal Corp.

8350 NW 93 St., Miami, FL 33166 USA (Tel. 305-888-2623; 800-437-8715; FAX 305-885-4671)

**Alloychem, Inc.**

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**Allpro Chemical Corp.**

PO Box 3129, Palmer, PA 18045 USA (Tel. 610-559-7711; FAX 610-559-8721)

**Allyson Enterprises Inc.**

267 Fifth Ave., #610, New York, NY 10016 USA (Tel. 212-779-2777; FAX 212-779-4727)

**Alnor Oil Company, Inc.**

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**Alpha/Owens-Corning**

950 Hwy. 57 East, Collierville, TN 38017 USA (Tel. 901-854-2800; 800-238-7536; FAX 901-854-1183; Internet: www.aoc-resins.com)

**Altair Industries, Inc.**

343 Millburn Ave., Millburn, NJ 07041 USA (Tel. 973-564-6400; FAX 973-564-6401)

**Altivia**

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**AluChem Inc.**

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400 Lake Cook Rd., PO Box 437, Deerfield, IL 60015 USA (Tel. 847-948-0800; FAX 847-948-0811)

**American Colloid Co.**

1500 W. Shure Dr., Arlington Hts., IL 60004-7803 USA (Tel. 847-392-4600; FAX 847-506-6199; Internet: www.colloid.com)

**American Fillers & Abrasives**

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**American Gilsonite Co.**

136 E. South Temple, Ste. 1460, Salt Lake City, UT 84111 USA (Tel. 801-524-7900; 800-GLS-NITE; FAX 801-328-9116)

**American Ingredients**

**American Ingredients Co.**, 3947 Broadway, Kansas City, MO 64111 USA (Tel. 816-561-9050; 800-669-4092; FAX 816-561-0432)

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10800 River Rd., Westwego, LA 70094 USA (Tel. 504-431-6312)

**American Oil & Supply Co./AOS Thermal Compds.**

238 Wilson Ave., Newark, NJ 07105 USA (Tel. 201-589-0250; 800-582-3267; FAX 201-465-5083; E-mail: ZZZAOS1895@aol.com; Internet: www.aosils.com)

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**American Tartaric Products, Inc.**

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**American Vermiculite Corp.**

814C Livingston Ct., Marietta, GA 30067 USA (Tel. 770-590-7970; FAX 770-590-0239)

**Ameripol Synpol Corp.**

146 S. High St., 7th floor, Akron, OH 44308-1493 USA (Tel. 330-762-1655; 800-321-9001; FAX 330-762-2426; E-mail: dhalte@ameripol.com; Internet: www.ameripol.com)

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**Ampacet Corp.**

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**Amspec Chemical Corp.**

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**Anderson Development Co.**

1415 E. Michigan St., Adrian, MI 49221 USA (Tel. 517-263-2121; FAX 517-263-1000)

**Andrea Aromatics**

PO Box 3091, Princeton, NJ 08543-3091 USA (Tel. 609-695-7710; FAX 609-392-8914)

**ANGUS**

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**Anhydrides & Chemicals Inc.**

7-33 Amsterdam St., Newark, NJ 07105 USA (Tel. 973-465-0077; FAX 973-465-7713)

**Anmar International Ltd.**

24 Stony Hill Rd., Ste. 104, Bethel, CT 06801 USA (Tel. 203-743-3045; FAX 203-743-3236)

**A.P. Chemicals Ltd.**, A Member of the BTP plc Group of Companies

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3900 Essex Lane, Suite 1120, PO Box 27714, Houston, TX 77227-7714 USA (Tel. 713-599-7400; 800-531-2025; E-mail: Larry.Graham@BakerPetrolite.com)

**Aquapharm Chemical Co. Pvt. Ltd.**

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**Arakawa Chemical Industries Ltd.**, 1-3-7, Hirano-machi, Chuo-ku, Osaka, 541 Japan (Tel. 81-6-209-8581; FAX 81-6-209-8542)

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**Arch Chemicals**

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**Arch Chemicals, Inc./Water Chemicals**, 501 Merritt 7, PO Box 5204, Norwalk, CT 06856-5204 USA (Tel. 203-229-2812; FAX 203-229-2709; E-mail: crhains@archchemicals.com)

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**Arch Industrial H.K. Ltd.**, 1111 Peninsula Centre, 67 Mody Rd., Tsim-Sha Tsui-East, Kowloon Hong Kong (Tel. (852) 2366-8303; FAX (852) 2367-1309)

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**Archimica (Florida) Inc.**, 9250 Baymeadows Rd., Suite 2000, Jacksonville, FL 32256 USA (Tel. 904-732-2100; FAX 904-732-4799; E-mail: [sales@archimica.com](mailto:sales@archimica.com); Internet: [www.archimica.com](http://www.archimica.com))

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### Arista Industries, Inc.

557 Danbury Rd., Wilton, CT 06897 USA (Tel. 203-761-1009; 800-255-6457; FAX 203-761-4960; E-mail: [alloils@aol.com](mailto:alloils@aol.com))

### Aristech Chemical Corp.

600 Grant St., Room 1170, Pittsburgh, PA 15230-0250 USA (Tel. 412-433-2747; 800-276-6621; FAX 412-433-7721; Internet: [www.aristechchem.com](http://www.aristechchem.com))

### Arizona

**Arizona Chemical Co.**, Wholly owned subsid. of International Paper, PO Box 550850, Jacksonville, FL 32225 USA (Tel. 904-928-8700; 800-526-5294; FAX 904-928-8779; E-mail: [info.arizona@ipaper.com](mailto:info.arizona@ipaper.com); Internet: [www.arizonachemical.com](http://www.arizonachemical.com))

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### Artek, Inc.

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### Asbury Carbons

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### Ash Grove Cement Co.

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### Ashland

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### The Associated Ocel Co. Ltd.

PO Box 17, Oil Sites Rd., Ellesmere Port, S. Wirral, L65 4HF UK (Tel. 44 151 350 6948; FAX 44 151 350 6907)

### Astaris LLC

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### Astro Industries Inc., Subsid. of Borden Inc.

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### Atlantic Equip. Engrs., Div. of Micron Metals Inc.

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**Atlantic Gelatin/Kraft General Foods**

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**Atlas Refinery, Inc.**

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75 Commerce Dr., Hauppauge, NY 11788 USA (Tel. 516-231-5522; 800-695-5720; FAX 516-231-7332; E-mail: [gene@bio-botanica.com](mailto:gene@bio-botanica.com); Internet: [www.bio-botanica.com](http://www.bio-botanica.com))

**BioLab**

**BioLab Inc.**, Subsid. of Great Lakes Chemical Corp., PO Box 1489, Decatur, GA 30031-1489 USA (Tel. 404-378-8585, 404-687-1028)

**BioLab Water Additives**, Div. of BioLab Inc., a Subsid. of Great Lakes, Tenax Rd., Trafford Park, Manchester, M17 1WT UK (Tel. 44-161 875 3875; FAX 44-161 875 3175; Internet: [www.wateradditives.com](http://www.wateradditives.com))

**Bio-Rad Laboratories**

1000 Alfred Nobel Dr., Hercules, CA 94547 USA (Tel. 510-724-7000; 800-4-BIORAD; FAX 800-879-2289; Internet: [www.bio-rad.com](http://www.bio-rad.com))

**Bioscience, Inc.**

1550 Valley Center Pkwy., Suite 140, Bethlehem, PA 18017-2270 USA (Tel. 610-974-9693; 800-627-3069; FAX 610-691-2170; E-mail: [bioscience@bioscienceinc.com](mailto:bioscience@bioscienceinc.com); Internet: [www.bioscienceinc.com](http://www.bioscienceinc.com))

**Biosil Technologies, Inc.**

510 E. 31st St., Paterson, NJ 07504 USA (Tel. 973-684-2000; FAX 973-742-9048)

**Biwax Corp.**

45 E. Bradrock, Des Plaines, IL 60018 USA (Tel. 708-824-0137; FAX 708-635-6675)

**BK Giulini. See under Giulini**

**S. Black (Import & Export) Ltd.**

Foxholes Business Park, John Tate Road, Hertford, Hertfordshire, SG13 7YH UK (Tel. 44 1992 825555; FAX 44 1992 825566; E-mail: enquires@sblack.com; Internet: www.sblack.com)

**William Blythe Ltd., Subsid. of Holliday Chemical Holdings plc**

Holland Bank Works, Bridge St., Church, Accrington, Lancashire, BB5 4PD UK (Tel. 44 1254 872872; FAX 44 1254 872000)

**BOC Gases**

The Priestley Centre, 10 Priestley Rd., The Surrey Research Park, Guildford, Surrey, GU2 5XY UK (Tel. 44-1483-244420; FAX 44-1483-244175; Internet: www.boc.com/gases/bocgases.htm)

**Boehle Chemicals, Inc.**

19306 W. 10 Mile Rd., PO Box 2001, Southfield, MI 48037 USA (Tel. 313-255-2210; FAX 313-255-4474)

**Boliden Intertrade Inc.**

3379 Peachtree Rd. NE, Suite 300, Atlanta, GA 30326 USA (Tel. 404-239-6700; 800-241-1912; FAX 404-239-6701)

**Borax. See under U.S. Borax****Borden Chemical, Inc.**

180 E. Broad St., Columbus, OH 43215 USA (Tel. 614-225-4000; FAX 614-225-4465)

**Borealis A/S**

Lyngby Hovedgade 96, DK-2800 Lyngby Denmark (Tel. 45-45-96 60 00; FAX 45-45-96 61 23)

**Borregaard. See under LignoTech****Borregaard Synthesis (US)**

9 Opportunity Way, Newburyport, MA 01950 USA (Tel. 978-462-5555; 800-992-8506; FAX 978-465-2057)

**Boston-Charleston Co.**

2793 Abbapoola Rd., Charleston, SC 29455 USA (Tel. 843-559-0022; FAX 843-559-0363)

**BP Amoco**

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**BP Amoco Chemicals Ltd.**, Poplar House, Sunbury-on-Thames, Middx, TW16 7LL UK (Tel. 44 1932 774321; FAX 44 1932 774372; E-mail: chemical\_enquiries\_eu@bp.com; Internet: www.bpamocochemicals.com)

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**BP Amoco Chemicals/Customer Service**, 150 W. Warrenville Rd., Naperville, IL 60563-8460 USA (Tel. 630-420-5111)

**BP Amoco Polymers**, 4500 McGinnis Ferry Rd., Alpharetta, GA 30202-3914 USA (Tel. 770-772-8200; FAX 770-772-8520; Internet: www.bpamocousa.com/what\_we\_do/chem/04\_polymers.html)

**BP Japan K.K.**, Ark Mori Bldg. 33rd Fl., 12-32, Akasaka 1-chome, Minato-ku, Tokyo, 107-6033 Japan (Tel. (81 3) 5562-3900; FAX (81 3) 5562-3946)

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**BP Hong Kong Limited**, 21/F, Dah Sing Financial Centre, 108 Gloucester Rd., Wanchai Hong Kong (Tel. 852 2519 4200; FAX 852 2598 4995)

**BP Chemical. See BP Amoco****BPI, Inc. (By-products Industries)**

612 S. Trenton Ave., Pittsburgh, PA 15221 USA (Tel. 412-371-8554; FAX 412-371-9984)

**Brandeis, Div. of Pechiney World Trade (USA) Inc.**

475 Steamboat Rd., Greenwich, CT 06830 USA (Tel. 203-625-9081; FAX 203-622-8669)

**Brand-Nu Laboratories, Inc.**

PO Box 895, 30 Maynard St., Meriden, CT 06450 USA (Tel. 203-235-7989; 800-243-3768; FAX 203-235-7163; E-mail: contact@brandnu.com; Internet: www.brandnu.com)

**Brenntag (UK) Ltd.**

Brenntag House, 45 High St., Hampton Wick, Kingston-upon-Thames, Surrey, KT1 4DG UK (Tel. 44 20 8977 3200; FAX 44 20 8943 4350)

**British Traders & Shippers Ltd., Div. of Linton Park plc**

429-431 Rainham Road South, Dagenham, Essex, RM10 8RN UK (Tel. 44 181 596 7500; FAX 44 181 596 7509; Internet: www.britishtraders.co.uk)

**British Wax Refining Co. Ltd.**

29 St John's Rd, Redhill, Surrey, RH1 6DT UK (Tel. 44 1737 761242; FAX 44 1737 761472)

**Bromine & Chemicals Ltd., Div. of Dead Sea Bromine**

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**Brooks Industries Inc.**

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**P. Brøste A/S**

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**Bruchem, Inc.**

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**L. Bruggemann Chemical Co.**

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**Bruticals, Inc.**

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**Buckman Laboratórios Ltda.**, Caixa Postal 899, 13001-970 Campinas, SP Brazil (Tel. 55 198 64 5000; FAX 55 198 64 1621)

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**Buckman Laboratories Ltd.**, Enterprise House, Manchester Science Pk., Lloyd St. North, Manchester, Lancashire, M15 6SE UK (Tel. 44 161 226 1227; FAX 44 161 227-9314)

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**Buckman Laboratories Pty. Ltd.**, East Bomen Rd., PO Box 1396, Wagga Wagga, NSW, 2650 Australia (Tel. 61-69-213155, 61 (08) 25-7272; FAX 61-69-213677)

**Buckman Laboratories, K.K.**, Ogawa Bldg. 4F, 9-16, Nihonbashi Kodenmacho, Chuo-ku, Tokyo, 103 Japan (Tel. 81 (3) 3808-1199; FAX 81 (3) 3808-1590)

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**Budenheim Ibérica S.L.**

Extramuros, S/N, E-50784 La Zaida/Zaragoza Spain (Tel. 34 (9) 76 17 84 12; FAX 34 (9) 76 17 87 51)

**Buffalo Color Corp.**

959 Rte. 46 East, Suite 201, Parsippany, NJ 07054 USA (Tel. 973-316-5600; 800-631-0171; FAX 973-316-5828)

**Burdick & Jackson, Div. of Allied Signal Inc.**

1953 S. Harvey St., Muskegon, MI 49442 USA (Tel. 616-726-3171; 800-368-0050; FAX 616-728-8226)

**Burgess Pigment Co.**

PO Box 349, Sandersville, GA 31082 USA (Tel. 912-746-5658; 800-841-8999; FAX 912-552-2544; E-mail: info@burgesspigment.com; Internet: www.burgesspigment.com)

**Burlington Bio-Medical & Scientific Corp.**

71 Carolyn Blvd., Farmingdale, NY 11735-1527 USA (Tel. 631-694-4700; FAX 631-694-9177; E-mail: BSCCHEMNY@aol.com; Internet: www.burlingtonscientific.com)

**Burlington Chemical Co., Inc.**

PO Box 111, 615 Huffman Mill Rd., Burlington, NC 27215 USA (Tel. 336-584-0111; 800-672-5888; FAX 336-584-3548; E-mail: info@burco.com; Internet: www.burco.com)

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**BYK-Chemie France S.A.R.L.**, Le Bonaparte Centre d'Affaires, Paris Nord, F-93153 Le Blanc Mesnil France (Tel. 33 2 48 67 52 24; FAX 33 2 48 67 47 92)

**BYK-Cera BV**, PO Box 535, NL-7400 AM Deventer The Netherlands (Tel. 31 570 678200; FAX 31 570 678250)

**BYK-Chemie USA**, Div. of Altana Inc., 524 S. Cherry St., PO Box 5670, Wallingford, CT 06492-7651 USA (Tel. 203-265-2086; FAX 203-284-9158; E-mail: lab@bykchemieusa.com; Internet: www.byk.com)

**BYK-Chemie Japan K.K.**, 6F, Sunshine 6 Bldg., 2-29-12, Shiba, Minato-Ku, Tokyo, 105 Japan (Tel. 81-3-5442 0686; FAX 81-3-5442 2080)

**BYK-Chemie Asia Pacific Pte. Ltd.**, 1 Scott Rd., #26-11, Shaw Centre Singapore 228208 (Tel. 65 7360372; FAX 65 7364253)

**Cabot**

**Cabot Corp.**, Northpark Estates, Apartment 1505, 3201 Devin Parkway, Alpharetta, GA 30004 USA (Tel. 678-754-5611)

**Cabot Corp./Cab-O-Sil Div.**, 700 E. U.S. Highway 36, Tuscola, IL 61953-9643 USA (Tel. 217-253-3370; 800-222-6745; FAX 217-253-4334; Internet: www.cabot-corp.com/cabosil/cabosil.nsf)

**Cabot Corp./Special Blacks Div.**, 157 Concord Rd., PO Box 7001, Billerica, MA 01821-7001 USA (Tel. 508-663-3455; 800-462-2313; FAX 508-670-7035)

**Cabot Brasil Industria E Comercio Ltda.**, Av. Joao Castaldi 88, 04517-900, Sao Paulo SP Brazil (Tel. 55 11 536 0388; FAX 55 11 542 6037)

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**Brotherton Speciality Products Ltd.**

**Brotherton Speciality Products Ltd.**

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**Bruchem, Inc.**

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**Buckman Laboratories**

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**Cabot Carbon Ltd./Fumed Silica**, Div. of Cabot Corp., Barry Site, Sully Moors Rd., Sully, S. Glamorgan, CF64 2XP Wales UK (Tel. 44 1446-736999; FAX 44 1446-737123)

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### Calgon Corp. See Nalco

### Calgon Carbon Corp.

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### J.H. Calo Company Inc.

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### Cambrex Corp.

One Meadowlands Plaza, E. Rutherford, NJ 07073 USA (Tel. 201-804-3000; FAX 201-804-9852; Internet: www.cambrex.com)

### Cambridge Industries Co. of America

7-33 Amsterdam St., Newark, NJ 07105 USA (Tel. 973-465-4565; FAX 973-465-7713)

### John Campbell & Co. Inc.

PO Box 96, Perkasio, PA 18944 USA (Tel. 215-257-2708; 888-669-8999; FAX 215-257-2709)

### Canamex S.A. de C.V.

Acatl No. 297, Col. Santa Lucia, Fracc. Industrial San Antonio, Azcapotzalco, 02760 Mexico D.F. Mexico (Tel. 525-352-3333; FAX 525-352-8546; E-mail: canamex1@infosel.net.mx; Internet: www.validata.com.mx/chemical/canamex)

### Canbro Inc.

29 E. Park St., Valleyfield, Quebec, J6S 1P8 Canada (Tel. 450-373-0233; FAX 450-373-4540)

### Captree Chemical Corp.

605 Albany Ave., Amityville, NY 11702 USA (Tel. 516-841-0200; 800-899-2725; FAX 516-841-5370)

### Carbochem, Inc.

326 W. Lancaster Ave., Ardmore, PA 19003 USA (Tel. 610-645-9200; FAX 610-645-5501; E-mail: hq@carbochem.com; Internet: www.carbochem.com)

### CarboMer, Inc.

PO Box 721, Westborough, MA 01581 USA (Tel. 508-870-0806; 800-239-7129; FAX 508-898-0432; E-mail: sales@carbomer.com; Internet: www.carbomer.com)

### Carbonic Industries Corp.

3700 Crestwood Pkwy. NW, Suite 200, Duluth, GA 30096-5599 USA (Tel. 770-717-2200; 800-241-5882; FAX 770-717-2222)

### Cardinal Companies, L.P.

2010 S. Bellline, Columbia, SC 29201 USA (Tel. 803-799-7190; 800-788-7274; FAX 803-799-8742; Internet: www.cardinallp.com)

### Cardolite Corp.

500 Doremus Ave., Newark, NJ 07105-4805 USA (Tel. 973-344-5015; 800-322-7365; FAX 973-344-1197; E-mail: csr@cardolite.com; Internet: www.cardolite.com)

### Cargill

**Cargill Industrial Oils & Lubricants**, PO Box 5700, MS 93, Minneapolis, MN 55440 USA (Tel. 612-742-6286; 800-842-3631; FAX 612-742-6722; E-mail: tech oils@cargill.com; Internet: www.tech oils.cargill.com)

**Cargill, Citric Acid**, 400 E. Diehi Rd., Suite 330, Naperville, IL 60563-1361 USA (Tel. 630-505-7322; 800-344-1633; FAX 630-505-7846)

**Cargill Fertilizer, Inc.**, 8813 Hwy. 41 South, Riverview, FL 33569 USA (Tel. 813-671-6130; Internet: www.cargill.com/aghorizons/products/fert/)

### Carrageenan Co.

3830 S. Teakwood St., Santa Ana, CA 92707 USA (Tel. 714-751-1521; FAX 714-850-9865)

### R.E. Carroll, Inc.

1570 N. Olden Ave., PO Box 5806, Trenton, NJ 08638-0806 USA (Tel. 609-695-6211; 800-257-9365; FAX 609-695-0102; E-mail: info@reccarroll.com; Internet: www.reccarroll.com)

### The Cary Co.

1195 W. Fullerton Ave., PO Box 403, Addison, IL 60101-0403 USA (Tel. 630-629-6600; FAX 630-629-3690)

### Cascade Chemical Co.

111 Westland Rd., Cedar Grove, NJ 07009-2219 USA (Tel. 973-239-2523; FAX 973-239-2501)

### CasChem Inc., A Cambrex Co.

40 Ave. A, Bayonne, NJ 07002 USA (Tel. 201-858-7900; 800-CASCHEM; FAX 201-858-0308; Internet: www.caschem.com)

**Cataphote, Inc.**

PO Box 2369, Jackson, MS 39225-2369 USA (Tel. 601-939-4612; 800-221-2574; FAX 601-932-5339)

**Catawba-Charlab, Inc., Affiliate of CHT**

5046 Old Pineville Rd., PO Box 240497, Charlotte, NC 28224 USA (Tel. 704-529-1274; 800-277-4941; FAX 704-522-8182; Internet: www.catawba-charlab.com)

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PO Box 7066, Wood Dale, IL 60191 USA (Tel. 630-350-7888; FAX 630-350-7930; E-mail: info@caterchem.com; Internet: www.caterchem.com)

**CBC (Europe) Ltd., Chemical Div.**

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**CC Pollen Co.**

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**Chesham Chemicals Ltd.**, Distributor for Ceca, Cunningham House, Westfield Lane, Kenton, Harrow, Middlesex, HA3 9ED UK (Tel. 44 181 907 7779; FAX 44 181-909 1053)

**Cedar Concepts Corp.**

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**Celanese**

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**Celanese Tarragona**, CN 340, Km 1155, Apartado 18, E-43080 Tarragona Spain (Tel. 34-977-307700; FAX 34-977-307790)

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**Celanese Canada Inc.**, PO Box 99, Stn. Main, Edmonton, Alberta, T5J 2H7 Canada (Tel. 780-471-0511; FAX 780-471-0113; E-mail: EDMinformation@celanese.com)

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**Celite**

**Celite Corp.**, c/o World Minerals Inc., 130 Castilian Drive, Santa Barbara, CA 93117 USA (Tel. 805-562-0200; 800-893-4445; FAX 805-562-0298; E-mail: info@worldminerals.com; Internet: www.worldminerals.com)

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**Celite France SA**, 257 Ave. Georges Clemenceau, 92745 Nanterre Cedex France (Tel. 33 1 41 91 57 11; FAX 33 1 41 91 57 39)

**Celite Hispanica SA**, Calle Beethoven 1-31, Apartado 98, Poligono Industrial Can Jordi, 08191 Rubi Barcelona Spain (Tel. 34 93 586 0260; FAX 34 93 586 0261)

**Celite Italiana**, Alzaia Trento 6, 20094 Corsico, MI Italy (Tel. 39 2 451741; FAX 39 2 4409451)

**Celtic Chemicals Ltd.**

Gas Works Industrial Estate, Victoria Rd, Port Talbot, West Glamorgan, SA12 6DB Wales UK (Tel. 44 1639 886236; FAX 44 1639 893147; Internet: www.celticchemicals.co.uk)

**CE Minerals, Div. Combustion Engrg.**

901 E. Eighth Ave., King of Prussia, PA 19406 USA (Tel. 215-265-6880; FAX 215-337-7163)

**Central Soya Co., Inc., Wholly-owned subsidiary of Eridania Béghin-Say**

PO Box 1400, 1946 West Cook Rd., Fort Wayne, IN 46801-1400 USA (Tel. 219-425-5432; 800-348-0960; FAX 219-425-5301; E-mail: Lecithin\_Group@centralsoya.com; Internet: www.centralsoya.com)

**Century Multech, Inc.**

33-70 Prince St., Suite 605, Flushing, NY 11354 USA (Tel. 718-353-9885; FAX 718-353-9878)

**Cerac, Inc.**

PO Box 1178, 407 N. 13th St., Milwaukee, WI 53201 USA (Tel. 414-289-9800; FAX 414-289-9805; E-mail: marketing@cerac.com; Internet: www.cerac.com)

**Ceres Chemical Co., Inc.**

3 Gannett Dr., White Plains, NY 10604 USA (Tel. 914-694-1111; FAX 914-694-6118; E-mail: chemceres@aol.com)

**Cerestar**

**Cerestar Benelux BV**, Nijverheidsstraat 1, NL-4551 LA Sas Van Gent The Netherlands (Tel. 31 115 459 000; FAX 31 115 451 033)

**Cerestar UK Ltd.**, Trafford Park Rd, Trafford Park, Manchester, Lancashire, M17 1PA UK (Tel. 44 161 872 5959; FAX 44 161-848 9034; Internet: www.cerestar.com)

**Cerestar USA Inc.**, 1100 Indianapolis Blvd., Hammond, IN 46320-1094 USA (Tel. 219-659-2000; 800-348-9896; FAX 219-473-6601)

**Cesalpinia Chemicals SpA, A Company of Lamberti Group**

Via Marsala 38/D, 21013 Gallarate Italy (Tel. 39 0331 715 806; FAX 39 0331 715 759; Internet: www.cesalpinia.com)

**Charabot & Co. Inc. USA**

30 Corporate Dr., Orangeburg, NY 10962-2622 USA (Tel. 914-398-1200; FAX 914-398-1440)

**Charkit Chemical Corp.**

9 Old Kings Way South, PO Box 1725, Darien, CT 06820-1725 USA (Tel. 203-655-3400; FAX 203-655-8643; E-mail: sales@charkit.com; Internet: www.charkit.com)

**Charlotte Chemical Inc.**

2500 Wilcrest, Suite 334, Houston, TX 77042 USA (Tel. 281-955-1162; FAX 281-955-9632; E-mail: horaciog@charlotte.com.mx; Internet: www.charlotte.com.mx)

**Chart Corporation Inc.**

787 E. 27th St., Paterson, NJ 07504 USA (Tel. 973-345-5554; FAX 973-345-2139)

**Chattem Chemicals, Inc.**

3801 St. Elmo Ave., Chattanooga, TN 37409 USA (Tel. 423-821-7616; FAX 423-821-0507)

**Chemapol Usa, Inc.**

560 Sylvan Ave., Englewood Cliffs, NJ 07632 USA (Tel. 201-816-1382; FAX 201-816-1384)

**Chematch**

1281 Main St., Stamford, CT 06902 USA (Tel. 203-961-1686; FAX 203-357-7011; E-mail: ftofer@petrochem.net; Internet: www.chematch.com)

**Chemax Performance Products, Member of Rutgers Organics Corp.**

PO Box 6067, Greenville, SC 29606 USA (Tel. 864-277-7000; 800-334-6234; FAX 864-277-7807; E-mail: info@chemaxinc.com; Internet: www.chemaxinc.com)

**Chemcentral Corp.**

7050 W. 71 St., PO Box 730, Bedford Park, IL 60499-0730 USA (Tel. 708-594-7000; 800-331-6174; FAX 708-594-6328)

**Chemconnect**

44 Montgomery St., Suite 250, San Francisco, CA 94104 USA (Tel. 415-364-3300; FAX 415-646-0010; Internet: www.chemconnect.com)

**Chemcor**

48 Leone Lane, Chester, NY 10918 USA (Tel. 914-469-5800; 888-243-6267; FAX 914-469-5855)

**ChemDesign Corp., A Bayer Company**

310 Authority Dr., Fitchburg, MA 01420 USA (Tel. 978-345-9999; FAX 978-342-9620; Internet: www.bayerus.com)

**Chemetall Chemical Products, Inc.**

50 Valley Rd., Berkeley Heights, NJ 07922 USA (Tel. 908-665-9506; 800-654-8059; FAX 908-665-8543)

**ChemFirst Fine Chemicals**

PO Box 7005, Pascagoula, MS 39568-7005 USA (Tel. 228-762-0870; 800-828-7940; FAX 228-762-1588; Internet: www.qci.com)

**Chemical SpA**

Via Aresenale 27/E, 10121 Torino Italy (Tel. 39-11-562-03 31; FAX 39-11 562 09 10)

**The Chemical Co.**

PO Box 436, 19B Narragansett Ave, Jamestown, RI 02835 USA (Tel. 401-423-3100; FAX 401-423-3102; Internet: www.thechemco.com)

**Chemical Distribution, Inc.**

701 Warrenville Rd., Suite 155, Lisle, IL 60532 USA (Tel. 630-663-0130; FAX 630-663-0136)

**Chemical Distributors, Inc.**

PO Box 10763, Portland, OR 97210 USA (Tel. 503-243-1082; FAX 503-243-1162)

**Chemical Group Inc.**

134 Main St., Eatontown, NJ 07724 USA (Tel. 215-860-0488; FAX 215-860-2256)

**Chemical Products Corp.**

102 Old Mill Rd. SE, PO Box 2470, Cartersville, GA 30120-1692 USA (Tel. 770-382-2144; FAX 770-386-6053)

**Chemicals Incorporated**

12321 Hatcherville Rd., Baytown, TX 77521 USA (Tel. 281-576-5000; FAX 281-576-5712; E-mail: dkt@chemicalsinc.com; Internet: www/.chemicalsinc.com)

**Chemisphere Corp.**

2101 Clifton Ave., St. Louis, MO 63139 USA (Tel. 314-644-1300; 800-844-1301; FAX 314-644-7194; E-mail: mpclote@chemispherecorp.com; Internet: www.chemispherecorp.com)

**Chemisphere Ltd.**

38 King St., Chester, Cheshire, CH1 2AH UK (Tel. 44 1244 320878; FAX 44 1244 320858; E-mail: sales@chemisphere.co.uk; Internet: www.chemisphere.co.uk)

**ChemMark Development Inc., Div. of Brooks Ind.**

70 Tyler Place, South Plainfield, NJ 07080 USA (Tel. 908-561-5200; FAX 908-561-9174)

**Chem-Materials Co.**

16600 Sprague Rd., Cleveland, OH 44130-6318 USA (Tel. 440-243-5590; FAX 440-243-1940)

**Chem-Met Co.**

6419 Yochelson Pl., PO Box 819, Clinton, MD 20735 USA (Tel. 301-868-3355; FAX 301-868-8946)

**Chemol Co.**

2300 Randolph Ave., PO Drawer 16286, Greensboro, NC 27406 USA (Tel. 910-333-3060; 800-849-3050; FAX 910-273-4645)

**Chem One Corp.**

15150 Sommermeyer, Houston, TX 77041-5308 USA (Tel. 713-896-9966; FAX 713-896-7540; E-mail: sales@chemone.com; Internet: www.chemone.com)

**Chemoxy International plc. See Haltermann Products UK****Chemplex Chemicals, Inc.**

Crossroads Corporate Center, 1 International Blvd., Suite 400, Mahwah, NJ 07495-0400 USA (Tel. 201-512-8788; FAX 201-512-8791; E-mail: chemplx@aol.com)

**Chemron Corp.**

PO Box 2299, Paso Robles, CA 93446 USA (Tel. 805-239-1550; 800-423-1148; FAX 805-239-8551)

**ChemService, Inc.**

660 Tower Lane, PO Box 599, West Chester, PA 19381-0599 USA (Tel. 610-692-3026; 800-452-9994; FAX 610-692-8729)

**Chemson Ltd.**

Hayhole Works, Northumberland Dock Rd., Howdon, Wallsend, Tyne & Wear, NE28 0PB UK (Tel. 44 191 259 7000; FAX 44 191 259 7001)

**Chemstar Products Co.**

3915 Hiawatha Ave. S., Minneapolis, MN 55406-3203 USA (Tel. 612-722-0079; FAX 612-722-2473)

**Chem-Tex Laboratories Inc.**

1016 N. 185 Service Rd., PO Box 16264, Charlotte, NC 28297-6264 USA (Tel. 704-392-9322; 800-532-5361; FAX 704-392-9325)



## ChemUSA, Corp.

13575 East Oil Dock Rd., Brownsville, TX 78521 USA (Tel. 956-831-5100; FAX 956-831-9309; E-mail: chemusa@worldnet.att.net)

## Chemway International Inc.

375 Sylvan Ave., Suite 111, Englewood Cliffs, NJ 07632 USA (Tel. 201-541-0118; FAX 201-541-0120; E-mail: chemway@aol.com)

## Chesham Chemicals Ltd.

Cunningham House, Westfield Lane, Harrow, Middlesex HA3 9ED UK (Tel. 44 181 907 7779; FAX 44 181-909 1053; Internet: www.cheshamchemicals.co.uk)

## Chevron

**Chevron Chemical Co. LLC/U.S. Chemicals Div.**, 1301 McKinney St., Houston, TX 77010-3029 USA (Tel. 713-754-2000; 800-231-3826; FAX 713-754-2016; E-mail: gulfene@chevron.com; Internet: www.chevron.com)

**Chevron Products Co./Global Lubricants**, 555 Market St., Room 803, San Francisco, CA 94105-2870 USA (Tel. 415-894-6611; 800-582-3835; FAX 415-894-6622; E-mail: NJLI@chevron.com)

**Chevron Chemical Canada Ltd.**, 3228 South Service Rd., Burlington, Ontario, L7N 3H8 Canada (Tel. 905-681-2201; FAX 905-681-1071)

**Chevron do Brasil Ltda.**, Rua das Carnaubeiras 168 - 6° Andar, 04343-080 Sao Paulo, SP Brazil (Tel. 55 11 5589 9111; FAX 55 11 577 1088)

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**Chevron Chemical Far East Pte. Ltd.**, PO Box 500, Jurong Point Post Office Singapore 916417 (Tel. 65 867 6557; FAX 65 867 6652)

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## Chevron Phillips

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**Chevron Phillips Chemicals UK Ltd.**, Philips Quadrant, 35 Guildford Rd., Woking, Surrey, GU22 7QT UK (Tel. 44 1483 752314; FAX 44 1483-752371; E-mail: cdabor@ppco.com)

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## Christianson S.A. de C.V.

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**Ciba Specialty Chemicals K.K.**, 10-66, Miyuki-cho, Takarazuka-shi, Hyogo, 665-8666 Japan (Tel. (0797) 73-9000; FAX (0797) 73-9025)

**Ciba Specialty Chemicals Corp./Performance Polymers.**  
See Vantico

### Cimbar Performance Minerals

25 Old River Rd. S.E., PO Box 250, Cartersville, GA 30120 USA (Tel. 770-387-0319; 800-852-6868; FAX 770-386-6785; Internet: www.cimbar.com)

### Clariant

**Clariant Corp.**, 4000 Monroe Rd., Charlotte, NC 28205 USA (Tel. 704-331-7000; 800-631-8077; FAX 704-371-7718; E-mail: info@clariant.com; Internet: www.clariant.com; www.clariant-northamerica.com)

**Clariant Corp./Surfactants Div.**, 4331 Chesapeake Dr., Charlotte, NC 28216 USA (Tel. 704-395-6657; 800-538-8397; FAX 704-395-6541)

**Clariant (Mexico) S.A. de C.V.**, Blvd. Toluca #46, Col. El Conde, Naucalpan de Juarez, Edo de Mexico, 53500 Mexico (Tel. 525-359-3533; FAX 525-576-3259; Internet: www.clariant-latinamerica.com)

**Clariant (UK) Ltd.**, Calverley Lane, Horsforth, Leeds, West Yorkshire, LS18 4RP UK (Tel. 44 113 2584 646; FAX 44 113 2398 473)

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### V.L. Clark Chemical Co., Inc.

60 Hilline Dr., PO Box 87, Union, MO 63084 USA (Tel. 636-583-4304; 888-VLC-CHEM; FAX 636-583-5218; E-mail: sales@vlclark.com; Internet: www.vlclark.com)

### Classic Dyestuffs Inc.

PO Box 2368, High Point, NC 27261 USA (Tel. 336-841-2346; FAX 336-841-5463; E-mail: dpicha@netmcr.com; Internet: www.classicdye.com)

### Clearon Corp.

52 Vanderbilt Ave., New York, NY 10017 USA (Tel. 212-867-5711; FAX 212-867-6328)

### W.A. Cleary Chemical Corp.

1049 Route 27, Somerset, NJ 08875-0010 USA (Tel. 908-247-8000; FAX 908-247-6977)

### Cleveland Pigment & Color Co.

1680 E. Market St., Akron, OH 44305 USA (Tel. 330-794-9977; 800-688-3884; FAX 330-794-6425)

### CM Chemical Products Inc., Member of the Chemetall Group

50 Valley Rd., Berkeley Heights, NJ 07922 USA (Tel. 908-665-9506; 800-654-8059; FAX 908-665-8543)

### CNC International, L.P.

PO Box 3000, 20 Privilege St., Woonsocket, RI 02895 USA (Tel. 401-769-6100; FAX 401-769-4509)

### Coalite Chemicals, Subsid. of Anglo United plc

PO Box 152, Buttermilk Lane, Bolsover, Chesterfield, Derbyshire, S44 6AZ UK (Tel. 44 1246 826816; FAX 44 1246 240309; E-mail: 101776.534@compuserve.com; Internet: www.coalite.co.uk)

### Coastal Chem Inc.

6995 S. Union Park Center, Suite 550, Midvale, VT 84047 USA (Tel. 801-568-8000; FAX 801-568-8099)

### Coastal Products & Chemicals. See Altitva

### Cognis

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**Cognis KGaA/Care Chemicals**, Postfach 130164, D-40551 Dusseldorf Germany (Tel. 49-211-794-00; FAX 49-211-798-7696; E-mail: care.chemicals@cognis.de)

**Cognis KGaA/Coatings**, D-40191 Dusseldorf Germany (Tel. 49-211 797-2022; FAX 49-211-798-2261; E-mail: coatings.inks@Henkel.de)

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**Cognis/Care Chemicals**, 300 Brookside Ave., Ambler, PA 19002 USA (Tel. 215-628-1000; 800-531-0815; FAX 215-628-1450)

**Cognis/Chemicals Group**, 300 Brookside Ave., Ambler, PA 19002 USA (Tel. 215-628-1000; 800-654-7588; FAX 215-628-1200; Internet: www.henkelcorp.com)

**Cognis/Chemicals Group**, 5051 Estecreek Rd., Cincinnati, OH 45232-1446 USA (Tel. 513-482-3000; 800-543-7370; FAX 513-482-5501)

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## Colonial Metals, Inc.

Triumph Ind. Complex, PO Box 726, Elkton, MD 21921 USA (Tel. 410-398-7200; 800-962-1537; FAX 410-398-2918)

## Colony Industries, Inc.

905 Waverly Ave., Holtsville, NY 11742 USA (Tel. 516-758-4600; 800-433-4102; FAX 516-758-4601)

## Colorcon, Div. of Berwind Pharmaceutical Services, Inc.

415 Moyer Blvd., PO Box 24, West Point, PA 19486-0024 USA (Tel. 215-699-7733; FAX 215-661-2605; E-mail: info@colorcon.com; Internet: www.colorcon.com)

## Colorite Plastics Co.

101 Railroad Ave., Ridgefield, NJ 07657 USA (Tel. 201-941-2900; 800-631-1577; FAX 201-941-2665; E-mail: unichemhenke@erols.com; Internet: www.unichemproducts.com)

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## Columbus Chemical Industries, Inc.

N4335 Temkin Rd., PO Box 8, Columbus, WI 53925-0008 USA (Tel. 920-623-2140; FAX 920-623-2577)

## Cometals Inc., Subsid. of Commercial Metals Co.

1 Penn Plaza, New York, NY 10119 USA (Tel. 212-760-1200; 800-223-4102; FAX 212-564-7915; E-mail: cmcny@attmail.com)

## Complex Quimica S.A. de C.V.

PO Box 544, Monterrey, NL, 64000 Mexico (Tel. 528 336-2577; FAX 528 336-3650)

## Composition Materials Co., Inc.

1375 Kings Hwy. East, Fairfield, CT 06430 USA (Tel. 203-384-6111; 800-262-7763; FAX 203-335-9728; E-mail: info@compomat.com; Internet: www.compomat.com)

## Conap, Inc., Subsid. of Cytec

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## Concord Chemical Co. Inc.

1700 Federal St., Camden, NJ 08105 USA (Tel. 609-966-1526; 800-282-2436; FAX 609-963-0246)

## Condea Chemie

**Condea Chemie GmbH**, Überseering 40, Postfach 60 04 49, D-22297 Hamburg Germany (Tel. 49-40-6375-0; FAX 49-40 6375 3588; E-mail: info@condea.de; Internet: www.condea.de)

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**Condea Vista Company**, A Company of RWE-DEAAG, 900 Threadneedle, PO Box 19029, Houston, TX 77224-9029 USA (Tel. 281-588-3000; 800-231-8216; FAX 281-588-3236; E-mail: info@cvcnet.com; Internet: www.condea.com, www.condeavista.com)

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**Condea Japan KK**, 2-3-5 Kasumigaseki, Kasumigaseki Bldg., Chiyoda-ku, Tokyo, 110 Japan (Tel. 81 3 3593 0611; FAX 81 3 3593 0615)

- Condea Vista Singapore Inc.**, 152 Beach Rd. #02-08, Gateway East Singapore 0718 (Tel. 65 294 0998; FAX 65 294 2113)
- S. Black (Import & Export) Ltd.**, Distrib. for Condea UK/Condea Augusta, Foxholes Business Park, John Tate Road, Hertford, Hertfordshire, SG13 7YH UK (Tel. 44 1992 825555; FAX 44 1992 825566; E-mail: enquires@sblack.com; Internet: www.sblack.com)
- Condor Corp.**  
Executive Center, 560 Sylvan Ave., Englewood Cliffs, NJ 07632-3193 USA (Tel. 201-567-3337; 800-321-3005; FAX 201-567-6489)
- Consos, Inc.**  
PO Box 34186, Charlotte, NC 28234 USA (Tel. 704-596-2813; 800-849-2980; FAX 704-596-4861; E-mail: consos@consos.com; Internet: www.consos.com)
- Continental Carbon Co.**  
333 Cypress Run, Suite 100, Houston, TX 77094 USA (Tel. 281-647-3700; 800-231-4591; FAX 281-647-3707; E-mail: info@continentalcarbon.com; Internet: www.continentalcarbon.com)
- Continental Industries Group Inc.**  
245 E. 58th St., 25th Fl., New York, NY 10022 USA (Tel. 212-752-2020; FAX 212-355-1507)
- Continental Trading Co.**  
PO Box 6933, Atlanta, GA 30315 USA (Tel. 404-524-6744; FAX 404-577-1651)
- Cook Composites & Polymers (CCP), Div. of TotalFinaElf**  
PO Box 419389, North Kansas City, MO 64141-6389 USA (Tel. 816-391-6000; 800-821-3590; FAX 800-391-6215; Internet: www.ccponline.com)
- Cooper Chemical Co.**  
40 Parker Rd., Long Valley, NJ 07853 USA (Tel. 908-876-3231; FAX 908-876-3857)
- Corn Products, Unit of CPC Int'l.**  
6500 Archer Rd., Summit-Argo, IL 60501 USA (Tel. 708-563-2400; 800-538-0394; FAX 708-563-6878)
- Cosan Chemical Corp., A Cambrex Co.**  
400 13th St., Carlstadt, NJ 07072 USA (Tel. 201-804-3200; FAX 201-460-7525; E-mail: ahansen@m1.cambrex.com)
- Costec, Inc.**  
655 First Bank Dr., Palatine, IL 60067-8111 USA (Tel. 847-359-5713; 800-450-8111; FAX 800-5COSTEC; E-mail: personalcare@costec.com; Internet: www.costec.com)
- Coyne Chemical Co., Inc., George S.**  
3015 State Rd., Croydon, PA 19021-6997 USA (Tel. 215-785-3000; FAX 215-785-1585; Internet: www.coynechemical.com)
- Coz Plastics, Inc., A Subsid. of PCC**  
2401 Providence Rd./Rt. 122, PO Box 940, Northbridge, MA 01534 USA (Tel. 508-234-6151; 888-549-7822; FAX 508-234-4349; Internet: www.plasticscolor.com)
- CP PhibroChem, Div. Philipp Brothers Chemicals, Inc.**  
One Parker Plaza, Fort Lee, NJ 07024 USA (Tel. 201-944-6020; 800-223-0434; FAX 201-944-6245)
- CPB International, Inc.**  
256-258 Wanaque Ave., Pompton Lakes, NJ 07442 USA (Tel. 973-616-7077; FAX 973-616-7277; E-mail: cpbint@bellatlantic.net; Internet: www.cpbweb.com)

- CPS Chemical Co. Inc., Member Allied Colloids Group plc**  
PO Box 162, 123 White Oak Lane, Old Bridge, NJ 08857 USA (Tel. 732-607-2700; FAX 732-607-2562)
- C & P Sales Inc.**  
4917 Clearview Dr., PO Box 781, Williamsville, NY 14221 USA (Tel. 716-634-3061; FAX 716-631-5180; E-mail: crs3@juno.com; Internet: www.candpsales.com)
- Cray Valley, Part of TotalFinaElf**  
16, rue de la Republique, 92800 Puteaux France (Tel. 33 1 41 35 69 95; FAX 33 1 41 35 61 36)
- Creanova**  
**Creanova Inc.**, Subsid. of Degussa-Hüls Corp., PO Box 6821, Somerset, NJ 08875-6821 USA (Tel. 732-560-6800; 800-661-7675; FAX 732-560-6707; Internet: www.creanovainc.com)
- Creanova Canada Inc.**, 235 Orenda Rd., Brampton, Ontario, L6T 1E6 Canada (Tel. 905-451-3810)
- Creanova de Mexico, S.A. de C.V.**, Calzada Mexico Xochimilco 5149, Col. Arenal, Mexico D.F. Mexico (Tel. 525-483-1000)
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- Creanova Asia-Pacific Pty. Ltd.**, 30-32 Commercial Dr., PO Box 996, Dandenong, Victoria, 3175 Australia (Tel. 61-3-9703-8888)
- Hüls Singapore Pte. Ltd./Creanova Colorants & Biocides Group**, 16, Int'l. Business Park, #03-08 Mannesmann Centre Singapore 609929 (Tel. 65-899-0080; FAX 65-899-0090)
- Creative Fragrances Mfg. Inc.**  
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- CR Minerals Corp., Part of G.R. O'Shea Company**  
2801 Youngfield St., Suite 301, Golden, CO 80401-2263 USA (Tel. 303-238-7777; 800-527-7315; FAX 303-238-7587; E-mail: info@crminerals.com; Internet: www.crminerals.com)
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**Crompton & Knowles Colors Inc.**, A Crompton business, PO Box 33188, 3001 N. Graham St., Charlotte, NC 28233 USA (Tel. 704-372-5890; 800-438-4122; FAX 704-376-3091; Internet: www.crompton-knowles.com; www.ckcolors.com)

**Crompton & Knowles of Canada**, 1850 Beaulac, Ville St. Laurent, Quebec, H4R 2E7 Canada (Tel. 514-333-1188; FAX 514-333-1880)

## Crompton/Witco

**Crompton/Witco**, A Crompton business, One American Lane, Greenwich, CT 06831-2559 USA (Tel. 203-552-2000; 800-779-4826 x6400; FAX 203-552-2010; Internet: www.witco.com)

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**Crompton/Witco do Brasil Ltda.**, Rua Verbo Divino, 1661 cj 64, Sao Paulo SP, 04719-002 Brazil (Tel. 55-11-5181-2799; FAX 55-11-5181-7972)

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**Crosfield Limited**, PO Box 26, Bank Quay, Warrington, Cheshire, WA5 1AB UK (Tel. 44 1925 416100; FAX 44 1925 416116; E-mail: steven.steggerda@crogb.sprint.com)

**Crosfield SpA**, Via dei Cipressi, 10, 37033 Montorio Verona Italy (Tel. (39) 45 895 0611; FAX (39) 45 895 0620)

**Crosfield B.V.**, IJ Rocourstraat 28, 6245 AD Eijsden The Netherlands (Tel. 31 43 409 9333; FAX 31 43 409 4478)

**Crosfield South Africa**, 169 Tedstone Rd., PO Box 14016, Wadeville, Ganteng, 1422 South Africa (Tel. 27 11 824 1973; FAX 27 11 827 6922)

**Crosfield Singapore**, 10 Science Park Rd., #04-24 The Alpha Singapore Science Park II, 117684 Singapore (Tel. (65) 872 2573; FAX (65) 872 2284)

**Crosfield Jakarta**, Graha Unilever, Lt12, Jl. Jend. Gatot Subroto, Kav. 15, Jakarta, 12930 Indonesia (Tel. 62 21 526 4038; FAX 62 21 526 4039)

## Crowley

**Crowley Chemical Co.**, 261 Madison Ave., New York, NY 10016 USA (Tel. 212-682-1200; FAX 212-953-3487; E-mail: crowleychemical@msn.com)

**Crowley Tar Products Co., Inc.**, 261 Madison Ave., New York, NY 10016 USA (Tel. 212-682-1200; FAX 212-953-3487; E-mail: crowleychemical@msn.com)

## Crown Technology, Inc./Chemical Div.

7513 E. 96 St., PO Box 50426, Indianapolis, IN 46250-0426 USA (Tel. 317-845-0045; 800-432-0045; FAX 317-845-9086)

## Crucible Chemical Co. Inc.

PO Box 6786, Donaldson Center, Greenville, SC 29606 USA (Tel. 864-277-1284; 800-845-8873; FAX 864-299-1192)

## Crusader Chemical Co., Inc.

2330 Severn St., Baltimore, MD 21230 USA (Tel. 410-752-7602; FAX 410-547-8713)

## Crystran Ltd.

27 Factor Rd., Poole, Dorset, BH16 5SL UK (Tel. 44 1202 632833; FAX 44 1202 632832; E-mail: sales@crystran.co.uk; Internet: www.crystran.co.uk)

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**Cuproquim Corp.**

PO Box 171357, Memphis, TN 38187-1357 USA (Tel. 901-537-7257; FAX 901-685-8372)

**Custom Ingredients Inc.**

PO Box 772, Chester, SC 29706 USA (Tel. 803-581-5800; FAX 803-581-5802)

**CVC Specialty Chemicals, Inc.**

2980 Rt. 73 North, Maple Shade, NJ 08052 USA (Tel. 856-482-0800; FAX 856-667-8270; Internet: www.cvcchem.com)

**CXY Chemicals U.S.A. Inc., Wholly owned by Canadian Occidental Petroleum Ltd.**

12450 Greenspoint Dr., Suite 1350, Houston, TX 77060 USA (Tel. 281-876-2267; FAX 281-872-3798; Internet: www.cxychem.com)

**Cyprus-Foote Mineral Co.**

348 Holiday Inn Dr., Kings Mountain, NC 28086 USA (Tel. 704-734-2682; 800-523-7116; FAX 704-734-2718)

**Cyro Industries**

100 Enterprise Dr., 7th Fl., PO Box 5055, Rockaway, NJ 07866 USA (Tel. 973-442-6000; 800-631-5384; FAX 973-442-6117; Internet: www.cyro.com)

**Cytec Industries**

**Cytec Industries Inc.**, Five Garret Mountain Plaza, West Paterson, NJ 07424 USA (Tel. 973-357-3100; 800-652-6013; FAX 973-357-3055; E-mail: info@gm.cytec.com; Internet: www.cytec.com)

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**Daicel-Hüls Ltd., Joint venture of Daicel Chem. Industries, Ltd./Hüls AG**

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**Daiwa Chemical Co., Ltd. (Daiwa Kasei K.K.)**

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**Dakota Gasification Co.**

44 Inverness Dr. East, Bldg. E, Engelwood, CO 80112 USA (Tel. 303-799-1531; 800-736-6868; FAX 303-799-0929; E-mail: dgcmtk@dakotagas.com; Internet: www.dakotagas.com)

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**Danisco Cultor**, Ingredients Sector of Danisco A/S, Langebrogade 1, PO Box 17, DK-1001 Copenhagen K Denmark (Tel. 45-32 66 20 00; FAX 45-32 66 21 88)

**Dar-Tech, Inc.**

16485 Rockside Rd., Maple Heights, OH 44137 USA (Tel. 216-663-7600; FAX 216-663-8007; Internet: www.dar-techinc.com)

**Darwin Chem. Co.**

1112 Weston Rd. #202, Ft. Lauderdale, FL 33326-1915 USA (Tel. 954-572-0973; FAX 954-572-1865; E-mail: sales@darwinchemical.com; Internet: www.darwinchemical.com)

**Dastech Int'l. Inc.**

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**Davidson Labs, Inc.**

PO Box 820, Davidson, NC 28036 USA (Tel. 704-663-0893; 800-334-8370; FAX 704-892-7904)

**Day-Glo Color Corp., Subsid. of Nalco Chemical Co.**

4515 St. Clair Ave., Cleveland, OH 44103 USA (Tel. 216-391-7070; 800-4DAYGLO; FAX 216-391-7751; E-mail: dayglo@dayglo.com; Internet: www.dayglo.com)

**Dead Sea Bromine**

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**Deeks & Co.**

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### Cuproquim Corp.

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### Custom Ingredients Inc.

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### CVC Specialty Chemicals, Inc.

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### CXY Chemicals U.S.A. Inc., Wholly owned by Canadian Occidental Petroleum Ltd.

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### Cytec Industries

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**Cytec Industries UK Ltd.**, Bowling Park Dr., Bradford, West Yorkshire, BD4 7TT UK (Tel. 44 1274 733891; FAX 44-1274 762289; Internet: www.cytec.com)

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### Daiwa Chemical Co., Ltd. (Daiwa Kasei K.K.)

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### Darwin Chem. Co.

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### Dastech Int'l. Inc.

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### Davidson Labs, Inc.

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### Dead Sea Bromine

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### Deeks & Co.

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**Delta Chemical Corp.**

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**Dexter Chemical Corp.**

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**Diamines and Chemicals Ltd.**

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**Dock Resins Corp.**

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**Doe & Ingalls, Inc.**

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**Donlar Corp.**

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**Dow Chemical Canada Inc.**, 250 - 6th Ave. S.W., Suite 2200, Calgary, Alberta, T2P 3H7 Canada (Tel. 403-267-3500; FAX 403-267-3597)

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**S. Black (Import & Export) Ltd.**, Distrib. for Dow, Foxholes Business Park, John Tate Road, Hertford, Hertfordshire, SG13 7YH UK (Tel. 44 1992 825555; FAX 44 1992 825566; E-mail: enquires@sblack.com; Internet: www.sblack.com)

## Dow Corning

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**Dow Corning GmbH**, Postfach 13 03 32, Rheingaustrasse 34, D-65201 Wiesbaden Germany (Tel. 49 2132 73093)

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## Dragoco Inc.

10 Gordon Dr., Totowa, NJ 07512 USA (Tel. 973-256-3850; FAX 973-256-9023; Internet: www.dragoco.com)

## Drew Industrial Div. See under Ashland

## Drexel Chemical Co.

1700 Channel Ave., Memphis, TN 38106-1412 USA (Tel. 901-774-4370; FAX 901-774-4666; Internet: www.DrexChem.com)

## Dry Branch Kaolin. See IMERYS

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**DuPont do Brasil S.A.**, Alameda Itapecuru, 506, Alphaville, CEP 06400 Barueri, Sao Paulo Brazil (Tel. (055-11) 421-8509; FAX (055-11) 421-8513; E-mail: produtos.brasil@bra.dupont.com)

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**Dye Specialties, Inc.**

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### Electro Abrasives Corp.

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**EniChem America, Inc.**, 2000 West Loop South, Suite 2010, Houston, TX 77027 USA (Tel. 713-940-0700; 800-441-3646; FAX 713-940-0724; E-mail: rdacquino@enichemea.com; Internet: www.enichemea.com)

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2 Penn Plaza, Suite 2439, New York, NY 10121-0034 USA (Tel. 212-736-1580; FAX 212-279-0056; E-mail: info@EnzymeDevelopment.com)

**EPC Papierchemie GmbH, Subsid. of Collodin**

Vilbeler Landstr. 20, 60386 Frankfurt am Main Germany (E-mail: web@epc-papierchemie.com; Internet: www.epc-papierchemie.com)

**Equistar**

**Equistar Chemicals, LP**, Partnership of Lyondell, Millennium Chem., & Occidental Petroleum, 1221 McKinney St., Suite 1600, PO Box 2583, Houston, TX 77252-2583 USA (Tel. 713-652-7300; 888-777-0232; FAX 713-652-6119; Internet: www.equistarchem.com)

**Equistar Chemicals, LP**, 11530 Northlake Dr., Cincinnati, OH 45249 USA (Tel. 513-530-4000; 800-323-4905; FAX 513-530-4208)

**Esprit Chemical Co.**

Esprit Plaza, 7680 Matoaka Rd., Sarasota, FL 34236 USA (Tel. 941-355-5100; 800-237-7748; FAX 941-358-1339; E-mail: loucohen@espritchem.com; Internet: www.espritchem.com)

**Esschem Co.**

4000 Colombia Ave., PO Box 1139, Linwood, PA 19061 USA (Tel. 610-497-9000; 800-765-9637; FAX 800-765-9275)

**Esseco SpA**

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**Essential Industries Inc.**

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**Estron Chemical, Inc.**

PO Box 127, Hwy. 95, Calvert City, KY 42029 USA (Tel. 502-395-4195; FAX 502-395-5070)

**Eurobrom. See under Dead Sea Bromine****Exaxol Chemical Corp.**

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**Excel Industries Limited**

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**Expancel, Inc.**, Div. of Akzo Nobel, 2240 Northmont Pkwy., Duluth, GA 30096 USA (Tel. 770-813-9126; 800-786-4630; FAX 770-813-8639)

**Expo Chemical Co.**

12602 Manorwood Lane, Cypress, TX 77429 USA (Tel. 281-890-4553; FAX 281-890-4576; E-mail: expo@expochem.com; Internet: www.expochem.com)

**Exxon. See ExxonMobil****ExxonMobil Chemical Co.**

**Exxon Chemical Co.**, 13501 Katy Freeway, Houston, TX 77079-1398 USA (Tel. 281-870-6000; 800-231-6633; FAX 281-870-6661; Internet: www.exxonmobil.com/exxon\_chemical)

**Exxon Chemical Canada**, 111 St. Clair Ave. West, 7th Fl., PO Box 4029, Station A, Toronto, Ontario, M5W 1K3 Canada (Tel. 416-968-4111; 800-567-ESSO; FAX 519-339-4491; Internet: www.imperialoil.ca)

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**Exxon Chemical Argentina SAIC**, Avda. Leandro N. Alem 928 - 2° Piso, 1001 Buenos Aires Argentina (Tel. 54 11 4319 0761; FAX 54 11 4319 0721)

**Exxon Chemical Europe Inc.**, Hermeslaan 2, 1831 Machelen Belgium (Tel. 32-2-722 2111; FAX 32-2-722 2780)

**Exxon Chemical Ltd.**, Div. of Exxon Corp., 4600 Parkway, Whiteley, Fareham, Hampshire, PO15 7AP UK (Tel. 44 1489 884400; FAX 44 1489 884411; Internet: www.exxonchemical.com)

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**Mobil Chemical Products International, Inc.**, W Bldg. 18th Floor, 1-8-15 Kohnan, Minato-ku, Tokyo, 108-8005 Japan (Tel. 81 3 5495 6392; FAX 81 3 5495 6396)

**Mobil Chemical Products International, Inc.**, 101 Thomson Rd., United Square #12-04 Singapore 307591 (Tel. 65 254 0929; FAX 65 254 1305)

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2226 Black Rock Tpke., Suite 206, Fairfield, CT 06430 USA (Tel. 203-366-1820; FAX 203-366-1850; E-mail: FabriChem@Worldnet.att.net)

**Fabricolor Inc.**

160 E. Fifth St., PO Box 2398, Paterson, NJ 07509 USA (Tel. 201-742-3900; 800-873-7030; FAX 201-742-5038)

**Faesy & Besthoff, Inc.**

143 Old River Rd., Edgewater, NJ 07020 USA (Tel. 201-945-6200; FAX 201-945-6145)

**Fairmount Chemical Co., Inc.**

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EPC Papierchemie GmbH

**EPC Papierchemie GmbH, Subsid. of Collodin**

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**Exxon.** See ExxonMobil

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**Mobil Packaging Films International, Inc.**, 101 Thomson Rd., United Square #08-02 Singapore 307591 (Tel. 65 356 7677; E-mail: filmsinfo@roc.mobil.com)

**Fabrichem Inc.**

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**Fabricolor Inc.**

160 E. Fifth St., PO Box 2398, Paterson, NJ 07509 USA (Tel. 201-742-3900; 800-873-7030; FAX 201-742-5038)

**Faesy & Besthoff, Inc.**

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**Fairmount Chemical Co., Inc.**

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**The Fanning Corp.**

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**Farleyway Chemicals Ltd.**

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**FBC Industries, Inc.**

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1040 Crown Pointe Parkway, Suite 270, Atlanta, GA 30338 USA (Tel. 770-392-8660; FAX 770-392-8670; E-mail: sales@zemex.com; Internet: www.feldspar.com)

**Ferro**

**Ferro Corp./World Headquarters**, 1000 Lakeside Ave., PO Box 147000, Cleveland, OH 44114-7000 USA (Tel. 216-641-8580; FAX 216-696-6958; Internet: www.ferro.com)

**Ferro Corp./Bedford Chemical Div.**, 7050 Krick Rd., Walton Hills, OH 44146-4416 USA (Tel. 216-641-8580; 800-321-9946; FAX 216-439-7686)

**Ferro Corp./Color Div.**, 4150 E. 56th St., PO Box 6550, Cleveland, OH 44101 USA (Tel. 216-641-8580; FAX 216-641-8831; E-mail: sarvish@ferro.com; Internet: www.ferro.com)

**Ferro Corp./Electronic & Specialty Glass Group**, 4150 E. 56th St., PO Box 6550, Cleveland, OH 44101 USA (Tel. 216-641-8580; FAX 216-641-8857)

**Ferro Corp./Grant Chemical Div.**, 111 W. Irene Rd., Zachary, LA 70791-9738 USA (Tel. 225-654-6801; 800-325-3578; FAX 225-654-3268; E-mail: 103021.2370@compuserve.com; Internet: www.ferro.com)

**Ferro Corp./Keil Chemical Div.**, 3000 Sheffield Ave., Hammond, IN 46320 USA (Tel. 219-931-2630; 800-628-9079; FAX 219-931-0895; Internet: www.ferro.com)

**Ferro Corp./Tran selco Div.**, Box 217, 1789 Tran selco Dr., Penn Yan, NY 14527 USA (Tel. 315-536-3357; FAX 315-536-8091)

**Ferro (Great Britain) Limited/Colour & Enamel Divs.**, Ounsdale Rd., Wombourne, Wolverhampton, WV5 8DA UK (Tel. 44-1902-324144; FAX 44-1902-324265)

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**Nissan Ferro Organic Chemical Co., Ltd.**, Nissan Edobashi Bldg., 1-10-5 Nihonbashi, Honcho, Chuo-ku, Tokyo, 103 Japan (Tel. 81-3 3245-0661; FAX 81 3 3231-7810)

**Fiber Sales & Development Corp.** See International Fiber Corp.

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**Finetex Inc.**

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**Fluka Chemical Corp.**

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**FMC**

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1570 Nakanoshima, Wakayami-shi, Wakayama, 640 Japan (Tel. (0734) 23-1247; FAX (0734) 31-3005)

### Fuji Silysia

**Fuji Silysia Chemical Ltd.**, 2-18-46, Kozoji-cho, Kasugai-shi, Aichi, 487 Japan (Tel. (81) 568-51-2511; FAX (81) 568-8547)

**Fuji Silysia Chemical Ltd.**, PO Box 14434, Research Triangle Park, NC 27709 USA (Tel. 919-484-4158; FAX 919-544-5090; E-mail: fsc-rtp@fuji-silysia.com; Internet: www.fuji-silysia.com)

### H.B. Fuller

**H.B. Fuller Co.**, 3530 Lexington Ave. North, St. Paul, MN 55126-8076 USA (Tel. 651-236-3000; 800-HBFULLER; FAX 651-236-3128; Internet: www.hbfuller.com)

**H.B. Fuller Japan Co., Ltd.**, 700, Matsushima-cho, Hamamatsu-shi, Shizuoka, 430 Japan (Tel. (053) 425-5111)

### Gadot Biochemical Industries

1440 Hicks Rd., Suite B, Rolling Meadows, IL 60008 USA (Tel. 847-259-1809; 888-424-1424; FAX 847-259-6984; E-mail: contact@gadotbio.com; Internet: www.gadotbio.com)

### Gallard-Schlesinger Industries, Inc.

777 Zeckendorf Blvd., Garden City, NY 11530 USA (Tel. 516-229-4000; 800-645-3044; FAX 516-229-4015; E-mail: info@gallard-schlesinger.com; Internet: www.gallard-schlesinger.com)

### Garratt Callahan Company

111 Rollins Rd., Millbrae, CA 94030 USA (Tel. 415-697-5811; FAX 415-692-6098)

### GCA Chemical Corp.

916 13th St. West, Bradenton, FL 34205 USA (Tel. 941-748-6090; FAX 941-748-0194; E-mail: grahamgca@aol.com)

### Gehring Montgomery

710 Louis Dr., Warminster, PA 18974 USA (Tel. 215-957-1234; FAX 215-957-1311)

### Gelest Inc.

612 William Leigh Dr., Tullytown, PA 19007-6308 USA (Tel. 215-547-1015; FAX 215-547-2484; Internet: www.gelest.com)

### Gemchem, Inc.

45 Wintonbury Ave, 3rd Fl., Suite 4, Bloomfield, CT 06002 USA (Tel. 860-243-0505; FAX 860-243-9339)

### Genencor International

**Genencor International, Inc.**, 1870 S. Winton Rd., Rochester, NY 14618-3916 USA (Tel. 716-256-5200; 800-847-5311; FAX 716-244-4544)

**Focus Chemical Corp.**

- FMC Biopolymer**, 1735 Market St., Philadelphia, PA 19103 USA (Tel. 800-526-3649 x3; FAX 215-299-5318)
- FMC Corp./Lithium Div.**, 449 N. Cox Road, PO Box 3925, Gastonia, NC 28054-0020 USA (Tel. 704-868-5300; 800-362-2548; FAX 704-868-5370; E-mail: lithium-info@fmc.com)
- FMC Specialty Chemicals**, 200 E. Randolph Dr., Chicago, IL 60601 USA (Tel. 312-861-6000; FAX 312-861-5885)
- FMC Corp. Canada**, 625 Howe St., Suite 1200, Vancouver, B.C., V6C 2T6 Canada (Tel. 604-685-6508; FAX 604-689-5917)
- FMC Foret SA**, Còrsega, 293, E-08008 Barcelona Spain (Tel. 34 93 416 7400; FAX 34 93 416 7403; E-mail: fmc\_foret@fmc.com)
- FMC Corp. (UK) Ltd./Process Additives Div.**, Tenax Rd., Trafford Park, Manchester, M17 1WT UK (Tel. 44 161 872 2323; 800-545-6532; FAX 44 161 873 7271; E-mail: pad-info@fmc.com)
- FMC Asia Pacific, Inc.**, Sanbancho KS Bldg., 7th Fl., 2 Sanban-cho, Chiyoda-ku, Tokyo, 102 Japan (Tel. 81-3-5210-9660; FAX 81-3-5210-9661)

**Focus Chemical Corp.**

875 Greenland Rd., Orchard Park, Suite B9, Portsmouth, NH 03801-4122 USA (Tel. 603-430-9802; FAX 603-431-5390; E-mail: focuschm@nh.ultranet.com)

**Folexco Inc.**, A Member of the A.M. Todd Group of Companies

150 Domorah Dr., Montgomeryville, PA 18936 USA (Tel. 215-628-8895; 800-634-4418; FAX 215-628-8651; E-mail: info@folexco.com; Internet: www.folexco.com)

**Formosa Plastics Corp. (FPC USA)**

9 Peach Tree Hill Rd., Livingston, NJ 07039-5702 USA (Tel. 973-992-2090; 888-372-8723; FAX 973-992-9627; E-mail: communications@fpcusa.com; Internet: www.fpcusa.com)

**Fort James Specialty Chemicals**

4th and Adams St., Camas, WA 98607 USA (Tel. 360-834-8134; FAX 360-834-8278)

**FPC International, Inc.**

PO Box 650038, Fresh Meadows, NY 11365 USA (Tel. 718-463-5151; FAX 718-886-7749)

**Franklin Industrial Minerals, Div. of Franklin Industries**

612 Tenth Ave. North, Nashville, TN 37203 USA (Tel. 615-259-4222; 800-626-8147; FAX 615-726-2693; E-mail: online; Internet: www.frankmin.com)

**Freeman Industries, L.L.C.**

100 Marbledale Rd., PO Box 415, Tuckhoe, NY 10707-0415 USA (Tel. 914-961-2100; 800-666-6454; FAX 914-961-5793)

**Frinton Laboratories, Inc.**

PO Box 2428, S. Vineland, NJ 08362 USA (Tel. 609-722-7037; FAX 609-439-1977; E-mail: sales@frinton.com; Internet: www.frinton.com)

**FRP Services & Co. (America) Inc.**

10 Bank St., Suite 450, White Plains, NY 10606 USA (Tel. 914-686-4090; 888-686-4090; FAX 914-686-3988; Internet: www.frpservices.com)

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**Frutarom Ltd.**, 25 Hashaish St., PO Box 10067, Haifa, 26110 Israel (Tel. 972 4 846 2462; FAX 972 4 872 2517; E-mail: info@frutarom.com; Internet: www.frutarom.com)

**Frutarom (UK) Ltd.**, Northbridge Works, Northbridge Rd., Berkhamsted, Hertsfordshire, HP4 1EF UK (Tel. 44 1442 876611; FAX 44 1442 876204; E-mail: uk@frutarom.com)

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**Frutarom Meer Corp.**, Member of the Frutarom Group, 9500 Railroad Ave., N. Bergen, NJ 07047-1206 USA (Tel. 201-861-9500; FAX 201-861-9267; E-mail: usa@frutarom.com; Internet: www.frutarom.com)

**Frutarom Flavors (Kunshan) Co. Ltd.**, Dian Shan Hu Lake Town, Kunshan City, Jiangsu China (Tel. 86-520-748-1537; FAX 86-520-748-1561; E-mail: china@frutarom.com)

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**Gehring Montgomery**

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**Gelest Inc.**

612 William Leigh Dr., Tullytown, PA 19007-6308 USA (Tel. 215-547-1015; FAX 215-547-2484; Internet: www.gelest.com)

**Gemchem, Inc.**

45 Wintonbury Ave, 3rd Fl., Suite 4, Bloomfield, CT 06002 USA (Tel. 860-243-0505; FAX 860-243-9339)

**Genencor International**

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**Genecor International Europe Oy**, Kyllikinportti 2, PL 105, FIN-00241 Helsinki Finland (Tel. 90-348-411; FAX 90-348-41-400)

**Genecor International**, Komvest 43, B-8000 Brugge Belgium (Tel. 50-44-91-11; FAX 50-33-68-49)

### General Alum & Chemical Corp. (GAC Chemical Corp.)

1630 Timberwolf Dr., PO Box 819, Holland, OH 43528 USA (Tel. 419-865-8000; 800-537-7561; FAX 419-865-6413)

### General Chemical

**General Chemical Corp.**, 90 East Halsey Rd., Parsippany, NJ 07054-0397 USA (Tel. 973-515-0900; 800-631-8050; FAX 973-515-2468; Internet: www.genchem.com)

**General Chemical Canada Ltd.**, 201 City Centre Dr., Mississauga, Ontario, L5B 3A3 Canada (Tel. 416-896-9595; 800-668-0433)

### General Color & Chemical Co. Inc.

Bridge St., PO Box 7, Minerva, OH 44657 USA (Tel. 330-868-4161; FAX 330-868-5880; Internet: www.generalcolor.com)

### General Electric Plastics

**GE Plastics**, One Plastics Ave., Pittsfield, MA 01201 USA (Tel. 413-448-7110; 800-845-0600; FAX 800-433-2925; Internet: www.geplastics.com)

### General Electric Silicones

**General Electric Co./Silicone Products Div.**, Subsid. of GE Plastics, 260 Hudson River Rd., Waterford, NY 12188 USA (Tel. 518-233-3330; 800-255-8886; FAX 518-233-2405; E-mail: ges.help@gep.ge.com; Internet: www.ge.com/plastics)

**GE Silicones Canada, Inc.**, 2300 Meadowvale Blvd., Mississauga, Ontario, L5N 5P9 Canada (Tel. 416-858-5741; 800-332-3390)

**GE Silicones Mexico**, Av. Prolongacion Reforma, #490-Piso 4, Col. Santa Fe, CP 01207 Mexico, D.F. Mexico (Tel. 525-257-6095)

**GE Silicones (Argentina)**, Ave. Leandro N. Allen 619, Piso 9, 801 1001 Buenos Aires Argentina (Tel. 54-1-313-2880; FAX 54-1-313-2915)

**GE Silicones**, c/o General Electric do Brasil S.A., 10th Floor, Av. Nove de Julho, 5229, 01407-907 Sao Paulo, SP Brazil (Tel. 55-011-3067-8144; Internet: www.ge.com)

**GE Silicones Europe**, Postbus 117, Plasticlaan 1, 4600 AC Bergen op Zoom The Netherlands (Tel. 31-164-29 2291; FAX 31-164-29-2708)

**GE Silicones (UK)**, Div. of GE Plastics Ltd., Old Hall Rd., Sale, Manchester, Cheshire, M33 2HG UK (Tel. 44 161 905 5000; FAX 44 161-905 5022)

**GE Silicones (Germany)**, Eisenstrasse 5, D-65428 Rüsselsheim Germany (Tel. 49-6142-601-291; FAX 49-6142-601-115)

**GE Silicones (Italy)**, Viale Brianza 181, I-20092 Milano MI Italy (Tel. 39 261 8341; FAX 39 261 834 332)

**GE Silicones Nordic**, PO Box 6770, St. Eriksgarten, S-11385 Stockholm Sweden (Tel. 46-8457 9693; FAX 46-8457 9691)

**GE Silicones (India) Pvt. Ltd.**, No. 5, Crescent Rd., High Grounds, Bangalore, 560 001 India (Tel. 91-80-2257-473; FAX 91-80-2259-509)

**GE Silicones (Australia)**, 175 Hammond Rd., Dandenong, Victoria, 3175 Australia (Tel. 61-2745 1077; FAX 61 3970 68727)

**GE Silicones (Japan)**, Tonichi Bldg. 4F, Minato-ku, Tokyo, 106 Japan (Tel. 81 3 3479 5361; FAX 81 3 3479 5391)

**GE Silicones Korea**, c/o Dongyang Silicones Co., Ltd., GEPK Bldg. 4 Fl., 231-8 Nonhyun-dong, Kangnem-ku, Seoul, Korea 135-010 (Tel. 82-2-518-2626)

### General Electric Specialty Chemicals

**GE Specialty Chemicals**, 501 Avery St., PO Box 1868, Parkersburg, WV 26102-1868 USA (Tel. 304-424-5411; 800-872-0022; FAX 304-424-5871; E-mail: geinfo@www.ge.com; Internet: www.ge.com/specialtychemicals)

### Generichem Corp.

755 Unio Blvd., PO Box 457, Totowa, NJ 07511-0457 USA (Tel. 973-256-9266; FAX 973-256-0069; E-mail: generichem@aol.com; Internet: www.generichem.com)

### Genesee Polymers Corp.

G-5251 Fenton Rd., PO Box 7047, Flint, MI 48507-0047 USA (Tel. 810-238-4966; FAX 810-767-3016)

### Genstar Stone Products Co.

Executive Plaza IV, 11350 McCormick Rd., Hunt Valley, MD 21031 USA (Tel. 410-527-4225; FAX 410-527-4535)

### Genzyme Corp.

One Kendall Sq., Cambridge, MA 02139-1562 USA (Tel. 617-252-7500; 800-868-8208; FAX 617-252-7600; E-mail: pharmaceuticals@genzyme.com; Internet: www.genzyme.com)

### Georgia Gulf Corp.

400 Perimeter Center Terrace, Suite 595, Atlanta, GA 30346 USA (Tel. 770-395-4591; FAX 770-671-8260)

### Georgia Marble Co., Part of IMERYS Pigment & Additives Group

1201 Roberts Blvd., Bldg. 100, Kennesaw, GA 30144-3619 USA (Tel. 770-421-6500; 888-276-7131; FAX 770-421-6507; Internet: www.georgia-marble.com)

### Georgia-Pacific

**Georgia-Pacific Resins Inc.**, Subsid. of Georgia-Pacific Corp., 55 Park Place, 19th Fl., Atlanta, GA 30303 USA (Tel. 404-652-8617; 800-765-7374; FAX 404-230-7478; E-mail: ceking2@gapac.com; Internet: www.gp.com/chemical)

**Georgia-Pacific West, Inc.**, 300 West Laurel St., Bellingham, WA 98225 USA (Tel. 360-676-7240; 800-365-4348; FAX 360-676-7217)

**Georgia-Pacific Resins/Actrachem Operations**, 7201 W. 65th St., Bedford Park, IL 60638 USA (Tel. 708-458-8450; 800-323-3231; FAX 708-458-0286)

### Geo Specialty Chemicals

**Geo Specialty Chemicals**, 28601 Chagrin Blvd., Suite 450, Cleveland, OH 44122 USA (Tel. 216-464-5564; FAX 216-765-1307)

**Geo Specialty Chemicals/Paper Chemicals Group**, 9129 Southern Pine Blvd., Charlotte, NC 28273 USA (Tel. 704-945-7500; 800-243-6535; FAX 704-945-7508)

### GFI, Inc.

111 Boston Post Rd., PO Box 777, Sudbury, MA 01776 USA (Tel. 508-443-3674; 800-343-1179; FAX 508-443-5714)

### GFS Chemicals, Inc.

PO Box 245, 3041 Home Rd., Powell, OH 43065 USA (Tel. 740-881-5501; 800-858-9682; FAX 740-881-5989; E-mail: gfschem@gfschemicals.com; Internet: www.gfschemicals.com)

### GIBCO BRL, Life Technologies, Inc.

PO Box 6482, Rockville, MD 20849-6482 USA (Tel. 301-601-8000; 800-828-6686; FAX 800-331-2286; Internet: www.lifetech.com)

### Giles Chemical Corp.

PO Box 370, 102 Commerce St., Waynesville, NC 28786 USA (Tel. 704-452-4784; 800-334-5008; FAX 704-452-4786; E-mail: gileschem@aol.com; Internet: www.gileschemical.com)

### Gilmore, Inc.

152 Collins St., Memphis, TN 38112 USA (Tel. 901-323-5870; FAX 901-454-0295)

## Girindus Corp.

34650 U.S. Hwy. 19 North, Suite 208, Palm Harbor, FL 34684 USA (Tel. 727-781-8383; FAX 727-781-8388; E-mail: info@girindus.com; Internet: www.girindus.com)

## Gist-brocades SpA

Via Milano 42, I-27045 Casteggio, PV Italy (Tel. 39-383-8931; FAX 39-383-82634)

## Giulini

**BK Giulini Chemie GmbH & Co. OHG**, Giulinistrasse 2, D-67065 Ludwigshafen/Rhein Germany (Tel. 49-6 21 57 09 01; FAX 49-6 21 57 09 452; E-mail: bk-giulini@bk-giulini.de; Internet: www.bk-giulini.com)

**Giulini Corp.**, 30 Highridge Rd., New Rochelle, NY 10804 USA (Tel. 914-636-0096; FAX 914-636-3056)

## Givaudan-Roure Corp., Subsid. of Roche

1775 Windsor Rd., Teaneck, NJ 07666 USA (Tel. 201-833-7500; FAX 201-833-8165; Internet: www.givaudan-roure.com)

## G.J. Chemical Co. Inc.

370-376 Adams St., Newark, NJ 07114 USA (Tel. 973-589-1450; FAX 973-589-5786)

## Glucona

**Glucona America, Inc.**, Independent company in the AVEBE Group, 114 East Conde St., Janesville, WI 53546-3010 USA (Tel. 608-752-0449; FAX 608-752-7643; E-mail: gluconacs@glucona.com; Internet: www.glucona.com)

**Glucona BV**, Van Beresteynstraat 14, PO Box 15, 9640 AA Veendam The Netherlands (Tel. 31 598 66 53 72; FAX 31 598 66 53 76)

## GMI Products Inc.

2525 Davie Rd., Suite 330, Davie, FL 33317 USA (Tel. 954-474-9608; 800-999-9373; FAX 954-474-0989)

## GNC Group

51 E. 42nd St., Suite 309, New York, NY 10017 USA (Tel. 212-692-9463; FAX 212-692-9479; E-mail: gncgrpinc@aol.com)

## Golden Bear Oil Specialties

1134 Manor St., PO Box 5446, Oildale, CA 93388 USA (Tel. 805-393-7110; 800-429-4826; FAX 805-393-2083)

## Goldensun Manufacturing Co.

Ranvir Bldg., 70 Princess St., Bombay, 400 002 India (Tel. 91 22 205 2745; FAX 91 22 201 8054; E-mail: goldin@bom3.vsnl.net.in; Internet: www.bicserve.com/htm/golden/index.htm)

## Goldschmidt

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909 Pitner Ave., Evanston, IL 60202 USA (Tel. 847-869-7800; FAX 847-869-2531; E-mail: goldchem@aol.com; Internet: www.dfgoldsmith.com)

## Goodpasture, Inc.

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### **Goodyear**

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**Goodyear Chemicals Europe**, 14 Ave. des Tropiques, Z.A. de Courtaboeuf 2, 91955 Les Ulis Cedex France (Tel. 33-1-69-29-27-00; FAX 33-1-69-29-27-01; E-mail: evelyne\_dufour@goodyear.com; Internet: www.goodyear.com)

**Nippon Goodyear K.K.**, Sandaido Bldg., 1-9-13, Akasaka, Minato-ku, Tokyo, 107 Japan (Tel. 81 3 3582-0481; FAX 81 3 3582-1877)

### **Gould Industries Inc.**

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### **GP Chemicals Inc.**

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### **W.R. Grace**

**W.R. Grace**, 7500 Grace Dr., Columbia, MD 21044 USA (Tel. 410-531-4000; FAX 410-531-4367; Internet: www.wrgrace.com)

**Grace GmbH**, In der Hollerhecke 1, 67547 Worms Germany (Tel. 49 6241 4030; FAX 49 6241 403211)

**Grace Japan K.K.**, Shinjuku Green Tower Bldg., 6-14-1, Nishi-shinjuku, Shinjuku-ku, Tokyo, 160 Japan (Tel. (03) 3349-7900; FAX (03) 3346-3820)

### **Graden Chemical Co., Inc.**

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### **Grain Processing Corp.**

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### **Grau Aromatics GmbH & Co. KG**

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### **Graymor Chemical Co., Inc.**

40 Parker Rd., Suite 210, Elizabeth, NJ 07208 USA (Tel. 908-354-3100; 800-669-5130; FAX 908-353-0819)

### **Great Lakes**

**Great Lakes Chemical Corp.**, PO Box 2200, One Great Lakes Blvd., W. Lafayette, IN 47906-0200 USA (Tel. 765-497-6100; 800-428-7947; FAX 765-497-6123; E-mail: hjames@glcc.com; Internet: www.greatlakeschem.com)

**Great Lakes Chemical (Europe) Ltd.**, Sycamore House, Lloyd Drive, Ellesmere Port, South Wirral, Merseyside, L65 9HQ UK (Tel. 44 151 357 8100; FAX 44 151 357 8120)

### **Great Western Chemical Co.**

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### **Gredmann USA**

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### **R.W. Greeff & Co. Inc.**

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### **Gresco Mfg., Inc.**

216 E. Hollyhill Rd., Thomasville, NC 27360 USA (Tel. 336-475-8101; FAX 336-475-0100)

### **Griffin Corp.**

PO Box 1847, Rock Ford Rd., Valdosta, GA 31603-1847 USA (Tel. 912-242-8635; 800-237-1854; FAX 912-249-5399; Internet: www.griffinllc.com)

### **J.A. Gross Company, Inc.**

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### **Gulbrandsen**

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### **Gulf Chemical International Corp.**

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### **Haarmann & Reimer**

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### **The Hall Chemical Co.**

PO Box 200, 28960 Lakeland Blvd., Wickliffe, OH 44092 USA (Tel. 440-944-8500; 800-322-6666; FAX 440-944-1298; Internet: www.hallchem.com)

### **C.P. Hall**

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### Halstab, Div. Hammond Group Inc.

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### Haltermann

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**Haltermann Products UK**, Div. of Ascot plc, All Saints Refinery, Cargo Fleet Rd, Middlesbrough, Cleveland, TS3 6AF UK (Tel. 44 1642 248555; FAX 44 1642 250369; E-mail: marketing@haltermann.co.uk)

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### Hampford Research Inc.

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### Hampshire

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### Handy Chemicals Ltd., Member of the Alcan Group of Companies

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### Hansol Chemical

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### Hansotech, Inc.

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### Harborchem

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### Harcros Chemicals Inc., An Elementis Group Company

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### M.W. Hardy & Co., Inc.

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### Hatco Corp.

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### Hawks Chemical Co. Ltd.

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### HCH Marketing Inc.

PO Box 159, Manvel, TX 77578 USA (Tel. 281-331-7766; 800-645-1551; FAX 281-585-3685)

### HCI Chemtech Distribution Inc.

424 S. Woods Mill Road, Suite 325, St. Louis, MO 63017-3428 USA (Tel. 314-205-3033; FAX 314-205-0303)

### H & C Industries, Inc.

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### Heico Chemicals, Inc., A Cambrex Co.

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### Helm

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### Henkel Adhesives, Specialty Adhesives Div.

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**Hercules**

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**Heucotech Ltd.**, An Independent U.S. Co. within the Heubach Organization

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414 Wilson Ave., Newark, NJ 07105 USA (Tel. 973-344-0881)

**Hoover Color Corp.**

State Hwy. 693, PO Box 218, Hiwassee, VA 24347 USA (Tel. 540-980-7233; FAX 540-980-8781; E-mail: hoover@hoovercolor.com; Internet: www.hoovercolor.com)

### Hopton Technologies, Inc.

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### Hormel Foods Corp.

1 Hormel Place, Austin, MN 55912-3680 USA (Tel. 507-437-5676; FAX 507-437-5120)

### Houghton Chemical Corp.

PO Box 307, 52 Cambridge St., Allston, MA 02134 USA (Tel. 617-254-1010; 800-777-2466; FAX 617-254-2713)

### Howard Industries, Inc.

1840 Progress Ave., Columbus, OH 43207 USA (Tel. 614-444-9900; FAX 614-444-4571)

### H&R Florasynth. *See under* Haarmann & Reimer

### J.M. Huber

**J.M. Huber Corp.**, 333 Thornall St., Edison, NJ 08837-2220 USA (Tel. 732-549-8600; E-mail: webmaster@huber.com; Internet: www.huber.com)

**J.M. Huber Corp./Chemicals Div.**, PO Box 310, 907 Revolution St., Havre de Grace, MD 21078 USA (Tel. 410-939-3500; FAX 410-939-7301; E-mail: hgctv@huber.com; Internet: www.huberchemicals.com)

**Huber Engineered Materials**, 4401 Northside Parkway, Suite 600, Atlanta, 30327, GA USA (Tel. 404-949-5400; 800-313-6888; FAX 404-949-9390; Internet: www.huberem.com)

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### Hukill Chemical Corp.

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### Hummel Croton

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### The Humphrey Chemical Co. Inc., A Cambrex Co.

45 Devine St., North Haven, CT 06473-0325 USA (Tel. 203-230-4940; 800-652-3456; FAX 203-287-9197; E-mail: jdoherty@m1.cambrex.com)

### Hunt Chemicals Inc.

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### Huntsman

**Huntsman Corp.**, 500 Huntsman Way, Salt Lake City, UT 84108 USA (Tel. 801-584-5700; 800-421-2411; FAX 801-584-5781; E-mail: kelly\_mckibbin@huntsman.com; Internet: www.huntsman.com)

**Huntsman Corp.**, PO Box 27707, Houston, TX 77227-7707 USA (Tel. 713-235-6000; 800-231-3107; FAX 800-831-1782)

**Huntsman Corp. Canada Inc.**, 256 Victoria Rd. South, Guelph, Ontario, N1E 5R1 Canada (Tel. 519-824-3280; FAX 519-824-9251)

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**Huntsman Corp. Belgium N.V.**, Everslaan 45, B-3078 Everberg Belgium (Tel. 32 2 758 9211; FAX 32 2 758 9018)

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2957 Old Highway 87 Rd, Delco, NC 28436-0189 USA (Tel. 910-655-3845; FAX 910-655-3892; E-mail: hurontcd@aol.com)

### Hydrite Chemical Co.

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### ICI SAFFIL. *See* Saffil Ltd.

### ICN Biomedical Research Products

ICN Plaza, 3300 Hyland Ave, Costa Mesa, CA 92646 USA (Tel. 714-545-0100; 800-854-0530; FAX 800-334-6999; Internet: www.icnbiomed.com)

### I.C. Trading Co., Inc.

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### Ikeda. *See under* Amerchol

### Ikoma Fine Chemical Co., Ltd.

8-9-30, Ebie, Fukushima-ku, Osaka, 553 Japan (Tel. (06) 451-2116/7; FAX (06) 454-8746)

### IMC Chemicals, Inc.

8300 College Blvd., Overland Park, KS 66210 USA (Tel. 913-344-9200; 800-637-2775; FAX 800-253-7934, 913-344-9290; Internet: www.hcg.com)

### IMC Global

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Hopton Technologies, Inc.

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**Huntsman Corp. Canada Inc.**, 256 Victoria Rd. South, Guelph, Ontario, N1E 5R1 Canada (Tel. 519-824-3280; FAX 519-824-9251)

**Huntsman de Brasil Participacoes Ltda.**, Av. Paulista, 807 Cj 2314, Sao Paulo-SP-01311000 Brazil (Tel. 55 11-253 6448; FAX 55 11-283 0623)

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### ICI SAFFIL. *See* Saffil Ltd.

### ICN Biomedical Research Products

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### Ihara Nikkei Chemical Industry Co., Ltd.

Ueno Suzuki Bldg., 3-16-3 Ueno Taito-ku, Tokyo, 110 Japan (Tel. 81 3 3833 7250; FAX 81 3 3833 7240)

### Ikeda. *See under* Amerchol

### Ikoma Fine Chemical Co., Ltd.

8-9-30, Ebie, Fukushima-ku, Osaka, 553 Japan (Tel. (06) 451-2116/7; FAX (06) 454-8746)

### IMC Chemicals, Inc.

8300 College Blvd., Overland Park, KS 66210 USA (Tel. 913-344-9200; 800-637-2775; FAX 800-253-7934, 913-344-9290; Internet: www.hcg.com)

### IMC Global

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### IMERYS

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**IMERYS Minerals Ltd.**, John Keay House, St. Austell, Cornwall UK (Tel. 44 1726 74482; FAX 44 1726 623019)

**IMERYS Mineraux Belgique LTDA**, Rue du Canal, 2, 4600 Vise (Lixhe) Belgium (Tel. 32 4 379 9811; FAX 32 4 379 8698)

**IMERYS Minerals Verkauf GmbH**, Nurnberger Stasse 16-18, 40599 Dusseldorf Germany (Tel. 49 211 9988870; FAX 49 211 99888710)

**IMERYS Minerals Japan K.K.**, 7F Sagamiya Bldg., 6 Ichibancho Chiyoda-ku, Tokyo, 102-0082 Japan (Tel. 81 3 5216 1088; FAX 81 3 5216 1090)

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213 Old Tappan Rd., Old Tappan, NJ 07675 USA (Tel. 201-664-6035; FAX 201-664-5938; E-mail: hipurechem@aol.com)

### In-Cide Technologies Inc.

50 N. 41 Ave., Phoenix, AZ 85009 USA (Tel. 602-233-0756; 800-777-4569; FAX 602-272-4864; E-mail: jblasius@extremezone.com)

### Inco Alloys Int'l. Inc.

3200 Riverside Dr., Huntington, WV 25720-1771 USA (Tel. 304-526-5100; 800-344-INCO; FAX 304-526-5643; E-mail: info@inco.net; Internet: www.incoalloys.com)

### Independent Chemical Corp.

79-51 Cooper Ave., Glendale, NY 11385 USA (Tel. 718-894-0700; FAX 718-894-9224)

### Indo Colchem Ltd.

Plot 36, Phase II, GIDC, Vatva, Ahmedabad, Gujarat, 382445 India (Tel. 91 79 583 0611; FAX 91 79 583 3222; E-mail: indocol@ad1.vsnl.net.in; Internet: www.indocol.com)

### Indofine Chemical Co., Inc.

PO Box 473, Somerville, NJ 08876 USA (Tel. 908-359-6778; 800-463-6346; FAX 908-359-1179; E-mail: chemical@indofinechemical.com; Internet: www.indofinechemical.com)

### Indspec Chemical Corp.

411 Seventh Ave., Suite 300, Pittsburgh, PA 15219 USA (Tel. 412-765-1200; FAX 412-765-0439; Internet: www.indspec.com)

### Industrial Chem. Trading, Inc.

51 E. 42nd St., 14th Fl., New York, NY 10017 USA (Tel. 212-867-9770; FAX 212-867-9791; E-mail: indschem@worldnet.att.net)

### Industrial Fibers, Inc.

2889 N. Nagel Court, Lake Bluff, IL 60044 USA (Tel. 708-295-0046; FAX 708-295-0520)

### Industrial Oil Products

144 Woodbury Rd., Woodbury, NY 11797 USA (Tel. 516-692-6862; FAX 516-692-3140; E-mail: blakehanson@tungoil.com)

### Industrias Monfel, S.A. de C.V.

Barracuda #4, Parque Ind. Cuautitlan, Cuautitlan, Edo. de Mexico, 54758 Mexico (Tel. 525-729-0089; FAX 525-729-0050)

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**Ineos Acrylics Inc.**, 7275 Goodlette Farms Pkwy., Cordova, TN 38018 USA (Tel. 901-381-2000; 800-325-9577; FAX 800-444-0803; Internet: www.lucite.com)

### Infinity Marketing Group, Inc.

3219 W. 187th St., Torrance, CA 90504 USA (Tel. 310-366-6939; FAX 310-366-7729; E-mail: infinitimg@aol.com)

### Ingraham & Co., Inc.

11 Burwick St., Sugar Land, TX 77479 USA (Tel. 281-494-7110; FAX 281-494-7115; E-mail: ingrahamd@aol.com)

### Innovative Processing, Inc.

50 Abele Rd., Suite 1005, Bridgeville, PA 15017 USA (Tel. 412-221-3700; FAX 412-221-7470; E-mail: info@rammglobal.com; Internet: www.rammglobal.com)

### Inolex Chemical Co.

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### Inspec Fibres GmbH

Werkstr. 3, A-4860 Lenzing Austria (Tel. 43 7672-701-480; FAX 43 7672-96862; E-mail: m.auracher@inspec.co.at)

### Integra Chemical Co.

710 Thomas Ave. SW, Renton, WA 98055 USA (Tel. 425-277-9244; 800-322-6646; FAX 425-277-9246; E-mail: chemicals@integrachem.com; Internet: www.integrachem.com)

### InterBio

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**InterBio Europe**, PO Box 7486, Foxrock, Dublin, 18 Ireland

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### International Commodities Export Co.

2975 Westchester Ave., Purchase, NY 10577 USA (Tel. 914-642-8900; FAX 914-694-4711)

### International Dioxide Inc.

554 Ten Rod Rd., North Kingstown, RI 02852 USA (Tel. 401-295-8800; 800-477-6071; FAX 401-295-7108)

### International Fiber Corp.

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### International Flora Technologies, Inc./FloraTech Am.

1151 N. Fiesta Blvd., Gilbert, AZ 85233-2238 USA (Tel. 602-545-7000; FAX 602-892-3000; E-mail: whatsnew@floratech.com; Internet: www.floratech.com)

### International Furan Chemicals USA, Inc.

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### International Group Inc. (IGI)

**International Group Inc. (IGI)**, 85 Old Eagle School Rd., PO Box 384, Wayne, PA 19087 USA (Tel. 610-687-9030; 800-852-6537; FAX 610-254-8548; E-mail: igiwax@msn.com; Internet: www.igiwax.com)

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## International Sourcing Inc.

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## Interpolymer Corp.

200 Dan Rd., Canton, MA 02021 USA (Tel. 781-828-7120; 800-262-1281; FAX 781-821-2485)

## InterSpex Products Inc.

2030 Pioneer Ct., Suite 4, San Mateo, CA 94403-1738 USA (Tel. 650-570-4337; FAX 650-570-5215; E-mail: sharma@interspex.com; Internet: www.hooked.net/interspex)

## Intertrade Holdings Inc.

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1523 North Post Oak Rd., Houston, TX 77055 USA (Tel. 713-686-9323; FAX 713-686-1024)

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PO Box 292, 750 S. Main St., Niles, OH 44446 USA (Tel. 330-652-0583; FAX 330-652-2534; E-mail: ptiro@aol.com)

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**Millennium Specialty Chemicals**, PO Box 389, Jacksonville, FL 32201-0389 USA (Tel. 904-768-5800; 800-231-6728; FAX 904-768-2200; E-mail: inquire@aromachem.com; Internet: www.aromachem.com)

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### Mississippi Lime Co., Affiliate of North American Lime Management Co.

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### Mitsubishi International

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### National Purity Inc.

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Three Riverway, Suite 1260, Houston, TX 77056 USA (Tel. 713-888-0577; FAX 713-0960-9905; E-mail: ytakada@nichimen-america.com; Internet: www.nichimen.co.jp; www.nichimen-america.com)

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**Nipa SA**, 50 rue Ardouin, Baltiment 563 2b, 93400 Saint-Ouen, Paris France (Tel. 33 1 49 21 20 80; FAX 33 1 49 21 03 61)

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**British Traders & Shippers Ltd.**, Distrib. for Nippon Gohsei, 429-431 Rainham Road South, Dagenham, Essex, RM10 8RN UK (Tel. 44 181 596 7500; FAX 44 181 596 7509; E-mail: pvax@britishtraders.co.uk; Internet: www.britishtraders.co.uk)

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**Nippon Steel Chemical Co., Ltd.**

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**NYCO Minerals, Inc., A Canadian Pacific Ltd. Co.**

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## Oakite Products

### Oakite Products

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### Oilseeds International, Ltd.

855 Sansome St., #100, San Francisco, CA 94111 USA (Tel. 415-956-7251; FAX 415-394-9023)

### Old Bridge Chemicals Inc.

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490 Stuart Rd. NE, Cleveland, TN 37312 USA (Tel. 423-336-4580; 800-636-3756; FAX 423-336-4830; E-mail: plperkins@corp.olin.com; Internet: www.olinchloralkali.com)

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### Original Bradford Soap Works Inc.

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### Osram Sylvania Inc.

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## Oakite Products

### Oakite Products

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### Old Bridge Chemicals Inc.

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**P.A.T. Products, Inc.**

44 Central St., Bangor, ME 04401 USA (Tel. 207-942-6348; FAX 207-942-9662; E-mail: patprod@acadia.net)

**Pax Group of Companies**

4 Yugrabhat, Off Sittladevi Temple Rd., Bombay, 400 016 India (Tel. 91 22 444 9295; FAX 91 22 446 4888; E-mail: info@paxgroup.com; Internet: www.paxgroup.com)

**P.B. & S. Chemical Co., Inc.**

1405 Highway 136 West, PO Box 20, Henderson, KY 42420-0020 USA (Tel. 270-830-1200; 800-950-7267; E-mail: info@pbschemical.com; Internet: www.pbschemical.com)

**PCL Group, Inc.**

266 W. Mitchell Ave., Cincinnati, OH 45232 USA (Tel. 513-681-0099; FAX 513-681-9899)

**PDM Inc. (Pine Derivatives Marketing, Inc.)**

104 Webster Building, 3411 Silverside Rd., Wilmington, DE 19810-4801 USA (Tel. 302-478-0768; 800-288-0766; FAX 302-478-0299; E-mail: pdmtrading@pdm-trading.com; Internet: www.pdm-trading.com)

**Pea Ridge Iron Ore Co., Inc.**

HC-65, Box 110, Sullivan, MO 63080-9205 USA (Tel. 573-468-7211; FAX 573-468-7202)

**Pechiney World Trade (USA) Inc.**

475 Steamboat Rd., Greenwich, CT 06830 USA (Tel. 203-625-9190; 800-736-7893; FAX 203-625-9191; E-mail: chemicals@pechiney.com)

**Pelron Corp.**

7847 W. 47 St., Lyons, IL 60534 USA (Tel. 708-442-9100; FAX 708-442-0213)

**Penford Products Co., Part of Penford Corp.**

1001 First St. SW, Cedar Rapids, IA 52406 USA (Tel. 319-398-3715; 800-582-1615; FAX 319-398-3718; E-mail: customerservices@penford.com; Internet: www.penford.com)

**Penn Specialty Chemicals**

**Penn Specialty Chemicals, Inc.**, Six Tower Bridge, 181 Washington Street, Suite 450, Conshohocken, PA 19428 USA (Tel. 901-320-4108, 877-895-PENN; FAX 901-320-4013; Internet: www.pennspecialtychemicals.com)

**Penn Specialty Chemicals, Ltd.**, PO Box 318, Bolton, Lancashire, BL2 4FF UK

**Penn Specialty Chemicals GmbH**, Hahlweg 2, D-36093 Kunzell Germany

**Penreco, Div. of Pennzoil Prods. Co.**

138 Petrolia St., Karns City, PA 16041 USA (Tel. 724-756-0110; 800-245-3952; FAX 724-756-1955)

**Pentad Group**

1446 NW Boca Raton Blvd., #106 Pentad Plaza, Boca Raton, FL 33432 USA (Tel. 561-362-8678; FAX 561-362-8785)

**Pentagon Chemicals Ltd.** See Haltermann GmbH**Penta Manufacturing Co., Div. of Penta International Corp.**

50 Okner Pkwy., Livingston, NJ 07039-1604 USA (Tel. 973-740-2300; FAX 973-740-1839)

**Penwest Pharmaceuticals**

2981 Rt. 22, Patterson, NY 12563-9970 USA (Tel. 914-878-3414; 800-431-2457; FAX 914-878-3484; Internet: www.penw.com)

**Peridot Chemicals, Inc.**

90 East Halsey Rd., Parsippany, NJ 07054 USA (Tel. 800-631-8050; FAX 973-515-3241)

**Perry Chemical Corp.**

91-31 Queens Blvd., Elmhurst, NY 11373 USA (Tel. 718-672-5600; FAX 718-424-8424)

**Perstorp Polyols, Inc.**

600 Matzinger Rd, Toledo, OH 43612 USA (Tel. 419-729-5448; 800-537-0280; FAX 419-729-3291)

**Pfaltz & Bauer Inc.**

172 E. Aurora St., Waterbury, CT 06708 USA (Tel. 203-574-0075; 800-225-5172; FAX 203-574-3181; E-mail: sales@pfaltzandbauer.com; Internet: www.pfaltzandbauer.com)

**Pfanstiehl Laboratories, Inc.**

1219 Glen Rock Ave., PO Box 439, Waukegan, IL 60085 USA (Tel. 847-623-0370; 800-383-0126; FAX 847-623-9173; E-mail: info@pfanstiehl.com; Internet: www.pfanstiehl.com)

**George Pfau's Sons Co., Inc.**

824 Wall St., PO Box 7, Jeffersonville, IN 47130 USA (Tel. 812-283-6697; 800-PFAU-OIL; FAX 812-283-0765)

**Pfizer**

**Pfizer International**, 235 East 42nd Street, New York, NY 10017 USA (Tel. 212-573-7851; FAX 212-573-2273; Internet: www.pfizer.com)

**Pfizer Ltd., Food Science Group**, 10 Dover Rd., Sandwich, Kent, CT13 0BN UK (Tel. 44 1304 616161; FAX 44 1304 616221)

**Pharmco Products Inc.**

58 Vale Rd., Brookfield, CT 06804-3967 USA (Internet: www.pharmco-prod.com)

**Phelps Dodge Refining Corp.**

PO Box 20001, El Paso, TX 79998 USA (Tel. 915-775-8826; 800-223-8567; FAX 915-775-8350)

**Phenolchemie**

Dechenstrasse 3, 45966 Gladbeck Germany (Tel. 49 2043 958 302; FAX 49 2043 958 947; E-mail: marketing@phenolchemie.de)

**Phenoxy Associates**

800 Cel-River Rd., Rock Hill, SC 29730 USA (Tel. 803-328-3825; 800-331-7721; FAX 803-328-3827)

**Phibrochem, Div. of Philipp Bros. Chemicals Inc.**

One Parker Plaza, Fort Lee, NJ 07090 USA (Tel. 201-944-6020; 800-223-0434; FAX 201-944-6245)

**Phibro-Tech, Inc., Div. of Philipp Bros. Chemicals Inc.**

One Parker Plaza, Fort Lee, NJ 07024 USA (Tel. 201-944-6000; FAX 201-944-7916)

**Phillips Chemical Co.** See ChevronPhillips

**Phoenix Chemical, Inc.**

60 Fourth St., Somerville, NJ 08876 USA (Tel. 908-707-0232; FAX 908-707-0186)

**Pica**

**Pica S.A.**, 16 rue Trezel, 92300 Levallois France (Tel. 33 (1) 49 68 09 29; FAX 33 (1) 49 68 09 30)

**Pica USA, Inc.**, 432 McCormick Blvd., Columbus, OH 43213-1585 USA (Tel. 614-864-8100; 888-464-7422; FAX 614-864-9914; E-mail: activated\_carbon@picausa.com; Internet: www.picausa.com)

**Pierce & Stevens Corp., Div. of Sovereign Specialty Chemicals, Inc.**

PO Box 1092, 710 Ohio St., Buffalo, NY 14240-1092 USA (Tel. 716-856-4910; 800-888-4910; FAX 716-856-0942; E-mail: doug\_wielinski@piercestevens.com; Internet: www.dualite-spheres.com; www.piercestevens.com)

**Pilot Chemical Co.**

11756 Burke St., Santa Fe Springs, CA 90670 USA (Tel. 213-723-0036; 800-707-4568; FAX 562-945-1877; E-mail: info@pilotchemical.com; Internet: www.pilotchemical.com)

**Pioneer Asphalt Corp.**

100 Jericho Quadrangle, Jericho, NY 11753 USA (Tel. 516-681-9600; 800-394-4345; FAX 516-681-9604; E-mail: info@pioneerasphalt.com; Internet: www.pioneerasphalt.com)

**Plaskolite, Inc.**

PO Box 1497, Columbus, OH 43216 USA (Tel. 614-294-3281; FAX 614-297-7287; E-mail: plaskolite@aol.com; Internet: www.plaskolite.com)

**Plasmine Technology, Inc.**

3298-35 Summit Blvd., Pensacola, FL 32503 USA (Tel. 850-438-8550; FAX 850-438-0047; E-mail: info@plasmine.com; Internet: www.plasmine.com)

**PMC Specialties Group, Inc., Div. of PMC, Inc.**

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**PMP Fermentation Products, Inc.**

500 Park Blvd., Suite 450, Itasca, IL 60143 USA (Tel. 630-250-7033; 800-558-1031; FAX 630-250-7094)

**Pokonobe Industries Inc.**

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**Polarome International Inc.**

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**Polialden Petroquimica S.A.**

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**Polyad Co.**

113 Rose Terrace, Barrington, IL 60010-1320 USA (Tel. 847-526-3322; FAX 847-526-3326)

**Polygon Corp.**

200 W. Second St., S. Boston, MA 02127 USA (Tel. 617-268-4455; FAX 617-268-9636)

**Poly Hi Solidur, Subsid. of Menasha Corp.**

2710 American Way, PO Box 9086, Fort Wayne, IN 46899 USA (Tel. 219-747-4100; 800-628-7264; FAX 219-478-1074; E-mail: tivar@polyhisolidur.com; Internet: www.polyhisolidur.com)

**Polymer Extruded Products Inc.**

297 Ferry St., Newark, NJ 07105 USA (Tel. 973-344-2700; FAX 973-344-7952; E-mail: sales@korad-pep.com; Internet: www.korad-pep.com)

**Polymer Research Corp. of America (PRCA)**

2186 Mill Ave., Brooklyn, NY 11234 USA (Tel. 718-444-4300; FAX 718-241-3930; E-mail: prcaeast@polymer-rd.com; Internet: www.polymer-rd.com)

**Polymer Systems, Inc.**

PO Box 25343, Winston-Salem, NC 27114 USA (Tel. 336-768-8389; FAX 336-768-9157)

**PolyOne/Geon Company**

One Geon Center, Avon Lake, OH 44012 USA (Tel. 440-930-1000; 800-438-4366; FAX 440-930-3620; Internet: www.polyone.com)

**Poly Research Corp.**

125 Corporate Dr., Holtsville, NY 11742 USA (Tel. 516-758-0460; FAX 516-758-0471)

**Polysat Inc.**

7240 State Rd., Philadelphia, PA 19135 USA (Tel. 215-332-7700; 800-858-2828; FAX 215-332-9997)

**Polysciences Inc.**

400 Valley Road, Warrington, PA 18976-2590 USA (Tel. 215-343-6484; 800-523-2575; FAX 800-343-3291; E-mail: polysci@tigger.jvnc.net; Internet: www.polysciences.com)

**Potters Industries**

**Potters Industries Inc.**, Affiliate of The PQ Corp., PO Box 840, 1200 W. Swedesford Rd., Valley Forge, PA 19482-0840 USA (Tel. 610-651-4700; 800-55-BEADS; FAX 610-408-9723; Internet: www.pottersbeads.com)

**Potters Industrial Limitada**, Avenida Prefeito Sa Lessa, 381, 21.530-040 Rio de Janeiro Brazil (Tel. 55-21-471 4040; FAX 55-21-3719846)

**Potters Ballotini Limited**, Pontefract Rd., Barnsley, S. Yorkshire, S71 1HJ UK (Tel. 44-1226-287591; FAX 44-1226-207615)

**Toshiba Ballotini Co. Ltd.**, 6F, Meguro Suda Bldg., 9-1, Meguro 3-chome, Meguro-ku, Tokyo, 153 Japan (Tel. 81-3-3794-7581; FAX 81-3-3794-7814)

**Powmet, Inc.**

PO Box 5086, 2625 Sewell St., Rockford, IL 61125 USA (Tel. 815-398-6900; FAX 815-398-6907; E-mail: tam@powmet.com)

**PPG Industries**

**PPG Industries, Inc.**, One PPG Place, Pittsburgh, PA 15272 USA (Tel. 412-434-3131; 800-CHEM-PPG; FAX 412-434-2891; Internet: www.ppg.com)

**PPG Canada Inc.**, 2301 Royal Windsor Dr., Mississauga, Ontario, L5J 1K5 Canada (Tel. 905-823-1100; FAX 905-855-6840)

**PPG Industrial do Brazil Ltda.**, Av. Moema, 94-110, Suite 111/114, CEP, 04077-020 Sao Paulo-SP Brazil (Tel. 55-11-539-7989)

**PPG Mexico, S.A. de C.V.**, Av. Presidente Juarez No. 1978, Col. San Jeronimo Tepetlalcayo, Tlalnepantla, Edo., C.P. 54090 Mexico (Tel. 525-397-8222; FAX 525-398-3090)

**PPG Industries (UK) Ltd./Specialty Chems.**, Carrington Business Park, Carrington, Urmston, Manchester, M31 4DD UK (Tel. 44 161 777-9203; FAX 44 161-777-9064)

**PPG Industries Sale Inc.**, Immeuble SCOR, 1 Ave. du President Wilson, 92800, Puteaux France (Tel. 33 1 46 98 81 33; FAX 3 1 46 98 82 63)

**PPG Industries-Asia/Pacific Ltd.**, Takanawa Court, 5th Fl., 3-13-1 Takanawa, Minato-ku, Tokyo, 105 Japan (Tel. 81-3-3280-2861; FAX 81-3-3280-2920)

## PQ

**PQ Corp.**, PO Box 840, Valley Forge, PA 19482-0840 USA (Tel. 610-651-4200; 800-944-7411; FAX 610-251-9118; Internet: www.pqcorp.com)

**PQ Hollow Spheres Ltd.**, Bury St. Edmunds, Suffolk UK (Tel. 44 1284 749200)

**Vitro-PQ Quimica S.A. de C.V.**, Apdo. 382, Tlalnepantla, Edo. de Mexico Mexico (Tel. 525-227-6800; FAX 525-227-6898)

**Akzo-PQ Silica VOF**, Amersfoort The Netherlands (Tel. 31 33-467 6777; FAX 31 33-467 6169)

**PQ Australia Pty. Ltd.**, Melbourne, Victoria Australia (Tel. 61 39-791-4066; FAX 61 39-791-6511)

## Praxair Inc.

39 Old Ridgebury Rd., Danbury, CT 06810-5113 USA (Tel. 716-879-4077; 800-PRAXAIR; FAX 800-772-9985; E-mail: info@praxair.com; Internet: www.praxair.com)

## Premier Chemicals, Div. of Premier Refractories Int'l.

7251 Engle Rd., Suite 415, Middleburg Hts., OH 44130 USA (Tel. 440-234-4600; 800-359-1120; FAX 440-234-5772; Internet: www.premierchemicals.com)

## Premium Ingredients, Ltd. (PIL)

1081 Sesame St., Franklin Park, IL 60131 USA (Tel. 630-595-8855; FAX 630-595-9380; Internet: www.premiumingredients.com)

## Presperse Inc.

141 Ethel Road West, Piscataway, NJ 08854 USA (Tel. 732-819-8009; FAX 732-819-7175; Internet: www.presperse.com)

## Primachem Inc.

12 Greenwoods Rd., Old Tappan, NJ 07675 USA (Tel. 201-784-3434; FAX 201-784-7997; E-mail: primachem@prodigy.net)

## Prior Chemical Corp., Div. of ICC Industries, Inc.

460 Park Ave., New York, NY 10022-1906 USA (Tel. 212-521-1800; FAX 212-521-1944; E-mail: jvd@iccchem.com; Internet: www.iccchem.com)

## Prism International Inc.

3033 Meredith Pl., Bensalem, PA 19020 USA (Tel. 215-752-8457; FAX 215-752-8857)

## Process Chemicals, LLC

1550 E. Taylor Ave., Atlanta, GA 30344 USA (Tel. 404-559-6000; FAX 404-559-6039; Internet: www.philchem.com)

## Process Products Nw

PO Box 1558, Vancouver, WA 98668 USA (Tel. 360-694-0920; FAX 360-696-2957)

## Pro Chem Chemicals Inc.

510 W. Grimes Ave., High Point, NC 27260 USA (Tel. 336-882-3308; FAX 336-889-6047; E-mail: info@prochemchemicals.com; Internet: www.prochemchemicals.com)

## Procter & Gamble Co./Chemicals Div.

Rm C2N09A, 11530 Reed Hartman Hwy., Cincinnati, OH 45241 USA (Tel. 513-626-6866; 800-477-8899; FAX 513-626-3145; E-mail: taylor.rw@pg.com; Internet: www.pg.com/chemicals)

## Prodica LLC

PO Box 7600, Brea, CA 92822-7600 USA (Tel. 714-577-3250; FAX 714-577-3291)

## Pronova

**Pronova AS**, Wholly owned subsid. of Norsk Hydro ASA, Lysaker Torg 8, N-1327 Lysaker Norway (Tel. 47 22 73 70 00; FAX 47 22 73 70 70; E-mail: pronova@hydro.com; Internet: www.pronova.no)

**Pronova Oleochemicals a.s.**, PO Box 2051 Hasle, N-3202 Sandefjord Norway (Tel. 47 33 44 88 00; FAX 47 33 44 88 99)

## ProSciTech

PO Box 111, Thuringowa Central, Qld, 4817 Australia (Tel. 61-07-4774-0370; FAX 61-07-4789-2313; E-mail: service@proscitech.com.au; Internet: www.proscitech.com.au)

## Prosel S.A. de C.V.

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## Protameen Chemicals, Inc.

375 Minnisk Rd., PO Box 166, Totowa, NJ 07511 USA (Tel. 973-256-4374; FAX 973-256-6764; E-mail: info@protameen.com; Internet: www.protameen.com)

## Protein Technologies International

**Protein Technologies International**, A DuPont Business, PO Box 88940, St. Louis, MO 63188 USA (Tel. 314-982-1010; 800-325-7108; FAX 314-982-2461; Internet: www.protein.com)

**Protein Technologies International**, 2892 South Sheridan Way, Suite 301, Oakville, Ontario, L6J 7L4 Canada (Tel. 905-829-2230; FAX 905-829-9762)

**Protein Technologies International**, 16A Princewood Rd., Earlstrees Ind. Estate, Corby, Northamptonshire, NN17 4AP UK (Tel. 44 1536 267325; FAX 44 1536 261147)

**Protein Technologies International**, Kowa-shibakoen Bldg. 9F, 1-1-11 Shibakoen, Minato-ku, Tokyo, 105-0011 Japan (Tel. 81-3-5405-2661; FAX 81-3-3432-2556)

## Protex. See under Synthron

## Punda Mercantile Inc.

4115 Sherbrooke St. West, Suite 610, Montreal, Quebec, H3Z 1K9 Canada (Tel. 514-931-7278; FAX 415-931-7200; E-mail: host@pundagroup.com)

## E.L. Puskas Co.

448 E. South St., PO Box 229, Akron, OH 44309 USA (Tel. 330-376-5161; FAX 330-376-2124)

## PVS Chemicals, Inc.

12260 S. Carondelet Ave., Chicago, IL 60633 USA (Tel. 773-933-8800; 800-932-8860; FAX 773-933-0957)

QC Corp.

### QC Corp.

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### Qemi International, Inc.

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### Quadra Corp.

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### Quaker City Chemicals, Inc.

7360 Milnor St., Philadelphia, PA USA (Tel. 215-333-2000; 800-887-CHEM; FAX 215-333-4408; E-mail: custserv@chemical.net; Internet: www.chemical.net)

### Quest International

**Quest International BV**, An ICI company, 28 Huizerstraatweg, 1411 GP Naarden The Netherlands (Tel. 31 35 6999111; FAX 31 35 6946067; Internet: www.quest.nl)

**Quest International Fragrances USA, Inc.**, Member of the ICI Group, 400 International Dr., Mt. Olive, NJ 07828 USA (Tel. 973-691-7100; 800-598-5986; FAX 973-691-6013; Internet: www.questintl.com)

### Quimica Sagal, S.A.

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### K.J. Quinn & Co., Inc.

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### Rad-Cure Corp.

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### Rainbow Chemicals Co.

910 Sherwood R., Unit 19, Lake Bluff, IL 60044 USA (Tel. 847-735-1100; FAX 847-735-1105; E-mail: ymehta@aol.com)

### The Rambach Corp.

52 Vesey St., PO Box 5187, Newark, NJ 07105 USA (Tel. 973-589-7774; FAX 973-589-2615)

### Ranbar Technology Inc.

1114 William Flinn Hwy., Glenshaw, PA 15116-2657 USA (Tel. 412-486-1111; FAX 412-487-3313; E-mail: ranbar@ranbar.com; Internet: www.ranbar.com)

### Rasa Industries, Ltd.

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### Real Commerce

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### Reheis Inc.

PO Box 609, 235 Snyder Ave., Berkeley Heights, NJ 07922 USA (Tel. 908-464-1500; FAX 908-464-8094; E-mail: info@reheis.com; Internet: www.reheis.com)

### Reichhold

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**Reichhold Quimica de Mexico, S.A. de C.V.**, Norte 45 No. 731, Col Industrial, Vallejo D.F. Mexico (Tel. 525-729-8600; FAX 525-368-4524)

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**Reichhold Chemie GmbH**, Reuterweb 51-53, Frankfurt/Main Germany (Tel. 49 69 72 7988; FAX 49 69 72 7994)

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QC Corp.

### QC Corp.

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### Quaker City Chemicals, Inc.

7360 Milnor St., Philadelphia, PA USA (Tel. 215-333-2000; 800-887-CHEM; FAX 215-333-4408; E-mail: custserv@chemical.net; Internet: www.chemical.net)

### Quest International

**Quest International BV**, An ICI company, 28 Huizerstraatweg, 1411 GP Naarden The Netherlands (Tel. 31 35 6999111; FAX 31 35 6946067; Internet: www.quest.nl)

**Quest International Fragrances USA, Inc.**, Member of the ICI Group, 400 International Dr., Mt. Olive, NJ 07828 USA (Tel. 973-691-7100; 800-598-5986; FAX 973-691-6013; Internet: www.questintl.com)

### Quimica Sagal, S.A.

Bosques del Canadá no. 110-9, Col. Bosques Dell Valle, 66250 Garza García, N.L. Mexico (Tel. 52 8-335-2802; FAX 52 8-378-4014; E-mail: sagal@intercable.net; Internet: www.quimicasagal.com)

### K.J. Quinn & Co., Inc.

135 Folly Mill Rd., Seabrook, NH 03874 USA (Tel. 603-474-7177; 800-776-3946; FAX 603-474-7122)

### Rad-Cure Corp.

9 Audrey Place, Fairfield, NJ 07004 USA (Tel. 973-808-1002; FAX 973-808-6886)

### Rainbow Chemicals Co.

910 Sherwood R., Unit 19, Lake Bluff, IL 60044 USA (Tel. 847-735-1100; FAX 847-735-1105; E-mail: ymehta@aol.com)

### The Rambach Corp.

52 Vesey St., PO Box 5187, Newark, NJ 07105 USA (Tel. 973-589-7774; FAX 973-589-2615)

### Ranbar Technology Inc.

1114 William Flinn Hwy., Glenshaw, PA 15116-2657 USA (Tel. 412-486-1111; FAX 412-487-3313; E-mail: ranbar@ranbar.com; Internet: www.ranbar.com)

### Rasa Industries, Ltd.

Yaesu Dai Bldg., 1-1-1, Kyobashi, Chuo-ku, Tokyo, 104 Japan (Tel. (03) 3278-3801; FAX (03) 3281-6697)

### Raschig

**Raschig AG**, Mundenheimer Strasse 100, Postfach 211128, D-67061 Ludwigshafen/Rhein Germany (Tel. 49 621 56180; FAX 49 621 5618674; E-mail: info@raschig.de; Internet: www.raschig.de)

**Raschig Corp.**, 20525 Center Ridge Rd., Rocky River, OH 44116 USA (Tel. 440-356-7524; 800-554-5570; FAX 440-356-6281)

**Raschig UK Ltd.**, Dock Office, Trafford Rd., Salford Quays, Salford, Lancashire, M5 2XB UK (Tel. 44 161 877 3933; FAX 44 161 877 3944)

### Reade Advanced Materials

PO Box 15039, Riverside, RI 02915-0039 USA (Tel. 401-433-7000; FAX 401-433-7001; E-mail: sales@reade.com; Internet: www.reade.com)

### Reagents, Inc.

PO Box 240746, 4746 Sweden Rd., Charlotte, NC 28224-0746 USA (Tel. 704-554-7474; 800-732-8484; FAX 704-552-7594; E-mail: info@reagents.com; Internet: www.reagents.com)

### Real Commerce

1800 Bering Dr., Ste. 701, Houston, TX 77057 USA (Tel. 713-784-9876; FAX 713-784-9879)

### Reed Corp.

233 W. Pkwy., Pompton Plains, NJ 07444 USA (Tel. 201-831-0636; FAX 201-831-0791)

### Reheis Inc.

PO Box 609, 235 Snyder Ave., Berkeley Heights, NJ 07922 USA (Tel. 908-464-1500; FAX 908-464-8094; E-mail: info@reheis.com; Internet: www.reheis.com)

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**Reichhold Chemicals, Inc./Corporate Headquarters**, Wholly owned subsid. of Dainippon Ink & Chemicals, PO Box 13582, Research Triangle Park, NC 27709-3582 USA (Tel. 919-990-7500; 800-431-1920; FAX 800-554-0116; E-mail: question.box@reichhold.com; Internet: www.reichhold.com)

**Reichhold Chemicals/Emulsion Polymer Div.**, 2400 Ellis Rd., Durham, NC 27703-5543 USA (Tel. 919-990-7500; 800-448-3482; FAX 919-990-7711; E-mail: arm.team@reichhold.com; Internet: www.reichhold.com)

**Reichhold Quimica de Mexico, S.A. de C.V.**, Norte 45 No. 731, Col Industrial, Vallejo D.F. Mexico (Tel. 525-729-8600; FAX 525-368-4524)

**Reichhold Pte. Claire**, 108 Hymus Blvd., Pte. Claire, Quebec Canada (Tel. 514-697-5920; FAX 514-697-8803)

**Reichhold Europe**, Century House, West Byfleet, Surrey UK (Tel. 44 1932 350440; FAX 44 1932 353255)

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**Reichhold Chemie GmbH**, Reuterweb 51-53, Frankfurt/Main Germany (Tel. 49 69 72 7988; FAX 49 69 72 7994)

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### Reilly Chemicals S.A.

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### Releasomers, Inc.

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### Reliance Industries Limited

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### Renosol Corp.

PO Box 1424, Ann Arbor, MI 48106 USA (Tel. 734-429-5418; FAX 734-429-5351; E-mail: renosol@compuserve.com)

**Research Organics Inc.**

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**Rhodia Silicones**, CN 7500, Prospect Plains Rd., Cranbury, NJ 08512-7500 USA (Tel. 609-860-3437; 888-205-3358; FAX 609-860-0238; E-mail: silicones@us.rhodia.com; Internet: www.us.rhodia.com/silicones)

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**Ricon Resins, Inc., Part of Sartomer Company**

569 24 ¼ Road, Grand Junction, CO 81505 USA (Tel. 970-245-8148; 800-369-8143; FAX 970-245-4348; E-mail: techservice@riconresins.com; Internet: www.riconresins.com)

**Riedel-deHaën Laborchemikalien GmbH & Co. KG, Member of the Sigma-Aldrich Group**

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**R.I.T.A. Corp.**

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**Rit-Chem Co. Inc.**

109 Wheeler Ave., PO Box 435, Pleasantville, NY 10570-0435 USA (Tel. 914-769-9110; FAX 914-769-1408; E-mail: ritchem@compuserve.com; Internet: www.ritchem.com)

**Rite Industries Inc.**

1124 Elon Place, High Point, NC 27260 USA (Tel. 336-886-5173; FAX 336-884-8785)

**Robeco Chemicals Inc.**

99 Park Ave., New York, NY 10016 USA (Tel. 212-986-6410; 800-992-1067; FAX 212-986-6419; E-mail: robecoinc@aol.com)

**Rochem International, Inc.**

305 Northern Blvd., Great Neck, NY 11021 USA (Tel. 516-829-4060; FAX 516-829-4059; E-mail: rochemNY@aol.com)

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**Röhm Ltd.**, Suite 23, Challenge House, Sherwood Dr., Bletchley, Milton Keynes, MK3 6DP UK (Tel. 44 1908 626 206; FAX 44 1908 626 209; E-mail: jurgen\_maiberger@btinternet.com)

**Röhm France S.A.**, 37-39 Ave. Marceau, BP 303, F-92402 Courbevoix Cedex France (Tel. 33 143347264; FAX 33 143347330)

**Röhm Austria GmbH**, Lamezanstrasse 17, Postfach 83, A-1239 Wien Austria (Tel. 43 1 616751023; FAX 43 1 616751033)

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**Röhm America Inc.**, Wholly owned subsid. of Röhm GmbH, 2 Turner Place, Piscataway, NJ 08855-0365 USA (Tel. 732-981-5334, 877-ROHM-USA; FAX 732-981-5484; E-mail: wkonecny@rohnamerica.com; Internet: www.rohmamerica.com)

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**Rohm and Haas Co.**, 100 Independence Mall West, Philadelphia, PA 19106-2399 USA (Tel. 215-592-3000; 800-922-8765; FAX 215-592-3377; E-mail: acumer@rohmmaas.com; Internet: www.rohmmaas.com; www.acusol.com)

**Rohm and Haas Canada Inc.**, 2 Manse Rd., West Hill, Ontario, M1E 3T9 Canada (Tel. 416-284-4711; 800-268-4201; FAX 416-284-2982)

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**Rohm and Haas Nordiska AB**, Box 45, Osterleden 165, 261 22 Landskrona Sweden (Tel. 46 418 450 400; FAX 46 418 450 499)

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**Rohm and Haas Deutschland GmbH**, Postfach 940322, 60461 Frankfurt/Main Germany (Tel. 49 69 78996-0; FAX 49 69 78953-56)

**Rohm and Haas (UK) Ltd.**, Tyneside Works, Ellison St., Jarrow, Tyne and Wear, NE32 3DJ UK (Tel. 44-191-4-898181)

**Rohm and Haas Scotland Ltd.**, Grangemouth Works, Wholeflats Rd., Grangemouth, Stirlingshire, FK3 9UY Scotland UK (Tel. 44 1324 473361; FAX 44 1324 47303)

**Rohm and Haas China, Inc.**, Suite 819-825, Beijing Golden Land Bldg., No. 32 Liang Ma Qiao Rd., Chaoyang District, Beijing PR China (Tel. 86 10 6464 3450)

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1417 Exchange St., PO Box 6647, Keokuk, IA 52632-6647 USA (Tel. 319-526-2232; 800-553-7035; FAX 319-526-2474)

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303 Dale Dr., PO Box 458, Fountain Inn, SC 29644 USA (Tel. 864-862-4474; 800-521-8246; FAX 864-862-2912; E-mail: sales@rosschem.com; Internet: www.rosschem.com)

## Frank B. Ross Co., Inc.

22 Halladay St., PO Box 4085, Jersey City, NJ 07304-0085 USA (Tel. 201-433-4512; FAX 201-332-3555)

## Rotuba Extruders, Inc.

1401 Park Ave. S., Linden, NJ 07036 USA (Tel. 908-486-1000; FAX 908-486-0874; E-mail: extrusion@rotuba.com; Internet: www.rotuba.com)

## H.M. Royal, Inc.

689 Pennington Ave., PO Box 28, Trenton, NJ 08601 USA (Tel. 609-396-9176; 800-257-9452; FAX 609-396-3185; Internet: www.hmroyal.com)

## Royale Pigments & Chemicals Inc.

12 Rte. 17 North, Suite 309, Paramus, NJ 07652 USA (Tel. 201-845-4666; FAX 201-845-0719)

## Royce Associates, ALP

28 Paterson St, Paterson, NJ 07501 USA (Tel. 973-465-3932; FAX 973-279-8561)

## R S A Corp.

36 Old Sherman Tpke., Danbury, CT 06810 USA (Tel. 203-790-8100; FAX 203-790-1709; E-mail: 104223.262@compuserve.com)

## RTD Chemicals Corp.

1500 Rt. 517, Suite 305, Hackettstown, NJ 07840 USA (Tel. 908-852-6128; FAX 908-852-1335)

## Ruger Chemical Co. Inc.

83 Cordier St., Irvington, NJ 07111 USA (Tel. 973-926-0331; 800-274-RUGER; FAX 973-926-4921; E-mail: ruger.amend@worldnet.att.net; Internet: www.rugerchemical.com)

## Runnymede Dispersions Ltd., A Charles Tennant Company

Ruspidge Rd., Cinderford, Gloucestershire, GL14 3AS UK (Tel. 44 1594 822375; FAX 44 1594 826251; E-mail: mailbox@c-tennant-co.prestel.co.uk)

## RussTech, Inc.

11208 Decimal Dr., Louisville, KY 40299 USA (Tel. 502-267-7700; FAX 502-267-8922)

## Rütgers Organics Corp., Subsid. of Rütgers AG

201 Struble Rd., State College, PA 16801 USA (Tel. 814-231-9261; 800-458-3434; FAX 814-238-1567; E-mail: info@ruetgers-organics-corp.com; Internet: www.ruetgers-organics-corp.com)

## Ryte Products, Inc.

616 Fm 1960 West, Suite 210, Houston, TX 77090 USA (Tel. 281-893-4422; FAX 281-893-4230; E-mail: ryte@wt.net)

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Rogers Corp.

## Rogers Corp.

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## Royce Associates, ALP

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## R S A Corp.

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## RTD Chemicals Corp.

1500 Rt. 517, Suite 305, Hackettstown, NJ 07840 USA (Tel. 908-852-6128; FAX 908-852-1335)

## Ruger Chemical Co. Inc.

83 Cordier St., Irvington, NJ 07111 USA (Tel. 973-926-0331; 800-274-RUGER; FAX 973-926-4921; E-mail: ruger.amend@worldnet.att.net; Internet: www.rugerchemical.com)

## Runnymede Dispersions Ltd., A Charles Tennant Company

Ruspidge Rd., Cinderford, Gloucestershire, GL14 3AS UK (Tel. 44 1594 822375; FAX 44 1594 826251; E-mail: mailbox@c-tennant-co.prestel.co.uk)

## RussTech, Inc.

11208 Decimal Dr., Louisville, KY 40299 USA (Tel. 502-267-7700; FAX 502-267-8922)

## Rütgers Organics Corp., Subsid. of Rütgers AG

201 Struble Rd., State College, PA 16801 USA (Tel. 814-231-9261; 800-458-3434; FAX 814-238-1567; E-mail: info@ruetgers-organics-corp.com; Internet: www.ruetgers-organics-corp.com)

## Ryte Products, Inc.

616 Fm 1960 West, Suite 210, Houston, TX 77090 USA (Tel. 281-893-4422; FAX 281-893-4230; E-mail: ryte@wt.net)

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**Sachtleben Chemie Nederland**, Postbus 3017, 2280 GA Rijswijk The Netherlands (Tel. 31 70 319 2219; FAX 31 70 319 2205)

**Sachtleben Corp.**, 520 Madison Ave., New York, NY 10022 USA (Tel. 212-715-5200; 888-722-4853; FAX 212-486-2742)

### SAF Bulk Chemicals

3050 Spruce St., St. Louis, MO 63178 USA (Tel. 314-534-4900; 800-336-9719; FAX 800-368-4661)

### Saffil Ltd.

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### Sakai Chemical Industry Co., Ltd.

1-1-23, Ebisuno-cho Nishi, Sakai-shi, Osaka, 590 Japan (Tel. (0722) 23-4111; FAX (0722) 23-8355)

### Sal Chemical Co., Inc.

Half Moon Industrial Park, 3036 Birch Dr., Weirton, WV 26062 USA (Tel. 304-748-8200; 800-879-1725; FAX 304-797-8751; Internet: www.salchem.com)

### Salim Oleochemicals (Singapore) Pte. Ltd.

20 Tuas St. Singapore 638457 Singapore (Tel. 8619688; FAX 8619050; E-mail: info@salimoleo.com.sg)

### L.A. Salomon Inc., A Süd-Chemie AG Company

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### Sam Shin Chemical Co., Ltd.

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2-18-29, Jyuhachijyo, Yodogawa-ku, Osaka, 532 Japan (Tel. (06) 391-1971)

### Sanyo Chemical Industries, Ltd.

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### Sanyo Corp. of America

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### San Yuan Chemical Co., Ltd.

3rd Fl., 3 Alley 6 Lane, 329 Tun Hwa S. Rd., Sec. 1, Taipei Taiwan, Rep. of China (Tel. 886-2-702 8048; FAX 886-2-325 8985)

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SA Paper Chemicals, Rep. of S. Africa

**British Traders & Shippers Ltd.**, Distrib. for SA Paper Chems., 429-431 Rainham Road South, Dagenham, Essex, RM10 8RN UK (Tel. 44 181 596 7500; FAX 44 181 596 7509; Internet: www.britishtraders.co.uk)

### Sarcom, Inc.

100 Nathill Rd., PO Box 537, Greenfield, NY 12833 USA (Tel. 518-893-0708; 800-752-5983; FAX 518-893-0737; E-mail: sarcom@sarcominc.com; Internet: www.sarcominc.com)

### Sartomer

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### Schumacher

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**Schütz & Co. (GmbH & Co.)**

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**Scott Bader**

**Scott Bader Co. Ltd.**, Wollaston, Wellingborough, Northamptonshire, NN29 7RL UK (Tel. 44 1933 663100; FAX 44 1933-663474; E-mail: specpol@scottbader.com; Internet: www.scottbader.com/site/index.htm)

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**Scott Specialty Gases**

6141 Easton Rd., PO Box 310, Plumsteadville, PA 18949-0310 USA (Tel. 215-766-8861; 800-21-SCOTT; FAX 215-766-2476; Internet: www.scottgas.com)

**S & D Chemicals (Canada) Ltd.**

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**Seachem**

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**Sea-Land Chemical Co.**

902 Westpoint Pkwy., Suite 350, Westlake, OH 44145 USA (Tel. 440-871-7887; FAX 440-871-7949; E-mail: sealand@sealandchem.com; Internet: www.sealandchem.com)

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Seal Sands Rd., Seal Sands, Middlesbrough, Cleveland, TS2 1UB UK (Tel. 44-1642 546546; FAX 44-1642 546068; E-mail: gchristopherson@m1.cambrex.com; Internet: www.sealsandschemicals.com)

**John L. Seaton & Co. Ltd.**

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**Sedco Chemical Inc.**

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**Seefast (Europe) Ltd.**

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**Seegott Inc.**

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**Sego International, Inc.**

PO Box 3526, Portland, OR 97208 USA (Tel. 503-796-0133; FAX 503-222-4178)

**Seidler Chemical Co., Inc.**

537 Raymond Blvd., Newark, NJ 07105 USA (Tel. 973-465-1122; FAX 973-465-4469)

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**Seporga**

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**Seppic, Div. of Air Liquide Group**

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**Serra International Trading Inc.**

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**Shamrock Technologies Inc.**

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**Shea Chemical Corp.**

70-46 137 St., Flushing, NY 11367-1949 USA (Tel. 718-793-0009; FAX 718-793-0009)

**Shell**

**Shell Chemical Co.**, Div. of Shell Oil Co., One Shell Plaza, PO Box 2463, Houston, TX 77252-2463 USA (Tel. 713-241-6161; 800-872-7435; FAX 713-241-4043; E-mail: cheminq@shellus.com; Internet: www.shellchemicals.com)

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**Shell Chemicals Canada Ltd.**, PO Bag #22, Fort Saskatchewan, Calgary, Alberta, T8L 3T2 Canada (Tel. 780-992-3800; FAX 780-992-3825)

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75-20 Yongsung-Ri, Samsung-Myon, Eumsung-Kun, Choongbook, 369-830 Korea (Tel. 82 446 882 1767; FAX 82 446 882 1770; E-mail: skind@ppp.kornet.net; Internet: www.songkang.co.kr)

## Sood Paper & Allied Chemicals

Unit No. 3, Bldg. No. 5, Jogani Indl. Complex, V.N. Purav Marg, Sion-Chunabhatti, Mumbai, 400 022 India (Tel. 91 22 522 2872; FAX 91 22 523 3820; E-mail: soodpaper@vsnl.com; Internet: www.soodpaper.com)

## South Chicago Packing Co.

945 W. 38th St., Chicago, IL 60609 USA (Tel. 773-927-8839; FAX 773-927-8839)

## Southeastern Clay Co.

PO Box 1055, Aiken, SC 29802 USA (Tel. 803-648-3248; FAX 803-649-5701)

## Southeastern Minerals, Inc.

PO Box 1866, 1100 Dothan Rd., Bainbridge, GA 31717 USA (Tel. 912-246-3396; FAX 212-246-7309)

## Southern Clay Products, Inc., Subsid. of Laporte

1212 Church St., PO Box 44, Gonzales, TX 78629 USA (Tel. 830-672-2891; 800-324-2891; FAX 830-672-1903; E-mail: jrichardson.scprod@laporteplc.com; Internet: www.scprod.com)

## Southern Ionics, Inc.

PO Drawer 1217, 201 Commerce St., West Point, MS 39773 USA (Tel. 601-494-3055; 800-953-3585; FAX 800-953-3588; E-mail: info@southernionics.com; Internet: www.southernionics.com)

## Southern Texas Chemical Corp.

6374 Creekbend, Houston, TX 77096 USA (Tel. 713-988-6089; FAX 713-988-8936)

## Spartan Flame Retardants, Inc.

345 E. Terra Cotta Ave., PO Box 395, Crystal Lake, IL 60039 USA (Tel. 815-459-8500; 800-435-5700; FAX 815-459-8560; E-mail: spartan@mc.net; Internet: http://user.mc.net/~spartan)

## Specialty Chem Products Corp., A Bayer Company

Two Stanton St., Marinette, WI 54143 USA (Tel. 715-735-9033; FAX 715-735-5304; Internet: www.bayerus.com)

## Specialty Industrial Products, Inc. (SIP)

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## Specialty Ingredients & Perfume Co.

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## Specialty Products Co.

75 Montgomery St., PO Box 306, Jersey City, NJ 07303-0306 USA (Tel. 201-434-4700; 800-321-8506; FAX 201-434-6052)

## Spectra Colors Corp.

25 Rizzolo Rd., Kearny, NJ 07032 USA (Tel. 201-997-0606; 800-527-8588; FAX 800-635-1811; E-mail: spectra.colors@worldnet.att.net; Internet: www.spectracolors.com)

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**Spice King Corp.**

6009 Washington Blvd., Culver City, CA 90232-7488 USA (Tel. 310-836-7770; FAX 310-836-6454)

**SPI Polyols, Inc., Polyols Div.**

321 Cherry Lane, New Castle, DE 19720 USA (Tel. 302-576-8500; 800-789-9755 x 2159; FAX 302-576-8569; Internet: www.spipolyols.com)

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**Stauber Performance Ingredients, Inc.**

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**Stevenson Cooper, Inc.**

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**Sunnyside**

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**Thibaut & Walker Co.**

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**Thiele Kaolin Co.**

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### TIC Gums, Inc.

4609 Richlynn Dr., PO Box 369, Belcamp, MD 21017-0369 USA (Tel. 410-273-7300; 800-221-3953; FAX 410-273-6469; E-mail: info@ticgums.com; Internet: www.ticgums.com)

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### Total Specialty Chemicals, Inc.

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**S. Black (Import & Export) Ltd.**, Distrib. for United-Guardian, Foxholes Business Park, John Tate Road, Hertford, Hertfordshire, SG13 7YH UK (Tel. 44 1992 825555; FAX 44 1992 825566; E-mail: enquires@sblack.com; Internet: www.sblack.com)

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### U.S. Biochemical Corp.

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675 Galleria Financial Ctr., 5075 Westheimer Rd., Suite 675, Houston, TX 77056 USA (Tel. 713-871-1951; FAX 713-871-1963; E-mail: uspetoc@uspetrochemical.com; Internet: www.uspetrochemical.com)

### U.S. Polymers Inc.

300 E. Primm St., St. Louis, MO 63111 USA (Tel. 314-638-1632; FAX 314-638-3100; Internet: www.uspolymers.com)

### U.S. Silica Co.

PO Box 187, Rt. 522 North, Berkeley Springs, WV 25411 USA (Tel. 304-258-2500; 800-243-7500; FAX 304-258-3500; E-mail: sales@u-s-silica.com; Internet: www.u-s-silica.com)

### U.S. Synthetics Co.

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### Unitex Chemical Corp.

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### Universal Color Dispersions, Div. of Morton Int'l.

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**Venus Ethoxyethers Pvt. Ltd.**

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**Vilax Corp.**

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**Vitamins, Inc.**

200 E. Randolph Dr., Chicago, IL 60601-7799 USA (Tel. 312-861-0700; FAX 312-861-0708)

**Vivion Inc.**

929 Bransten Rd., San Carlos, CA 94070 USA (Tel. 650-595-3600; FAX 650-595-2094)

**Vliegenthart B.V.**

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**Volclay Ltd., Div. of American Colloid Co.**

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**Vulcan Performance Chemicals**

1200 Urban Center Dr., Birmingham, AL 35238-5015 USA (Tel. 800-633-8280; FAX 205-933-6039; Internet: www.vul.com)

**VYN-AC Inc.**

PO Box 788, Ormond Beach, FL 32175-0788 USA (Tel. 800-342-8475, #567)

**Vyse Gelatin Co.**

5010 N. Rose St., Schiller Park, IL 60176 USA (Tel. 847-678-4780; 800-533-2152; FAX 847-628-0329; E-mail: sales@vyse.com; Internet: www.vyse.com)

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## Robert I. Webber Co., Inc.

35 Corporate Dr., Trumbull, CT 06611 USA (Tel. 203-452-3080; FAX 203-452-3085)

## Wego Chemical & Mineral Corp.

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### Whitford

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### Wright Corp.

PO Box 9009, 102 Orange St., Wilmington, NC 28402 USA (Tel. 910-251-8952; FAX 910-762-9223)

### Wyo-Ben, Inc.

PO Box 1979, 550 S. 24th St. W., Suite 201, Billings, MT 59103 USA (Tel. 406-652-6351; 800-548-7055; FAX 406-656-0748; E-mail: information@wyoben.com; Internet: www.wyoben.com)

### Yoneyama Chemical Industries, Ltd.

Takahashi Bldg., Higashi-kan, 5-2-18, Nishitenma, Kita-ku, Osaka, 530 Japan (Tel. (06) 363-0824; FAX (06) 365-9982)

### Jesse S. Young Co., Inc.

520 Westfield Ave., Elizabeth, NJ 07208 USA (Tel. 908-351-0140; FAX 908-351-8837)

### Zaclon Inc., Partner with Henkel KGaA

2981 Independence Rd., Cleveland, OH 44115 USA (Tel. 216-271-1715; 888-854-1605; FAX 216-271-1792; E-mail: zaclon@zaclon.com; Internet: www.zaclon.com)

### Zeeland Chemicals, Inc., A Cambrex Co.

215 N. Centennial St., Zeeland, MI 49464 USA (Tel. 616-772-2193; 800-223-0453; FAX 616-772-7344; E-mail: jstanulonis@m1.cambrex.com; Internet: www.cambrex.com)

### Zeneca Agrochemicals/Zeneca Crop Protection, Part of AstraZeneca

Fernhurst, Haslemere, Surrey, GU27 3JE UK (Tel. 44 1428 657 222; FAX 44 1428 657 385; Internet: www.zenecaag.com)

### Zeochem

1314 S. 12 St., PO Box 35940, Louisville, KY 40232 USA (Tel. 502-634-7600; 800-626-5355; FAX 502-634-8133)

### Zeolyst International

PO Box 830, Valley Forge, PA 19482 USA (Tel. 610-651-4552; FAX 610-825-1421; E-mail: bmarcus@pqcorp.com; Internet: www.zeolyst.com)

### Zetapharm, Inc.

70 W. 36th St., Suite 600, New York, NY 10088 USA (Tel. 212-643-2310; FAX 212-643-2316; E-mail: zeta@zetapharm.com)

### Zhuhai Skyhigh Chemicals Co. Ltd.

20/F., Everbright Int'l. Trade Centre, Zhuhai City, Guangdong Province P.R. China (Tel. 86 756 3326850; FAX 86 756 3326857; E-mail: sales@skychem.com; Internet: www.skychem.com)

### Ziegler Chemical & Mineral Corp.

100 Jericho Quad, Ste. 140, Jericho, NY 11753 USA (Tel. 516-681-9600; FAX 516-681-9604; E-mail: info@zieglerchemical.com; Internet: www.zieglerchemical.com)

### Zimmer AG

Borsigalle 1, D-60388 Frankfurt/Main Germany (Tel. 69-4007-01; FAX 69-4007-546)

### Zinc Corp. of America

300 Frankfort Rd., Monaca, PA 15061-2295 USA (Tel. 724-774-1020; 800-962-7500; FAX 724-773-2217)

**Zinkan Enterprises, Inc.**

10574 Ravenna Rd., Twinsburg, OH 44087 USA (Tel. 330-487-1500; 800-229-6801; FAX 330-425-8202; E-mail: sales@zinkan.com; Internet: www.zinkan.com)

**William Zinsser & Co., Inc.**

173 Belmont Dr., Somerset, NJ 08875 USA (Tel. 732-469-8100; FAX 732-563-9774)

**Zircar Products Inc.**

110 N. Main St., PO Box 458, Florida, NY 10921 USA (Tel. 914-651-4481; FAX 914-651-3192; E-mail: zircarsa@zircar.com; Internet: www.zircar.com)

**ZOCHEM, Div. of Hudson Bay Mining & Smelting Co., Ltd.**

1 Tilbury Court, PO Box 1120, Brampton, Ontario, L6V 2LB Canada (Tel. 905-453-4100; FAX 905-453-2920; E-mail: info@zochem.com; Internet: www.zochem.com)

**Zohar Detergent Factory**

19239 Kibbutz Dalia Israel (Tel. 972 44 9897 234; FAX 972 44 9897 200)

**Zschimmer & Schwarz**

Zschimmer & Schwarz GmbH & Co., Postfach 2179, Max-Schwarz-Str. 3-5, D-56112 Lahnstein-Rhein Germany (Tel. 49 2621 12-0; FAX 49 2621-12407; E-mail: zsmph@aol.com; Internet: www.zschimmer-schwarz.de)

**Zschimmer & Schwarz Italiana SpA**, Casella Postale N. 1, I-13038 Tricerro-Vercelli Italy (Tel. 39 161 80 81 11; FAX 39 161 80 73 35)

**Zschimmer & Schwarz SARL**, 10 rue Saint-Marc, F-75002 Paris France (Tel. 33 1 42 33 10 33; FAX 33 1 40 26 23 81)

**Zschimmer & Schwarz España S.A.**, Ctra. CV-20, km 3,200, Apdo. 118, E-12540 Villarreal-Castellón Spain (Tel. 34 964 62 63 65; FAX 34 964 62 60 92)

**Zschimmer & Schwarz Chemicals UK Ltd.**, 6 Bridgford Rd., West Bridgford, GB-Nottingham, NG2 6AB UK (Tel. 44 115 981 55 41; FAX 44 115 981 56 41)

**Zschimmer & Schwarz Inc., Chem-Tex Div.**, 70 GA Highway 22W, Milledgeville, GA 31061 USA (Tel. 912-454-1942; FAX 912-453-8854)

**Zschimmer & Schwarz Argentina S.A.**, Av. de Mayo 666 -piso 4° B, RA-1084 Buenos Aires Argentina (Tel. 54 11 4 342 43 50; FAX 54 11 4 331 10 56)

**Zschimmer & Schwarz Chemicals HK Limited**, Room 1004, Lyndhurst Tower, 1 Lyndhurst Terrace, Central, S.A.R. Hong Kong (Tel. 852 2525 3819; FAX 852 2877 9426)

**Zschimmer & Schwarz Chemicals HK Limited (Beijing Rep. Office)**, Room 1405, Kun Tai Bldg., No. 10 Chao Wai Da Jie, Beijing, 100020 People's Rep. of China (Tel. 86 10 65 99 52 01; FAX 86 10 65 99 52 03)

# Appendixes

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# CAS Number Index

<b>50-00-0</b> Formaldehyde Hercules® 37M6-8	Pamolyn® 200 Pamolyn® 240	Butyl alcohol	2,2'-Azobisisobutyronitrile
<b>50-70-4</b> Liponic 70-NC Liponic 76-NC Sorbitol Sorbitol Sol'n. High Mannitol	<b>62-33-9</b> Calcium disodium EDTA (anhyd.) Versene CA	<b>71-41-0</b> n-Amyl alcohol	<b>78-83-1</b> Isobutyl alcohol
<b>52-51-7</b> 2-Bromo-2-nitropropane-1,3- diol Myacide® Myacide® AS Plus Myacide® Pharma® BP Paxgard BD 20 Paxgard BD 88	<b>62-38-4</b> Phenylmercuric acetate	<b>74-31-7</b> N,N'-Diphenyl-p-phenylenedi- amine	<b>78-92-2</b> 2-Butanol
<b>56-35-9</b> bioMeT TBTO Tributyltin oxide	<b>62-56-6</b> Thiourea	<b>75-21-8</b> Ethylene oxide	<b>78-93-3</b> Methyl ethyl ketone
<b>56-37-1</b> Benzyltriethyl ammonium chloride TEBAC	<b>64-02-8</b> Sequestrene® 30A Tetrasodium EDTA Trilon® B Versene 100 Versene 100 EP Versene 100 LS Versene 100 SRG Versene 100 XL Versene 220	<b>75-55-8</b> Propyleneimine	<b>78-96-6</b> Isopropanolamine
<b>57-10-3</b> Palmitic acid	<b>64-17-5</b> Alcohol	<b>75-65-0</b> t-Butyl alcohol	<b>79-06-1</b> Acrylamide
<b>57-11-4</b> LoxioI® G 20 Stearic acid	<b>64-18-6</b> Formic acid	<b>75-91-2</b> t-Butyl hydroperoxide T-Hydro® Sol'n.	<b>79-07-2</b> Chloroacetamide
<b>57-13-6</b> Urea	<b>64-19-7</b> Acetic acid	<b>77-89-4</b> Acetyl triethyl citrate ATEC Citroflex® A-2	<b>79-10-7</b> Acrylic acid
<b>57-39-6</b> Tris [1-(2-methyl-aziridiny)] phosphine oxide]	<b>67-43-6</b> Masquol® DTPA Liq. Pentetic acid	<b>77-90-7</b> Acetyl tributyl citrate ATBC Citroflex® A-4 Citroflex® A-4 Special Uniplex 84	<b>79-21-0</b> Peracetic acid
<b>57-55-6</b> Propylene glycol	<b>67-56-1</b> Methyl alcohol	<b>77-92-9</b> Citric acid (anhyd.) Eldorado FCA-810 Liquinat®	<b>79-41-4</b> Methacrylic acid Mhoromer® AM 199
<b>59-50-7</b> p-Chloro-m-cresol	<b>67-63-0</b> Isopropyl alcohol	<b>77-93-0</b> Citroflex® 2 TEC Triethyl citrate	<b>80-15-9</b> Cumene hydroperoxide
<b>60-00-4</b> Edetic acid Versene Acid	<b>67-64-1</b> Acetone	<b>78-42-2</b> Trioctyl phosphate	<b>80-30-8</b> N-Cyclohexyl-p-toluenesulfon- amide
<b>60-33-3</b> Linoleic acid	<b>68-12-2</b> Dimethyl formamide	<b>78-51-3</b> Amgard® TBEP KP-140® Phosflex® TBEP Tributoxyethyl phosphate	<b>80-39-7</b> Ethyl toluenesulfonamide Uniplex 108
	<b>71-23-8</b> Propyl alcohol	<b>78-67-1</b>	<b>80-62-6</b> Methyl methacrylate Mhoromer® MMA
	<b>71-36-3</b>		<b>81-11-8</b> 4,4'-Diaminostilbene-2,2'- disulfonic acid
			<b>81-88-9</b> Basic violet 10
			<b>84-61-7</b> Dicyclohexyl phthalate

Uniplex 250	PEG-3 di-2-ethylhexoate	<b>98-79-3</b> Ajidew A-100 PCA	Hydroxystearic acid Loxiol® G 21
<b>84-65-1</b> Anthraquinone Diaq 60 Fleetquest 8800 QEMI Q-AQ-60	<b>94-36-0</b> Benzoyl peroxide	<b>100-20-9</b> Terephthaloyl chloride	<b>106-17-2</b> Glycol ricinoleate
<b>84-69-5</b> Diisobutyl phthalate Uniplex 155	<b>94-51-9</b> Dipropylene glycol dibenzoate	<b>100-37-8</b> Diethylaminoethanol	<b>106-65-0</b> DBE-4 Dimethyl succinate
<b>84-74-2</b> Dibutyl phthalate Uniplex 150	<b>95-19-2</b> LamChem C-100-S Schercozoline S Stearyl hydroxyethyl imidazoline	<b>100-97-0</b> Hexamethylenetetramine	<b>106-69-4</b> 1,2,6-Hexanetriol
<b>84-75-3</b> Dihexyl phthalate	<b>95-38-5</b> Burco® Imidazoline O Imidazoline 180H Nopcogen 22-O Oleyl hydroxyethyl imidazo- line Schercozoline O	<b>101-43-9</b> Cyclohexyl methacrylate Mhoromer® BM 711	<b>106-89-8</b> Epichlorohydrin
<b>84-77-5</b> Didecyl phthalate	<b>95-47-6</b> o-Xylene	<b>102-06-7</b> Diphenylguanidine DPG Perkacit® DPG	<b>106-91-2</b> Glycidyl methacrylate SR 379
<b>85-60-9</b> 4,4'-Butylidenebis (6-t-butyl-m- cresol) Santowhite® BBMC	<b>96-33-3</b> Methyl acrylate Norsocryl® MA	<b>102-71-6</b> Triethanolamine	<b>106-98-9</b> 1-Butene Gulfene® 4
<b>85-68-7</b> Butyl benzyl phthalate	<b>96-69-5</b> Santonox® TBMC 4,4'-Thiobis-6-(t-butyl-m- cresol)	<b>102-76-1</b> Triacetin	<b>107-02-8</b> Acrolein
<b>85-70-1</b> n-Butyl phthalyl-n-butyl glycolate	<b>97-05-2</b> 5-Sulfosalicylic acid	<b>102-96-5</b> β-Nitrostyrene	<b>107-13-1</b> Acrylonitrile
<b>88-58-4</b> Di-t-butylhydroquinone	<b>97-23-4</b> Dichlorophene	<b>103-11-7</b> Norsocryl® 2EHA Octyl acrylate	<b>107-15-3</b> Ethylenediamine (anhyd.)
<b>90-43-7</b> Nipacide® OPP o-Phenylphenol	<b>97-63-2</b> Ethyl methacrylate Mhoromer® AM 101	<b>104-15-4</b> Cycat® 4040 K-Cure® 1040W Nacure® 2522 Nacure® XC-2211 Nacure® XC-8224 Nacure® XP-386 p-Toluene sulfonic acid	<b>107-21-1</b> Glycol
<b>91-44-1</b> 7-Diethylamino-4-methylcou- marin	<b>97-74-5</b> Monex® Tetramethylthiuram monosulfide	<b>104-76-7</b> 2-Ethylhexanol	<b>107-22-2</b> Glyoxal Protectol® GL 40
<b>91-88-3</b> N-Ethyl-N-hydroxyethyl-m- toluidine	<b>97-86-9</b> Blemmer IBMA Degalan® LP 70/01 Isobutyl methacrylate Mhoromer® AM 105H	<b>105-16-8</b> Ageflex FM-2 Diethylaminoethyl methacry- late	<b>107-41-5</b> Hexylene glycol
<b>92-50-2</b> Phenylethylethanolamine	<b>97-88-1</b> Blemmer BMA Butyl methacrylate Mhoromer® AM 103H	<b>105-46-4</b> s-Butyl acetate	<b>107-54-0</b> Dimethyl hexynol Surfynol® 61
<b>92-84-2</b> Phenothiazine	<b>97-90-5</b> Bisomer EGDMA Ethylene glycol dimethacrylate	<b>105-64-6</b> Diisopropyl perdicarbonate	<b>107-64-2</b> Distearyldimonium chloride
<b>92-87-5</b> Benzidine	<b>97-99-4</b> OO® Tetrahydrofurfuryl Alcohol (THFA®) Tetrahydrofurfuryl alcohol	<b>106-07-0</b> PEG-4 stearate	<b>107-98-2</b> Methoxyisopropanol
<b>93-82-3</b> Stearamide DEA		<b>106-11-6</b> Lumulse™ DGS PEG-2 stearate PEG-2 stearate SE	<b>108-01-0</b> Dimethylethanolamine
<b>93-83-4</b> Oleamide DEA		<b>106-12-7</b> Lumulse™ DGO PEG-2 oleate PEG-2 oleate SE	<b>108-05-4</b> Resyn® 25-1151 Synthemul® 97635 Synthemul® 97635-00 Vinyl acetate
<b>93-90-3</b> 2-(N-Methylanilino) ethanol		<b>106-14-9</b>	<b>108-21-4</b> Isopropyl acetate
<b>94-18-8</b> Benzylparaben Nipabenzyl			<b>108-31-6</b> Maleic anhydride
<b>94-28-0</b>			<b>108-32-7</b> Propylene carbonate
			<b>108-65-6</b>

Propylene glycol methyl ether acetate	Isobutyl palmitate	112-02-7	Pentaerythrityl tetrastearate
<b>108-78-1</b> Melamine	<b>110-36-1</b> Butyl myristate	Cetrimonium chloride Chemquat 16/50 Nissan Cation PB-40 Nissan Cation PB-300	<b>115-86-6</b> Triphenyl phosphate
<b>108-82-7</b> 2,6-Dimethyl heptanol-4	<b>110-54-3</b> Hexane	<b>112-03-8</b> Nissan Cation AB Steartrimonium chloride	<b>115-98-0</b> Bis ( $\beta$ -chloroethyl) vinyl phosphonate
<b>108-88-3</b> Toluene	<b>110-82-7</b> Cyclohexane	<b>112-10-7</b> Isopropyl stearate	<b>117-81-7</b> s-Dioctyl phthalate
<b>108-93-0</b> Cyclohexanol	<b>110-91-8</b> Morpholine	<b>112-11-8</b> Isopropyl oleate	<b>118-52-5</b> 1,3-Dichloro-5,5-dimethyl hydantoin
<b>108-95-2</b> Phenol	<b>110-97-4</b> Diisopropanolamine	<b>112-24-3</b> Ancamine® TETA Triethylenetetramine	<b>118-74-1</b> Hexachlorobenzene
<b>109-16-0</b> PEG-3 dimethacrylate SR 205	<b>110-98-5</b> Dipropylene glycol	<b>112-30-1</b> Decyl alcohol Nafol® 10 D	<b>119-61-9</b> Benzophenone BPO
<b>109-17-1</b> PEG-4 dimethacrylate SR 209	<b>111-03-5</b> Glyceryl oleate	<b>112-34-5</b> Butoxydiglycol	<b>119-90-4</b> Dianisidine
<b>109-30-8</b> PEG-2 distearate	<b>111-11-5</b> Methyl caprylate	<b>112-39-0</b> Methyl palmitate	<b>120-40-1</b> DeMIDE LA-100 DeMIDE LLA-100 DeMIDE ML-100 DeMIDE MLY-100 Lauramide DEA
<b>109-43-3</b> Dibutyl sebacate	<b>111-30-8</b> Glutaral Metasol® 550 Paxgard GDA Paxgard GT 10 Paxgard GT 20 Protectol® GDA	<b>112-41-4</b> Dodecene-1 Gulfene® 12	<b>120-55-8</b> Benzoflex® 2-45 Diethylene glycol dibenzoate
<b>109-53-5</b> Vinyl isobutyl ether	<b>111-40-0</b> Ancamine® DETA Diethylenetriamine	<b>112-57-2</b> Ancamine® TEPA Tetraethylenepentamine	<b>120-80-9</b> Pyrocatechol
<b>109-60-4</b> Propyl acetate	<b>111-42-2</b> Diethanolamine	<b>112-60-7</b> PEG-4	<b>121-21-1</b> Pyrethrin I
<b>109-99-9</b> Tetrahydrofuran	<b>111-57-9</b> Stearamide MEA	<b>112-61-8</b> Methyl stearate	<b>122-19-0</b> Incroquat SDQ-25 Nissan Cation S2-100 Stearalkonium chloride
<b>110-05-4</b> Di-t-butyl peroxide	<b>111-60-4</b> Cithrol EGMS N/E Glycol stearate Mackester™ EGMS Polypax EGMS	<b>112-62-9</b> Emery® Methyl Oleate Methyl oleate	<b>122-20-3</b> Triisopropanolamine
<b>110-17-8</b> Fumaric acid	<b>111-66-0</b> Gulfene® 8 Octene-1	<b>112-70-9</b> Tridecyl alcohol	<b>122-32-7</b> Triolein
<b>110-22-5</b> Acetyl peroxide	<b>111-76-2</b> Butoxyethanol	<b>112-72-1</b> Myristyl alcohol	<b>122-39-4</b> Diphenylamine
<b>110-27-0</b> Isopropyl myristate	<b>111-82-0</b> Methyl laurate	<b>112-80-1</b> Oleic acid	<b>123-31-9</b> Hydroquinone
<b>110-30-5</b> Acrawax® C Advawax® 280 Advawax® 290 Alkamide® STEDA Ethylene distearamide Glycowax® 765 Kemamide® W-39 Kemamide® W-40 Kemamide® W-45 Lipowax C Ross Wax #140	<b>111-84-2</b> n-Nonane	<b>112-84-5</b> Erucamide Struktol® TR 131	<b>123-72-8</b> n-Butyraldehyde
<b>110-31-6</b> Advawax® 240 Ethylene dioleamide Kemamide® W-20	<b>111-90-0</b> Ethoxydiglycol	<b>112-85-6</b> Behenic acid	<b>123-94-4</b> Glyceryl stearate (pure grade) Kemester® 5500 Petrac® GMS
<b>110-34-9</b>	<b>112-00-5</b> Adogen® 412 Chemquat 12/33 Chemquat 12/50 Laurtrimonium chloride Nissan Cation BB	<b>112-88-9</b> Gulfene® 18 Octadecene-1	<b>123-95-5</b> Butyl stearate
		<b>112-92-5</b> Stearyl alcohol	<b>124-04-9</b>
		<b>115-83-3</b>	



Adipic acid Adi-pure®	<b>128-66-5</b> Vat yellow 4	<b>139-13-9</b> Nitrilotriacetic acid	Sodium octyl sulfate Texapon® 842
<b>124-07-2</b> Caprylic acid	<b>129-17-9</b> Acid blue 1	<b>139-33-3</b> Disodium EDTA (anhyd.)	<b>142-55-2</b> Propylene glycol laurate
<b>124-10-7</b> Methyl myristate	<b>131-17-9</b> Diallyl phthalate	<b>139-89-9</b> Trisodium HEDTA Versenol 120	<b>142-59-6</b> Nabam
<b>124-18-5</b> n-Decane	<b>131-52-2</b> Sodium pentachlorophenate	<b>139-96-8</b> Paxnol TLS TEA-lauryl sulfate Texapon® T 42	<b>142-77-8</b> Butyl oleate
<b>124-26-5</b> Armid® 18 Stearamide	<b>132-27-4</b> Dowicide® A Sodium o-phenylphenate	<b>140-01-2</b> Pentasodium pentetate Trilon® C Liq. Trilon® PC Versenex 80	<b>142-82-5</b> Heptane
<b>124-29-8</b> Cetyl alcohol	<b>133-06-2</b> Captan	<b>140-88-5</b> Ethyl acrylate Rohamere® 84116	<b>142-90-5</b> Blemmer SLMA Lauryl methacrylate
<b>124-30-1</b> Stearamine	<b>134-84-9</b> 4-Methylbenzophenone	<b>140-95-4</b> Dimethylol urea Protectol® DMU	<b>142-91-6</b> Isopropyl palmitate
<b>124-38-9</b> Carbon dioxide	<b>135-19-3</b> β-Naphthol	<b>141-08-2</b> Glycerol ricinoleate	<b>143-07-7</b> Lauric acid
<b>124-68-5</b> Aminomethyl propanol	<b>135-88-6</b> Phenyl-β-naphthylamine	<b>141-20-8</b> Lumulse™ DGL PEG-2 laurate PEG-2 laurate SE Pegospense® 100 L	<b>143-18-0</b> Potassium oleate
<b>126-73-8</b> Kronitex® TBP Phosflex® 4 Reomol® TBP TBP Tributyl phosphate	<b>136-26-5</b> Capramide DEA	<b>141-23-1</b> Methyl hydroxystearate	<b>143-19-1</b> Sodium oleate
<b>126-86-3</b> Surfynol® PC Tetramethyl decynediol	<b>136-32-3</b> Sodium-2,4,5-trichlorophenate	<b>141-24-2</b> Methyl ricinoleate	<b>143-23-7</b> BHMT-HP Bis-hexamethylenetriamine
<b>126-92-1</b> Avirol® SA 4106 DeSULF SEH-40 Sintrex EHR Sodium 2-ethylhexyl sulfate Sulfotex OA Texapon® EHS	<b>136-53-8</b> Zinc 2-ethylhexanoate	<b>141-32-2</b> Butyl acrylate Norsocryl® BA Rohamere® FF-20	<b>143-28-2</b> Oleyl alcohol
<b>127-08-2</b> Potassium acetate	<b>136-99-2</b> LamChem C-100-L Lauryl hydroxyethyl imidazo- line Schercozoline L	<b>141-43-5</b> Ethanolamine MEA Commercial Grade MEA Low Freeze Grade MEA Low Iron Grade MEA Low Iron-Low Freeze Grade MEA NF Grade	<b>144-55-8</b> Sodium bicarbonate
<b>127-39-9</b> Diisobutyl sodium sulfosuccinate Geropon® CYA/DEP Monawet MB-45	<b>137-20-2</b> Geropon® T-33 Geropon® T-43 Geropon® T-51 Geropon® T-77 Sodium methyl oleoyl taurate	<b>141-78-6</b> Ethyl acetate	<b>147-14-8</b> Copper phthalocyanine blue Octoint 155 Ponolith™ Supra Blue RB Liq.
<b>128-03-0</b> Aquatreat® KM Paxgard PDC Potassium dimethyldithiocarbamate Qemicide DTC-1050	<b>137-30-4</b> Vancide® MZ-96 Vancide® MZ-96 Disp. Zinc dimethyldithiocarbamate	<b>142-09-6</b> Hexyl methacrylate Mhoromer® AM 107	<b>148-79-8</b> Thiabendazole
<b>128-04-1</b> Aquatreat® SDM Paxgard SDC Sodium dimethyldithiocarbamate (hydrate) Thiostop® N	<b>137-41-7</b> Potassium N-methyldithiocarbamate	<b>142-18-7</b> Glycerol laurate	<b>149-30-4</b> 2-Mercaptobenzothiazole Naugex® MBT
<b>128-37-0</b> BHT	<b>138-93-2</b> Disodium cyanodithioimidocarbonate	<b>142-20-1</b> PEG-4 distearate	<b>149-44-0</b> Hydrosulfite® AWC Sodium formaldehyde sulfoxylate
	<b>139-08-2</b> Barquat® OJ-50 Barquat® OJ-80 Myristalkonium chloride Nissan Cation M2-100	<b>142-31-4</b>	<b>149-91-7</b> Gallic acid
	<b>139-12-8</b> Aluminum acetate		<b>150-38-9</b> Trisodium EDTA
			<b>150-76-5</b> Hydroquinone monomethyl ether
			<b>151-21-3</b> Calimulse SLS DeSULF SLS-30LC DeSULF SLS-30LS

Paxnol PSL5	Calwhite®	Busan® 1058	Acid yellow 36
Paxnol SLS Liq.	Camel-CAL®	Busan® 1059	<b>589-68-4</b>
Paxnol SLS Powd.	Camel-CAL® Slurry	Busan® 1059-WS	Glyceryl myristate
Paxnol SLS Pure	Camel-FINE®	<b>3,5-Dimethyl tetrahydro-2-H,1,3,5-thiadiazone-2-thione</b>	<b>592-41-6</b>
POLYSTEP® B-3	Camel-WITE®	Metasol® RB-20	Gulftene® 6
POLYSTEP® B-5	Camel-WITE® Slurry	Nuosept® 120	1-Hexene
POLYSTEP® B-24	Gamaco®	Nuosept® S	<b>593-29-3</b>
Rhodapon® LCP	Gama-Sperse® 80	Protectol® TOE	Potassium stearate
Rhodapon® LSB	Gama-Sperse® 255	Protectol® TOE Granules	<b>596-03-2</b>
Rhodapon® SM	G-White	Troysan® 142	Acid orange 11
Rhodapon® UB/E-30	Hubercarb® Optifil		<b>602-87-9</b>
Rhodapon® UB/E-N	Hubercarb® Q 1	<b>540-72-7</b>	5-Nitroacenaphthene
<b>Sodium lauryl sulfate</b>	Hubercarb® Q 2	Sodium thiocyanate	<b>614-33-5</b>
Stanfax 234	Hubercarb® Q 3	<b>544-60-5</b>	Glyceryl tribenzoate
Stanfax 234LCP	Hubercarb® Q 4	Ammonium oleate	Uniplex 260
Stanfax 996	Hubercarb® Q 6	EW-POL 9110	<b>623-70-1</b>
Stanfax 997	Hubercarb® Q 6-20	<b>544-63-8</b>	Ethyl crotonate
STEPANOL® LCP	Hubercarb® Q 20-60	Myristic acid	<b>624-04-4</b>
Sulfofon® 101	Hubercarb® Q 40-200	<b>546-93-0</b>	Glycol dilaurate
Sulfofon® 101 Special	Hubercarb® Q 60	Magnesium carbonate (anhyd.)	<b>626-38-0</b>
Sulfofon® 101 Special RHD	Hubercarb® Q 100	<b>548-26-5</b>	s-Amyl acetate
Texapon® K-12 C Powd.	Hubercarb® Q 200	Acid red 87	<b>627-83-8</b>
Texapon® K-12 Granules	Hubercarb® Q 325	<b>548-62-9</b>	Cithrol EGDS N/E
Texapon® K-12 Needles	Hubercarb® W 2	Basic violet 3	Glycol distearate
Texapon® K-1296 C Needles	Hubercarb® W 3	<b>555-43-1</b>	Lumulse™ EGDS
Texapon® LS Highly Conc.	Hubercarb® W 3N	Tristearin	Mackester™ EGDS
Needles	Hubercarb® W 4	<b>557-04-0</b>	Polypax EGDS
Texapon® OT Highly Conc.	H-White	Magnesium stearate	<b>627-93-0</b>
Needles	Hydrocarb 60-ME 78%	<b>557-05-1</b>	DBE-6
Texapon® ZHC Needles	Hydrocarb 75-ME 78%	Cecavon® ZN 70	Dimethyl adipate
	Hydrocarb 90-ME 78%	Cecavon® ZN 735	<b>629-25-4</b>
	Jetcoat™ PCC	Haro® Chem ZPR-2	EW-POL 7902 NaC 12
<b>298-18-0</b>	Magnum Gloss	Liquazinc AQ-90	Sodium laurate
DL-Diepoxybutane	Megafil® PCC	Zinc stearate	<b>629-73-2</b>
<b>300-92-5</b>	Microblanc 1	<b>557-20-0</b>	Gulftene® 16
Aluminum distearate	Microblanc 2	Diethyl zinc	Hexadecene-1
<b>301-02-0</b>	Microblanc 3	<b>577-11-7</b>	<b>629-96-9</b>
Armid® O	Microblanc 5	Aerosol® OT-75%	Arachidyl alcohol
Oleamide	Microtem 95	Aerosol® OT-100%	<b>631-61-8</b>
Struktol® TR 121	Opacarb® PCC	Aerosol® OT-S	Ammonium acetate
<b>302-17-0</b>	RO-40	<b>Diocetyl sodium sulfosuccinate</b>	<b>632-79-1</b>
Chloral hydrate	Snowcal 75E (Export)	Drewfax® 0007	Tetrabromophthalic anhydride
<b>307-35-7</b>	Ultrapaque® PCC	Geropon® DOS	<b>633-96-5</b>
Fluorad® FX-8	<b>Whiting</b>	Geropon® SDS	Acid orange 7
Perfluorooctanesulfonyl fluoride	Zetafil 1	Octowet 40	<b>637-12-7</b>
<b>314-13-6</b>	Zetafil 2	Octowet 55	Aluminum tristearate
Direct blue 53	Zetafil 3	Octowet 60	<b>642-85-7</b>
<b>333-20-0</b>	<b>477-73-6</b>	Octowet 60-I	Acid blue 40
Potassium thiocyanate	Basic red 2	Octowet 65	<b>646-13-9</b>
<b>334-48-5</b>	<b>497-19-8</b>	Octowet 70	Isobutyl stearate
Capric acid	Sodium carbonate (anhyd.)	Octowet 70BC	<b>661-19-8</b>
<b>408-35-5</b>	<b>506-30-9</b>	Octowet 70PG	
Sodium palmitate	Arachidic acid	Octowet 75	
<b>461-58-5</b>	<b>506-43-4</b>	Octowet 75E	
Dicyandiamide	Linoleyl alcohol	Pentex® 99	
<b>471-34-1</b>	<b>513-77-9</b>	Rapisol B-30, B-80, B-90, C-70	
Albacar® 5970	Barium carbonate	Rewopol® SBDO 70	
Albacar® PCC	<b>527-07-1</b>	Serwet® WH 170	
Albafil® PCC	Gluconal® NG-C	Surfonic® DOS-70MS	
Albaglos® PCC	Sodium gluconate	<b>587-98-4</b>	
Calcitem S	<b>532-32-1</b>		
Calcium monocarbonate	Sodium benzoate		
	<b>533-74-4</b>		
	Amerstat® 233		

Behenyl alcohol	Ethyl toluenesulfonamide	<b>1312-76-1</b> Potassium silicate	Sodium naphthalene sulfonate Supragil RM/77 DL
<b>688-37-9</b> Aluminum oleate	<b>1119-40-0</b> DBE-5 Dimethyl glutarate	<b>1313-60-6</b> Sodium peroxide	<b>1322-98-1</b> Sodium decylbenzene sulfonate
<b>688-84-6</b> Blemmer EHMA 2-Ethylhexyl methacrylate Mhoromer® BM 713	<b>1120-36-1</b> Gulfene® 14 Tetradecene-1	<b>1313-82-2</b> Sodium sulfide (anhyd.)	<b>1323-38-2</b> Castor (Ricinus communis) oil
<b>693-33-4</b> Cetyl betaine Product BCO	<b>1300-72-7</b> Pilot® SXS-40 Sodium xylenesulfonate	<b>1313-84-4</b> Sodium sulfide (nonahydrate)	<b>1323-39-3</b> Lumulse™ PGMS Propylene glycol stearate
<b>701-64-4</b> Phenyl acid phosphate	<b>1302-42-7</b> Han-Floc 45® Sodium aluminate	<b>1314-13-2</b> Zinc oxide	<b>1323-42-8</b> Glyceryl hydroxystearate
<b>717-74-8</b> Sure Sol®-450 1,3,5-Triisopropylbenzene	<b>1302-78-9</b> Aquagel Gold Seal™ 200 Aquagel Gold Seal™ 325 Bentonite Copisil® Lightcoat Opazil® Printosil® Thermosil®	<b>1314-23-4</b> Zirconium oxide	<b>1323-83-7</b> Glyceryl distearate
<b>812-00-0</b> Methyl acid phosphate	<b>1303-96-4</b> Borax Sodium borate decahydrate	<b>1314-60-9</b> Antimony pentoxide Nyacol® A-1530 Nyacol® A-1550	<b>1327-36-2</b> Aluminum silicate Hydragloss Iceberg® Iccap® K Optiwhite® Tisyn®
<b>818-61-1</b> 2-Hydroxyethyl acrylate Mhoromer® AM 414	<b>1305-62-0</b> Calcium hydroxide	<b>1314-98-3</b> Sachtolith® HD-S Sachtolith® L Zinc sulfide	<b>1327-41-9</b> Aquapac™ Ekoflock™ Hyper+lon™ 1050 PAC-300 Polyaluminum chloride Sachtoklar® 37 Sachtoklar® 39
<b>822-12-8</b> Sodium myristate	<b>1305-78-8</b> Calcium oxide	<b>1317-61-9</b> Iron oxide black Iron oxides (Fe <sub>3</sub> O <sub>4</sub> ) Synox HB-1094	<b>1327-43-1</b> Magnesium aluminum silicate
<b>822-16-2</b> Cecavon® NA 61 Sodium stearate	<b>1308-38-9</b> Chromium oxide (ic) Synox HG-5040 Synox HG-5050 Synox HG-5060 Synox HG-5080	<b>1317-65-3</b> Atomite® Calcium carbonate Carbital® 35 Carbital® 75 Carbital® 90 CC™-103 Micro-White® 10 Slurry Micro-White® 25 Slurry Micro-White® Superamide Opacimite™	<b>1328-53-6</b> Phthalocyanine green
<b>868-77-9</b> Blemmer E 2-Hydroxyethyl methacrylate Mhoromer® BM 903 Mhoromer® BM 905 Mhoromer® BM 923	<b>1309-37-1</b> Ferric oxide (anhyd.) Iron oxides (Fe <sub>2</sub> O <sub>3</sub> ) Octotint 825	<b>1317-80-2</b> Hitox® Ti-Pure® R-794 Ti-Pure® R-795 Ti-Pure® RPD Vantage® Ti-Pure® RPS Vantage® Titanium dioxide Tronox A-X Tronox R-PL-1	<b>1330-20-7</b> Xylene
<b>872-05-9</b> Decene-1 Gulfene® 10	<b>1309-42-8</b> Magnesium hydroxide MHT® 60 S MHT® 60 XS	<b>1317-97-1</b> Ultramarine blue	<b>1330-43-4</b> Sodium borate (anhyd.)
<b>872-50-4</b> N-Methyl-2-pyrrolidone	<b>1309-48-4</b> Magnesium oxide	<b>1318-02-1</b> Abscents® 1000 Abscents® 2000 Abscents® 3000 Zeolite	<b>1330-61-6</b> Isodecyl acrylate SR 395
<b>923-26-2</b> Blemmer P 2-Hydroxypropyl methacrylate	<b>1309-64-4</b> Antimony trioxide FireShield® H FireShield® HPM FireShield® L Thermoguard® S Thermoguard® UF	<b>1318-93-0</b> Montmorillonite Suspengel 200 Suspengel 325 Suspengel Plus 200 Suspengel Plus 325	<b>1330-80-9</b> Propylene glycol oleate
<b>928-24-5</b> Glycol dioleate	<b>1310-66-3</b> Lithium hydroxide monohydrate	<b>1321-69-3</b>	<b>1332-21-4</b> Asbestos
<b>954-16-5</b> 2,4,6-Trimethylbenzophenone	<b>1310-73-2</b> Sodium hydroxide		<b>1332-28-1</b> Sodium borate
<b>989-38-8</b> Basic red 1			<b>1332-37-2</b> Iron oxide red Synox HR-1200 Synox HR-1201 Synox HR-1202 Synox HR-1203 Synox HR-1204 Synox HR-1205 Synox HR-1208 Synox HR-1209
<b>1002-89-7</b> Ammonium stearate Stanfax 320 Stanfax 388			
<b>1047-16-1</b> Pigment violet 19 Ponolith™ Supra Red CD Liq.			
<b>1077-56-1</b>			

**1332-58-7**

Alphatex HP  
ASP® 072  
ASP® 100  
Astra-Fil  
Astraplate  
Bilt-Plates® 145  
Bilt-Plates® 156  
DB-GLAZE™  
DB-Kote-2  
DB-SHEEN™  
**Kaolin**  
Opacitex  
Peerless® No. 1  
Peerless® No. 2  
Peerless® No. 3  
Premier  
WW Filler™

**1333-84-2**

**Alumina (hydrate)**

**1333-86-4**

Black Pearls® 430  
Black Pearls® 450  
Black Pearls® L  
**Carbon black**  
Continex® LH-10  
Continex® N351  
Mogul® L  
Ponolith™ Fast Black P Liq.  
Ponolith™ Supra Black B Liq.  
Printex® XE 2  
Raven® H2O  
Regal® 99I  
Regal® 99R  
Regal® 300R  
Regal® 330  
Regal® 330R  
Regal® 400  
Regal® 400R  
Regal® SRF-S  
Sterling® R

**1333-89-7**

Abitol®-E  
**Hydroabietyl alcohol**

**1335-72-4**

**Sodium laureth sulfate**

**1335-88-2**

**Tetrachloronaphthalene**

**1336-21-6**

**Ammonium hydroxide**

**1337-33-3**

Monostearyl Citrate (MSC)  
**Stearyl citrate**

**1338-39-2**

Crill 1  
DeMULS SML  
Lumisorb™ SML  
**Sorbitan laurate**

**1338-41-6**

Crill 3  
DeMULS SMS  
Emsorb® 2505  
Lumisorb™ SMS

Polypax SMS  
**Sorbitan stearate**

**1338-43-8**

Crill 4  
DeMULS SMO  
Lumisorb™ SMO  
**Sorbitan oleate**

**1338-51-8**

**Tosylamide/formaldehyde resin**  
Uniplex 600

**1343-98-2**

Quso® G35, G38, WR55, WR83  
**Silica, hydrated**  
Sipernat® 22LS  
Sipernat® 22S  
Sipernat® 50  
Sipernat® 300DS  
Sipernat® 310  
Sipernat® 320DS

**1344-00-9**

EZA®  
**Sodium silicoaluminate**  
Zeolex® 23P

**1344-06-5**

**Sodium phosphoaluminate**

**1344-09-8**

Crystal™ 78  
Crystal™ 82  
D® Sodium Silicate  
K® Sodium Silicate  
N® Clear Sodium Silicate  
N® Sodium Silicate  
O® Sodium Silicate  
**Sodium silicate**  
Star® Sodium Silicate  
Stixso® RR

**1344-28-1**

**Alumina**  
SAFFIL High Alpha Grade  
SAFFIL Low Alpha Grade

**1344-95-2**

**Calcium silicate**  
Micro-Cel® T-26  
Micro-Cel® T-49

**1345-05-7**

**Lithopone**

**1345-25-1**

**Iron oxides (FeO)**

**1369-66-3**

**Diocetyl sodium sulfosuccinate**

**1401-55-4**

**Tannic acid**

**1429-50-1**

Aquacid-109 EX  
Dequest® 2041  
**Ethylenediaminetetra (methylene phosphonic acid)**

**1446-61-3**

Amine D®  
**Dehydroabietylamine**

**1459-93-4**

**Dimethyl isophthalate**  
Morflex® 1129

**1592-23-0**

**Calcium stearate**  
Calsan™ 50  
Calsan™ 55  
Calsan™ 65  
Cecavon® CA 31  
Cecavon® CA 350 P  
Lubracal® 48  
Lubracal® 53  
Lubracal® 60  
Nopcote® 6510 Free  
Nopcote C-104  
Nopcote® C-104-HS  
Nopcote® C-104-HS Free  
Ombrelub® CD  
Petrac® Calcium Stearate CP-11  
Petrac® Calcium Stearate CP-11 LS  
Struktol® Calcium Stearate  
Sunkote® 450  
Sunkote® 452  
Sunkote® 455

**1643-20-5**

DeMOX LAO  
**Lauramine oxide**  
Rhodamox® LO

**1658-56-6**

**Acid red 88**

**1675-54-3**

**Bisphenol A diglycidyl ether**

**1694-09-3**

**Acid violet 49**

**1717-00-6**

**Dichlorofluoroethane**

**1758-73-2**

**Thiourea dioxide**

**1804-87-1**

**Sodium 2-sulfoethyl methacrylate**

**1847-55-8**

Duponol® LS Paste  
**Sodium oleyl sulfate**

**1912-84-1**

**Stannous oleate**

**1934-21-0**

**Tartrazine**

**1936-15-8**

**Acid orange 10**

**1937-37-7**

**Direct black 38**

**2082-79-3**

Anox® PP18  
**Octadecyl 3,5-di-t-butyl-4-hydroxyhydrocinnamate**

**2128-93-0**

**p-Phenylbenzophenone**  
Trigonal® 12

**2162-74-5**

**Bis (2,6-diisopropylphenyl) carbodiimide**  
Stabilizer 7000

**2177-18-6**

Resyn® 25-1140  
Resyn® 25-1152  
**Vinyl acrylate**

**2190-04-7**

Nissan Cation SA  
**Stearamine acetate**

**2235-00-9**

V-Cap™/RC  
**N-Vinyl-2-caprolactam**

**2235-43-0**

Dequest® 2006  
**Pentasodium aminotrimethyl-ene phosphonate**

**2235-54-3**

**Ammonium lauryl sulfate**  
Paxnol ALS  
POLYSTEP® B-7  
Rhodapon® L-22

**2315-62-0**

**Octoxynol-3**

**2315-64-2**

**Octoxynol-5**

**2315-66-4**

**Octoxynol-10**

**2315-67-5**

**Octoxynol-1**

**2338-05-8**

**Ferric citrate (monohydrate)**

**2370-64-1**

**PEG-6 laurate**

**2373-38-8**

**Dihexyl sodium sulfosuccinate**

**2385-85-5**

**Perchloropentacyclodecane**

**2390-59-2**

**Basic violet 4**

**2390-60-5**

**Basic blue 7**

**2425-77-6**

**Hexyldecanol**  
Jarcot™ I-16

**2425-85-6**

Pigment red 3	<b>2717-15-9</b> TEA-oleate	Magnesium lauryl sulfate	amine)-1,3,5-triazin-2-yl] amino] benzenesulfonate
<b>2426-54-2</b> Ageflex FA-2 Diethylaminoethyl acrylate	<b>2724-58-5</b> Isostearic acid	<b>3251-23-8</b> Copper nitrate (ic) (anhyd.)	<b>4219-48-1</b> Glycol laurate
<b>2429-82-5</b> Direct brown 2	<b>2764-13-8</b> Stearamidopropyl dimethyl-2- hydroxyethyl ammonium nitrate	<b>3327-22-8</b> Chloro-2-hydroxypropyl trimonium chloride Pentonium S70 Polyquat 188	<b>4219-49-2</b> Glycol palmitate
<b>2439-10-3</b> Dodine	<b>2807-30-9</b> Ethylene glycol propyl ether	<b>3386-18-3</b> PEG-9	<b>4247-02-3</b> Isobutylparaben
<b>2439-35-2</b> Ageflex FA-1 Dimethylaminoethyl acrylate	<b>2809-21-4</b> Aquacid-105 EX Briquest® ADPA-60AW Dequest® 2010 Etidronic acid	<b>3401-73-8</b> Monawet SNO-35 Rewopol® B 2003 Tetrasodium dicarboxyethyl stearyl sulfosuccinamate	<b>4254-14-2</b> Propylene glycol (-)
<b>2452-01-9</b> Zinc laurate	<b>2814-77-9</b> 1-[(2-Chloro-4-nitrophenyl) azo]-2-naphthalenol	<b>3486-35-9</b> Zinc carbonate	<b>4254-15-3</b> Propylene glycol (+)
<b>2465-27-2</b> Basic yellow 2	<b>2867-47-2</b> Ageflex FM-1 Dimethylaminoethyl methacry- late	<b>3520-42-1</b> Acid red 52	<b>4254-16-4</b> Propylene glycol (±)
<b>2491-38-5</b> 2-Bromo-4'-hydroxyacetophe- none Busan® 90	<b>2915-53-9</b> Diocetyl maleate Octomer DOM	<b>3520-90-9</b> Octoxynol-8	<b>4403-12-7</b> Trideceth-3
<b>2492-26-4</b> Sodium MBT Sodium 2-mercaptobenzothia- zole	<b>2917-94-4</b> Sodium octoxynol-2 ethane sulfonate	<b>3522-50-7</b> Ferric citrate (anhyd.)	<b>4403-90-1</b> Acid green 25
<b>2495-27-4</b> Blemmer CMA Cetyl methacrylate	<b>2996-92-1</b> Phenyltrimethoxysilane	<b>3524-68-3</b> Pentaerythrityl triacrylate SR 444	<b>4438-16-8</b> Basic orange 1
<b>2502-46-2</b> Direct blue 6	<b>3006-15-3</b> Aerosol® MA-80 DeWET SMA-80 Dihexyl sodium sulfosuccinate	<b>3626-28-6</b> Direct green 1	<b>4477-28-5</b> p-Diazodiphenylamine sulfate
<b>2601-98-1</b> Magnesium palmitate	<b>3055-94-5</b> Laureth-3	<b>3761-53-3</b> Acid red 26	<b>4478-97-1</b> Ceteth-5
<b>2615-15-8</b> PEG-6	<b>3055-98-9</b> Laureth-8	<b>3785-34-0</b> 1,2-Bis (bromoacetoxy) ethane	<b>4484-59-7</b> Ceteth-3
<b>2624-31-9</b> Potassium palmitate	<b>3055-99-0</b> Laureth-9	<b>3794-83-0</b> Dequest® 2016 D Powder SPE 9528 Tetrasodium etidronate	<b>4500-01-0</b> Glycol oleate
<b>2634-33-5</b> 1,2-Benzisothiazolin-3-one Nipacide® BIT 10 Nipacide BIT 10A Nipacide® BIT AS Proxel® BD 20	<b>3056-00-6</b> Laureth-12	<b>3806-34-6</b> Distearyl pentaerythrityl diphosphite Weston® 618	<b>4568-28-9</b> TEA-stearate
<b>2638-43-9</b> Octoxynol-8	<b>3064-70-8</b> Bis (trichloromethyl) sulfone	<b>3913-02-8</b> Butyloctanol Jarcot™ I-12	<b>4706-78-9</b> Potassium lauryl sulfate
<b>2673-22-5</b> Aerosol® TR-70 DeWET SDTD-70 Ditridecyl sodium sulfosucci- nate Geropon® BIS/SODICO-2	<b>3068-00-6</b> 1,2,4-Butanetriol	<b>4080-31-3</b> Quaternium-15	<b>4719-04-4</b> Hydroxyethyl-s-triazine Paxgard EM
<b>2682-20-4</b> Methylisothiazolinone	<b>3088-31-1</b> Sodium laureth sulfate	<b>4086-70-8</b> Magnesium myristate	<b>4985-85-7</b> N-(3-Aminopropyl) diethanola- mine
<b>2695-37-6</b> Sodium p-styrenesulfonate Spinomar NaSS	<b>3089-11-0</b> Hexamethoxymethylmelamine Resimene® 745 Resimene® 747	<b>4129-84-4</b> Acid violet 17	<b>4986-89-4</b> Pentaerythrityl tetraacrylate SR 295
	<b>3097-08-3</b>	<b>4193-55-9</b> Disodium 2,2'-(1,2-ethenediyl) bis [5-[4-[bis (2-hydroxy- ethyl) amino]-6-(phenyl-	<b>4991-47-3</b> Zinc palmitate
			<b>5039-78-1</b> Ageflex FM-1Q75MC Dimethylaminoethyl methacry- late methyl chloride quat.
			<b>5064-31-3</b> Hampshire® NTA 150 Trilon® A-92 Trilon® A Liq.

Trisodium NTA	<b>5959-89-7</b> Sorbitan laurate	<b>6320-14-5</b> Basic red 12	<b>7173-51-5</b> Didecylidimonium chloride
<b>5117-19-1</b> PEG-8	<b>5965-83-3</b> 5-Sulfosalicylic acid dihydrate	<b>6358-29-8</b> Direct red 39	<b>7209-38-3</b> Bis(aminopropyl) piperazine
<b>5141-20-8</b> Acid green 5	<b>5968-11-6</b> Sodium carbonate (monohydrate)	<b>6358-30-1</b> Pigment violet 23 Ponolith™ Supra Violet EB Liq.	<b>7311-27-5</b> Nonoxynol-4
<b>5168-91-2</b> Ceteth-6	<b>5995-86-8</b> Gallic acid (monohydrate)	<b>6358-31-2</b> Pigment yellow 74	<b>7320-34-5</b> Kalipol™ 4KP Tetrapotassium pyrophosphate
<b>5221-17-0</b> 2,3-Dibromopropionaldehyde	<b>6001-97-4</b> Dihexyl sodium sulfosuccinate	<b>6360-07-2</b> Acid red 37	<b>7360-53-4</b> Altriform® Aluminum formate Ecco Aluminum Formate
<b>5274-61-3</b> Ceteth-2	<b>6028-57-5</b> Aluminum caprylate	<b>6381-92-6</b> Disodium EDTA (dihydrate) Versene NA	<b>7384-98-7</b> Propylene glycol dicaprylate
<b>5274-63-5</b> Ceteth-4	<b>6035-47-8</b> Sodium formaldehyde sulfoxylate (dihydrate)	<b>6419-19-8</b> Aminotrimethylene phosphonic acid Aquacid-108 EX Dequest® 2000 Dequest® 2000LC	<b>7398-69-8</b> Dimethyl diallyl ammonium chloride
<b>5274-65-7</b> Oleth-2	<b>6041-94-7</b> Pigment red 2	<b>6484-52-2</b> Ammonium nitrate	<b>7429-90-5</b> Aluminum
<b>5274-66-8</b> Oleth-3	<b>6067-86-0</b> Diatomaceous earth	<b>6683-19-8</b> BNX® 1010 Irganox® 1010 Naugard® 10 Pentaerythrityl tetrakis [3-(3',5'-di- <i>t</i> -butyl-4-hydroxyphenyl) propionate]	<b>7440-02-0</b> Nickel
<b>5274-68-0</b> DeTHOX LA-4 Laureth-4	<b>6132-02-1</b> Sodium carbonate (decahydrate)	<b>6780-13-8</b> Ethylenediamine (monohydrate)	<b>7440-21-3</b> Silicon
<b>5329-14-6</b> Sulfamic acid	<b>6140-74-5</b> Blemmer PMA Pentadecyl methacrylate	<b>6790-09-6</b> PEG-12	<b>7440-44-0</b> Actitex® Carbon, activated
<b>5333-42-6</b> Jarcol™ I-20 Octyldodecanol	<b>6144-28-1</b> Dilinoic acid Empol® 1007 Empol® 1008 Empol® 1016 Empol® 1018 Empol® 1020 Empol® 1022 Empol® 1024 Empol® 1026	<b>6834-92-0</b> Drymet® 59 Drymet® Fines Metso Beads® 2048 Sodium metasilicate	<b>7440-67-7</b> Zirconium
<b>5353-27-5</b> Oleth-5	<b>6147-53-1</b> Cobalt acetate (ous)	<b>6843-66-9</b> Diphenyldimethoxysilane	<b>7446-09-5</b> Sulfur dioxide
<b>5423-23-4</b> Guanidine phosphate, dibasic	<b>6182-11-2</b> Propylene glycol distearate	<b>6846-50-0</b> Eastman® TXIB Trimethyl-1,3-pentanediol, 2,2,4-diisobutyrate	<b>7473-98-5</b> 2-Hydroxy 2-methyl 1-phenyl 1-propanone
<b>5468-75-7</b> Octolint 150 Pigment yellow 14	<b>6245-75-6</b> β-Alanine diacetic acid	<b>6891-44-7</b> Ageflex FM-1Q80DMS Dimethylaminoethyl methacrylate dimethyl sulfate quat.	<b>7487-88-9</b> Magnabrite™ Magnesium sulfate anhydrous
<b>5703-94-6</b> Deceth-4	<b>6281-04-5</b> PEG-2 dilaurate	<b>7047-84-9</b> Aluminum stearate	<b>7491-05-2</b> Tallowtrimonium chloride
<b>5793-94-2</b> Calcium stearoyl lactylate	<b>6317-18-6</b> Amerstat® 282 Metasol® T-10WB Methylenebis (thiocyanate) Microtrol 210 Paxgard MB 10 Paxgard MBT Qemicide MBT-10 Taurine-MBT Tolcide® MBT Tolcide® MW10	<b>7049-66-3</b> Trilinoleic acid	<b>7534-94-3</b> Isobornyl methacrylate Mhoromer® BM 731
<b>5850-35-1</b> Acid blue 29		<b>7166-19-0</b> β-Bromo-β-nitrostyrene	<b>7545-23-5</b> Myristamide DEA
<b>5850-86-2</b> Acid orange 8			<b>7545-24-6</b> Palmitamide DEA
<b>5858-39-9</b> Acid red 4			<b>7558-79-4</b> Sodium phosphate dibasic anhydrous
<b>5888-33-5</b> Isobornyl acrylate SR 506			<b>7585-20-8</b> ZAA
<b>5919-74-4</b> Blemmer GLM Glyceryl methacrylate			
<b>5938-38-5</b> Sorbitan oleate			

Zirconium acetate	Albone® 70 Albone® 70 DG Hydrogen peroxide Tysul® WW 35 Tysul® WW 50 Tysul® WW 70 DG	7760-50-1 Magnesium carbonate hydroxide	7784-25-0 Ammonium alum
<b>7601-54-9</b> Sodium phosphate tribasic		<b>7761-88-8</b> Silver nitrate	<b>7784-26-1</b> Ammonium alum
<b>7631-86-9</b> Celite® 263 Celite® 321 Celite® 388 Diatomaceous earth San-Sil® BD-73 Silica, amorphous hydrated	<b>7722-88-5</b> Tetrasodium pyrophosphate	<b>7772-98-7</b> Sodium thiosulfate anhydrous	<b>7784-30-7</b> Aluminum orthophosphate
<b>7631-90-5</b> Sodium bisulfite	<b>7726-95-6</b> Bromine Stabrom® 909	<b>7773-06-0</b> Ammonium sulfamate Necco Fire Retardant 2750 Necco Fire Retardant 2758 Necco Fire Retardant 2762	<b>7786-30-3</b> Magnesium chloride
<b>7632-00-0</b> Sodium nitrite	<b>7727-21-1</b> Potassium persulfate	<b>7775-09-9</b> Sodium chlorate	<b>7788-99-0</b> Chromium potassium sulfate (dodecahydrate)
<b>7646-78-8</b> Stannic chloride (anhyd.)	<b>7727-37-9</b> Nitrogen	<b>7775-14-6</b> Blankit® Hydrolin Hydrosulfite of Soda, 70% Hydrosulfite of Soda Conc. Hydrosulphite® Sodium hydrosulfite (anhyd.)	<b>8001-20-5</b> Tung oil
<b>7647-01-0</b> Hydrochloric acid	<b>7727-43-7</b> Barium sulfate	<b>7775-27-1</b> Sodium persulfate	<b>8001-21-6</b> Sunflower (Helianthus annuus) seed oil
<b>7647-14-5</b> Sodium chloride	<b>7727-54-0</b> Ammonium persulfate	<b>7775-41-9</b> Silver fluoride	<b>8001-22-7</b> Soybean (Glycine soja) oil
<b>7647-15-6</b> Metasol® 940 Sanibrom™ 40 Sanibrom™ 45 Sodium bromide	<b>7732-18-5</b> Water	<b>7778-18-9</b> Calcium sulfate USG® Paper Filler #1	<b>8001-23-8</b> Safflower (Carthamus tinctorius) oil
<b>7651-99-2</b> Dequest® 2046 Pentasodium ethylene diamine tetramethylene phosphonate	<b>7757-81-5</b> Sodium sorbate	<b>7778-54-3</b> Calcium hypochlorite Induclor® Pittclor®	<b>8001-25-0</b> Olive (Olea europaea) oil
<b>7664-38-2</b> Degal S Phosphoric acid	<b>7757-82-6</b> Sodium sulfate	<b>7778-73-6</b> Potassium pentachlorophenate	<b>8001-26-1</b> Linseed (Linum usitatissimum) oil
<b>7664-41-7</b> Ammonia	<b>7757-83-7</b> Sodium sulfite	<b>7779-27-3</b> Hexahydro-1,3,5-triethyl-s-triazine	<b>8001-29-4</b> Cottonseed (Gossypium) oil
<b>7664-93-9</b> Sulfuric acid	<b>7758-11-4</b> Potassium phosphate dibasic (anhyd.)	<b>7779-86-4</b> Zinc hydrosulfite	<b>8001-30-7</b> Corn (Zea mays) oil
<b>7681-38-1</b> Sodium bisulfate	<b>7758-19-2</b> Adox 3125 Adox 8125 C2® Sodium Chlorite Drewchlor® Sodium chlorite Sodium Chlorite Sol'n. 50, Tech. Sodium Chlorite, Tech.	<b>7782-99-2</b> Sulfurous acid	<b>8001-31-8</b> Coconut (Cocos nucifera) oil
<b>7681-52-9</b> Adeka Hypote Sodium hypochlorite	<b>7758-29-4</b> Empiphos STP Empiphos STP/1L Empiphos STP/1P Empiphos STP/2P Empiphos STP/D Empiphos STP/D16 Empiphos STP/DMST Empiphos STP/E Empiphos STP/L16 Empiphos STP/M Empiphos STP/MST Empiphos STP/N Empiphos STP/P Pentasodium triphosphate	<b>7783-06-4</b> Hydrogen sulfide	<b>8001-39-6</b> Japan (Rhus succedanea) wax Ross Japan Wax
<b>7681-57-4</b> Sodium metabisulfite		<b>7783-18-8</b> Ammonium thiosulfate	<b>8001-54-5</b> Alkaquat® DMB-451-50, DMB-451-80 Benzalkonium chloride
<b>7704-34-9</b> Sulfur		<b>7783-20-2</b> Ammonium sulfate	<b>8001-69-2</b> Cod liver oil
<b>7705-08-0</b> Ferric chloride		<b>7783-28-0</b> Ammonium phosphate, dibasic	<b>8001-75-0</b> Ceresin Koster Keunen Ceresine Ross Ceresine Wax
<b>7722-76-1</b> Ammonium phosphate	<b>7758-98-7</b> Cupric sulfate anhydrous	<b>7784-24-9</b> Potassium alum dodecahydrate	<b>8001-78-3</b> Caster Wax A Hydrogenated castor oil
<b>7722-84-1</b> Albone® 35 Albone® 50	<b>7759-02-6</b> Strontium sulfate		<b>8001-79-4</b> Castor (Ricinus communis) oil
			<b>8002-03-7</b> Peanut (Arachis hypogaea) oil



- 8002-05-9**  
Petroleum distillates
- 8002-09-3**  
Pine (*Pinus palustris*) oil
- 8002-13-9**  
Rapeseed (*Brassica campestris*) oil
- 8002-26-4**  
Tall oil
- 8002-33-3**  
Cuirol® RZ 80  
Freedom SCO-50  
Freedom SCO-70  
Freedom SCO-75  
Leukonol LBA-2  
Norfox® C-75  
Norfox® Sulfated Castor Oil #75  
Sulfated castor oil
- 8002-43-5**  
Lecithin  
Lipotin SB  
TLV 68-SB  
TLV 68-UB  
TLV 70-SB  
TLV 70-UB  
Yelkin® DS  
Yelkin® SS  
Yelkin® T  
Yelkin® TS
- 8002-50-4**  
Menhaden oil
- 8002-53-7**  
Luwax® E  
Luwax® LG  
Luwax® LGE  
Montan wax  
Ross Montan Wax
- 8002-74-2**  
Koster Keunen Paraffin Wax  
Loxiol® G 23  
Loxiol® HOB 7169  
Microlube™ N  
MP-12  
MP-22  
MP-22C  
MP-22VF  
MP-22XF  
MP-26  
MP-26VF  
MP-28C  
Octowax 321  
Octowax 695  
Paracol® 404G  
Paracol® 802A  
Paracol® 802N  
Paracol® 2370  
Paraffin  
Sequapel® 417  
Sequapel® NS  
Shamrock Hydrocer 145  
Shamrock Hydrocer EP 91  
Shamrock Neptune 968  
Shamrock S-400 N1  
Shamrock S-400 N5
- Shamrock S-400 SP5  
Suntorl WP  
Synthetic wax  
TH-44  
Vestowax® C 60  
Vybar® 103  
Vybar® 260
- 8002-75-3**  
Palm (*Elaeis guineensis*) oil
- 8003-69-8**  
Direct black 80
- 8003-88-1**  
Acid orange 51
- 8004-92-0**  
Acid yellow 3
- 8004-99-7**  
Acid blue 20
- 8005-44-5**  
Cetearyl alcohol  
Loxiol® G 53
- 8006-40-4**  
Beeswax (white)
- 8006-44-8**  
Candelilla (*Euphorbia cerifera*) wax  
Candelilla Wax SP 50  
Candelilla Wax SP 75  
Candelilla Wax SP 76  
Candelilla Wax SP 78 Prime  
Quality Crude  
Candelilla Wax SP 99  
Candelilla Wax SP 350  
Candelilla Wax Fine  
Koster Keunen Candelilla  
Ross Candelilla Wax
- 8006-54-0**  
Lanolin (anhyd.)
- 8006-64-2**  
Turpentine
- 8007-43-0**  
Crill 43  
Sorbitan sesquioleate
- 8008-20-6**  
Deodorized kerosene  
Kerosene  
PD-23
- 8008-74-0**  
Sesame (*Sesamum indicum*) oil
- 8009-03-8**  
Penreco Red  
Petrolatum (NF)  
Petrolatum RPB  
Tech Pet F™
- 8012-89-3**  
Beeswax (yellow)
- 8012-95-1**  
Mineral oil
- 8013-05-6**  
Potassium castorate
- 8013-06-7**  
Sodium castorate
- 8015-86-9**  
Carnauba (*Copernicia cerifera*) wax  
Carnauba Wax SP 8  
Carnauba Wax SP 59-2  
Carnauba Wax SP 63  
Carnauba Wax SP 63 NF  
Carnauba Wax SP 64 (Extra Light)  
Carnauba Wax SP 135  
Carnauba Wax SP 142  
Carnauba Wax SP 200  
Carnauba Wax Coarse  
Carnauba Wax Fine  
Carnauba Wax Hard  
Carnauba Wax Soft  
Carnauba Wax Superfine  
Koster Keunen Carnauba  
Ross Carnauba Wax  
Shamrock Hydrocer EC 98  
Shamrock S-Nauba 5021
- 8016-14-6**  
Hydrogenated fish oil
- 8016-70-4**  
Hydrogenated soybean oil
- 8020-83-5**  
Britol® 6NF  
Britol® 7NF  
Britol® 9NF  
Britol® 20USP  
Britol® 35USP  
Britol® 50USP  
Mineral oil (wh.)
- 8020-84-6**  
Lanolin (hyd.)
- 8021-55-4**  
Koster Keunen Ozokerite  
Ozokerite
- 8021-56-5**  
Ross Palm Wax No. 765  
Ross Palm Wax No. 1475  
Ross Palm Wax No. 1581
- 8021-99-6**  
Bone black  
Cosmic Black 8-S  
Cosmic Black AP  
Cosmic Black D-2  
Ebonex SC-5
- 8023-79-8**  
Palm (*Elaeis guineensis*) kernel oil
- 8023-89-0**  
Elemi gum
- 8027-32-5**  
Penreco Amber  
Penreco Blond  
Penreco Cream  
Penreco Lily  
Penreco Regent  
Penreco Royal  
Penreco Snow  
Penreco Super  
Penreco Ultima  
Petrolatum (USP)
- 8029-76-3**  
Hydroxylated lecithin
- 8030-12-4**  
Hydrogenated tallow
- 8030-30-6**  
Naphtha
- 8030-76-0**  
Lecithin
- 8030-78-2**  
Arquad® T-27W  
Tallowtrimonium chloride
- 8032-32-4**  
Shell VM&P Naphtha HT  
VM&P naphtha
- 8033-29-2**  
Hydrogenated palm oil
- 8037-14-7**  
Coconut acid
- 8039-09-6**  
PEG-75 lanolin
- 8040-05-9**  
Hydrogenated lard glyceride
- 8042-47-5**  
Drakeol® 9  
Drakeol® 19  
Drakeol® 35  
Mineral oil (wh.)  
Penreco 2259 Oil  
Penreco 2260 Oil
- 8045-34-9**  
Pentaerythrityl tetrastearate
- 8050-09-7**  
Acintol® R Type S  
Arizona DR-22  
DynaCoat™ XA  
DynaCoat™ XC  
Dynakoll  
Malros®  
NeuRoz® 426  
NeuRoz® 540  
NeuRoz® 700  
NeuRoz® XC-7  
Neutros®  
Neutros® Extra  
NovaFlo® 50  
NovaFlo® HW  
NovaPlus®  
NovaPlus® HS

NovaSize, Dark Fortified  
 NovaSize, Dark Unfortified  
 NovaSize, Pale Fortified  
 NovaSperte™  
 Plasmine® N-750-P  
 Plasmine® PLH-50  
 Plasmine® PLH-55  
 Polystix® 90 Resin  
 Resin 731D  
 Roscol®  
**Rosin**  
 Sugum 300 NS  
 Sugum 300 WR  
 Sugum 500  
 Sugum 700  
 Super 50  
 Uni-Tac® 70

**8050-13-3**

Hercolyn® D  
**Methyl hydrogenated rosinate**

**8050-15-5**

**Methyl hydrogenated rosinate**

**8050-26-8**

**Pentaerythrityl rosinate**  
 Pentalyn® 856  
 Pentalyn® A  
 Zonester® 100

**8050-31-5**

Aquatac® 6085  
**Glyceryl rosinate**

**8050-81-5**

Antifoam F-1  
 Dow Corning® Antifoam A  
 Compd.  
 Dow Corning® Antifoam C  
 Emulsion  
**Simethicone**

**8051-30-7**

**Cocamide DEA**

**8051-52-3**

**PEG-15 cocamine**

**8052-10-6**

**Rosin**  
 Westvaco® Rosin T

**8052-14-0**

**Turpentine**

**8052-42-4**

**Asphalt**

**8052-48-0**

Norfox® 92 Granules  
**Sodium tallowate**

**8052-50-4**

**Sodium tallow sulfate**

**8061-51-6**

Dyqex®  
 Lignosite® 260  
 Lignosite® 431  
 Lignosite® 458  
 Lignosite® 823

Marcarb N-1  
 Marasperse 52 CP  
**Sodium lignosulfonate**

**8061-52-7**

**Calcium lignosulfonate**

**8062-15-5**

**Lignin sulfonate**

**8063-08-9**

**Microcrystalline wax**

**8063-94-3**

**Polyvinyl chloride**

**8065-81-4**

**Cetoleth**  
 Cetoleth-2  
 Cetoleth-3  
 Cetoleth-6  
 Cetoleth-8  
 Cetoleth-10  
 Cetoleth-13  
 Cetoleth-25  
 Disponil® O 250  
 Teric™ 17A2  
 Teric™ 17A3  
 Teric™ 17A6  
 Teric™ 17A8  
 Teric™ 17A10  
 Teric™ 17A13  
 Teric™ 17A25

**9000-07-1**

**Carrageenan (Chondrus crispus)**

**9000-16-2**

**Dammar**

**9000-21-9**

**Furcelleran**

**9000-28-6**

Granular Gum Ghatti #1  
**Gum ghatti**  
 Powdered Gum Ghatti #1  
 Powdered Gum Ghatti #2  
 Staform P

**9000-30-0**

**Guar (Cyanopsis tetragono-loba) gum**  
 Jaguar® 2100®  
 Jaguar® CB-11  
 Jaguar® CB-123  
 Jaguar® CP-13  
 Liporol SP  
 Lycoid® 260  
 Powdered Guar Gum Type A  
 Powdered Guar Gum Type AA  
 Powdered Guar Gum Type B  
 Powdered Guar Gum Type BB  
 Powdered Gum Guar NF Type  
 80 Mesh B/T  
 Powdered Gum Guar Type 140  
 Mesh B/T  
 Powdered Gum Guar Type ECM  
 Powdered Gum Guar Type M  
 Powdered Gum Guar Type MM  
 FCC

Powdered Gum Guar Type MM  
 (HV)  
 Powdered Gum Guar Type  
 MMM 1/2  
 Powdered Gum Guar Type  
 MMW  
 TIC Pretested® Guar Gum  
 TICOLV

**9000-36-6**

**Karaya (Sterculia urens) gum**  
 Karaya Gum #1 FCC  
 Powdered Gum Karaya  
 Superfine #1 FCC  
 Powdered Gum Karaya  
 Superfine XXXX FCC

**9000-40-2**

**Locust bean (Ceratonia siliqua) gum**  
 Locust Bean Gum Speckless  
 Type D-200  
 Locust Bean Gum Type A-100  
 Locust Bean Gum Type A-250  
 Locust Bean Gum Type A-270  
 Powdered Locust Bean Gum  
 Type D-200  
 Powdered Locust Bean Gum  
 Type D-300  
 Powdered Locust Bean Gum  
 Type P-100  
 Powdered Locust Bean Gum  
 Type PP-100

**9000-57-1**

**Sandarac (Callitris quadrivalvis) gum**

**9000-59-3**

**Shellac**

**9000-70-8**

**Gelatin**

**9000-71-9**

**Casein**  
**Milk protein**

**9000-90-2**

**α-Amylase**  
 Vanzyme® 191  
 Vanzyme® Powd.

**9000-92-4**

Amizyme DTX-11  
 Amizyme TX-8  
**Amylase**  
 Tenase® 1200

**9002-83-9**

**Chlorotrifluoroethylene polymer**  
 Halocarbon Grease 25-10M  
 Halocarbon Grease 25-20M  
 Halocarbon Grease X90-10M  
 Halocarbon Oil 0.8  
 Halocarbon Oil 1.8  
 Halocarbon Oil 4.2  
 Halocarbon Oil 6.3  
 Halocarbon Oil 27  
 Halocarbon Oil 56  
 Halocarbon Oil 95

Halocarbon Oil 200  
 Halocarbon Oil 400  
 Halocarbon Oil 700  
 Halocarbon Oil 1000N  
 Halocarbon Wax 40  
 Halocarbon Wax 600  
 Halocarbon Wax 1200  
 Halocarbon Wax 1500

**9002-84-0**

Krytox® DF/W  
**Polytetrafluoroethylene**

**9002-85-1**

**Polyvinylidene chloride**

**9002-86-2**

**Polyvinyl chloride**

**9002-88-4**

A-C® 6  
 A-C® 6A  
 A-C® 7  
 A-C® 7A  
 A-C® 8  
 A-C® 8A  
 A-C® 9, 9A, 9F  
 A-C® 15  
 A-C® 16  
 A-C® 617  
 A-C® 617A  
 A-C® 712  
 A-C® 715  
 A-C® 725  
 A-C® 735  
 A-C® 1702  
 ACumist® B-6  
 ACumist® B-9  
 ACumist® B-12  
 ACumist® B-18  
 ACumist® C-5  
 ACumist® C-9  
 ACumist® C-12  
 ACumist® C-18  
 ACumist® C-30  
 Alathon® L 5845  
 Alathon® L 5845-1  
 Aqua Superslip 6550  
 Chevron HiD 9660  
 Chevron PE 4517  
 Eastacoat 808P  
 Epolene® C-10  
 Epolene® C-13  
 Epolene® C-14  
 Epolene® C-15  
 Epolene® C-15P  
 Epolene® C-16  
 Epolene® C-17  
 Epolene® C-18  
 Epolene® N-10  
 Epolene® N-10P  
 Epolene® N-11  
 Epolene® N-14  
 Epolene® N-20  
 Epolene® N-21  
 Epolene® N-34  
 Hoechst Wax PED 521  
 Microthene® FA 700-00  
 Microthene® FA 709-00  
 Microthene® FN 500-00  
 Microthene® FN 502-18  
 Microthene® FN 510-00

Microthene® FN 514-00  
 Microthene® FN 517-00  
 Microthene® FN 519-00  
 Microthene® MN 701-00  
 Microthene® MN 710-20

Nipolon  
 Nipolon-L  
 Nipolon®-Z  
 Nopcole® 3560  
 Novapol® HD-2100-A  
 Novapol® LC-0522-A  
 Novapol® LC-0717-A  
 Novapol® LF-0717-A  
 Novapol® PD-2115-A  
 Novapol® PF-Y821-BP  
 Novapol® PF-Y821-CP  
 Novapol® TF-Y534-IP  
 Novapol® TF-Y822-BP  
 Novapol® TF-Y822-CP  
 Novapol® TR-0338-U  
 Novapol® TR-0338-UG  
 Novapol® TR-0535-U  
 Novapol® TR-0535-UG  
 Octowax 518  
 Petrothene® NA 204-000  
 Petrothene® NA 214-000  
 Petrothene® NA 216-000  
 Petrothene® NA 217-000  
 Petrothene® NA 219-000  
 Petrothene® NA 957

**Polyethylene**  
**Polyethylene, high-density**  
**Polyethylene, linear low density**

**Polyethylene, low-density**  
**Polyethylene, medium density**  
**Polyethylene, ultrahigh m.w.**  
**Polyethylene wax**

Polysset® 2015  
 Polywax® 500  
 Polywax® 600  
 Polywax® 655  
 Polywax® 850  
 Polywax® 1000  
 Polywax® 2000  
 Polywax® 3000  
 Rexene® PE 5000 Series  
 Sclair® 11B4  
 Sclair® 11P2  
 Sclair® 11P3  
 Sclair® 11P4  
 Sclair® 58G (High Gloss)  
 Sclair® 61C  
 Sclair® 69A  
 Sclair® 2607  
 Sclair® 2607-UV10  
 Sclair® 2908, 2908-UV8A  
 Sclair® 2909  
 Sclair® 8107  
 Sclair® 8107 UV8D, 8107G UV8D  
 Sclair® 8306 UV8D, 8306G UV8D  
 Sclair® 8405 UV8D, 8405G UV8D  
 Shamrock Neptune 5038  
 Shamrock Neptune I N1  
 Shamrock Neptune I SP5  
 Shamrock S-379 H  
 Shamrock S-379 N  
 Shamrock S-379 N3  
 Shamrock S-381 N1

Shamrock S-381 N5  
 Shamrock S-394 N1  
 Shamrock S-394 N5  
 Shamrock S-394 SP5  
 Shamrock S-395 N2  
 Shamrock S-395 N5  
 Shamrock S-395 SP5  
 Shamrock S-483  
 Shamrock Taber Tiger 5512  
 Struktol® PE H-100  
 Struktol® PE H-100 PL  
 Sunkem® 301  
 Sunkem® 329  
 Suntori P-40  
 Tivar®-1000  
 1900 UHMW Polymers  
 Utec® 3040  
 Utec® 6540  
 Vestolen® A5016  
 Vestowax® AO 2733

### 9002-89-5

Airvol® 103  
 Airvol® 107  
 Airvol® 125  
 Airvol® 165  
 Airvol® 165SF  
 Airvol® 203S  
 Airvol® 305  
 Airvol® 321  
 Airvol® 325  
 Airvol® 350  
 Airvol® 805  
 Airvol® 823  
 Airvol® 840  
 Airvol® MH-82  
 Airvol® MM-14  
 Airvol® MM-51  
 Airvol® MM-81  
 Bovlon  
 Elvanol® 50-42  
 Elvanol® 51-05  
 Elvanol® 52-22  
 Elvanol® 70-06  
 Elvanol® 71-30  
 Elvanol® 75-15  
 Elvanol® 85-30  
 Elvanol® 85-82  
 Elvanol® 90-50  
 Elvanol® HV  
 Gohsenal  
 Gohsenal  
 Gohseran  
 Hi Selon  
 Mewlon  
**Polyvinyl alcohol (super and fully hydrolyzed)**  
 Rhodiviol® 4/125  
 Unisize® HA-25

### 9002-92-0

DeTHOX LA-23  
 Genapol® 26-L-23  
**Laureth-3**  
**Laureth-4**  
**Laureth-8**  
**Laureth-9**  
**Laureth-12**  
**Laureth-23**  
 Nonionic L-4  
 Nonionic L-12  
 Nonionic L-23

Rhodasurf® L-25  
 Volpo L3

### 9002-93-1

Alkasurf® CA-520  
 Alkasurf® CA-620  
 Chemax OP-10  
 Chemax OP-30/70  
 DelONIC OPE-5  
 DelONIC OPE-7.5  
 DelONIC OPE-10  
 DelONIC OPE-12  
 DelONIC OPE-30  
 DelONIC OPE-40  
 Disponil® AAP 307  
 Disponil® AAP 436  
 Hyonic® OP-100  
 Igepal® CA-520  
 Igepal® CA-620  
 Igepal® CA-630  
 Igepal® CA-880  
 Igepal® CA-887  
 Igepal® CA-890  
 Igepal® CA-897  
 Macol® OP-10 SP  
 Nonipax OP 10  
**Octoxynol**  
**Octoxynol-1**  
**Octoxynol-3**  
**Octoxynol-5**  
**Octoxynol-7**  
**Octoxynol-8**  
**Octoxynol-9**  
**Octoxynol-10**  
**Octoxynol-11**  
**Octoxynol-12**  
**Octoxynol-13**  
**Octoxynol-16**  
**Octoxynol-20**  
**Octoxynol-25**  
**Octoxynol-30**  
**Octoxynol-33**  
**Octoxynol-40**  
**Octoxynol-70**  
 POLYSTEP® OP-9  
 POLYSTEP® OP-3070  
 POLYSTEP® OP-4070  
 Serdox® NOP 9  
 Surfonic® OP-15  
 Surfonic® OP-35  
 Surfonic® OP-50  
 Surfonic® OP-70  
 Surfonic® OP-100  
 Surfonic® OP-120  
 Surfonic® OPB-167  
 Surfonic® OPB-407  
 Synperonic OP7.5  
 Synperonic OP8  
 Synperonic OP10  
 Synperonic OP10.5  
 Synperonic OP11  
 Triton® X-15  
 Triton® X-35  
 Triton® X-45  
 Triton® X-100  
 Triton® X-102  
 Triton® X-114  
 Triton® X-120  
 Triton® X-165-70%  
 Triton® X-305-70%  
 Triton® X-405-70%  
 Trycol® 6975

Trycol® 6984

### 9002-98-6

Catofast® GM  
 Catofast® NB-DF  
 Catofast® NB-PD  
 Catofast® PL  
**PEI-15**  
**PEI-30**  
**PEI-275**  
**PEI-700**  
**PEI-1000**  
**PEI-1400**  
**PEI-1500**  
**PEI-1750**  
**PEI-2500**  
**Polyethylenimine**  
 Polymin® PL  
 Polymin® PR 971 L  
 Polymin® SKA  
 Polymin® SNA

### 9003-01-4

Acriflow 050-S  
 Acritamer® 501E  
 Acritamer® 504E  
 Acumer® 1020  
 Acumer® 1510  
 Alcogum® L-15  
 Alcosperse® 404  
**Carbomer**  
**Carbomer 910**  
**Carbomer 934**  
**Carbomer 934P**  
**Carbomer 940**  
**Carbomer 941**  
 Carbopol® 907  
 Carbopol® 910  
 Carbopol® 934  
 Carbopol® 934P  
 Carbopol® 940  
 Carbopol® 941  
 Carbopol® 971P  
 Carbopol® 974P  
 Carbopol® 980  
 Carbopol® 981  
 Carbopol® 2984  
 Carbopol® 5984  
 Good-Rite® K-702 Polymer  
 Good-Rite® K-732 Polymer  
 Good-Rite® K-752 Polymer  
 Orlene® 1340  
**Polyacrylic acid**

### 9003-03-6

**Ammonium polyacrylate**  
 Dumasperse 543  
 SER-AD® FX 504

### 9003-04-7

Ablusol SEP40  
 Acriflow 041-S  
 Acriflow 141 S  
 Acriflow 241-M  
 Acriflow 241-SA  
 Acumer® 1000  
 Acumer® 1100  
 Acumer® 1110  
 Acumer® 9000  
 Acumer® 9141  
 Acumer® 9300  
 Acumer® 9400

Acumer® 9460  
 Alcosperse® 149  
 Alcosperse® 602-N  
 Aquaquest 2130  
 Calnox® 214  
 Calnox® 214 DN  
 Colloid™ 202  
 Darvan® 811  
 Daxad® 37LN7  
 Daxad® 37LN10-35  
 Dumasperse 540  
 Good-Rite® K-739 Polymer  
 Good-Rite® K-759 Polymer  
 Good-Rite® K-7058D Polymer  
 Gradol 400  
 Lastaron 891  
 Nopcosperse® 44  
 Polysynth RRE  
 Polywet® ND-2  
 Polywet® ND-35  
 Polywet® WTC 6512  
 Polywet® Z1766  
 Serpol QPA 160  
**Sodium polyacrylate**

**9003-05-8**

Ambond® 1505  
 Ambond® 1590  
 Cartaretin® 5CP Powd.  
 Cartaretin® 10AE Liq.  
 Cartaretin® 10AP Powd.  
 Cartaretin® 10CE Liq.  
 Cartaretin® 10CP Powd.  
 Cartaretin® 20AE Liq.  
 Cartaretin® 20AP Powd.  
 Cartaretin® 20CE Liq.  
 Cartaretin® 30AE Liq.  
 Cartaretin® 30AP Powd.  
 Cartaretin® 30CP Powd.  
 Cartaretin® 40CE Liq.  
 Cydrain® 145 Drainage Aid  
 Eldorado PA-755  
 Floclair® DA-7  
 Floclair® DA-15  
 Floclair® DA-30  
 Floclair® DK-20  
 Floclair® DK-40  
 Floclair® DK-65  
 Floclair® DK-65 H  
 Floclair® DK-65 L  
 Floclair® DK-65 S  
 Floclair® DK-90  
 Floclair® VP 3678  
 MPD-7  
 MS-290  
 MSG-329  
**Polyacrylamide**  
 Polyflex® 300 Retention Aid  
 Polymin® KE 78 PF  
 Polymin® KE 84  
 Polymin® PR 266 L  
 Polymin® PR 973  
 Polymin® PR 8578  
 QEMI DSR 8117A  
 Qemifloc CEPG 164  
 Torez Resin P-215-A  
 Tramfloc™ 290

**9003-06-9**

**Acrylic acid/acrylamide copolymer**

**9003-07-0**

Eastone™ 147 Wax  
 Microthene® FP 800-00  
**Polypropylene**

**9003-08-1**

GMF-B  
**Melamine-formaldehyde resin**

**9003-11-6**

Adekanol 25R-1  
 Adekanol 25R-2  
 Adekanol F-68  
 Adekanol F-88  
 Adekanol F-108  
 Adekanol F-127  
 Adekanol L-31  
 Adekanol L-34  
 Adekanol L-44  
 Adekanol L-61  
 Adekanol L-62  
 Adekanol L-64  
 Adekanol L-71  
 Adekanol L-72  
 Adekanol L-101  
 Adekanol L-121  
 Adekanol L-122  
 Adekanol P-84  
 Adekanol P-85  
 Adekanol P-103  
 Adekanol TR-701  
 Adekanol TR-702  
 Adekanol TR-704  
 Adekanol TR-913  
 AntaroX® 17-R-2  
 AntaroX® 25-R-2  
 AntaroX® 31-R-1  
 AntaroX® EGE 25-2  
 AntaroX® L-64  
 AntaroX® PGP 23-7  
 Chemal BP 261  
 Chemal BP-262  
 Chemal BP-2101  
 Crisanol FA-260  
 Crisanol FA-660  
**EO/PO block polymer or copolymer**  
 Etopol 31-L  
 Etopol 61-L  
 Etopol 62-L  
 Etopol 62LF-L  
 Etopol 63-L  
 Etopol 81-L  
 Etopol 101-L  
 Imbentin-PAP/6100  
 Imbentin-PAP/6200  
 Imbentin-PAP/10200  
**Meroxapol 105**  
**Meroxapol 108**  
**Meroxapol 171**  
**Meroxapol 172**  
**Meroxapol 174**  
**Meroxapol 178**  
**Meroxapol 251**  
**Meroxapol 252**  
**Meroxapol 254**  
**Meroxapol 255**  
**Meroxapol 258**  
**Meroxapol 311**  
**Meroxapol 312**  
**Meroxapol 314**  
 Nonionic 1017-R

Nonionic 1025-R  
 Nonionic 1035-L  
 Nonionic 1044-L  
 Nonionic 1061-L  
 Nonionic 1062-L  
 Nonionic 1064-L  
 Nonionic 1068-F  
 Nonionic 1077-F  
 Nonionic 1087-F  
 Nonionic 1088-F  
 Nonionic 1108-F  
 Nonionic 1127-F  
 Nonionic 2017-R  
 Nonionic 2025-R  
 Nonionic 4017-R  
 Nonionic 4025-R  
 Nonionic 5025-R  
 Nonionic 8017R  
 Nonionic 8025R  
**PEG/PPG-17/6 copolymer**  
**PEG/PPG-35/9 copolymer**  
**PEG/PPG-125/30 copolymer**  
 Pluronic® 10R5  
 Pluronic® 17R2  
 Pluronic® 25R2  
 Pluronic® F38  
 Pluronic® F68  
 Pluronic® F68LF  
 Pluronic® F77  
 Pluronic® F87  
 Pluronic® F88  
 Pluronic® F98  
 Pluronic® F108  
 Pluronic® F127  
 Pluronic® L10  
 Pluronic® L31  
 Pluronic® L35  
 Pluronic® L43  
 Pluronic® L44  
 Pluronic® L61  
 Pluronic® L62  
 Pluronic® L62D  
 Pluronic® L62LF  
 Pluronic® L64  
 Pluronic® L81  
 Pluronic® L92  
 Pluronic® L101  
 Pluronic® L121  
 Pluronic® P84  
 Pluronic® P85  
 Pluronic® P103  
 Pluronic® P104  
 Pluronic® P105  
 Pluronic® P123  
**Poloxamer 101**  
**Poloxamer 105**  
**Poloxamer 108**  
**Poloxamer 122**  
**Poloxamer 123**  
**Poloxamer 124**  
**Poloxamer 181**  
**Poloxamer 182**  
**Poloxamer 183**  
**Poloxamer 184**  
**Poloxamer 185**  
**Poloxamer 188**  
**Poloxamer 212**  
**Poloxamer 215**  
**Poloxamer 217**  
**Poloxamer 231**  
**Poloxamer 234**  
**Poloxamer 235**

**Poloxamer 237**  
**Poloxamer 238**  
**Poloxamer 282**  
**Poloxamer 284**  
**Poloxamer 288**  
**Poloxamer 331**  
**Poloxamer 333**  
**Poloxamer 334**  
**Poloxamer 335**  
**Poloxamer 338**  
**Poloxamer 401**  
**Poloxamer 402**  
**Poloxamer 403**  
**Poloxamer 407**  
 Poly-Tergent® E-17A  
 Poly-Tergent® E-17B  
 Poly-Tergent® E-20B  
 Poly-Tergent® E-25B  
 Poly-Tergent® P-32A  
 Surfonic® POA-25R2  
 Surfonic® POA-L42  
 Surfonic® POA-L44  
 Surfonic® POA-L61  
 Surfonic® POA-L62  
 Surfonic® POA-L62LF  
 Surfonic® POA-L64  
 Surfonic® POA-L81  
 Surfonic® POA-L101  
 Surfonic® POA-LF1  
 Surfonic® POA-LF2  
 Surfonic® POA-LF5  
 Surfonic® POA-S38  
 Synperonic PE/L61  
 Synperonic PE/L62LF  
 Synperonic PE/L81  
 Synperonic PE/L101  
 Synperonic PE/L121  
 Ucon® 75-H-450  
 Ucon® 75-H-1400  
 Ucon® 75-H-9500  
 Ucon® 75-H-90000  
 Ukanil 3500  
 Ukanil 3501

**9003-13-8**

**PPG-5 butyl ether**  
**PPG-9 butyl ether**  
**PPG-15 butyl ether**  
**PPG-18 butyl ether**  
**PPG-22 butyl ether**  
**PPG-24 butyl ether**  
**PPG-30 butyl ether**  
**PPG-33 butyl ether**  
**PPG-40 butyl ether**  
**PPG-53 butyl ether**  
 Ucon® LB-65  
 Ucon® LB-135  
 Ucon® LB-285  
 Ucon® LB-385  
 Ucon® LB-525  
 Ucon® LB-625  
 Ucon® LB-1145  
 Ucon® LB-1715  
 Ucon® LB-3000

**9003-17-2**

**Polybutadiene**

**9003-18-3**

**Butadiene/acrylonitrile copolymer**  
 Darex® 110L

- Hycar® 1552  
Hycar® 1561  
Hycar® 1562  
Hycar® 1571  
Hycar® 1572  
Hycar® 1572X64  
Perbunan N Latex 2818  
Perbunan N Latex 3310  
Perbunan N Latex 3415 M  
Perbunan N Latex T  
Perbunan N Latex VT
- 9003-20-7**  
Daratak® 56L  
Daratak® 61L  
Daratak® 65L  
Daratak® RP2000  
Daratak® SP1012  
Everflex® GT  
Flexbond® 149  
Flexbond® 150  
Flexbond® 153  
Flexbond® 165  
Plyamul® 40305-00  
Plyamul® 40315-00  
Plyamul® 40351-00  
Plyamul® 40354-00  
Plyamul® 40359-00  
Plyamul® 97825-00  
Plyamul® 97897-00  
**Polyvinyl acetate**  
Resyn® 25-1103  
Resyn® 25-1114  
Resyn® 25-1120  
Resyn® 25-1190  
Resyn® 1090  
Sunbond® 936  
Synthemul® 447  
Synthemul® 883  
Synthemul® 40503-00  
Synthemul® 97883-01  
Vancryl® 650  
Vinac® 285  
Vinac® 828  
Vinac® 828M  
Vinac® 884  
Vinac® 1000  
Vinac® A50  
Vinac® H 60  
Vinac® M 503  
Vinac® XX-211  
Vinac® XX-241  
Vinac® Z 50
- 9003-22-9**  
Airflex® CF50  
Ucar® VAGD  
Ucar® VAGH  
Ucar® VMCA  
Ucar® VMCC  
Ucar® VMCH  
**Vinyl chloride/vinyl acetate copolymer**
- 9003-27-4**  
Polyisobutene
- 9003-28-5**  
Polybutene
- 9003-29-6**  
Amoco® H-15
- Amoco® L-14  
Amoco® L-50  
Indopol® H-100  
Indopol® H-1500  
Indopol® L-10  
**Polybutene**
- 9003-31-0**  
Polyisoprene
- 9003-32-1**  
Polyethylacrylate
- 9003-35-4**  
Phenolic resin
- 9003-39-8**  
Luviskol® K12  
Luviskol® K17  
Luviskol® K30  
Luviskol® K60  
Luviskol® K80  
Luviskol® K90  
Peregal® ST  
**PVP**  
PVP K-15  
PVP K-15 Sol'n.  
PVP K-30  
PVP K-60 Sol'n.  
PVP K-90  
PVP K-90 Sol'n.  
PVP K-120
- 9003-53-6**  
Lytron® 2203  
**Polystyrene**
- 9003-55-8**  
Ameripol Synpol 1013  
Bayer SBR Latex 310 C  
Darex® 620L  
Good-Rite® 2570X59  
Pliolite® S-5D  
Pliolite® S-5E  
Ricon 100  
**Styrene/butadiene polymer**  
Styrofan®  
Tylac® 037  
Tylac® 692  
Tylac® 757  
Tylac® 820  
Tylac® 936  
Tylac® 979-RG  
Tylac® 68217-00  
Tylac® 97936-00
- 9003-56-9**  
**Acrylonitrile/butadiene/styrene copolymer**  
Hycar® 1577  
Hycar® 1578X1  
SNAP 2042  
SNAP 2048  
SNAP 2054  
Styronal™ NX 4489 X  
Styronal™ NX 4680
- 9003-62-7**  
Polyvinyl butyral
- 9003-74-1**  
Nevtac® 10°
- Nevtac® 80  
Nevtac® 100  
Nevtac® 115  
Super Nevtac® 99  
**Terpene resin**  
Zonarez® 1040  
Zonarez® 1085  
Zonarez® 1115T  
Zonarez® 1125  
Zonarez® 1135  
Zonarez® 7115  
Zonarez® 7115 LT  
Zonarez® 7125  
Zonarez® 7125 LT  
Zonarez® A-25  
Zonarez® B-115  
Zonarez® B-125  
Zonarez® M-1115  
Zonarez® T-4115  
Zonatac® 105  
Zonatac® 105L  
Zonatac® 115L  
Zonatac® 501  
Zonatac® 501L  
Zonatac® M-105
- 9003-93-4**  
Imbentin-SAM/050  
Imbentin-SAM/250  
**PEG stearamine**  
**PEG-2 stearamine**  
**PEG-5 stearamine**  
**PEG-10 stearamine**  
**PEG-20 stearamine**  
**PEG-25 stearamine**  
**PEG-30 stearamine**  
**PEG-40 stearamine**  
Teric™ 18M2
- 9003-95-6**  
Polyvinyl stearate
- 9004-32-4**  
Aqualon® CMC-T  
**Carboxymethylcellulose sodium**  
Tylose® C, CB Series  
Tylose® CBR Grades  
Tylose® C-G1  
Tylose® CR
- 9004-34-6**  
Cellulose
- 9004-35-7**  
CA-394-60S  
CA-398-3  
CA-398-6  
CA-398-10  
CA-398-30  
**Cellulose acetate**
- 9004-36-3**  
**Sodium caseinate**
- 9004-36-8**  
CAB-171-15  
CAB-321-0.1  
CAB-381-0.1  
CAB-381-0.5  
CAB-381-2  
CAB-381-2BP
- CAB-381-20  
CAB 500-1  
CAB-500-5  
CAB-531-1  
CAB-551-0.01  
CAB-551-0.2  
CAB-553-0.4  
**Cellulose acetate butyrate**
- 9004-39-1**  
CAP-482-0.5  
CAP-482-20  
CAP-504-0.2  
**Cellulose acetate propionate**
- 9004-53-9**  
Dextrin
- 9004-62-0**  
**Hydroxyethylcellulose**  
Natrosol® 250
- 9004-64-2**  
**Hydroxypropylcellulose**  
Klucel® E  
Klucel® L
- 9004-67-5**  
**Methylcellulose**
- 9004-70-0**  
Dispercel-A  
Dispercel-AS  
**Nitrocellulose**  
ParCell™ A  
ParCell™ R  
ParCell™ S
- 9004-73-3**  
Masil® SF-MH  
**Methicone**
- 9004-80-2**  
Deceth-4 phosphate
- 9004-81-3**  
Cithrol DGML N/E  
DeTHOX ACID L-9  
Nopalcol 1-L  
Nopalcol 4-L  
Nopalcol 6-L  
**PEG-2 laurate**  
**PEG-2 laurate SE**  
**PEG-4 laurate**  
**PEG-5 laurate**  
**PEG-6 laurate**  
**PEG-8 laurate**  
**PEG-12 laurate**  
**PEG-20 laurate**  
**PEG-32 laurate**
- 9004-82-4**  
Abex® 23S  
Paxnol LES  
POLYSTEP® B-23  
POLYSTEP® B-330S  
**Sodium laureth sulfate**  
**Sodium laureth-12 sulfate**  
Stanfax 1066
- 9004-83-5**  
Alcodet® 218

Alcodet® 260  
Alcodet® SK  
PEG-6 isolauryl thioether  
PEG-8 isolauryl thioether  
PEG-10 isolauryl thioether

**9004-87-9**

Octoxynol-1  
Octoxynol-3  
Octoxynol-5  
Octoxynol-7  
Octoxynol-8  
Octoxynol-9  
Octoxynol-10  
Octoxynol-11  
Octoxynol-12  
Octoxynol-13  
Octoxynol-16  
Octoxynol-20  
Octoxynol-25  
Octoxynol-30  
Octoxynol-33  
Octoxynol-40  
Octoxynol-70

**9004-94-8**

PEG-20 palmitate

**9004-95-9**

Ceteth-2  
Ceteth-3  
Ceteth-4  
Ceteth-5  
Ceteth-6  
Ceteth-7  
Ceteth-10  
Ceteth-11  
Ceteth-12  
Ceteth-14  
Ceteth-15  
Ceteth-16  
Ceteth-17  
Ceteth-20  
Ceteth-23  
Ceteth-24  
Ceteth-25  
Ceteth-30  
Ceteth-40  
Ceteth-45  
Volpo C2  
Volpo C20

**9004-96-0**

Cithrol A  
DeTHOX ACID O-9  
DeTHOX ACID O-14  
DeTHOX ACID O-16  
Nopalcol 4-O  
PEG-2 oleate  
PEG-2 oleate SE  
PEG-4 oleate  
PEG-6 oleate  
PEG-8 oleate  
PEG-9 oleate  
PEG-10 oleate  
PEG-11 oleate  
PEG-12 oleate  
PEG-13 oleate  
PEG-14 oleate  
PEG-15 oleate  
PEG-16 oleate  
PEG-20 oleate

PEG-23 oleate  
PEG-24 oleate  
PEG-32 oleate  
PEG-36 oleate  
PEG-40 oleate  
PEG-75 oleate  
PEG-100 oleate  
PEG-150 oleate  
PEG-200 oleate  
PEG-300 oleate  
Teric™ OF4  
Teric™ OF6  
Teric™ OF8  
Trydet 2676

**9004-97-1**

Nopalcol 6-R  
PEG-8 ricinoleate  
PEG-12 ricinoleate

**9004-98-2**

Genapol® O-020  
Genapol® O-050  
Genapol® O-080  
Genapol® O-090  
Genapol® O-100  
Genapol® O-120  
Genapol® O-150  
Genapol® O-200  
Genapol® O-230  
Oleth-2  
Oleth-3  
Oleth-5  
Oleth-6  
Oleth-7  
Oleth-8  
Oleth-9  
Oleth-10  
Oleth-12  
Oleth-15  
Oleth-16  
Oleth-18  
Oleth-20  
Oleth-23  
Oleth-25  
Oleth-30  
Oleth-40  
Oleth-44  
Oleth-50  
Oleth-80  
Oxetal O 108  
Oxetal O 112

**9004-99-3**

Volpo N3  
Volpo N5  
Volpo N10  
Volpo N20  
Alkamuls® S-8  
Cithrol DGMS N/E  
DeTHOX ACID S-8  
Emerest® 2640  
Glycol stearate  
Nopalcol 4-S  
Nopalcol 6-S  
Pegospere® 400 MS  
PEG stearate  
PEG-2 stearate  
PEG-2 stearate SE  
PEG-4 stearate  
PEG-6 stearate  
PEG-8 stearate

PEG-12 stearate  
PEG-20 stearate  
PEG-32 stearate  
PEG-40 stearate  
PEG-100 stearate

**9005-00-9**

Genapol® S-020  
Nonionic S-2  
Nonionic S-10  
Nonionic S-20  
Stareth  
Stareth-2  
Stareth-10  
Stareth-20  
Volpo S2  
Volpo S10  
Volpo S20

**9005-02-1**

PEG-2 dilaurate  
PEG-2 dilaurate SE  
PEG-4 dilaurate  
PEG-6 dilaurate  
PEG-8 dilaurate  
PEG-12 dilaurate  
PEG-20 dilaurate  
PEG-32 dilaurate

**9005-07-6**

Nopalcol 6-DO  
PEG-2 dioleate  
PEG-2 dioleate SE  
PEG-4 dioleate  
PEG-6 dioleate  
PEG-8 dioleate  
PEG-12 dioleate  
PEG-20 dioleate  
PEG-32 dioleate  
Pegospere® 600 DO

**9005-08-7**

PEG-2 distearate  
PEG-2 distearate SE  
PEG-4 distearate  
PEG-6 distearate  
PEG-8 distearate  
PEG-12 distearate  
PEG-20 distearate  
PEG-32 distearate

**9005-25-8**

Accosize® 60R Cationic Starch  
Apollo® 4200 Cationic Starches  
Apollo® Cationic Starches  
Astro® X Cationic Starches  
Astrocote™ 75 Starch  
B20F  
B200  
C110  
Chargemaster® R415  
Chargemaster® R462  
Chargemaster® R515  
Chargemaster® R615  
Cleer-Cote® 625  
Coatmaster® K61F  
Corn (Zea mays) starch  
D12F  
D120  
Douglas® Starches  
Electra® 7458  
Ethylex® 2005, 2015, 2020,

2025, 2035, 2040, 2065, 2075,  
2095  
ICB® 3000, 3100, 3200  
ICB® 3000D  
Interbond® C  
Koldex® 50, 60  
Liquistrength™ Bonding Agent  
Lok-Size® 30  
Pearl  
Pearl AP, R  
Pencat® Cationic Starches  
Pen-cote® Starch  
PenFilm™ Binder  
Penford® Gum  
Pen-sprae® Starch  
**Potato (Solanum tuberosum)  
starch**

**Rice (Oryza sativa) starch**  
Sta-Jel® 141  
Sta-Jel® 142  
Sta-Lok® 120, 160, 180, 182  
Sta-Lok® 140  
Sta-Lok® 156  
Sta-Lok® 300, 310, 330  
Sta-Lok® 356  
Sta-Lok® 374, 376  
Sta-Lok® 400, 410, 430, 440  
Sta-Lok® 480  
Sta-Lok® 600  
Staramic® 105  
Staramic® 747  
**Starch**  
Star\*pol® 136  
Star\*pol® 410  
Star\*pol® 468, 469, 600  
Star\*pol® 700, 800  
Staysize® 140

**9005-32-7**

**Alginate acid  
KELACID®**

**9005-37-2**

Colloid 602  
KELCOLOID® DH  
KELCOLOID® HVF  
KELCOLOID® LVF  
KELCOLOID® O  
KELCOLOID® S  
**Propylene glycol alginate**

**9005-38-3**

**Algin**  
Colloid 488T  
KELCOSOL®  
KELGIN® F  
KELGIN® HV  
KELGIN® LV  
KELGIN® MV  
KELGIN® XL  
KELSET®  
Scogin™ F  
Scogin™ HV  
Scogin™ HVF  
Scogin™ LV  
Scogin™ MV  
Scogin™ QH  
Scogin™ QL  
Scogin™ QM  
Sodium Alginate HV NF/FCC  
Sodium Alginate LV  
Sodium Alginate LVC

Sodium Alginate MV NF/FCC	<b>9006-03-5</b> Rubber, chlorinated	DSP 15 DSP 70 DSP 80 DynaCoat XL Jetsize® Emulsion NC Size C-25 NovaCote™ 1933 NovaCote™ 1933 Perglulin® 204 Perglulin® 395 Perglulin® 450/220 Perglulin® 450/240 Perglulin® 450/280 Perglulin® A 281 Perglulin® K 333 Perglulin® K 440 Perglulin® K 485 Pliolite® AC Pliolite® AC-L PSA-28 PSA-34 Rhoplex® NW-1715K Rhoplex® NW-1845K Rhoplex® P-308 Rhoplex® P-322 Rhoplex® P-376 Ropaque® BC-643 Ropaque® HP-1055 Ropaque® HP-543P Sequabond® 7880 Sequabond® TR 7830 Sequatone® 2000 Starcote® <b>Styrene/acrylates copolymer</b> Synthamin 7000 Synthemul® 40430-20 Uniq-Print® 8000 XZ 26001.00 XZ 26005.00	Intacol S-26 Intacol S-28 Intacol S-2240 Intacol S-2252 Intacol S-2425 NovaCote™ 1936 NovaCote™ 2000 Scripset® 520 Scripset® 540 Scripset® 542 Scripset® 550 Scripset® 640 Scripset® 700 Scripset® 720 Scripset® 740 Scripset® 742 Scripset® 745 Scripset® 746 Scripset® 747 SMA® 1000 SMA® 2000 SMA® 3000 <b>Styrene/MA copolymer</b>
<b>9005-42-9</b> Ammonium caseinate	<b>9006-04-6</b> Heveatex NR Natural rubber	Rhoplex® NW-1715K Rhoplex® NW-1845K Rhoplex® P-308 Rhoplex® P-322 Rhoplex® P-376 Ropaque® BC-643 Ropaque® HP-1055 Ropaque® HP-543P Sequabond® 7880 Sequabond® TR 7830 Sequatone® 2000 Starcote® <b>Styrene/acrylates copolymer</b> Synthamin 7000 Synthemul® 40430-20 Uniq-Print® 8000 XZ 26001.00 XZ 26005.00	<b>9011-14-7</b> Polymethyl methacrylate
<b>9005-46-3</b> Sodium caseinate	<b>9006-26-2</b> Ethylene/MA copolymer	<b>9007-13-0</b> Calcium resinate	<b>9011-16-9</b> PVM/MA copolymer
<b>9005-64-5</b> Crillet 1 HP Crillet 1 NF Crillet 11 DeMULS PSML-20 Lumisorb™ PSML-80 Paxsorbate 20 PEG-40 sorbitan laurate PEG-80 sorbitan laurate Polysorbate 20 Polysorbate 21	<b>9006-50-2</b> Albumen Sol-U-Tein EA	<b>9007-16-3</b> Carbomer Carbomer 934	<b>9011-19-2</b> Polysiloxane
<b>9005-65-6</b> Crillet 4 Crillet 41 DeMULS PSMO-80 Lumisorb™ PSMO-5 Lumisorb™ PSMO-20 Paxsorbate 80 PEG-3 sorbitan oleate PEG-6 sorbitan oleate Polysorbate 80 Polysorbate 81	<b>9006-65-9</b> CS-100 Dimethicone Foamkill® 810F Foamkill® 830F L-45 Series Lambent E-2140 Lambent E-2140 35% Food Grade SWS-101 Dimethyl Fluids	<b>9007-17-4</b> Carbomer Carbomer 940	<b>9011-29-4</b> PEG-40 sorbitan hexaoleate
<b>9005-66-7</b> Crillet 2 Lumisorb™ PSMP-20 Polysorbate 40	<b>9007-13-0</b> Calcium resinate	<b>9007-20-9</b> Carbomer	<b>9012-24-2</b> Polyamide Prox® AC 553 L Prox® V P 137 Torez Resin P-1012 Torez Resin P-1025
<b>9005-67-8</b> Alkamuls® PSMS-20 Crillet 3 Crillet 31 DeMULS PSMS-60 Lumisorb™ PSMS-20 Paxsorbate 60 PEG-6 sorbitan stearate PEG-40 sorbitan stearate Polysorbate 60 Polysorbate 61	<b>9007-16-3</b> Carbomer Carbomer 934	<b>9009-54-5</b> Polyurethane, thermoplastic	<b>9012-54-8</b> Cellulase
<b>9005-66-7</b> Crillet 2 Lumisorb™ PSMP-20 Polysorbate 40	<b>9007-17-4</b> Carbomer Carbomer 940	<b>9010-43-9</b> Octoxynol Octoxynol-9	<b>9014-01-1</b> HT-Proteolytic® 200 Protease
<b>9005-67-8</b> Alkamuls® PSMS-20 Crillet 3 Crillet 31 DeMULS PSMS-60 Lumisorb™ PSMS-20 Paxsorbate 60 PEG-6 sorbitan stearate PEG-40 sorbitan stearate Polysorbate 60 Polysorbate 61	<b>9007-20-9</b> Carbomer	<b>9010-69-9</b> Zinc rosinate	<b>9014-85-1</b> PEG tetramethyl decynediol PEG-3.5 tetramethyl decyne- diol PEG-10 tetramethyl decynediol PEG-30 tetramethyl decynediol Surfynol® 440 Surfynol® 465 Surfynol® 485
<b>9005-70-3</b> Crillet 45 Lumisorb™ PSTO-20 Polysorbate 85	<b>9009-54-5</b> Polyurethane, thermoplastic	<b>9010-76-8</b> Vinylidene chloride/acryloni- trile copolymer	<b>9014-92-0</b> Dodoxynol-4 Dodoxynol-5 Dodoxynol-6 Dodoxynol-7 Dodoxynol-9 Dodoxynol-10 Dodoxynol-12 Igepal® RC-520 Surfonic® DDP-40 Surfonic® DDP-50 T-Det® DD-10
<b>9005-71-4</b> Crillet 35 DeMULS PSTS-65 Lumisorb™ PSTS-20 Polysorbate 65	<b>9010-43-9</b> Octoxynol Octoxynol-9	<b>9010-77-9</b> A-C® 540 A-C® 540A A-C® 580 A-C® 5120 A-C® 5180 Ethylene/acrylic acid copolymer Nucrel® 3990	
<b>9005-82-7</b> Amylose	<b>9010-69-9</b> Zinc rosinate	<b>9010-85-9</b> Isobutylene/isoprene copolymer	
<b>9005-90-7</b> Turpentine	<b>9010-76-8</b> Vinylidene chloride/acryloni- trile copolymer	<b>9010-92-8</b> Basoplast® 400 DS Cartacol® SI Liq. Cartacol® XP Liq. Cypres® 310 Surface Size	
<b>9006-00-2</b> Rubber hydrochloride	<b>9010-77-9</b> A-C® 540 A-C® 540A A-C® 580 A-C® 5120 A-C® 5180 Ethylene/acrylic acid copolymer Nucrel® 3990	<b>9011-05-6</b> Amres® C382 Amres® LOPR Amres® PR-247 HV Amres® PR-335 CU Kaurit® Pergopak M2 Prox® 923 Urea/formaldehyde resin	
<b>9006-02-4</b> Cellophane	<b>9010-85-9</b> Isobutylene/isoprene copolymer	<b>9011-06-7</b> Vinylidene chloride/vinyl chloride copolymer	
	<b>9010-92-8</b> Basoplast® 400 DS Cartacol® SI Liq. Cartacol® XP Liq. Cypres® 310 Surface Size	<b>9011-13-6</b> Cartacol® ASN Liq. Cartacol® NP Liq. Intacol S-22 Intacol S-24	



**9014-93-1**

Chemax DNP-8  
 Chemax DNP-15  
 Chemax DNP-18  
 Chemax DNP-150  
 Chemax DNP-150/50  
 Igepal® DM-710  
 Igepal® DM-730  
 Igepal® DM-970 FLK  
**Nonyl nonoxynol**  
**Nonyl nonoxynol-7**  
**Nonyl nonoxynol-8**  
**Nonyl nonoxynol-10**  
**Nonyl nonoxynol-14**  
**Nonyl nonoxynol-15**  
**Nonyl nonoxynol-16**  
**Nonyl nonoxynol-18**  
**Nonyl nonoxynol-24**  
**Nonyl nonoxynol-30**  
**Nonyl nonoxynol-70**  
**Nonyl nonoxynol-100**  
**Nonyl nonoxynol-150**  
 Surfonic® DNP-70  
 Surfonic® DNP-80  
 Surfonic® DNP-100  
 Surfonic® DNP-140  
 Surfonic® DNP-700  
 Surfonic® DNP-1000  
 Surfonic® DNP-1500

**9016-00-6**

AF 10 IND  
 AF 60  
 Foam Blast 102  
 Foam Blast 106  
 GP-223  
**Polydimethylsiloxane**

**9016-45-9**

Ablunol NP9  
 Ablunol NP30  
 Ablunol NP30 70%  
 Ablunol NP40  
 Ablunol NP40 70%  
 Ablunol NP50  
 Ablunol NP50 70%  
 Alkasurf® CO-630  
 Alkasurf® CO-710  
 Alkasurf® CO-720  
 Atlas EMJ-C  
 Chemax NP-1.5  
 Chemax NP-4  
 Chemax NP-6  
 Chemax NP-9  
 Chemax NP-10  
 Chemax NP-15  
 Chemax NP-20  
 Chemax NP-30  
 Chemax NP-30/70  
 DeSonic™ 4N  
 DeSonic™ 9N  
 DeSonic™ 10N  
 DeSonic™ 11N  
 DeSonic™ 13N  
 Disponil® NP 4  
 Disponil® NP 6  
 Disponil® NP 10  
 Disponil® NP 11  
 Disponil® NP 12  
 Disponil® NP 20  
 Disponil® NP 208  
 Disponil® NP 307

Hyonic® NP-90  
 Hyonic® PE-90  
 Hyonic® PE-100  
 Iconol NP-6  
 Iconol NP-8  
 Iconol NP-9  
 Iconol NP-10  
 Iconol NP 14  
 Igepal® CO-530  
 Igepal® CO-610  
 Igepal® CO-630  
 Igepal® CO-630/EP  
 Igepal® CO-660  
 Igepal® CO-710  
 Igepal® CO-720  
 Igepal® CO-880  
 Igepal® CO-887  
 Igepal® CO-897  
 Igepal® CO-977  
 Igepal® NP-9  
 Imbentini-N/7 A  
 Imbentini-N/020 I  
 Imbentini-N/30  
 Imbentini-N/35  
 Imbentini-N/040  
 Imbentini-N/40 A  
 Imbentini-N/44  
 Imbentini-N/050  
 Imbentini-N/52  
 Imbentini-N/55  
 Imbentini-N/060  
 Imbentini-N/63  
 Imbentini-N/82  
 Imbentini-N/85  
 Imbentini-N/91  
 Imbentini-N/98  
 Imbentini-N/200 80%  
 Imbentini-N/300 G  
 Imbentini-N/400 G  
 Imbentini-N/600 G 50%  
 MAKON® 4  
 MAKON® 6  
 MAKON® 8  
 MAKON® 10  
 MAKON® 12  
 MAKON® 14  
 MAKON® 30  
 MAKON® NP-5570  
 Nonipax X 100  
 Nonipax X 150  
**Nonoxynol**  
**Nonoxynol-1**  
**Nonoxynol-2**  
**Nonoxynol-3**  
**Nonoxynol-4**  
**Nonoxynol-5**  
**Nonoxynol-6**  
**Nonoxynol-7**  
**Nonoxynol-8**  
**Nonoxynol-9**  
**Nonoxynol-10**  
**Nonoxynol-11**  
**Nonoxynol-12**  
**Nonoxynol-13**  
**Nonoxynol-14**  
**Nonoxynol-15**  
**Nonoxynol-18**  
**Nonoxynol-20**  
**Nonoxynol-23**  
**Nonoxynol-25**  
**Nonoxynol-30**  
**Nonoxynol-34**

**Nonoxynol-40**  
**Nonoxynol-44**  
**Nonoxynol-50**  
**Nonoxynol-55**  
**Nonoxynol-60**  
**Nonoxynol-70**  
**Nonoxynol-100**  
**Nonoxynol-120**  
 NP4  
 NP6  
 NP8  
 NP9  
 NP10  
 NP12  
 POLYSTEP® F-1  
 POLYSTEP® F-2  
 POLYSTEP® F-3  
 POLYSTEP® F-4  
 POLYSTEP® F-5  
 POLYSTEP® F-6  
 POLYSTEP® F-9  
 POLYSTEP® F-9S  
 POLYSTEP® F-10  
 POLYSTEP® F-95B  
 Rewopal® HV 9  
 Rewopal® HV 25  
 Sipol NP-10  
 Surfonic® N-10  
 Surfonic® N-31.5  
 Surfonic® N-40  
 Surfonic® N-60  
 Surfonic® N-70  
 Surfonic® N-80  
 Surfonic® N-85  
 Surfonic® N-95  
 Surfonic® N-100  
 Surfonic® N-102  
 Surfonic® N-110  
 Surfonic® N-120  
 Surfonic® N-150  
 Surfonic® N-200  
 Surfonic® N-300  
 Surfonic® N-400  
 Surfonic® N-500  
 Surfonic® N-550  
 Surfonic® N-700  
 Surfonic® N-1000  
 Surfonic® NB-307  
 Surfonic® NB-407  
 Surfonic® NB-557  
 Surfonic® NB-1007  
 T-Det® N-6  
 T-Det® N-8  
 T-Det® N-9.5  
 Tergitol® NP-4  
 Tergitol® NP-6  
 Tergitol® NP-7  
 Tergitol® NP-8  
 Tergitol® NP-9  
 Tergitol® NP-9.5  
 Tergitol® NP-10  
 Tergitol® NP-11  
 Tergitol® NP-12  
 Tergitol® NP-13  
 Tergitol® NP-15  
 Teric™ N2  
 Teric™ N4  
 Teric™ N5  
 Teric™ N6  
 Teric™ N8  
 Teric™ N9  
 Teric™ N10

Teric™ N11  
 Teric™ N12  
 Teric™ N13  
 Teric™ N15  
 Teric™ N20  
 Teric™ N30  
 Teric™ N30L  
 Trycol® 6961  
 Trycol® 6962  
 Trycol® 6965  
 Trycol® 6970  
 Trycol® 6974

**9017-27-0**

**Methylstyrene/vinyltoluene copolymer**

**9022-17-7**

**Polyquaternium-7**

**9036-19-5**

**Octoxynol-1**  
**Octoxynol-3**  
**Octoxynol-5**  
**Octoxynol-7**  
**Octoxynol-8**  
**Octoxynol-9**  
**Octoxynol-10**  
**Octoxynol-11**  
**Octoxynol-12**  
**Octoxynol-13**  
**Octoxynol-16**  
**Octoxynol-20**  
**Octoxynol-25**  
**Octoxynol-30**  
**Octoxynol-33**  
**Octoxynol-40**  
**Octoxynol-70**

**9038-95-3**

**PPG-2-buteth-2**  
**PPG-2-buteth-3**  
**PPG-3-buteth-5**  
**PPG-5-buteth-7**  
**PPG-7-buteth-10**  
**PPG-9-buteth-12**  
**PPG-12-buteth-16**  
**PPG-15-buteth-20**  
**PPG-20-buteth-30**  
**PPG-24-buteth-27**  
**PPG-26-buteth-26**  
**PPG-28-buteth-35**  
**PPG-33-buteth-45**  
 Ucon® 50-HB-55  
 Ucon® 50-HB-100  
 Ucon® 50-HB-170  
 Ucon® 50-HB-260  
 Ucon® 50-HB-400  
 Ucon® 50-HB-660  
 Ucon® 50-HB-2000  
 Ucon® 50-HB-3520  
 Ucon® 50-HB-5100

**9046-01-9**

Rhodafac® RS-610  
 Rhodafac® RS-710  
**Trideceth-6 phosphate**  
**Trideceth-10 phosphate**

**9049-05-2**

**Calcium carrageenan**

**9051-57-4**

Abex® EP-100  
 Abex® EP-110  
 Abex® EP-120  
 Aerosol® NPES 930  
 Aerosol® NPES 3030  
**Ammonium nonoxynol-4 sulfate**  
**Ammonium nonoxynol-9 sulfate**  
**Ammonium nonoxynol-30 sulfate**  
 Rhodapex® CO-436

**9061-82-9**

Sodium carrageenan

**9062-04-8**

Carbomer

**9063-89-2**

Octoxynol-30  
 Octoxynol-40

**9065-13-8**

Dimethyl hydantoin-formaldehyde polymer

**9065-63-8**

PPG-2-buteth-2  
 PPG-2-buteth-3  
 PPG-3-buteth-5  
 PPG-5-buteth-7  
 PPG-7-buteth-10  
 PPG-9-buteth-12  
 PPG-12-buteth-16  
 PPG-15-buteth-20  
 PPG-20-buteth-30  
 PPG-24-buteth-27  
 PPG-26-buteth-26  
 PPG-28-buteth-35  
 PPG-33-buteth-45

**9082-00-2**

Arcol® 11-34  
 PPG-66-glycereth-12

**9084-06-4**

Crisotan R-5M  
 Darvan® 1  
 Daxad® 11G  
 Daxad® 13  
 Daxad® 15  
 Daxad® 16  
 Daxad® 17  
 Harol RG-71L  
 Rhodacal® N  
**Sodium polynaphthalene sulfonate**  
 Tamol® 819  
 Tamol® L Conc.

**10028-15-6**

Ozone

**10031-43-3**

Copper nitrate (ic) (trihydrate)

**10034-76-1**

Calcium sulfate hemihydrate

**10034-99-8**

**Magnesium sulfate heptahydrate**  
 PQ® Epsom Salt Tech.

**10043-01-3**

Alcan Aluminum Sulphate Sol'n.  
 Alcan Aluminum Sulphate Solid  
**Aluminum sulfate (anhyd.)**  
 Clar+Ion™ A410P  
 Papermaker's Alum

**10043-35-3**

Boric acid

**10043-67-1**

Potassium alum anhydrous

**10045-89-3**

Ferrous ammonium sulfate

**10049-04-4**

Chlorine dioxide

**10101-39-0**

Calcium metasilicate

**10101-41-4**

Calcium sulfate dihydrate

**10102-17-7**

Sodium thiosulfate pentahydrate

**10102-71-3**

Sodium alum

**10108-24-4**

PEG-4 laurate

**10108-25-5**

PEG-4 oleate

**10108-28-8**

PEG-6 stearate

**10112-91-1**

Dimercury dichloride

**10124-56-8**

Kalipol™ 20  
**Sodium hexametaphosphate**

**10124-65-9**

Potassium laurate

**10141-00-1**

Chromium potassium sulfate

**10169-02-5**

Acid red 97

**10213-78-2**

PEG-2 stearamine

**10213-79-3**

Melso Pentabead® 20  
**Sodium metasilicate pentahydrate**

**10222-01-2**

Amerstat® 300  
 Biobrom C-103L

Biobrom C-103 Tech.  
**2,2-Dibromo-3-nitropropionamide**

Paxgard DB 10

Paxgard DB 20

Paxgard DB 99

Qemibrom L-27

Qemibrom L-56

Taurine-DBNPA

**10233-13-3**

Isopropyl laurate

**10257-55-3**

Calcium sulfite

**10287-53-3**

Esacure® EDB  
 Ethyl 4-(dimethylamino) benzoate

**10380-28-6**

Copper 8-quinolinolate

**10450-60-9**

Periodic acid

**10544-63-5**

Ethyl crotonate

**10605-21-7**

Carbendazim  
 Protectol® BCM  
 Protectol® BCM-FL

**11098-24-1**

Hexamethoxymethylmelamine

**11099-07-3**

Glyceryl stearate (crude grade)  
 Glyceryl stearate SE  
 Kemester® 6000SE

**11111-34-5**

Poloxamine 701  
 Poloxamine 1301  
 Synperonic T/701  
 Synperonic T/1301

**11138-49-1**

Sodium aluminate

**11138-66-2**

KELZAN®  
 KELZAN® XC Polymer  
 Ticaxan® Regular  
**Xanthan gum**  
 Xanthan Gum

**12001-26-2**

Mica

**12001-29-5**

Asbestos (chrysotile)

**12003-63-3**

Potassium aluminate

**12058-66-1**

Sodium stannate

**12069-32-8**

Boron carbide

**12124-97-9**

**Ammonium bromide**  
 FR-11

**12125-28-9**

**Magnesium carbonate hydroxide**

**12179-04-3**

Neobor®  
**Sodium tetraborate pentahydrate**

**12198-93-5**

Ozokerite

**12199-37-0**

**Magnesium aluminum silicate**  
 Van Gel® B  
 Veegum® T

**12224-98-5**

Pigment red 81

**12225-21-7**

FD&C Yellow No. 5 Aluminum Lake

**12227-69-9**

FD&C Yellow No. 5 Aluminum Lake

**12230-71-6**

Barium hydroxide lime (octahydrate)

**12616-24-9**

**Ammonium zirconyl carbonate**

**12645-31-7**

DePHOS HP-739  
 2-Ethylhexyl phosphate  
 Servoxyl® VPTZ 100

**12645-53-3**

Albrite® Isooctyl Acid Phosphate  
**Isooctyl acid phosphate**

**12673-72-2**

2-n-Octyl-4-isothiazolin-3-one

**12738-64-6**

**Sucrose benzoate**  
 Sucrose Benzoate Regular and Coatings Grade  
 Uniplex 280 CG

**12768-78-4**

Acid green 16

**12788-93-1**

Albrite® N-Butyl Acid Phosphate  
**Butyl acid phosphate**

**13007-85-7**

**Sodium glucoheptonate**

**13048-33-4**

1,6-Hexanediol diacrylate

SR 238	Potassium ferricyanide	lake	17831-71-9
<b>13057-50-6</b> Pentaerythrityl tetralaurate	<b>13780-03-5</b> Calcium hydrogen sulfite	<b>15826-16-1</b> Sodium laureth sulfate	PEG-4 diacrylate SR 268
<b>13081-34-0</b> PEG-10 isolauryl thioether	<b>13845-36-8</b> Kalipol™ KTP Potassium tripolyphosphate	<b>15827-60-8</b> Aquacid-106 EX Briquest® 543-45AS Dequest® 2060 Diethylene triamine penta- methylene phosphonic acid Unihib® 905	<b>17927-65-0</b> Aluminum sulfate (hydrate)
<b>13081-97-5</b> Pentaerythrityl distearate	<b>13983-17-0</b> Wollastonite	<b>16057-43-5</b> Steareth-2	<b>18972-56-0</b> Magnesium silicofluoride
<b>13106-44-0</b> Ageflex FA-1Q80DMS Dimethylaminoethyl acrylate dimethyl sulfate	<b>14038-43-8</b> Ferric ferrocyanide	<b>16079-88-2</b> 1-Bromo-3-chloro-5,5-dimethyl hydantoin	<b>19024-74-9</b> Milldride® ODSA Octadecenyl succinic anhydride
<b>13127-82-7</b> PEG-2 oleamine	<b>14103-61-8</b> Diisononyl phthalate	<b>16291-96-6</b> Carbon, activated	<b>19321-40-5</b> Pentaerythrityl tetraoleate
<b>13149-83-2</b> Ceteth-12	<b>14150-71-1</b> Vinylene bithiocyanate	<b>16389-88-1</b> Dolomite	<b>19381-50-1</b> Acid green 1
<b>13149-86-5</b> Steareth-10	<b>14351-40-7</b> Stearamide MEA-stearate Witcamide® MAS	<b>16470-24-9</b> Benzenesulfonic acid, 2,2'- (1,2-ethenediyl) bis [5-[[4-[bis (2-hydroxyethyl) amino]-6-[[4- sulfophenyl) amino]-1,3,5- triazin-2-yl] amino]-, tetrasodium salt Leucophor® U Liq. Leucophor® UO Liq.	<b>19780-79-1</b> 2-Hexyl-1-octanol
<b>13150-00-0</b> Sodium laureth sulfate	<b>14351-66-7</b> Arizona DRS-43 Arizona DRS-44 Sodium rosinate	<b>16589-43-8</b> Sodium methyl silicate	<b>20018-09-1</b> Amical® 48 Diiodomethyl tolylsulfone
<b>13429-07-7</b> PPG-2 methyl ether	<b>14409-72-4</b> Nonoxynol-9	<b>16721-80-5</b> Sodium bisulfide	<b>20208-95-1</b> Melamine phosphate
<b>13429-27-1</b> Potassium myristate	<b>14481-60-8</b> Aerosol® 18 Disodium stearyl sulfosuc- cinate	<b>16788-57-1</b> Potassium phosphate dibasic (trihydrate)	<b>20427-59-2</b> Copper hydroxide (ic)
<b>13463-67-7</b> Hombitan® R 610 L Kronos® 1000 Kronos® 1070 Kronos® 1072 Kronos® 1074 Kronos® 2090 Kronos® 2131 Octolint 138 Octolint 601 Tiona® A-2000 Tiona® A-3000 Tiona® RCS-P Titanium dioxide	<b>14529-40-9</b> Ceteth-10	<b>16940-66-2</b> Borino® Sodium borohydride	<b>20636-48-0</b> Nonoxynol-5
<b>13472-36-1</b> Tetrasodium pyrophosphate (decahydrate)	<b>14728-39-3</b> Ammonium polyphosphate Antiblaze® CL. Antiblaze® TR	<b>16949-65-8</b> Magnesium silicofluoride	<b>20679-58-7</b> 1,4-Bis (bromoacetoxy)-2- butene
<b>13573-18-7</b> Pentasodium triphosphate	<b>14807-96-6</b> Celkate® T-21 Mistrol® Mistron® 100 Mistron® 102 Mistron® Slurry Mistron® Vapor Talc Vantalc® 6H	<b>17194-00-2</b> Barium hydroxide lime (anhyd.)	<b>20824-56-0</b> Diammonium EDTA Versene Diammonium EDTA
<b>13590-97-1</b> Dodecylguanidine hydrochlo- ride Metasol® 350	<b>14882-18-9</b> Bismuth subsalicylate	<b>17301-53-0</b> Behentrimonium chloride Nissan Cation VB	<b>21078-81-9</b> 2-Butyl-1-decanol
<b>13598-36-2</b> Phosphonic acid	<b>15214-89-8</b> 2-Acrylamido-2-methylpro- panesulfonic acid AMPS® 2401 Monomer AMPS® 2404 Monomer	<b>17372-87-1</b> Acid red 87	<b>21564-17-0</b> Busan® 1118 Paxgard BU 30 Paxgard BU 30 L Paxgard BU 60 Paxgard TC 2-Thiocyanomethylthiobenzo- thiazole
<b>13601-19-9</b> Sodium ferrocyanide	<b>15625-89-5</b> SR 351 1,1,1-Trimethylolpropane triacylate	<b>17557-23-2</b> Epiol NPG-100 Neopentyl glycol diglycidyl ether	<b>21645-51-2</b> Alcan Superfine SF 2 Alcan Superfine SF 4 Alcan Superfine SF 7 Alcan Superfine SF 9 Alcan Superfine SF 11 Alcan Ultrafine UF15 Alcan Ultrafine UF25 Alcan Ultrafine UF35 Alcoa® Grade C-231 Alcoa® Grade C-333 Alcoa® KB30 Aluminum hydroxide Hydrad™ 10 Hydrad™ 10W
<b>13701-59-2</b> Barium metaborate Busan® 11-M2	<b>15792-67-3</b> FD&C Blue No. 1 aluminum	<b>17658-63-8</b> Cetylarchidol Jarcot™ I-36	
<b>13746-66-2</b>			

- Hydrad™ 15  
Hydrad™ 15W  
Hydrad™ 20  
Hydrad™ C  
Hydrad™ F  
Hydrad™ HBC  
Hydrad™ HBF  
Hydral® 710  
Hydral® 716  
Hydral® PGA  
Hydral® Brite 100 Slurry  
Hydral® Coat 2  
Hydral® Coat 5  
Hydral® Coat 7  
Hydrax™ H-312  
Hydrax™ H-470  
Hydrax™ H-490  
Hydrax™ H-550  
Hydrax™ H-636  
Hydrax™ H-910  
KC-350  
KC-500  
KC-750  
KC-900  
Martinal® OL-104  
Micral® 532  
Micral® 916  
Micral® 932  
Path® 9  
SB-332  
SB-805  
UFH16
- 21652-27-7**  
LamChem C-100-O  
**Oleyl hydroxyethyl imidazole**
- 21810-39-9**  
Ageflex FA-2Q50DMS  
**Diethylaminoethyl acrylate dimethyl sulfate quat.**
- 22042-96-2**  
Briquest® 543-33S  
Dequest® 2066A  
**Sodium diethylenetriamine penta (methylene phosphonate)**
- 22047-49-0**  
Octyl stearate
- 22788-19-8**  
Propylene glycol dilaurate
- 23389-33-5**  
Magnesium carbonate (hydrate)
- 23411-34-9**  
Calcium disodium EDTA
- 24650-42-8**  
2,2-Dimethoxy-2-phenylacetophenone  
Esacure® KB1  
Photomer® 51
- 24689-89-2**  
Chloroethylenebisthiocyanate
- 24871-34-9**  
Oleth-10
- 24887-06-7**  
Zinc formaldehyde sulfoxylate
- 24937-16-4**  
Nylon 12
- 24937-72-2**  
Maleic anhydride homopolymer
- 24937-78-8**  
A-C® 400  
A-C® 400A  
A-C® 405(M)  
A-C® 405(S)  
A-C® 405(T)  
A-C® 430  
Airflex® 100 HS  
Airflex® 105  
Airflex® 108  
Airflex® 110  
Airflex® 124  
Airflex® 144  
Airflex® 300  
Airflex® 320  
Airflex® 323  
Airflex® 400  
Airflex® 426  
Airflex® 440  
Airflex® 440H  
Airflex® 465  
Airflex® 7200  
Dur-O-Set® E-623  
Dur-O-Set® E-646  
Dur-O-Set® Elite 22  
Dur-O-Set® Elite 33  
Elvace® 731  
Elvace® 733  
Elvace® 734  
Elvace® 735  
Elvace® 736  
Elvace® 739  
Elvace® 40713-00  
Elvace® 40722-00  
Elvace® 40724-00  
Elvace® 97955-00  
Elvax® 310  
Elvax® 350  
Elvax® 360  
Elvax® 550, 560  
**Ethylene/VA copolymer**  
Hoechst Wax PE 890  
Microthene® FE 532-00  
Ultrathene® UE 631-04  
Ultrathene® UE 634-04  
Ultrathene® UE 634-67  
Ultrathene® UE 639-67  
Ultrathene® UE 649-04  
Ultrathene® UE 653-67  
Ultrathene® UE 654-67
- 24937-79-9**  
Dykor® 204  
**Polyvinylidene fluoride resin**
- 24938-91-8**  
Carsonon® TD-10  
DeSonic™ 6T  
DeTHOX TDA-6
- DeTHOX TDA-8.5  
DeTHOX TDA-15  
Imbentin-T/030  
Imbentin-T/040  
Imbentin-T/050 I  
Imbentin-T/060  
Imbentin-T/65 100%  
Imbentin-T/070  
Imbentin-T/080  
Imbentin-T/090  
Imbentin-T/100 90%  
Imbentin-T/120  
Imbentin-T/150  
Imbentin-T/400 G  
Merpel® SH  
Nonionic TD-6  
Nonionic TD-12  
Nonionic TD-15  
Rhodasurf® TDA-8.5  
Rhodasurf® TR15/40  
Synperonic 13/9  
Synperonic 13/10  
**Trideceth**  
Trideceth-3  
Trideceth-4  
Trideceth-5  
Trideceth-6  
Trideceth-7  
Trideceth-8  
Trideceth-9  
Trideceth-10  
Trideceth-11  
Trideceth-12  
Trideceth-14  
Trideceth-15  
Trideceth-18  
Trideceth-20  
Trideceth-23  
Trideceth-25  
Trideceth-29  
Trideceth-30  
Trideceth-40  
Trideceth-50  
Trideceth-100  
Trideceth-150  
Volpo T5
- 24991-31-9**  
Polyvinyl butyrate
- 24991-55-7**  
PEG dimethyl ether  
Polyglyme
- 25013-16-5**  
BHA
- 25014-31-7**  
Poly- $\alpha$ -methylstyrene
- 25014-41-9**  
Polyacrylonitrile
- 25034-86-0**  
Styrene/methyl methacrylate copolymer
- 25035-71-6**  
Tosylamide/formaldehyde resin
- 25035-84-1**
- Poly (vinyl propionate)**
- 25038-54-4**  
Amres® 8855  
Amres® 8870  
Amres® C12  
Amres® C20  
Amres® C25  
Amres® C28  
Amres® HP-25  
Amres® HS-30  
Amres® LA-12-2  
Amres® MOC-3066  
Amres® X-184  
Ancamide® 220  
Araldite® HZ 340  
**Polyamide**  
Reactopaque® 100  
Reactopaque® 150  
Reactopaque® 175  
Unicrepe® C77
- 25038-72-6**  
**Vinylidene chloride/methyl acrylate copolymer**
- 25038-74-8**  
Nylon 12
- 25053-53-6**  
**Ethylene/methacrylic acid copolymer**  
Nucrel® 0407  
Nucrel® 0609HS  
Nucrel® 0908HS  
Nucrel® 0910HS  
Nucrel® 1214
- 25067-02-1**  
**Acrylates/VA copolymer**  
Polycro® 6108NP
- 25086-29-7**  
Polectron® 430  
**Styrene/PVP copolymer**
- 25086-62-8**  
Darvan® 7  
**Sodium polymethacrylate**  
Tamol® 808  
Tamol® 850  
Tamol® 960
- 25119-62-4**  
**Styrene/allyl alcohol copolymer**
- 25133-97-5**  
Acronal®  
Acrosol®  
**Acrylates copolymer**  
Acusol® 810  
Acusol® 820  
Acusol® 830  
Acusol® 842  
Basoplast® 250 D  
Basoplast® 265 D  
Basoplast® 335 D  
Carboset® 515  
Carboset® GA1086  
Carboset® GA1604  
Elvacite® 2013, 2014, 2016,

2028, 2614, 2550, 2552, 6016  
Nacrylic X 4280  
NeoCryl® A-630  
NeoCryl® BT-175  
Perglutin® K 175 EP  
Prox® ASN 165 R

**25151-96-6**

Pentaerythrityl dioleate

**25154-52-3**

Nonylphenol

**25155-30-0**

Calimulse EM-22  
Calimulse EM-30  
Calimulse EM-96F  
Maranil® A 25 IS  
Maranil® Paste A 55  
NACCONOL® 40G  
NACCONOL® 90G  
Nansa® HS80S  
Nansa® HS85/S  
Newrex Paste H  
Newrex Powd. F  
Newrex R  
Norfox® 90  
POLYSTEP® A-7  
POLYSTEP® A-15  
POLYSTEP® A-16  
POLYSTEP® A-16-22  
POLYSTEP® LAS-50  
Rhodacal® DS/4-E25  
Rhodacal® DS-10  
Sodium dodecylbenzenesulfonate  
Ufaryl DB 80  
Ufaryl DL 80 CW  
Ufaryl DL 85  
Ufaryl DL 90 C

**25167-67-3**

1-Butene

**25190-05-0**Oleth-16  
Oleth-20**25212-19-5**

Adipic acid/epoxypropyl diethylenetriamine copolymer

**25213-24-5**

Airvol® 203  
Airvol® 205  
Airvol® 205S  
Airvol® 425  
Airvol® 502  
Airvol® 523  
Airvol® 540  
Polyvinyl alcohol (partially hydrolyzed)

**25307-17-9**

PEG-2 oleamine

**25322-68-3**

Adeka PEG-200  
Adeka PEG-300  
Adeka PEG-400  
Adeka PEG-600

Adeka PEG-1000  
Carbowax® PEG 300  
Cartaretin® E Powd.  
DePEG 200  
DePEG 300  
DePEG 400  
DePEG 600  
Imbentin-PEG/300  
Imbentin-PEG/400  
Imbentin-PEG/600  
Imbentin-PEG/1500 G  
Lumulse™ 8000  
Lumulse™ PEG 1000  
Lumulse™ PEG 3350  
Nopalcol 200  
Nopalcol 400  
Nopalcol 600  
PEG-4  
PEG-6  
PEG-8  
PEG-9  
PEG-12  
PEG-14  
PEG-16  
PEG-20  
PEG-32  
PEG-40  
PEG-75  
PEG-100  
PEG-135  
PEG-150  
PEG-180  
PEG-200  
PEG-350  
PEG-2M  
PEG-4M  
PEG-5M  
PEG-6M  
PEG-7M  
PEG-9M  
PEG-10M  
PEG-14M  
PEG-23M  
PEG-35M  
PEG-45M  
PEG-90M  
PEG-115M  
PEG-160M  
Pluracol® E400 NF  
Pluracol® E600 NF  
Pluracol® E1450  
Pluracol® E2000  
Pluracol® E8000  
Pogol® 600  
Polyethylene glycol  
Poly-G® 200  
Polyox® WSR 205  
Polyox® WSR 301  
Polyox® WSR 303  
Polyox® WSR 308  
Polyox® WSR 3333  
Polyox® WSR Coagulant  
Polyox® WSR N-10  
Polyox® WSR N-12K  
Polyox® WSR N-60K  
Polyox® WSR N-80  
Polyox® WSR N-750  
Polyox® WSR N-3000  
Rhodasurf® E 400  
Rhodasurf® E 600  
RITA PEO-1  
RITA PEO-2

RITA PEO-3  
RITA PEO-8  
RITA PEO-18  
RITA PEO-27  
Teric™ PEG 200  
Teric™ PEG 300  
Teric™ PEG 400  
Teric™ PEG 600  
Teric™ PEG 4000  
Ucarfloc® Polymer 300  
Ucarfloc® Polymer 302  
Ucarfloc® Polymer 304  
Ucarfloc® Polymer 309

**25322-69-4**

Acclaim® 2200  
Acclaim® 4200  
Acclaim® 8200  
Arcol® PPG-425  
Arcol® PPG-725  
Arcol® PPG-1025  
Arcol® PPG-2025  
Arcol® PPG-3025  
Dow P1000TB  
Dow P1200  
Dow P2000  
Dow P4000  
Pluronic® P-2000  
Polypropylene glycol  
PPG-9  
PPG-12  
PPG-15  
PPG-17  
PPG-20  
PPG-26  
PPG-30  
PPG-34

**25354-97-6**2-Hexyl decanoic acid  
Jaric I-16**25377-73-5**

Dodecenylsuccinic anhydride

**25417-20-3**

Rhodacal® BX-78  
Sodium dibutyl naphthalene sulfonate

**25496-72-4**Glycerol oleate  
Lumulse™ GMO**25498-49-1**

PPG-3 methyl ether

**25584-83-2**Hydroxypropyl acrylate  
Mhoromer® AM 438**25609-89-6**

VA/crotonates copolymer  
Vinyl acetate/crotonic acid copolymer

**25637-84-7**

Glycerol dioleate

**25640-78-2**

1,1'-Biphenyl (1-methylethyl)

**25750-84-9**

Enathene® EA 720-009  
Ethylene/butyl acrylate copolymer

**25751-21-7**

Methacrylic acid/acrylic acid copolymer

**25791-96-2**

Acclaim® 6300

**25852-47-5**

Bisomer PEG 200DMA  
PEG-4 dimethacrylate

**25928-94-3**

Adeka Optomer KR Series  
Araldite® PY 302-2  
Epoxy resin

**25988-97-0**

Agefloc A4506  
Agefloc A4510  
Agefloc B50LV  
Agefloc B4508P  
Dimethylamine/epichlorohydrin copolymer

**26006-22-4**

Polyquaternium-5

**26027-38-3**

Nonoxynol-1  
Nonoxynol-2  
Nonoxynol-3  
Nonoxynol-4  
Nonoxynol-5  
Nonoxynol-6  
Nonoxynol-7  
Nonoxynol-8  
Nonoxynol-9  
Nonoxynol-10  
Nonoxynol-11  
Nonoxynol-12  
Nonoxynol-13  
Nonoxynol-14  
Nonoxynol-15  
Nonoxynol-18  
Nonoxynol-20  
Nonoxynol-23  
Nonoxynol-30  
Nonoxynol-40  
Nonoxynol-44  
Nonoxynol-50  
Nonoxynol-100  
Nonoxynol-120

**26062-79-3**

Agefloc PC20HV  
Agefloc PC20VHV  
Agefloc PC40  
Agefloc PC40HV  
Agefloc PC2206  
Agequat C1405  
Agequat C3204  
Agestat 41T  
Hartfloc® 401  
Polyquaternium-6  
Sumaclear P30, P35

**26062-94-2**

Polybutylene terephthalate Ultradur® B 2550	<b>26499-65-0</b> Calcium sulfate hemihydrate	line	Jayflex® DIOP
<b>26172-55-4</b> Kathon® WT Methylchloroisothiazolinone	<b>26530-20-1</b> 2-n-Octyl-4-isothiazolin-3-one	<b>27138-31-4</b> Benzoflex® 9-88 Dipropylene glycol dibenzoate	<b>27610-92-0</b> 2-Butyl octanoic acid Jaric I-12
<b>26183-52-8</b> Deceth-4 Oxetal D 104	<b>26571-11-9</b> Nonoxynol-8 Nonoxynol-9	<b>27176-87-0</b> BIO-SOFT® S-120 Calimulse EM-99 Calsoft® LAS-99 Dodecylbenzenesulfonic acid POLYSTEP® A-13 POLYSTEP® A-17	<b>27638-00-2</b> Glyceryl dilaurate
<b>26248-24-8</b> Sodium tridecylbenzene sulfonate	<b>26571-49-3</b> PPG-17 dioleate	<b>27176-93-8</b> Nonoxynol-2	<b>27813-02-1</b> Hydroxypropyl methacrylate Mhoromer® BM 951 Mhoromer® BM 955
<b>26264-02-8</b> Nonoxynol-5	<b>26589-26-4</b> Acrylates/PVP copolymer	<b>27176-94-9</b> Octoxynol-3	<b>27883-12-1</b> Linoleamide DEA
<b>26264-05-1</b> Calimulse PR Calimulse PRS Isopropylamine dodecylbenzenesulfonate POLYSTEP® A-11	<b>26590-05-6</b> Agequat C505 Polyquaternium-7	<b>27176-95-0</b> Nonoxynol-3	<b>27942-26-3</b> Nonoxynol-10
<b>26264-58-4</b> Sodium methylnaphthalene-sulfonate	<b>26635-92-7</b> Imbentin-SAM/400 PEG stearamine PEG-2 stearamine PEG-5 stearamine PEG-10 stearamine PEG-20 stearamine PEG-25 stearamine PEG-30 stearamine PEG-40 stearamine Teric™ 18M5 Teric™ 18M10 Teric™ 18M20 Teric™ 18M30	<b>27176-97-2</b> Nonoxynol-4	<b>27986-36-3</b> Nonoxynol-1
<b>26266-57-9</b> Crill 2 Lumisorb™ SMP Sorbitan palmitate	<b>26635-93-8</b> Imbentin-OAM/020 PEG-2 oleamine	<b>27176-99-4</b> Octoxynol-5	<b>28553-12-0</b> Diisononyl phthalate
<b>26266-58-0</b> Crill 45 Lumisorb™ STO Sorbitan trioleate	<b>26658-19-5</b> Crill 41 Lumisorb™ STS Sorbitan tristearate	<b>27177-01-1</b> Nonoxynol-6	<b>28558-32-9</b> Thiabendazole hypophosphite salt
<b>26266-77-3</b> Hydroabietyl alcohol	<b>26713-18-8</b> ACter® 1450 Ethylene/acrylic acid/vinyl acetate copolymer	<b>27177-02-2</b> Octoxynol-7	<b>28777-98-2</b> Octadecenyl succinic anhydride ODSA Pentasize 8
<b>26314-40-5</b> EO/PO ethylenediamine block copolymer Tetronic® 90R4 Tetronic® 150R1	<b>26741-53-7</b> Alkanox® P-24 Bis (2,4-di-t-butylphenyl) pentaerythritol diphosphite	<b>27177-03-3</b> Nonoxynol-7	<b>28874-51-3</b> Ajidew N-50 Sodium PCA
<b>26376-86-3</b> Ethyl acrylate/2-ethylhexylacrylate copolymer Modaflow® 2100	<b>26811-08-5</b> Dimethyl hydantoin-formaldehyde polymer	<b>27177-05-5</b> Nonoxynol-6 Nonoxynol-8	<b>29059-24-3</b> Propylene glycol myristate
<b>26401-47-8</b> Dodoxynol-4 Dodoxynol-5 Dodoxynol-6 Dodoxynol-7 Dodoxynol-9 Dodoxynol-10 Dodoxynol-12	<b>26913-06-4</b> Ionac Corcat® P-12 Ionac Corcat® P-600 Polyethylene imine	<b>27177-07-7</b> Octoxynol-10	<b>29690-82-2</b> Araldite® 94-105 Araldite® ECN 1400 Araldite® PY 323 Araldite® PZ 3917 Araldite® XU 3900 Araldite® XU 3903 Epoxy cresol novolac
<b>26402-22-2</b> Glyceryl caprate	<b>27013-01-0</b> Glyoxal/urea/formaldehyde condensate	<b>27177-08-8</b> Nonoxynol-10	<b>29964-84-9</b> Ageflex FM-10 Biemmer IDMA Isodecyl methacrylate
<b>26402-26-6</b> Glyceryl caprylate	<b>27040-03-5</b> Oleth-8	<b>27177-77-1</b> POLYSTEP® A-15-30K Potassium dodecylbenzene sulfonate	<b>30399-84-9</b> Isostearic acid
<b>26426-80-2</b> Isobutylene/MA copolymer Tamol® 731A	<b>27136-73-8</b> Oleyl hydroxyethyl imidazo-	<b>27194-74-7</b> Lumulse™ PGML Propylene glycol laurate	<b>30499-70-8</b> Epiol TMP-100 Trimethylolpropane triglycidyl ether
		<b>27214-38-6</b> Glyceryl myristate	<b>30525-89-4</b> Paraformaldehyde
		<b>27306-78-1</b> Silwet® L-77	<b>31098-20-1</b> Potassium (3-sulfopropyl) acrylate SPA
		<b>27458-93-1</b> Isostearyl alcohol	
		<b>27501-55-9</b> Ammonium dinonyl sulfosuccinate	
		<b>27554-26-3</b> Diisooctyl phthalate	

**31098-21-2**

Potassium sulfopropyl  
methacrylate  
SPM

**31394-71-5**

PPG-26 oleate  
PPG-36 oleate

**31566-31-1**

Aldo® MS LG FG  
Glyceryl stearate  
Glyceryl stearate SE

**31691-97-1**

Ammonium nonoxynol-4  
sulfate  
Ammonium nonoxynol-30  
sulfate

**31692-79-2**

Dimethiconol  
Masil® SFR 70  
Masil® SFR 100  
Masil® SFR 750  
Masil® SFR 2000  
Masil® SFR 3500  
Masil® SFR 50,000

**31791-00-2**

PEG-40 stearate

**32072-96-1**

Hexadecenyl succinic  
anhydride

**32360-05-7**

Ageflex FM-68  
Blemmer SMA  
Stearyl methacrylate

**32535-84-5**

Zirconyl ammonium  
carbonate

**32582-32-4**

Jarcol™ I-32  
2-Tetradecyloctadecanol

**32612-48-9**

Ammonium laureth sulfate  
Ammonium laureth-12 sulfate  
Ammonium laureth-30 sulfate  
Paxnol ALES  
POLYSTEP® B-11  
POLYSTEP® B-20  
POLYSTEP® B-22  
Stanfax 238  
Stanfax 968  
Stanfax 1012

**32815-96-6**

2-Nitrobutyl bromoacetate

**33703-08-1**

Diisononyl adipate  
Jayflex® DINA

**34398-01-1**

Undeceth-5

**34590-94-8**

PPG-2 methyl ether

**34911-46-1**

2-(p-Hydroxyphenyl) glyoxylo-  
hydroximoyl chloride

**35065-27-1**

2,2',4,4',5,5'-Hexachlorobi-  
phenyl

**35074-77-2**

Hexamethylenebis (3,5-di-t-  
butyl-4-hydroxycinnamate)  
Irganox® 259

**35179-86-3**

PEG-8 laurate

**35209-54-2**

Plasmine KN-500  
Styrene/acrylic copolymer  
ammonium salt

**35343-70-5**

Coumarone/indene resin  
Cumar® LX®-509  
Cumar® R-3  
Cumar® R-11  
Cumar® R-12 (V-2, V-21/2)  
Cumar® R-13  
Cumar® R-17

**35691-65-7**

Metasol® CB-225 L.C.  
Methyltribromo glutaronitrile  
Tektamer® 38  
Tektamer® 38 A.D.  
Tektamer® 38 L.V.

**36653-82-4**

Cetyl alcohol  
Kessco® Cetyl Alcohol NF

**36671-85-9**

Mayzo RA-75  
Mayzo RA-95H  
Mayzo RA-95HS  
Mayzo RA-150W  
Polyvinyl octadecyl carbamate

**37199-81-8**

Acumer® 1850  
Geroon® T/36DF  
Geroon® TA/72/S  
Sodium polycarboxylate

**37200-49-0**

Polysorbate 80

**37205-87-1**

Nonoxynol  
Nonoxynol-1  
Nonoxynol-2  
Nonoxynol-3  
Nonoxynol-4  
Nonoxynol-5  
Nonoxynol-6  
Nonoxynol-7  
Nonoxynol-8  
Nonoxynol-9  
Nonoxynol-10  
Nonoxynol-11

Nonoxynol-12

Nonoxynol-13  
Nonoxynol-14  
Nonoxynol-15  
Nonoxynol-18  
Nonoxynol-20  
Nonoxynol-23  
Nonoxynol-30  
Nonoxynol-40  
Nonoxynol-44  
Nonoxynol-50  
Nonoxynol-100  
Nonoxynol-120

**37220-82-9**

Glyceryl oleate

**37251-67-5**

DeIONIC LF-EP-20  
DeIONIC LF-EP-30

**37318-14-2**

PEG-8 laurate

**37767-39-8**

Tetrasodium dicarboxyethyl  
stearyl sulfosuccinamate

**37971-36-1**

Dequest® 7000  
2-Phosphono butane  
tricarboxylic acid-1,2,4

**38051-10-4**

Antiblaste® 100

**38640-62-9**

Diisopropyl naphthalene

**38820-59-6**

Dequest® 2054  
Potassium hexamethylene  
diamine tetra (methylene  
phosphonate)

**38916-42-6**

Aerosol® 22  
Tetrasodium dicarboxyethyl  
stearyl sulfosuccinamate

**39290-78-3**

Paper-PAC-N®  
Polyaluminum hydroxide  
chloride sulfate

**39310-72-0**

PEG-15 glyceryl ricinoleate

**39355-35-6**

Mineral oil

**39409-82-0**

Magnesium carbonate  
hydroxide

**39421-75-5**

Hydroxypropyl guar

**39433-77-7**

Vinyl chloride/vinyl acetate  
copolymer

**39464-69-2**

Oleth-7 phosphate  
Servoxyl® VPFZ 7/100

**39464-70-5**

Servoxyl® VPGZ 6/100

**39660-17-8**

Poly (2-hydroxypropyl-N,N-  
dimethyl ammonium  
chloride)

**39874-62-9**

Pentaerythryl trioleate

**39957-00-1**

Behenyl hydroxyethyl  
imidazoline

**40596-46-1**

Jaric I-20  
2-Octyl dodecanoic acid

**41484-35-9**

Irganox® 1035  
Thiodiethylene bis (3,5-di-t-  
butyl-4-hydroxy) hydrocinn-  
amate

**41525-41-1**

Escor® AT-310  
Escor® AT-320  
Escor® AT-325  
Ethylene/methyl acrylate/  
acrylic acid terpolymer

**42173-90-0**

Octoxynol-9

**42233-51-2**

Myristyl lignocerate

**42426-59-5**

PEG-8 ricinoleate

**42504-46-1**

MIPA-dodecylbenzenesulfo-  
nate

**42751-79-1**

Agefloc A50HV-P  
Agefloc A50LV-P  
Agefloc A50-P  
Agefloc B50-P  
Hartfloc® 425  
Poly (2-hydroxypropyl-N,N-  
dimethyl ammonium  
chloride)

**42808-36-6**

Sulfated butyl tallate

**42978-66-5**

PPG-3 diacrylate

**43154-85-4**

Disodium oleamido MIPA-  
sulfosuccinate

**44992-01-0**

Ageflex FA-1Q80MC  
Dimethylaminoethyl acrylate



methyl chloride quat.	PEG-2 dioleate	MIPA-dodecylbenzenesulfonate	Isodecyl oleate
<b>45235-48-1</b> 2-Octyl-1-decanol	<b>52688-97-0</b> PEG-4 dioleate PEG-6 dioleate PEG-8 dioleate PEG-12 dioleate PEG-20 dioleate PEG-32 dioleate	<b>55406-53-6</b> Iodopropynyl butylcarbamate Troysan® Polyphase® AF1 Troysan® Polyphase® EC17 Troysan® Polyphase® P-20T Troysan® Polyphase® P-100	<b>60344-26-5</b> PEG-6 oleate
<b>48145-04-6</b> 2-Phenoxyethyl acrylate	<b>52725-64-1</b> Lauramide DEA	<b>55566-30-8</b> Tetrakis (hydroxymethyl) phosphonium sulfate Tolcide® PS Tolcide® PS25 Tolcide® PS 75 Tolcide® PS 75LT Tolcide® PS75M Tolcide® PS 200 Tolcide® PS352CM	<b>60616-95-7</b> Sodium carrageenan
<b>51026-28-9</b> Potassium N-hydroxymethyl-N-methyldithiocarbamate	<b>52932-31-7</b> Adipic acid/epoxypropyl diethylenetriamine copolymer	<b>56136-14-2</b> 1,4,4a,9a-Tetrahydro-9,10-anthracenedione	<b>60828-78-6</b> Isolaureth-3 Isolaureth-6 Isolaureth-10 Tergitol® TMN-3 Tergitol® TMN-10
<b>51142-51-9</b> PEG-15 glyceryl ricinoleate PEG-20 glyceryl ricinoleate	<b>53026-57-6</b> FD&C Blue No. 1 aluminum lake	<b>56378-72-4</b> Magnesium carbonate hydroxide (pentahydrate)	<b>61788-47-4</b> Coconut acid
<b>51192-09-7</b> PEG-20 glyceryl oleate	<b>53026-63-4</b> FD&C Yellow No. 5 Aluminum Lake	<b>56803-37-3</b> t-Butylphenyl diphenyl phosphate Phosflex® 61B Phosflex® 71B	<b>61788-59-8</b> Methyl cocoate
<b>51200-87-4</b> Dimethyl oxazolidine Nuosept® 166	<b>53037-34-6</b> Glyoxal/urea polymer	<b>56863-02-6</b> DeMIDE SBA-100 Linoleamide DEA	<b>61788-77-0</b> Cellophane
<b>51229-78-8</b> Quaternium-15	<b>53112-52-0</b> Corn (Zea mays) starch Rice (Oryza sativa) starch	<b>56974-60-8</b> Dimelamine phosphate	<b>61788-85-0</b> Chemax HCO-5 Chemax HCO-16 Chemax HCO-25 Chemax HCO-200/50 Nopalcol 10-COH Nopalcol 12-COH PEG hydrogenated castor oil PEG-5 hydrogenated castor oil PEG-16 hydrogenated castor oil PEG-20 hydrogenated castor oil PEG-25 hydrogenated castor oil PEG-200 hydrogenated castor oil
<b>51248-32-9</b> PEG-12 glyceryl laurate PEG-20 glyceryl laurate	<b>53320-86-8</b> Claytone® 2000 Claytone® LMW Claytone® SO Smectite	<b>57062-46-1</b> Permanax™ PTBC	<b>61789-05-7</b> Glyceryl cocoate
<b>51248-43-2</b> Polyvinyl chloride	<b>53520-67-5</b> Eicosenyl succinic anhydride	<b>57107-97-8</b> PEG-12 glyceryl dioleate	<b>61789-08-0</b> Hydrogenated soy glyceride Hydrogenated vegetable glyceride
<b>51258-15-2</b> PPG-66-glycereth-12	<b>53637-25-5</b> Acclaim® 3201 Dow EP530 Poloxamer 181	<b>57171-56-9</b> PEG-40 sorbitan hexaoleate	<b>61789-09-1</b> Hydrogenated tallow glyceride
<b>51410-72-1</b> Methacrylamidopropyltrimethylammonium chloride Mhoromer® BM 613	<b>53800-41-2</b> Poly [acrylamide-acrylic acid-N-(dimethylaminomethyl) acrylamide]	<b>57455-37-5</b> Octotint 120 Octotint 572 Ultramarine blue	<b>61789-13-7</b> Tallow glyceride
<b>51437-95-7</b> Nonoxynol-3	<b>53810-32-5</b> Aluminum hydroxide sulfate Pass®-55 Pass®-70 Pass®-80 PASS®-100	<b>58598-42-8</b> Docosenylsuccinic anhydride	<b>61789-18-2</b> Cocotrimonium chloride Nissan Cation FB
<b>51609-41-7</b> Nonoxynol-9 phosphate	<b>54045-08-8</b> Cetoleth-25	<b>58670-89-6</b> 2-Decyl-1-tetradecanol Jarcol™ I-24	<b>61789-19-3</b> Cocamide
<b>51811-79-1</b> Nonoxynol-9 phosphate Tryfac® 5556	<b>54182-57-9</b> Carbomer	<b>58748-27-9</b> Propylene glycol dicaprylate/dicaprate	<b>61789-23-9</b> Potassium cornate
<b>51838-31-4</b> Poly (glycidyltrimethyl ammonium chloride)	<b>54193-36-1</b> Sodium polymethacrylate	<b>59070-56-3</b> PEG-12 glyceryl laurate PEG-20 glyceryl laurate	<b>61789-30-8</b> Potassium cocoate
<b>52019-36-0</b> Deceth-4 phosphate Monafax 1214	<b>54571-67-4</b> Sodium PCA	<b>59231-34-4</b>	<b>61789-31-9</b> Sodium cocoate
<b>52229-50-2</b> PVM/MA copolymer	<b>54590-52-2</b>		
<b>52467-63-7</b> Tricetylmonium chloride			
<b>52556-42-0</b> Sodium 2-hydroxy-3-(2-propenyloxy) 1-propanesulfonate SPAЕ			
<b>52668-97-0</b>			

**61789-71-7**

Benzalkonium chloride

**61789-76-2**Armeen® 2C  
Dicocamine**61789-77-3**

Dicocodimonium chloride

**61789-79-5**Amine 2HBG  
Amine 2 VT  
Hydrogenated ditallowamine**61789-80-8**Quaternium-18  
Querton 442  
Querton 442-11  
Querton 442-82  
Querton 442E  
Querton 442H**61789-97-7**

Tallow

**61790-12-3**

Tall oil acid

**61790-32-7**

Potassium tallowate

**61790-37-2**

Tallow acid

**61790-38-3**

Hydrogenated tallow acid

**61790-44-1**

Potassium tallate

**61790-50-9**

Potassium rosinate

**61790-51-0**Arizona DRS-40  
Arizona DRS-42  
Potassium rosinate**61790-53-2**DiaFil® 110  
DiaFil® 190  
DiaFil® 210  
DiaFil® 215  
DiaFil® 230  
DiaFil® 270  
DiaFil® 290  
DiaFil® 295  
DiaFil® 520  
DiaFil® 525  
DiaFil® 530  
DiaFil® 570  
DiaFil® 590  
Diatomaceous earth,  
amorphous**61790-64-5**

TEA cocoate

**61790-81-6**PEG-75 lanolin  
PEG-150 lanolin

Solane E

Solane X

**61790-82-7**

PEG-20 tallowamine

**61790-85-0**Ethoduomeen® T/20  
PEG-10 tallow aminopropyl-  
amine**61790-86-1**

Polysorbate 80

**61791-00-2**DeTHOX ACID TO-8.5  
DeTHOX ACID TO-14  
DeTHOX ACID TO-16.5  
PEG tallate  
PEG-4 tallate  
PEG-5 tallate  
PEG-6 tallate  
PEG-8 tallate  
PEG-10 tallate  
PEG-12 tallate  
PEG-14 tallate  
PEG-16 tallate  
PEG-20 tallate  
Surfonic® TOFA-5  
Surfonic® TOFA-6  
Surfonic® TOFA-X10  
Surfonic® TOFA-20  
Teric™ T5  
Teric™ T10**61791-01-3**PEG-8 ditallate  
PEG-12 ditallate  
Pegospere® 400 DOT  
Pegospere® 600 DOT**61791-12-6**Alkamuls® EL-620  
Alkamuls® EL-719  
Chemax CO-5  
Chemax CO-16  
Chemax CO-30  
Chemax CO-30  
Chemax CO-40  
DePEG 30-CO  
DePEG 40-CO  
DeSonic™ 6C  
DeSonic™ 30C  
DeSonic™ 36C  
DeSonic™ 40C  
DeSonic™ 54C  
Nonionic GR-25  
Nonionic GR-40  
Nonionic GR-52  
Nopalcol 12-CO  
Nopalcol 19-CO  
Paxonic CO 40  
Paxonic CO 60  
PEG castor oil  
PEG-2 castor oil  
PEG-4 castor oil  
PEG-5 castor oil  
PEG-6 castor oil  
PEG-8 castor oil  
PEG-15 castor oil  
PEG-16 castor oil  
PEG-17 castor oil  
PEG-20 castor oilPEG-25 castor oil  
PEG-26 castor oil  
PEG-28 castor oil  
PEG-30 castor oil  
PEG-33 castor oil  
PEG-36 castor oil  
PEG-40 castor oil  
PEG-42 castor oil  
PEG-52 castor oil  
PEG-54 castor oil  
PEG-60 castor oil  
PEG-80 castor oil  
PEG-100 castor oil  
PEG-180 castor oil  
PEG-200 castor oil  
Servirox® OEG 45  
Servirox® OEG 55  
Servirox® OEG 90  
Servirox® OEG 90/50  
Surfonic® CO-15  
Surfonic® CO-20  
Surfonic® CO-25  
Surfonic® CO-30  
Surfonic® CO-42  
T-Det® C-20  
T-Det® C-40  
Trylox® 5906**61791-13-7**Coceth-5  
Coceth-8  
Coceth-10  
Coceth-15  
Coceth-20  
Genapol® C-050  
Genapol® C-080  
Genapol® C-100  
Genapol® C-150  
Genapol® C-200**61791-14-8**Ibentini-CAM/020  
PEG cocamine  
PEG-2 cocamine  
PEG-5 cocamine  
PEG-10 cocamine  
PEG-15 cocamine  
Teric™ 12M2  
Teric™ 12M5  
Teric™ 12M15  
Varonic® K-210**61791-24-0**PEG-2 soyamine  
PEG-10 soyamine  
PEG-15 soyamine  
Teric™ 16M2  
Teric™ 16M10  
Teric™ 16M15**61791-28-4**

Talloweth-6

**61791-29-5**Nopalcol 4-C  
Nopalcol 4-CH  
PEG-8 cocoate  
PEG-15 cocoate**61791-31-9**Cocamide DEA  
DeMIDE MFM-200DeMIDE MFS-200  
DeMIDE RCN-100HV  
DeMIDE RCN-MCY-100  
DeMIDE RCN-ME-100  
Norfox® DCS  
Stafoam F**61791-38-6**Cocoyl hydroxyethyl  
imidazoline  
Miramine® CC**61791-39-7**Burco® Imidazoline T  
LamChem C-100-T  
Tall oil hydroxyethyl  
imidazoline**61791-41-1**Sodium methyl tall oil acid  
taurate**61791-44-4**Ibentini-TAM/020  
Ibentini-TAM/050  
Ibentini-TAM/200 N  
Ibentini-TAM/350  
PEG-2 tallowamine  
PEG-5 tallowamine  
PEG-20 tallowamine  
PEG-35 tallowamine**61791-47-7**Aromox® C/12-W  
Dihydroxyethyl cocamine  
oxide**61827-42-7**Isodeceth-4  
Isodeceth-6  
Isodeceth-7  
Oxetal ID 104  
Surfonic® DA-4  
Surfonic® DA-6  
Synperonic 10/6-100%  
Synperonic 10/7-100%**61840-27-5**Adipic acid/dimethylamino-  
hydroxypropyl diethylenetri-  
amine copolymer**61971-31-9**

Lauramide DEA

**63089-86-1**

PEG-40 sorbitan tetraoleate

**63090-40-4**

Carbendazim

**63148-55-0**

Dimethicone copolyol

**63148-62-9**Antifoam FD-62  
Antifoam FD-82  
Dimethyl siloxane  
Formasil® 45**63148-65-2**

Polyvinyl butyral

<b>63148-69-6</b> Alkyd resin	Exxsol® D 130 Penreco 2263 Oil Petroleum distillates	<b>66197-78-2</b> Nonoxynol-9 phosphate	Silwet® L-7087
<b>63231-60-7</b> Microcrystalline wax Microlube™ C Multiwax® ML-445 Paracol® 404C Starwax® 100	<b>64742-48-9</b> C10-11 isoparaffin C11-12 isoparaffin C11-13 isoparaffin C13-14 isoparaffin Isopar® G Isopar® H Isopar® K Isopar® L Isopar® M	<b>66455-14-9</b> C12-13 pareth-7 Imbentin-C/123/065	<b>67762-96-3</b> Dimethicone copolyol TEGO® Foamex 3062
<b>63278-70-6</b> Carbendazim	<b>64742-49-0</b> Hexane	<b>66455-15-0</b> Alfonic® 1012-5.5 C10-12 pareth-3 C10-12 pareth-5 C10-12 pareth-6 C10-12 pareth-8 Surfonic® L12-2.6 Surfonic® L12-3 Surfonic® L12-6 Surfonic® L12-8 T-Det® A126	<b>67774-74-7</b> Marlican®
<b>63351-73-5</b> Ammonium nonoxynol-4 sulfate	<b>64742-53-6</b> Naphthenic oil	<b>67167-17-3</b> Chemax DFO-155	<b>67784-79-6</b> Propylene glycol soyate
<b>63441-26-9</b> Imidazoline 18 DA Oleic amidoethylimidazoline	<b>64742-56-9</b> Cynol® 760 Softener Petroleum distillates	<b>67254-74-4</b> Naphthenic oil	<b>67784-80-9</b> Methyl soyate Soygold® 1000
<b>63449-39-8</b> Chlorez® 700 Chlorez® 700-DF Chlorez® 700-S Chlorez® 700-SS Chlorez® 700-SSNP Chlorez® 725-S Chlorez® 760 Paraffin, chlorinated	<b>64742-89-8</b> Heptane	<b>67633-57-2</b> Isostearyl ethylimidonium ethosulfate Schercoquat IIS	<b>67784-87-6</b> Hydrogenated palm glyceride
<b>63449-41-2</b> Benzalkonium chloride	<b>64742-95-6</b> Naphtha (lt. aromatic)	<b>67633-63-0</b> Isosteamidopropyl ethyldimonium ethosulfate Schercoquat IAS	<b>67815-88-7</b> Disodium oleamido MIPA-sulfosuccinate
<b>64093-79-4</b> Chromium sulfate, basic	<b>64743-02-8</b> C12-14 alpha olefin C14-16 alpha olefin C16-18 alpha olefin C20-24 alpha olefin Gulfene® 20-24 Neodene® 12/14 Neodene® 14/16 Neodene® 16/18 Neodene® 20/22/24	<b>67674-67-3</b> Silicone glycol copolymer Silwet® L-7608	<b>67923-87-9</b> Sodium octoxynol-2 ethane sulfonate
<b>64365-11-3</b> Carbon, activated	<b>64771-72-8</b> Norpar® 12 Norpar® 13 Norpar® 15	<b>67701-03-5</b> Stearic acid	<b>68002-19-7</b> Urea/formaldehyde resin, butylated
<b>64365-17-9</b> Pentaerythrityl hydrogenated rosinate Pentalyn® H	<b>64812-54-4</b> Igepal® CO-850 Nonoxynol-20 Nonoxynol-23 Nonoxynol-30	<b>67701-05-7</b> Coconut acid	<b>68002-20-0</b> Cymel® 300 Melamine-formaldehyde resin, methylated Resimene® AQ-1616 Resimene® AQ-7550
<b>64365-23-7</b> Dimethicone copolyol	<b>65151-76-0</b> Sodium oleic sulfate	<b>67701-06-8</b> Tallow acid	<b>68002-21-1</b> Melamine-formaldehyde resin, isobutylated
<b>64366-24-1</b> Potassium carrageenan	<b>65530-85-0</b> Tetrafluoroethylene telomer	<b>67701-08-8</b> Triolein	<b>68002-25-5</b> Melamine-formaldehyde resin, butylated
<b>64475-85-0</b> Mineral spirits	<b>65941-98-2</b> 4,4'-Diaminostilbene-2,2'-disulfonic acid	<b>67701-27-3</b> Hydrogenated tallow glycerides	<b>68002-59-5</b> Quaternium-18
<b>64742-14-9</b> Penreco 2251 Oil Petroleum distillates	<b>65996-61-4</b> Cellulose	<b>67701-30-8</b> Triolein	<b>68002-61-9</b> Tallowtrimonium chloride
<b>64742-42-3</b> Koster Keunen Microcrystalline Waxes Microcrystalline wax	<b>65997-17-3</b> A-Series Glass Beads Glass	<b>67762-19-0</b> Ammonium laureth sulfate	<b>68002-72-2</b> Hydrogenated menhaden oil
<b>64742-46-7</b> Isopar® V Penreco 2257 Oil	<b>66161-57-7</b> Sodium laureth-12 sulfate	<b>67762-25-8</b> C12-18 alcohols Nafol® 1218	<b>68002-88-0</b> Safacid 20/22 CD Safacid 20/22 DF Safacid 20/22 HF
<b>64742-47-8</b> Exxsol® D 40 Exxsol® D 60 Exxsol® D 80 Exxsol® D 110		<b>67762-27-0</b> Cetearyl alcohol	<b>68002-97-1</b> Laureth-3 Laureth-4 Rhodasurf® L-4
		<b>67762-38-3</b> Methyl oleate	<b>68036-97-5</b> Melamine-formaldehyde resin, methylated-butylated Resimene® 757
		<b>67762-39-4</b> Methyl caprylate/caprinate	<b>68037-01-4</b> 1-Decene, homopolymer,
		<b>67762-85-0</b>	

hydrogenated	Teric™ G12A7 Teric™ G12A12	Corn acid	68424-45-3 Linseed acid
<b>68071-35-2</b> Chimin P40 Chimin P45 Sabofos PP 75	<b>68131-40-8</b> C11-15 pareth-3 C11-15 pareth-5 C11-15 pareth-7 C11-15 pareth-9 C11-15 pareth-12 C11-15 pareth-15 Tergitol® 15-S-3 Tergitol® 15-S-5 Tergitol® 15-S-7 Tergitol® 15-S-9 Tergitol® 15-S-12 Tergitol® 15-S-15	<b>68308-51-0</b> Cottonseed acid	<b>68424-59-9</b> W.G.S. Hydrogenated Fish Glyceride 117
<b>68071-45-4</b> Resimene® U-975 Resimene® U-980 Urea-formaldehyde resin, methylated	<b>68132-50-3</b> Ammonium tallate	<b>68308-54-3</b> Hydrogenated tallow glycerides	<b>68424-61-3</b> Glyceryl oleate
<b>68081-81-2</b> Sodium dodecylbenzenesulfo- nate	<b>68140-08-9</b> Tallowamide DEA	<b>68309-95-5</b> Ammonium zirconium carbonate Bacote™ 20 Nopcote® 1680	<b>68424-85-1</b> Barquat® MB-50 Benzalkonium chloride Hyamine® 3500 50%
<b>68081-96-9</b> Ammonium lauryl sulfate	<b>68140-10-3</b> Sodium tallow sulfate	<b>68331-91-9</b> Dymisol® 2031 Sodium oleic sulfate	<b>68424-94-2</b> Coco-betaine
<b>68081-97-0</b> Magnesium lauryl sulfate	<b>68140-98-7</b> Alkaterge®-E Ethyl hydroxymethyl oleyl oxazoline	<b>68333-79-9</b> Ammonium polyphosphate FRCROS 481 FRCROS 484	<b>68425-36-5</b> Hydrogenated peanut oil
<b>68130-15-4</b> Carboxymethyl hydroxypropyl guar Jaguar® 418	<b>68153-57-1</b> Tallamide DEA	<b>68334-00-9</b> Hydrogenated cottonseed oil	<b>68425-37-6</b> Coconut alcohol
<b>68130-47-2</b> Deceth-4 phosphate	<b>68154-31-4</b> Hartaflo™ SE-6620	<b>68334-28-1</b> Hydrogenated vegetable oil	<b>68425-47-8</b> Soyamide DEA
<b>68131-32-8</b> Calcium lignosulfonate (fermented)	<b>68154-33-6</b> Polysorbate 20	<b>68391-01-5</b> Benzalkonium chloride	<b>68439-39-4</b> Butyl phosphate Servoxyl® VPIZ 100 Servoxyl® VPTZ 003/100
<b>68131-39-5</b> C12-15 pareth-3 C12-15 pareth-5 C12-15 pareth-6 C12-15 pareth-7 C12-15 pareth-8 C12-15 pareth-9 C12-15 pareth-10 C12-15 pareth-12 C12-15 pareth-13 C12-15 pareth-23 C13-15 pareth-3 C13-15 pareth-4 C13-15 pareth-7 C13-15 pareth-9 C13-15 pareth-11 C13-15 pareth-20 Ibmentin-C/125/030 Ibmentin-C/125/050 Ibmentin-C/125/55 90% Ibmentin-C/125/070 Ibmentin-C/125/85 Ibmentin-C/125/090 Ibmentin-C/125/130 80% Ibmentin-C/135/030 Ibmentin-C/135/040 Ibmentin-C/135/070 Ibmentin-C/135/090 Ibmentin-C/135/110 85% Ibmentin-C/135/200 Synperonic A7 Synperonic A9 Synperonic A11 Teric™ 12A3 Teric™ 12A9 Teric™ 12A23 Teric™ G12A6	<b>68186-14-1</b> Abalyn® Methyl rosinat	<b>68391-06-0</b> Dialkyl methyl benzyl ammonium chloride	<b>68439-45-2</b> Empilan® KA5/90 Empilan® KA8/80 Empilan® KA10/80 Surfonic® L108/85-5
	<b>68187-76-8</b> Sulfated castor oil	<b>68411-32-5</b> Dodecylbenzenesulfonic acid	<b>68439-46-3</b> C9-11 pareth-2 C9-11 pareth-3 C9-11 pareth-4 C9-11 pareth-5 C9-11 pareth-6 C9-11 pareth-8 C9-11 pareth-9 C9-11 pareth-10 C9-11 pareth-12 Ibmentin-C/91/025 Ibmentin-C/91/35 Ibmentin-C/91/040 Ibmentin-C/91/060 Ibmentin-C/91/080 I Ibmentin-C/91/080 OFA Ibmentin-C/91/85 Ibmentin-C/91/120 Synperonic 91/6 Synperonic 91/8 Synperonic 91/8T Teric™ G9A2 Teric™ G9A6 Teric™ G9A8 Teric™ G9A10
	<b>68187-86-0</b> Tetradecyleicosanol	<b>68411-90-5</b> BHMT Amine Bis-hexamethylenetriamine	
	<b>68201-46-7</b> PEG-40 glyceryl cocoate	<b>68412-27-1</b> Bis(methoxymethyl) tetrakis- [(octadecyloxy)-methyl] melamine resin	
	<b>68201-48-9</b> Hydrogenated soy glycerides	<b>68412-53-3</b> Nonoxynol-9 phosphate Rhodafac® RE-610	
	<b>68213-23-0</b> T-Det® A467 Trideceth-7	<b>68412-54-4</b> Nonoxynol Nonoxynol-4 Nonoxynol-6 Nonoxynol-7 Nonoxynol-8 Nonoxynol-9 Nonoxynol-10 Nonoxynol-11 Nonoxynol-12 Nonoxynol-13 Nonoxynol-14 Nonoxynol-15 Nonoxynol-18 Nonoxynol-40 Nonoxynol-44 Nonoxynol-50 Nonoxynol-100	
	<b>68308-22-5</b> Calcium montanate		
	<b>68308-50-9</b>		

- Cetareth-18**  
**Cetareth-20**  
**Cetareth-50**  
**Cetareth-60**  
 Oxetal TG 111  
 Oxetal TG 118  
 Rhodasurf® A-60  
 Serdox® NKL 6  
 Surfonic® L68-18  
 Volpo CS2  
 Volpo CS5  
 Volpo CS10  
 Volpo CS15  
 Volpo CS20  
 Volpo CS50
- 68439-50-9**  
 Alfonic® 1412-9  
**C12-14 pareth-1**  
**C12-14 pareth-2**  
**C12-14 pareth-3**  
**C12-14 pareth-4**  
**C12-14 pareth-5**  
**C12-14 pareth-6**  
**C12-14 pareth-7**  
**C12-14 pareth-8**  
**C12-14 pareth-9**  
**C12-14 pareth-11**  
**C12-14 pareth-17**  
**C12-14 pareth-22**  
**C12-14 pareth-23**  
 Imbentin-AG/124/020 I  
 Imbentin-AG/124/030 B  
 Imbentin-AG/124/040 I  
 Imbentin-AG/124/050  
 Imbentin-AG/124/075 90%  
 Imbentin-AG/124S/020 I  
 Imbentin-AG/124S/030  
 Imbentin-AG/124S/040  
 Imbentin-AG/124S/045  
 Imbentin-AG/124S/060  
 Imbentin-AG/124S/065  
 Imbentin-AG/124S/070  
 Imbentin-AG/124S/080 90%  
 Imbentin-AG/124S/110 90%  
 Imbentin-AG/124S/230 G  
 Sipol LAL-7  
 Surfonic® L24-1.3  
 Surfonic® L24-3  
 Surfonic® L24-4  
 Surfonic® L24-5  
 Surfonic® L24-7  
 Surfonic® L24-9  
 Surfonic® L24-12  
 Surfonic® L24-17  
 Surfonic® L24-22  
 Surfonic® L1270-2  
 Surfonic® L1285-2  
 T-Det® A243  
 T-Det® A247  
 T-Det® A249  
 T-Det® A2412
- 68441-17-8**  
 A-C® 316  
 A-C® 316A  
 A-C® 325  
 A-C® 330  
 A-C® 392  
 A-C® 395, 395A  
 A-C® 629  
 A-C® 629A
- A-C® 655  
 A-C® 656  
 A-C® 680  
 A-C® 6702  
 ACumist® A-12  
 ACumist® A-18  
 Cardipol® LP 0-25  
 Epolene® E-10  
 Epolene® E-15  
 Epolene® E-20  
 Esi-Cryl™ 316N  
 Hoechst Wax PED 121  
 Hoechst Wax PED 153  
 Hoechst Wax PED 522  
 Hoechst Wax PED 821  
 Hoechst Wax PED 822  
 Luwax® OA  
 Luwax® OA 3  
 Luwax® OA 5  
 Petrolite® C-7500  
 Petrolite® C-9500  
 Petrolite® E-1040  
 Petrolite® E-2020  
**Polyethylene, oxidized**  
 Vestowax® AO 1535  
 Vestowax® AO 1539
- 68442-33-1**  
**Polypropylene, chlorinated**
- 68442-94-4**  
**Hydroxypropyl guar**
- 68459-31-4**  
**Alkyd resin**
- 68476-03-9**  
 Hoechst Wax LP  
 Hoechst Wax S  
 Hoechst Wax UL  
**Montan acid wax**
- 68514-74-9**  
**Hydrogenated palm oil**
- 68514-95-4**  
**Dialkyl dimethyl ammonium chloride**  
 Querton 442P  
 Querton 442P-11
- 68515-48-0**  
**Diisononyl phthalate**  
 Jayflex® DINP
- 68515-50-4**  
**Dihexyl phthalate**  
 Jayflex® DHP
- 68526-50-1**  
**Isobutyl tallowate**
- 68526-85-2**  
**Decyl alcohol**
- 68551-12-2**  
**C12-16 pareth-1**  
**C12-16 pareth-2**  
**C12-16 pareth-3**  
**C12-16 pareth-5**  
**C12-16 pareth-6**  
**C12-16 pareth-7**
- C12-16 pareth-8**  
**C12-16 pareth-9**  
**C12-16 pareth-11**  
 Genapol® 26-L-5  
 Genapol® 26-L-45  
 Genapol® 26-L-50  
 Genapol® 26-L-60  
 Genapol® 26-L-80  
 Imbentin-AG/124PG/020  
 Imbentin-AG/124PG/030  
 Imbentin-AG/124PG/070
- 68551-14-4**  
 Tergitol® Min-Foam 1X  
 Tergitol® Min-Foam 2X
- 68553-81-1**  
**Rice (Oryza sativa) bran oil**
- 68583-51-7**  
**Propylene glycol dicaprylate/dicaprate**
- 68584-22-5**  
**Dodecylbenzenesulfonic acid**
- 68584-24-7**  
**Isopropylamine dodecylbenzenesulfonate**
- 68585-34-2**  
**Sodium laureth sulfate**
- 68585-47-7**  
 Aviro® SL 2010  
 Aviro® SL 2020 G  
**Sodium lauryl sulfate**  
 Texapon® K-12 PA 15
- 68603-42-9**  
**Cocamide DEA**  
 DeMIDE RCN-100  
 DeMIDE RCN-200  
 DeMIDE RCN-276
- 68604-44-4**  
**Pentaerythrityl tetraoleate**
- 68607-88-5**  
**Hydrolyzed soy protein**
- 68608-26-4**  
**Sodium petroleum sulfonate**
- 68608-88-8**  
**Dodecylbenzenesulfonic acid**  
 SULFONIC 100
- 68608-89-9**  
**Sodium dodecylbenzenesulfonate**
- 68783-41-5**  
**Dimer acid, hydrogenated**  
 Empol® 1004
- 68855-54-9**  
**Diatomaceous earth**
- 68855-58-3**  
**C12-14 alpha olefin**
- 68855-59-3**  
**C14-16 alpha olefin**
- 68866-60-7**  
**C16-18 alpha olefin**
- 68866-68-3**  
**C12-14 alpha olefin**
- 68889-49-6**  
 PEG-15 glyceryl oleate  
 PEG-20 glyceryl oleate
- 68891-11-2**  
 Surfonic® LF-41
- 68901-05-3**  
**PPG-3 diacrylate**
- 68908-44-1**  
**TEA-lauryl sulfate**
- 68920-06-9**  
**Naphtha**
- 68920-66-1**  
 Cetoleth  
 Cetoleth-2  
 Wax Emulsifier 4106
- 68921-42-6**  
**FD&C Blue No. 1 aluminum lake**
- 68937-01-9**  
 Imidazoline SOH  
**Stearyl hydroxyethyl imidazoline**
- 68937-10-0**  
**Hydrogenated polybutene**
- 68937-54-2**  
**Polysiloxane polyether copolymer**  
 Silwet® L-7657  
 TEGO® Foamex 800  
 TEGO® Foamex 805  
 TEGO® Foamex 810  
 TEGO® Foamex 815  
 TEGO® Foamex 825  
 TEGO® Glide 403  
 TEGO® Glide 404  
 TEGO® Wet 260
- 68937-55-3**  
**Silicone glycol copolymer**  
 Silwet® L-7200  
 Silwet® L-7210  
 Silwet® L-7220  
 Silwet® L-7230
- 68937-83-7**  
**Methyl caprylate/caprate**
- 68937-85-9**  
**Coconut acid**
- 68937-90-6**  
**Trilinoleic acid**
- 68938-15-8**

Hydrogenated coconut acid	glycerides	Glycol/butylene glycol montanate Hoechst Wax E Hoechst Wax KSL	Isopropyl oleate
<b>68938-35-2</b> Vegetable oil	<b>69102-90-5</b> Polybutadiene	<b>73138-79-1</b> Sulfated peanut oil	<b>85116-97-8</b> PEG-2 stearate
<b>68938-37-4</b> Hydrogenated vegetable oil	<b>69418-26-4</b> Harfloc® C-475	<b>73347-80-5</b> Disodium 1,4-dihydro-9,10-dihydroxyanthracene	<b>85117-49-3</b> Dodecylbenzenesulfonic acid
<b>68938-54-5</b> Silicone glycol copolymer	<b>69472-23-7</b> 2-Hexadecyl-1 octadecanol	<b>74623-31-7</b> PPG-5-buteth-7 PPG-12-buteth-16 PPG-20-buteth-30 PPG-33-buteth-45	<b>85117-50-6</b> Sodium dodecylbenzenesulfonate
<b>68951-67-7</b> C14-15 pareth-3 C14-15 pareth-4 C14-15 pareth-7 C14-15 pareth-8 C14-15 pareth-11 Imbentin-C/145/030 Imbentin-C/145/070 Imbentin-C/145/110 Imbentin-L/145/040 Imbentin-L/145/080	<b>70084-94-5</b> Hydrolyzed soy protein	<b>75138-75-9</b> Corn (Zea mays) starch Rice (Oryza sativa) starch	<b>85186-88-5</b> Sorbitan trioleate
<b>68953-19-5</b> Propylene glycol dicocoate	<b>70131-67-8</b> Dimethiconol	<b>76050-42-5</b> Carbomer	<b>85251-77-0</b> Glyceryl stearate
<b>68953-41-3</b> Magnesium tallowate	<b>70191-76-3</b> Sodium diphenyl ether disulfonate	<b>76483-21-1</b> Isopropyl phosphate Servoxyl® VPPZ 100	<b>85409-22-9</b> Benzalkonium chloride Protectol® KLC 50 Protectol® KLC 80
<b>68955-19-1</b> Sodium lauryl sulfate Texapon® ZHC Powder	<b>70592-80-2</b> Lauramine oxide	<b>78330-12-8</b> Sodium petroleum sulfonate	<b>85409-25-2</b> Coco-betaine
<b>68955-45-3</b> Ethylene distearamide	<b>70715-06-9</b> Fyrol® 51	<b>78330-21-9</b> Trideceth-6 Trideceth-7 Trideceth-9 Trideceth-10 Trideceth-12 Trideceth-14 Trideceth-15 Trycol® 5941 Volpo T10 Volpo T15	<b>85536-14-7</b> Dodecylbenzenesulfonic acid
<b>68956-68-3</b> Vegetable oil	<b>70802-40-3</b> PEG-8 stearate	<b>78491-02-8</b> Diazolidinyl urea	<b>85566-12-7</b> C8-10 alcohols Nafol® 810 D
<b>68966-38-1</b> Isostearyl hydroxyethyl imidazoline Schercozoline I	<b>70879-83-3</b> Surfonic® L610-3	<b>79070-11-4</b> Tetrafluoroethylene telomer	<b>85586-21-6</b> Methyl stearate
<b>68988-72-7</b> Propylene glycol dicaprylate/dicaprate	<b>70983-55-0</b> Alkenyl succinic anhydride Alkenyl Succinic Anhydride C1618 (ASA) ASA 100 Bersize® 6900 Bersize® 6918 LASAR™ NovaSize® ASA Pentasize 68	<b>79956-36-8</b> Mineral oil	<b>85666-92-8</b> Glyceryl stearate Glyceryl stearate SE
<b>68989-00-4</b> Benzalkonium chloride	<b>71060-72-5</b> Tricetylmonium chloride	<b>81846-81-3</b> 1,1'-Biphenyl, butenylated	<b>85736-49-8</b> PEG-12 dioleate
<b>68989-22-0</b> Zeolite synthetic	<b>71243-51-1</b> Synthetic beeswax	<b>83046-05-3</b> Mineral oil	<b>85865-69-6</b> Isobutyl stearate
<b>68990-63-6</b> Shark liver oil	<b>71786-60-2</b> Imbentin-OAM/200 PEG-20 oleamine	<b>83601-81-4</b> Carbendazim	<b>86418-55-5</b> Cithrol EGMS S/E Glycol stearate SE
<b>69005-67-8</b> Sorbitan stearate	<b>72388-18-2</b> Dodecylhexadecanol Jarcol™ I-28	<b>84562-92-5</b> Nonoxynol-3	<b>88543-32-2</b> Ethyl hydroxymethyl oleyl oxazoline
<b>69009-90-1</b> Bis(methylethyl)-1,1'-biphenyl Sure Sol®-330	<b>72401-53-7</b> Tannic acid	<b>84696-37-7</b> Rice (Oryza sativa) bran oil	<b>89415-87-2</b> 1,3-Dichloro-5-ethyl-5-methylhydantoin
<b>69011-84-3</b> Abex® EP-277	<b>72869-62-6</b> Sorbitan tristearate	<b>84836-98-6</b> Hydrogenated coconut oil	<b>90367-28-5</b> PEG-2 tallowamine PEG-20 tallowamine
<b>69013-18-9</b> Surfonic® LF-17	<b>73070-47-0</b> Trideceth-6 phosphate Trideceth-10 phosphate	<b>85116-87-6</b>	<b>90583-12-3</b> Ammonium lauryl sulfate
<b>69028-36-0</b> Hydrogenated vegetable	<b>73138-44-0</b> Butylene glycol montanate		<b>91031-31-1</b> Glycol distearate
	<b>73138-45-1</b>		<b>91031-48-0</b> Isooctyl stearate
			<b>91050-82-7</b>

- Pentaerythrityl tetrastearate
- 91078-95-4**  
Hydrogenated fish oil
- 91744-48-8**  
Hydrogenated lard glycerides
- 91744-55-7**  
Hydrogenated lard glyceride
- 91744-73-9**  
Hydrogenated palm glyceride
- 91745-04-9**  
Hydrogenated soy glycerides
- 92113-31-0**  
Hydrolyzed collagen
- 92128-50-2**  
Hydrogenated tallow glycerides
- 92265-81-1**  
Perfluoroalkyl acrylate copolymer
- 92456-96-7**  
Isopropyl tallowate
- 93050-82-9**  
Polyvinyl chloride
- 93572-53-3**  
Hydrogenated menhaden oil
- 93685-90-6**  
Lecithin
- 93686-54-5**  
Urea/formaldehyde resin, butylated
- 93778-52-0**  
2-Decyl tetradecanoic acid  
Jaric I-24
- 93841-09-9**  
Itaconic acid-bis-(3-sulfopropyl)-ester, dipotassium salt  
SPI
- 96923-04-5**  
Dodine
- 97017-52-9**  
Koster Keunen Oxidized Microcrystalline Wax  
Microcrystalline wax, oxidized
- 97026-94-0**  
Synthetic beeswax
- 97281-23-7**  
Glycol stearate
- 97281-47-5**  
Lecithin
- 97593-29-8**  
Hydrogenated palm glyceride
- 97722-02-6**  
Tall oil glycerides  
Zonester® 85
- 97953-25-8**  
Acrylic acid/sulfonic acid copolymer  
Good-Rite® K-776 Polymer
- 101975-70-6**  
Sulfated butyl oleate
- 102770-39-8**  
PEG-3 dimethacrylate
- 105268-95-9**  
Carbendazim
- 106392-12-5**  
EO/PO block polymer or copolymer  
T-Det® EPO-61  
T-Det® EPO-62L  
T-Det® EPO-64L  
T-Det® EPO-104
- 106569-82-8**  
Urea/ethanedial/formaldehyde/propionaldehyde polymer
- 107397-59-1**  
EO/PO ethylenediamine block copolymer
- 108437-62-3**  
Octoxynol-11
- 108437-63-4**  
Octoxynol-13
- 108818-88-8**  
DePHOS RA-40  
Rhodafac® BG-510
- 110225-00-8**  
Hexyl dodecanol
- 110553-27-0**  
2,4-Bis [(octylthio) methyl]-o-cresol  
Irganox® 1520 D/L
- 110720-64-4**  
EXP-61 Amine Functional Silicone Wax  
Stearyl/aminopropyl methicone copolymer
- 112926-00-8**  
San-Sil® AN 45  
San-Sil® CG-102  
San-Sil® KU 33  
Silica, amorphous  
Sipernat® 22  
Sipernat® 50S  
Sipernat® 500LS  
Sylophobic
- Sylsya 250  
Sylsya 250N  
Sylsya 310  
Sylsya 320  
Sylsya 350  
Sylsya 430  
Sylsya 440  
Sylsya 450  
Sylsya 470  
Sylsya 530  
Sylsya 540  
Sylsya 550  
Sylsya 730  
Sylsya 740  
Sylsya 770
- 112945-52-5**  
Acematt™ TS100  
Aerosil® 200  
Aerosil® K315  
Aerosil® K328  
Aerosil® K330  
Aerosil® K342  
Cab-O-Sil® EH-5  
Cab-O-Sil® H-5  
Cab-O-Sil® HS-5  
Cab-O-Sil® L-90  
Cab-O-Sil® LM-130  
Cab-O-Sil® LM-150  
Cab-O-Sil® LM-150D  
Cab-O-Sil® M-5  
Cab-O-Sil® M-5P  
Cab-O-Sil® M-7D  
Cab-O-Sil® MS-75D  
Cab-O-Sil® PTG  
Silica, fumed  
Wacker HDK® N20
- 113221-69-5**  
Maleic anhydride, polymer with ethyl acrylate and vinyl acetate, hydrolyzed
- 115340-77-7**  
Polyamide-ethyleneimine-epichlorohydrin resin
- 118632-18-1**  
Sodium poly (isopropenylphosphonate)
- 119438-10-7**  
Ralufon® N9  
Ralufon® N20-90
- 119481-70-8**  
Ralufon® F4-I
- 119481-71-9**  
Ralufon® F5-13I  
Ralufon® F7-13  
Ralufon® F11-13
- 120478-49-1**  
Ralufon® NAPE 14-90
- 120962-03-0**  
Rapeseed (Brassica campestris) oil
- 123237-14-9**  
Ross Wax #160  
Synthetic wax
- 127036-24-2**  
Genapol® UD-070  
Genapol® UD-079  
Genapol® UD-080  
Genapol® UD-110  
Imbentin-U/030  
Imbentin-U/050  
Imbentin-U/060  
Imbentin-U/070  
Imbentin-U/080  
Imbentin-U/100  
Undeceth-3  
Undeceth-5  
Undeceth-6  
Undeceth-7  
Undeceth-8  
Undeceth-10  
Undeceth-11
- 134141-38-1**  
PEG-4 dioleate
- 136097-95-5**  
Candelilla synthetic  
Candelilla Wax SP 24A  
Candelilla Wax SP 803  
Koster Keunen Synthetic Candelilla
- 152143-20-9**  
Melamine-formaldehyde resin, etherified acrylated
- 154906-10-2**  
Ralufon® EA 15-90
- 156436-88-3**  
Sodium polymethacrylate
- 156559-16-9**  
Good-Rite® K-765 Polymer  
Good-Rite® K-766 Polymer  
Sodium polymethacrylate
- 163149-29-9**  
C8, C12 olefin polymer, hydrogenated
- 193098-40-7**  
Cyasorb® UV-3529  
1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidiny)-, polymers with morpholine-2,4,6-trichloro-1,3,5-triazine
- 617788-68-9**  
Actrasol 6092  
Sulfated rapeseed oil
- 678213-23-0**  
Trideceth-2
- 977053-96-5**  
Glyceryl stearate SE